

---

**LoGoWater: Towards effective involvement of local government in Integrated Water Resources Management (IWRM) in river basins of the Southern African Development Community (SADC) region.**

---

**Literature review: Local government and integrated water resources management (Draft)**



By: Stef Smits and John Butterworth  
[smits@irc.nl](mailto:smits@irc.nl) / [butterworth@irc.nl](mailto:butterworth@irc.nl)

IRC International Water and Sanitation Centre, Delft, the Netherlands

July 2005

## Executive summary

To be completed (English, Portuguese?) !

This literature review is about the role of local government in water resources management and how this role is changing in response to a series of policy and institutional changes affecting the way that the water sector functions and how government, especially at the local level, is organised. The report aims to capture experiences worldwide, but also makes specific reference to southern Africa and the EU in accordance with the focus of the LoGo Water project and gives more emphasis to development issues in the south. The review is complimented by five case studies that were prepared specifically for this report focusing on Bolivia, the Netherlands, India, and Egypt (still to be added).

Some very tentative conclusions are suggested:

1. Local governments can follow two main approaches towards implementing IWRM:
  1. engaging in new IWRM institutions such as catchment-level authorities and
  2. implementing IWRM principles through local actions.
- These two approaches are not mutually exclusive and in fact, in most situations it will make sense for local governments to follow both approaches simultaneously. One hypothesis is that a twin-track approach based upon local government engagement in catchment level institutions combined with the implementation of local level IWRM-supporting actions by local government will be the most effective.
2. Decentralisation (if you are a national water manager looking down) or centralisation (if you are a traditional water manager looking up) of water resources management function to catchment-level authorities creates a new political space or territory for contestation over natural resources, investment priorities etc. Local governments or municipalities have a key role to play in this process:
  1. ensuring that basic human needs and water and sanitation services in particular are well managed (local governments often have a key role here), and
  2. encouraging accountability of new catchment-level authorities (local governments represent a constituency and may be democratically elected).
3. Whether local governments will play a key and beneficial role in catchment-level authorities and water resources management will be strongly influenced by context (physical environment, nature of local governments, character of individual catchment-level authorities etc). Lessons from the literature suggest that local level politics are a key determinant in whether local governments play a beneficial role in such types of processes, but also that interactions with civil society and private sector/ economic interests may be just as important in ensuring the accountability of catchment-level authorities.

# Table of contents

<i>Acknowledgements</i>	<i>iv</i>
<i>Abbreviations and acronyms</i>	<i>v</i>
<b>1 Introduction</b>	<b>1</b>
<b>1.1 The LoGo Water project and this report</b>	<b>1</b>
<b>1.2 What is local government?</b>	<b>1</b>
<b>1.3 What is water resources management?</b>	<b>2</b>
<b>1.4 What is driving change?</b>	<b>2</b>
Decentralisation	3
Cooperative governance	3
Water sector reforms	4
Policies responding to these changes	5
<b>2 An overview of local government and water management</b>	<b>7</b>
<b>2.1 Water services delivery</b>	<b>10</b>
Local government involvement in water services in European cities	10
Local government involvement in rural water supply in the south	10
Different roles in water services	10
Links between water and sanitation services and IWRM	12
<b>2.2 Planning</b>	<b>13</b>
Integrated planning frameworks	13
<b>2.3 Environmental management</b>	<b>14</b>
<b>2.4 Some problems arising from sub-sectoral approaches</b>	<b>15</b>
Water conflicts	15
Household water supplies that only meet partial demands	15
Poor management of water and sanitation services	15
Failures to reuse wastewater	16
<b>3 Case studies from Latin America, Europe and Asia</b>	<b>17</b>
<b>3.1 Case study 1: Local government, water resources and water services in Bolivia (by Rocio Bustamante, Centro-Agua)</b>	<b>17</b>
<b>3.2 Case study 2: Local-level water governance and some consequences of political reforms in Andhra Pradesh, India (by Charles Batchelor)</b>	<b>20</b>
<b>3.3 Case study 3: Dealing with diversity in local-level integrated water resource management, the Netherlands (Jeroen Warner, WUR)</b>	<b>22</b>
<b>4 Models for local government engagement in IWRM processes</b>	<b>25</b>
<b>4.1 Engaging in new IWRM institutions</b>	<b>25</b>
Models for decentralisation of water resources management	26
Catchment-level institutions in southern Africa	30
Key issues associated with institutional models	32
<b>4.2 Implementing IWRM principles through local actions</b>	<b>33</b>
Examples of principle-based approaches	33
<b>5 A reality check: challenges faced by local government</b>	<b>38</b>
<b>6 Conclusions</b>	<b>39</b>

7	<i>Annotated bibliography</i>	40
8	<i>References</i>	45

## Acknowledgements

Case studies in section 3 were contributed by:

- Charles Batchelor (Water Resources Management Ltd, United Kingdom)
- Rocío Bustamante (Centro AGUA, Bolivia)
- Hazem Fahmy (CARE, Egypt)
- Leyla Ozay (University of Twente & IRC, the Netherlands)
- Jeroen Warner (Wageningen University, the Netherlands)

To be completed.

## Abbreviations and acronyms

BHNR	Basic Human Needs Reserve
CAR	Coporación Autónoma Regional (Colombia)
CBO	Community Based Organisation
CC	Catchment Council
CMA	Catchment Management Agency
CNA	Comisión Nacional de Aguas (México)
DGA	Dirección General de Aguas (Chile)
DWAF	Department of Water Affairs and Forestry (South Africa)
EC	European Commission
ER	Ecological Reserve
EU	European Union
HCES	Household Centred Environmental Sanitation
ICLEI	Local Governments for Sustainability
IDP	Integrated Development Plan
IRC	International Water and Sanitation Centre
IWRM	Integrated Water Resources Management
LoGo Water	Local Government and Integrated Water Resources Management in Southern Africa
MDG	Millennium Development Goal
MinAmbiente	Ministerio de Ambiente, Vivienda y Desarrollo Territorial (Colombia)
MRRWD	Ministry of Rural Resources and Water Development (Zimbabwe)
MUS	Multiple Use Systems
NGO	Non-Governmental Organisation
NWRS	National Water Resources Strategy
RDC	Rural District Council
SADC	Southern Africa Development Community
SALGA	South Africa Local Government Association
SCC	Sub-Catchment Council
WASH	Water, Sanitation and Hygiene
<i>Waterschap</i>	Water Board (the Netherlands)
WES-WG	Water and Environmental Sanitation Working Group
WMA	Water Management Area
WSA	Water Services Authority
WSDP	Water Services Development Plan
WSP	Water Services Provider
ZINWA	Zimbabwe National Water Authority (Zimbabwe)

# 1 Introduction

This literature review is about the role of local government in water resources management and how this role is changing in response to a series of policy and institutional changes affecting the way the water sector functions and how government, especially at the local level, is organised.

## 1.1 *The LoGo Water project and this report*

The LoGo Water project is an EC supported research project to support local governments to effectively engage with Integrated Water Resources Management (IWRM), focusing on the Limpopo river basin in southern Africa. Through collaboration between southern African and European research institutions, resource centres and local governments, analysis and case studies will lead to the development of guidelines, policy recommendations and action plans involving eight associated local governments in South Africa, Botswana, Zimbabwe and Mozambique.

This literature review has been carried out in order to bring together existing knowledge on the role of local government in water resources management. The literature review draws upon both formal literature (journals, books, publications) and grey literature (unpublished project documents, internal reports). Five case studies were also contributed specifically for this report focusing on Bolivia, the Netherlands, India, and Egypt (still to be added). The report aims to capture lessons worldwide, but also makes specific reference to southern Africa and the EU in accordance with the focus of the LoGo Water project and gives more emphasis to development issues in the south. More detailed analyses from both regions (the Limpopo in southern Africa, the Ebro, Rhine and Danube in Europe) will be developed in future work within the LOGO water project. There are particularly interesting contributions from Latin America, which has a longer tradition of decentralisation, and where significant work has been done on the issue of the role of local government in relation to water resources management (e.g. Jouravlev, 2003). For such key reference documents extended summaries are included in an annotated bibliography at the end of this review.

The review begins by examining some of the factors driving the changes that are currently affecting local government and water sector institutions (the remainder of this first section). Section 2 then takes a historical and functional perspective to examine the roles of local government in relation to three main areas: water services, development planning and environmental management. For each of these areas, current practices, some strengths and some limitations are considered. Chapter 3 then introduces some short case studies. Taken together these show the imperative for local government's engagement with IWRM. Chapter 4 then elaborates some different ways in which local governments may go about implementation of IWRM. Finally, a reality check is made in Chapter 5 (to be added), looking at some general limitations to the work of local government which are much broader than water management *per se*.

## 1.2 *What is local government?*

We use the term local government in this report to refer to the lowest tier of government at which one finds both elected officials (e.g. councillors) and full-time civil-servants. The name for that

sphere of government differs from country to country, for example we find municipalities, governorates, district councils or local councils in parts of the English-speaking world. Often there are multiple vertical tiers of “local” government at different scales: for example provinces at a larger scale and municipalities at the more local level in South Africa. In India, we also find elected officials and civil-servants at village level as well as at district and sub-district levels. In some cases, such as the Netherlands, local government may also be horizontal divided. As we will see later, the *waterschappen* in the Netherlands have their own elected officials and professional staff who focus on water functions and are separate to municipalities (Uijterlinde et al., 2003). Local government typically has both a legislative branch (e.g. a council of elected officers), and an executive branch of officials or civil servants.

### **1.3 What is water resources management?**

Water resources management is the process of decision-making on assessment, allocation, use, regulation, monitoring and development of surface and underground water sources (based on EC, 1998). Jouravlev (2003) distinguishes the following specific tasks in water resources management:

- application of laws
- water allocation
- pollution control
- identification, evaluation and monitoring of available resources in terms of quantity, quality
- registration and control of users and uses
- elaboration of water management plans
- project evaluation
- establishment of protected areas
- conflict management

Water resources management tasks and responsibilities are normally assigned to a government entity, which does not have a specific interest in a water using sector, and is not a water user. Jouravlev (2003) gives a number of other criteria that a water resources management authority should adhere in order to effectively fulfil its role:

- it is based at a sufficiently high hierarchical level within the government system
- it combines and consolidates the different tasks mentioned above within the same entity
- has a real and effective administrative capacity
- enjoys effective autonomy

### **1.4 What is driving change?**

As we will see in the following chapter of this report, local government has a long and varied history of involvement in management of parts of the water cycle. However, the current period is a time of particularly dynamic change for both local government and the water sector, prompting a reassessment of the role of local government in water management. Before examining these interactions in detail, let us consider the policies, factors and trends that are driving changes. These include:

- Decentralisation
- Cooperative governance
- Water sector reform including integrated water resources management



## **Decentralisation**

Decentralisation has become a leading paradigm in development over the last couple of decades with most developing countries engaged in reforms to devolve functions and responsibilities to local government (Helmsing, 2002). Decentralisation can be defined as the devolution by central (i.e. national) government of specific functions, with all of the administrative, political and economic attributes that these entail, to local governments (democratically elected or not) which are independent of the centre within a legally delimited geographic and functional domain (Faguet, 2003).

The main argument driving such decentralisation processes has been that shifting decision making and finances from central to local government leads to better delivery of services assessed in terms of their fit with local needs, quality and unit cost (Helmsing, 2002). However, there is little consensus within the literature on whether decentralisation has actually been effective. A positive case is presented by Faguet (2003) who argues that in Bolivia decentralisation has effectively put money in the hands of poor municipalities that have been able to better meet the needs of their constituency than the central state (see summary in section 7).

Opponents of decentralisation argue that local governments are too susceptible to elite capture, and lacking in capacities and resources to provide efficient and effective services (Faguet, 2003). In some places, decentralisation has created more dependency than self-reliance, and it may have suppressed civil society initiatives (Helmsing, 2001). In societies with traditional community-level institutions the empowerment of local government may also represent centralisation from the point of view of citizens. Toulmin and Gueye (2003) argue that in West Africa the establishment of local councils with powers over land and other resources represented a centralization of power away from village hands. There, setting up a new local government structure has added to the confusion created by multiple and contested sources of authority, especially between local chiefs, and the elected district assembly (Toulmin and Gueye, 2003). In the water sector, traditional African institutions and laws at the community-level are also widely ignored as potentially effective governance structures (van Koppen et al., 2005)

Decentralisation should however not be seen as only about local government (Helmsing, 2001). Decentralisation also often involves transfers to markets and communities. In the water sector for example, private sector service delivery or outsourcing of aspects of water and sanitation services is widespread (although most water services are still provided by public authorities), and community water management where users play the main role in operation and management of systems is a dominant paradigm in the provision of rural water supply.

## **Cooperative governance**

Effects to coordinate, joined up government, achieve convergence, integration

In the water sector, for example, some argue in favour of systems of distributed governance, being the mix of formal and informal institutions that are in place for managing water resources, emphasising the link between communities and local government entities (Rogers and Hall, 2003).

## Water sector reforms

Current policy drives and reforms in the water sector include:

- Expanding water and sanitation coverage in areas with high levels of unserved people in order to meet the Millennium Development Goals e.g. many rural areas within southern Africa. The dominant model to achieve this is community management which aims to encourage sustainability through community involvement at all stages but especially operation and maintenance of systems.
- Integrated water resources management focusing on the establishment of catchment or river basin level institutions to plan, allocate and regulate the use of surface and groundwater resources

### *Integrated water resources management*

Integrated Water Resources Management (IWRM) has emerged during recent years as a response to a perceived water crisis, to a large extent driven by the environmental movements and interests that emerged in the 1980s and 1990s. The facts are relatively well known and rehearsed: that the proportion of the world's population living in countries of significant water stress will increase from approximately 34% in 1995 to 63% in 2025; that only a small percentage of wastewater is treated before it is disposed back into fresh water bodies; that in some areas water resources are already over-abstracted, leading to severe, and sometimes irreversible, impacts on eco-systems; that 1.1 billion people lack access to safe drinking water, and 2.6 billion people do not have access to safe sanitation (Moriarty and Butterworth, 2004; Scott et al., 2004; WHO/UNICEF, 2005). However it is increasingly realised that the heart of the water crisis is poor management or governance. With careful management and wise selection of priorities there is no reason that even in the driest parts of the world there should not be sufficient water to go around, and viable solutions do exist to many of the problems faced.

Despite the growing water crisis, in many parts of the world water utilization is still under-developed. Even in water scarce countries, there is sometimes scope for more and better development of water resources. A number of examples are included in Box 1.

IWRM seeks to tackle some of the root causes of the management crisis, namely the inefficiencies and conflicts that arise from un-coordinated development and use of water resources. IWRM is being promoted by many organisations, implemented in some areas and piloted in others. A huge effort involving the reform of water laws, institutions and capacity building is underway based upon the IWRM 'recipe'. In most southern African countries new laws have been enacted to develop catchment level authorities to plan and manage water resources, and the EC water framework directive now requires

#### *Box 1: Water development in southern Africa*

**Untapped groundwater potential in South Africa:** A case study in the "closed" Sand River catchment in the dry *lowveld* region showed that whereas surface water resources were over-used and that the Environmental Reserve could not be met for most the time, groundwater resources were hugely under-developed. About 10% of the sustainably abstractable water could actually be abstracted (Smits et al., 2004).

**Wet drought in Zimbabwe:** In the Mzingwane Catchment in Zimbabwe, 83% of its total annual potential water yield is captured and stored, whereas it only puts some 10% of this total water yield is used. This paradox, where it happens that some Districts have big dams full of water while the population is suffering from hunger -due to lack of water utilization infrastructure- is generally referred to as a 'wet drought'. Potential irrigators are still overlooked and there are no appropriate strategies to involve them in water development. The same applies to the important category of garden irrigation, which seems heavily underestimated by not receiving support through the formal water institution (Verweij and Knegt, 2002).

European states to adopt catchment level planning based upon IWRM principles.

There are many definitions of IWRM, but the most commonly used is that “*IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*” (GWP, 2000). IWRM means a move away from traditional sub-sector based approaches (WATSAN, irrigation, industry, etc) to a more holistic or integrated approach to water management based upon a set of agreed key principles. Taken together, the principles offer a framework for analysing, and subsequently managing multiple uses of water in situations of increasing competition and conflict and where water resources are scarce (or polluted).

Three key concepts which in one form or another are present in all definitions of IWRM are: equity, efficiency and sustainability. IWRM aims to:

- promote more equitable access to water resources and the benefits that are derived from water in order to tackle poverty.
- ensure that scarce water is used efficiently and for the greatest benefit of the greatest number of people, and
- achieve more sustainable utilisation of water, including for a better environment.

Despite, the many commitments towards IWRM, its actual implementation continues to be a challenge, as it implies a number of difficulties:

- Integration across levels; IWRM tries to deal explicitly with externalities caused by certain water management practices. However, what seems to be positive at local level, may in fact cause negative externalities at higher levels of integration (see Box 2).
- Integration across sectors; IWRM is about allocating more equitably and sustainably across sectors in an integrated way. In some cases, it may imply hard decisions, in which some sectors loose and others win. It is not always about win-win situations, but about managing trade-offs between sectors.
- Improving water governance: to add.

*Box 2: Externalities at different levels*

Lining irrigation canals to reduce leakages from an irrigation canal:

- Saves water at irrigation system level
- Does not save water at catchment or aquifer level
- May reduce conflicts between head- and tail-enders at irrigation canal level
- Can lower shallow groundwater levels, affecting adjacent drinking water wells at local level

**Policies responding to these changes**

To add

**Table 1: Role of local government in relation to water management**

Document/statement	What is says about local government	Reference
WASH Forum in Dakar	placing local government at the centre of WASH initiatives and building capacity and providing them the resources to fulfil its responsibility for providing sustainable water and sanitation services,	<a href="http://www.wsscc.org/dataweb.cfm?code=516">http://www.wsscc.org/dataweb.cfm?code=516</a>
ICLEI Local Government Water Code (ICLEI, 2001)	1. Access to clean and affordable drinking water is a fundamental right. As such, governments have an obligation to ensure water and sanitation services for all.	<a href="http://www.iclei.org/water/icleiwatercode.html">http://www.iclei.org/water/icleiwatercode.html</a>

	<p>2. Water must be governed as a common good.</p> <p>3. Water must be protected as the ecological foundation of life.</p> <p>4. Water must be managed as a finite economic resource.</p> <p>5. Water must be preserved as a shared cultural asset.</p>	
Agenda 21	To complete	
Vision 21		
Johannesburg WSSD		
MDGs		

## **2 An overview of local government and water management**

Jouravlev (2003) distinguishes three main functional areas of local government: 1) local public services provision (such as water and sanitation, stormwater management, solid waste management, electrification, local roads, market places, green areas and parks), 2) social services provision, (such as health, education, social security, sports) and 3) planning, promotion of development and control (which would include spatial planning, employment creation, public order, regulation and management of control over use of natural resources). The first and third of these areas clearly have direct relationships with water, the second is also indirectly linked given the strong interrelationships between water supply, access to sanitation, hygiene behaviour and health for example.

Mazibuko and Pegram (2004) identified three relatively similar interfaces between local government and Catchment Management Agencies (new institutions currently being constructed to manage water resources in a catchment basis) in South Africa: 1) planning (specifically sector plans on spatial planning and water services development plans that are both part of an integrated development planning processes); 2) environmental management which includes responsibilities for environmental planning; and 3) service delivery which includes water supply, wastewater discharge, and stormwater management.

Based upon the categories identified by Mazibuko and Pegram (2004) in this section report we explore in more detail the direct and indirect linkages between local government activities and water.

**Table 2: Interfaces between local government and water management in different countries**

Country	Water services delivery	Planning	Environmental management
<i>Southern Africa</i>			
South Africa	Water Services Authorities which regulate the provision of water services are usually local municipalities. Local government may also be a Water Services provider which is the organisation actually delivering services to the consumer, or this may be done by a private concessionaire or a community-based organisation. Stormwater? Wastewater?	Municipalities are responsible for Integrated Development Planning which includes spatial planning (with potential impacts on water needs and pollution) and development of water services development plans (WSDPs). WSDPs signal the quantity and quality needs and impacts of water and sanitation providers, and have to be linked to catchment management plans which also consider other users and polluters.	The SA constitution requires LG to promote a safe and healthy environment. Environmental management plans may address pollution control, waste management, litter, land use management, and environmental health issues and with WSDPs are critical to catchment level water management. Other activities include contributing to environmental impact assessments of high impact developments.
Zimbabwe			
Mozambique			
Botswana			
<i>Europe</i>			
The Netherlands	Municipalities and provinces sit on the boards of public limited water supply companies.		Water Boards as separate form of local government and are responsible for drainage and irrigation water supply.
Germany			
Spain			
<i>Elsewhere</i>			
Bolivia	Yes, Municipalities are responsible, but others may actually provide services	Yes?	
Colombia	Municipalities have an authority function and must decide upon the provision function, which can be internal or external. Also responsible for flood protection and stormwater management. Provincial authorities	Both Municipalities as provincial authorities as well as Autonomous Regional Corporations play a role in this	Autonomous Regional Corporations are responsible. Only in major cities, municipal authorities have this function.

	are responsible for schools, but often there is a lack of clarity on responsibility for school sanitation		
--	---	--	--

## **2.1 Water services delivery**

Water services provision refers to the provision of potable water supply and sanitation services also often termed the WATSAN or domestic water and sanitation sector. There is a long tradition of local government involvement in the provision of water services, especially in urban areas.

### **Local government involvement in water services in European cities**

Juuti & Katko (2005 – see section 7 for summary) propose a typology of water services management paradigms which illustrates how local government roles in water services have changed over time in European cities:

1. “Early trials in biggest urban centres with private concessions from the early 1800s to the late 1800s;
2. Municipalities assuming responsibility between the mid-1800s and early 1900s. Somewhat later in France concessions were replaced by management contracts or affermage;
3. Technical expansion and development of the established systems, from the early 1900s to the 1980s (except for WWI and II) - from narrow to wide coverage and improved water and wastewater treatment technologies together with stricter requirements. Municipal or inter-municipal systems were the major option, while regionalisation and river basin became the basis for water services in UK. In France private operators have largely occupied the market;
4. Reinvention of privatisation and private operational contracts in the 1990s in some countries and cities while the vast majority of municipal-owned systems improving their performance and continuing buying services, equipment and goods from the private sector;
5. New diversity culture of water management of the 21st century in terms of size, roles, technological solutions, alternative options within the wider EU framework while recognising the need of local traditions and conditions.”

Arguably, decentralised water services management has a longer history in Latin America than in Africa. Rosenszweig (2001) give examples of decentralised WASH services in Latin America. Include?

### **Local government involvement in rural water supply in the south**

Traditionally, local government has focused on the main town in a municipal area, but increasingly, rural areas have been demarcated as pertaining to a certain local government area. In rural areas therefore, and because it is increasingly recognised that communities cannot be left alone to manage water systems even under the community management model, local government is being recognised as a key actor in the provision of these services and in assuring their sustainability (Moriarty and Schouten, 2004).

### **Different roles in water services**

When analysing the role of local government in WASH, there are a number of different functions or roles that can be distinguished:

- Authority (regulating)
- Service provider (delivering services)
- Financing and investment



- Back-up support

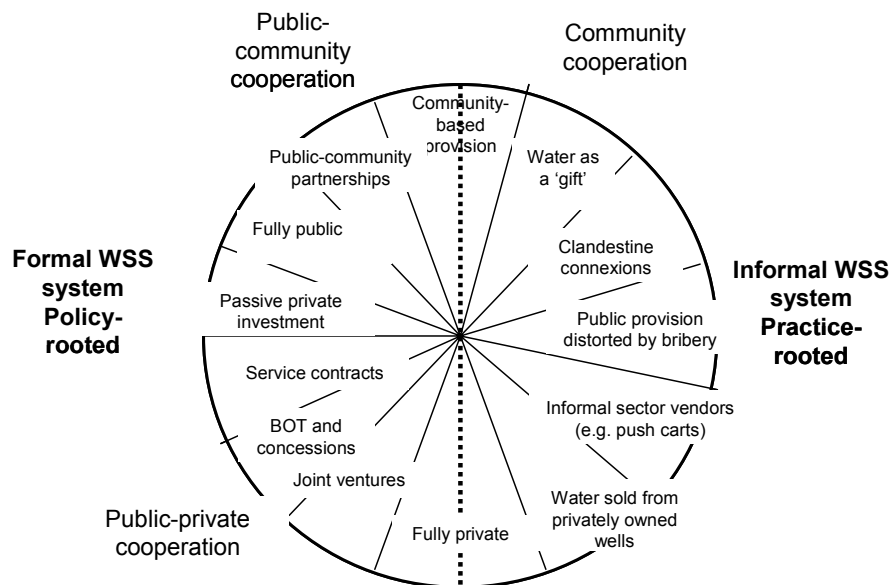
*Separation between regulation and water services provision*

The authority function is a critical oversight function which may reside with a national agency, a government ministry or local government. The WASH authority function comes down to the final responsibility in guaranteeing access to the service to the constituency. This is different from the actual provision of the service. In many countries, this difference between authority and provider is being more clearly made (eg. South Africa, see Box 3). But many other countries have similar arrangements, including Colombia, others?.

**Box 3: Water services authorities and water services providers in South Africa**  
 In South Africa, the Water Services Act defines Water Services Authorities (WSAs) and Water Services Providers (WSPs) (RSA, 1997). Water Services Authorities are responsible for planning, ensuring access to, and regulating provision of water services<sup>1</sup> within their area of jurisdiction. They may provide the services themselves or appoint an external water services provider, which is defined as an organisations which has a contract with a WSA to sell water, accept wastewater for treatment and/or assumes the operational responsibility for providing water services to the consumer. In South Africa, the WSP role can be fulfilled by Municipalities themselves, by community-based organisations, by Municipal-owned utilities, by water boards or by regional public utilities or by the private sector (for more details, see DWAF, 2003).

*Models of water services delivery*

There are a wide range of different models of provision, for example with differing degrees of public or private involvement and differing degrees of community involvement. Figure 1 illustrates some of these options based upon studies of peri-urban areas by Allen et al (2004).



**Figure 1: Types of water and sanitation service provision in peri-urban areas (Source: Allen et al., 2004)**

Helmsing, (2001) argues that rather than engaging in direct intervention and delivering (public) services, government can facilitate and regulate the framework in which other actors (or service providers) can make their most effective contribution. There are three dimensions of enablement: 1) legal enablement (providing the legal framework that allows others to provide services), 2)

actual enablement (whether others have the capacities to provide services), and 3) enabling planning (referring to planning mechanisms in which service providers participate).

#### *Financing and implementing new services*

The water services authority function in many cases puts the responsibility on local government to provide services to its entire area of jurisdiction. This implies in many cases the planning and financing of new services to those who have not been served yet. It has been hypothesised that with increasing levels of decentralisation of responsibility and resources to local government, they would prioritise further development of water and sanitation services. Few studies have examined whether local government indeed invest more or less in water and sanitation than central government. One of the few examples is in Bolivia. Faguet (2003) analysed total central government investment in a number of sectors in the years up to decentralisation, and total local government investment in the same sectors just after decentralisation. It showed that central government investment priorities are more with (large-scale) economic development, than with social sectors such as water, sanitation and education. So, decentralisation has indeed meant increased investments in water and sanitation there.

#### *Support to existing services*

A final role for local government is in institutional support to communities who are managing the services on their own. Especially, for rural areas there is a recognition that community-management often is the most appropriate service provision modality. However, they cannot be left alone, and require back-up support (Lockwood, 2004). In many instances, the primary actor responsible for long-term support will be the local government, but in other cases specialised centralised agencies, local NGOs, or associations of water users may take on these tasks. For an overview of different mechanisms and experiences with that, see Lockwood (2002).

### **Links between water and sanitation services and IWRM**

Moriarty & Butterworth (2004) review water resources management issues in water and sanitation service delivery with a focus on the south. In essence water and sanitation services interacts with water resources management at two points – inlets and outlets. While IWRM principles can be of great use in ensuring good practice within a domestic water supply system (for example when applied to decentralised management), IWRM is most obvious at those points where water for domestic use (and sewage disposal) directly interacts with other uses and the environment. The classic domestic water cycle has the following stages: abstraction, water treatment, supply to households and, where waterborne sewerage exists, removal from the household through sewers, wastewater treatment and discharge to a water body. In this cycle the most critical elements from the IWRM viewpoint are the abstraction from the source (quantity, quality, and reliability issues), and discharge into watercourses (quantity and quality issues) or, indeed, leakage to groundwater.

Despite these linkages, the planning of water services is often done without considering the implications on water resources. For example in South Africa, Pollard and du Toit (2005) argue that so far local government has had a very narrow focus of responsibility within water resources management, on water supply only, which is not planned within the water resources management framework of the catchment.

**Stormwater management and flood protection**  
**Solid waste management**

### *Box ? : Sugar venture not so sweet*

Kruger National Park officials fear that a new billion-rand sugar project on its borders will dry up rivers in the world-renowned park. The Kruger Park is just one of several concerned parties warning that water-intensive sugar crops will place a heavy burden on the drought-stricken Limpopo province. The proposed project is also complicating relations between South Africa and Mozambique, because the rivers that run through the Kruger Park supply water to the neighbouring country.

The developers of the Blyde river sugar project near Hoedspruit in Limpopo promise it will relieve grinding poverty in the area by creating 7 000 jobs. They also say it will give the region an economic boost by empowering black farmers. "This is one of Limpopo's three key development projects." Premier Ngoako Ramatlodi confirmed his commitment to the venture in a state-of-the-province presentation in February. He said it could generate more than R240-million a year.

Sharon Pollard, water resource manager for the Association for Water and Rural Development (Award), has been working in the river catchment areas of Limpopo for more than a decade. "With the little water available here, you have to ask whether this is the best way water can be used." Derek du Toit, a community consultant working in Hoedspruit, said farmers in the Blyde river catchment areas are already fighting over the allocation of water. "There was a big squabble recently because some farmers were apparently using more than their fair share. The sugar cane will only put more pressure on the water supply," he said. "The water resources available have to be checked and cleared with the Department of Water Affairs and Forestry before such a project can be considered viable". Spokesperson for the Department of Water Affairs and Forestry Temba Khumalo and Limpopo water affairs coordinator Avashoni Magada told the Mail & Guardian last week they knew nothing about the proposed Hoedspruit project.

Source: Mail and Guardian online (2003)

## **2.2 Planning**

This functional area includes a number of activities:

- planning of local economic development activities
- spatial planning
- integration of different development plans

Local government plays a role in promoting and planning the development of economic activities at local level. It may stimulate, for example, agricultural development, industries or tourism. However, when planning for economic and development activities, often water resources are not sufficiently considered. Many of the economic sectors have very specific water requirements: agriculture will require irrigation water of a specific quantity at certain times of the year; tourism development may imply that water bodies are in a "natural" state, without pollution, but at the same time have good access facilities. Often, not all water development goals can be achieved at the same time, and trade-offs need to be managed. Difficult choices may have to be made between economic development, ecological concerns and service delivery, as the Box with some cuts from an article from a South African newspaper shows. In short, it implies that in planning economic development of its area of jurisdiction local government will need to consider all kinds of water resources implications.

### **Integrated planning frameworks**

Local government is the place where a different development plans need to come together, be checked regarding their internal consistency and integrated. Different tools may exist, such as integrated development, spatial planning or town and country planning. Within a local government area there will be many interdependencies between water management and water use. Bringing those together is often done through instruments such as integrated development planning and spatial. This will require:

- bringing together various municipal departments or sections, such as water and waste management, health, engineering, town and country planning
- looking for integration between the rural and urban parts of municipal areas

Good examples of that exist, such as in Cajamarca – Peru, see Box 2.

In Europe progress is being made in separating stormwater from wastewater. Previously, sewer systems for both types of water were designed and implemented together. This approach led to huge volumes of water entering into sewers and treatment plants. New insights have shown that it is cheaper to separate

these wastewater flows, and only treat the real wastewater. Stormwater, as it is hardly polluted, can safely be disposed directly into water bodies, or infiltrated into groundwater. Municipalities in Flanders (Belgium) have a number of instruments at their disposal for de-connecting these water flows, such as establishing infiltration zones, separating sewer systems, subsidies for housing projects with rainwater harvesting components de-canalizing streams and management of green zones and parks (Van Gils and Hanegreefs, 2003). They are encouraged to use these planning instruments in an integrated way. In the Municipality of Bierbeek, a plan has been developed to promote rainwater harvesting and infiltration (instead of disposing it into the sewers) through a carrot-and-stick approaches of subsidies and municipal by-laws. The cases in Flanders show that Municipalities can promote integrated approaches to water management within their own area of mandate.

But the reality is that often the activities within local government’s own institutions require much more integrated planning. One department’s activities may adversely affect another. For example, a city’s water source is frequently the recipient of the city’s wastewater, or the lixiviation of a city’s waste dump site, impacting subsequently on the costs of treating drinking water. Municipal programmes to boost employment through economic activities, which turn out to be water-intensive, may contradict with other municipal initiatives to promote water savings. ICLEI (2005) calls upon local governments to coordinate their own institutions activities better.

### **2.3 Environmental management**

Local government’s role in environmental management relates to creating and maintaining a safe and health local environment, and in some cases to carrying out some specific executive tasks of environmental management. Most countries have higher level environmental authorities with final authority over natural resources management.

To complete

#### *Box – integrated planning in Cajamarca – Peru*

In response to environmental degradation and demographic changes, the municipality of Cajamarca decided to play a stronger role in planning; it implemented a participatory regional development planning process designed to co-ordinate development activities and to improve the delivery of community services. The creation of the new planning process has required fundamental organisational and management changes, including the decentralisation of the local administrative structure and the establishment of a more democratic planning process. The process has resulted in the approval of a preliminary long-term Sustainable Development Plan. Local governments are ideally situated to design partnership structures. This can maximise resources and help allocate them more fairly. However, the local council must have the political will to transfer power and resources to individual farmers, citizens, and their community organisations. IWRM requires the integrated action of a wide variety of actors involved in water management. By reaching out to involve stakeholders in a catchment area beyond its municipal boundaries, Cajamarca demonstrates the importance of catchment based management to sustainable municipal water management strategies.

Source: GWP (2005)

## 2.4 Some problems arising from sub-sectoral approaches

### Water conflicts

To complete. See box.

### Household water supplies that only meet partial demands

Next to water for domestic uses, (drinking, washing, cooking and sanitation) people require water for productive needs (vegetable gardening, livestock, brewing beer, brick making, etc). Supplying water for these different has the potential can contribute to poverty alleviation. However, formal domestic water services often fail to address these different water needs in an integrated way. They typically focus only on the health benefits and not on the other livelihood impacts water can bring. The discrepancy between the needs of people and the design and management of water services leads to a number of problems, particularly by failing to capitalize on the benefits that catering to multiple needs can bring, and sometimes jeopardizing the sustainability of water services (Moriarty et al., 2004).

The root cause for this seemingly paradoxical behaviour, of providing water supply services that only partially meet people's needs, lies in the division of the water sector into discrete sub-sectors: drinking water and sanitation, irrigation, water and environment, etc. These sub-sectors hardly ever work together, coordinate their actions or try to address issues relevant to all of them in an integrated way. Traditionally, the drinking water sector has focussed exclusively on health benefits, and hence hardly ever considered the productive uses of water. Equally, the irrigation sector is concerned with water only for crop production only. Water requirements for cattle are often not even considered by irrigation engineers (Smits, 2005). These can be different institutions such as local authorities and the irrigation department, but can also be falling under the same municipal organisation..

### Poor management of water and sanitation services

It is not only the physical provision of services, but also the management of services that has generated problems – especially the disconnection between water and sanitation services. In many places,

#### *Box ? : livelihoods in conflict in Bolivia*

In Tarata disputes came to a head in 2002 over the rights to use water for urban agriculture from a multiple purpose water supply system (Laka Laka). The Laka Laka dam was planned to provide water for a large irrigation scheme and to meet the basic needs of domestic users in the town. Almost 5% of the estimated reservoir yield (or 10% of the storage capacity) was originally allocated for urban water supply, but this could not be used for drinking water supply due to the poor water quality and high costs of treatment. The urban community organized to utilize this water, on the basis of advice they received from local government supporting their proposals, for irrigation of 'huertas' (small plots close to homesteads) instead. An organization was formed to develop the project and infrastructure to supply this water to *huertas*. When the urban population demanded the right to also use water for cultivation around homesteads, there were violent conflicts with farmers from the irrigation scheme who were determined to protect their irrigation water rights.

Source: Bustamante et al., 2004

#### *Box ? : only providing water supply, no sanitation services*

In the small town of Itagua (Paraguay), a community water board (*junta*) is managing quite successfully the water supply service. As a result, a neighbouring lake has become polluted by septic tank waste which is dumped by private tanker operators, and leakages from septic tanks and latrines. However, getting involved in sanitation is a risky business. As the case study states: "the *junta* of Itagua has benefited from not providing wastewater services, which are more costly than water supply services". Despite the recognition of the importance of providing these services, nothing yet has been done in that area. The impact of providing such a service, especially on the financial sustainability of the *junta*, is not yet clear.

Source: Fragano, 2001

Municipalities have focussed only on water supply provision, but not on sanitation and wastewater management. Local government and inhabitants typically get more easily mobilised around water supply issues, less so around sanitation. The case in the box from Paraguay shows the negative impact on the environmental health, by focusing on providing a single service only, a situation is very common on many other parts of the world. Decentralised models for sanitation services clearly lag behind water supply. But, there is also lack of clarity whether prevailing models for water supply, can deal with sanitation issues. Rosensweig (2001) in his analysis of models for water supply in the context of decentralisation in Latin America asks whether current water management models would be as effective in dealing with wastewater collection and treatment. Adding a functioning wastewater collection and treatment system would make the service provision task much more complicated. Wastewater services are more costly to provide and more complex to maintain than water provision. Could the two be integrated, or would different management models be needed. Obviously, this will differ from case to case, but it will be a challenge for local government.

### **Failures to reuse wastewater**

The area of reuse of wastewater brings together various roles of local government: sanitation services: sanitation services, public health, local development planning and local environmental management. However, little research has gone into these institutional aspects at the local level. Anecdotic evidence seems to suggest that this is typically an area in which different (local) government departments do not work together in an integrated way (Scott et al. (2004). However, in some countries in the Middle East and Latin America steps forward are being made towards the planned reuse of wastewater.

### 3 Case studies from Latin America, Europe and Asia

#### 3.1 Case study 1: Local government, water resources and water services in Bolivia (by Rocio Bustamante, Centro-Agua)

##### *Decentralisation and reform*

Since 1985, different governments in Bolivia have implemented structural adjustments aiming to decrease inflation and stabilize the economy after long periods of dictatorship rule. Changes “of the second generation” in the period 1993-97 included shifts in the role of the State and civil society linked to: creating greater space for private sector participation in the economy, redefinition of administrative boundaries with greater decentralisation towards regional and municipal level, and new conceptions about natural resources (land, forest, water and biodiversity) management.

Decentralisation involved the delegation of new responsibilities to Municipalities and the broadening of their duties from only urban to rural areas within its territory. According to the “Municipal Law” (1999), Municipalities acquired new responsibilities in relation to local development such as to:

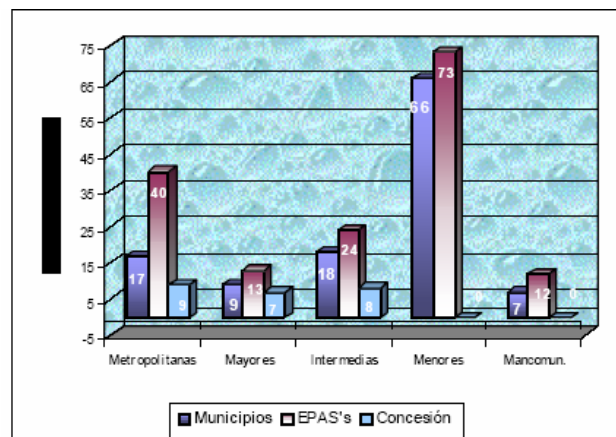
- Comply and make compliant with rules on the use of land, the underground, the water and natural resources (Art. 8, I, 7)
- Build, set the equipment and maintain the infrastructure in the sector of ... micro irrigation, basic sanitation...(Art. 8, II, 1)
- Give concessions to the private sector and to set the mechanisms for funding the building, equipment and maintenance of infrastructure and services related to...micro irrigation, basic sanitation...(Art. 8 II, 3)
- provide water and sewage services directly whenever the conditions to give concessions do not exist (Art. 8, V, 2)

The “Popular Participation Law” of year 1994 (modified in 1996) transferred responsibility over local development to the 314 Municipal Governments (each covering one province and a minimum population of 5-10,000 persons) in the country, with local participation channelled through new Territorial-Based Organisations (OTB's). The OTBs are now the recognized local actor in development issues. Each is entitled to an annual fund from the local municipality for community development projects which they plan and submit for approval. Communities elect a president for their OTB, and all the OTB presidents in a district form a Vigilance Committee which is responsible for supervising the municipality's administration and execution of projects. At least 20% of national taxation income is now directed to municipalities. In 2002, an additional Decree was enacted to create a Social Control Mechanism at higher departmental level that is constituted by civil society organizations and representatives of the Vigilance Committees.

In relation to water, Municipal Governments now take responsibility for providing drinking water and sanitation services, invest and manage micro irrigation systems, and help protect water resources in the watersheds within their jurisdiction. All these new roles constituted a major challenge especially for rural Municipalities that before were only operating in urban centres. While in most of the urban Municipalities drinking water and sanitation services were transferred to autonomously managed Municipal companies (meaning that they are not included in the budget) in rural areas additional services are now provided directly by the Municipalities themselves.

##### *Water and sanitation services*

Municipalities have responsibility for investment in drinking water and sanitation and either provide these services directly, through an independent municipal company (e.g. cooperatives, water committees), or by transferring to a concessionaire. Concessions are found in some of the major cities and metropolitan areas but direct municipal provision and independent municipal companies are the most common models. In a recent study conducted by the Vice Ministry of Basic sanitation, out of 86 water companies 11% were managed directly by Municipalities (where the Mayor is usually the Board's Director) and 1% by Associations of Municipalities (*Mancomunidades*). Another study done by the Vice Ministry of Basic Sanitation shows



Source: Plan Bolivia, 2002

that in the urban areas (117 municipalities out of 315) there are 165 water providers from which Municipal governments are one of the main service providers together with (community-managed) water committees. In most of the small towns the service is provided by the Municipality directly.

### *Irrigation*

Irrigation is one of the new Municipal Government's responsibilities, included amongst others with the expansion of their scope from exclusively urban to also encompass rural areas in the Popular Participation Law. A Plan developed by the government in 2003, considers that micro-irrigation systems (irrigated area less than 100 ha) are of Municipal responsibility and should be financed by the Social Productive Fund (FPS). It is intended in this plan to increase the irrigated area by 26,346 ha through Municipal micro-irrigation projects.



### *Lack of capacity and resources*

However, the process of increasing the role of Municipal governments in development was not accompanied by adequate institutional strengthening and creation of capacities to respond to the new challenges. Even though the Popular Participation Law allowed the Municipalities more resources through the “*co-participation accounts*”, these have not been adequate to finance what was needed as a result of their new responsibilities. At the same time, the budgetary execution is in most of the cases very low (52,5 % in the year 2002) due to limited capacities and restrictions on amount of expenditure on personnel (25%).

In the year 2001, the policy to assign funds for public investment changed and the “National Compensation Policy” (PNC) was established. This policy raised Municipal investments (with public or private money) but discourages Municipalities to obtain funds from other sources (in such a case the amount will be withdrawn from their co-participation account). This situation has led to relatively few investments in water compared to other basic infrastructure (health, roads etc) even though a lot of the demands from communities are for irrigation, water and sanitation and watershed management projects.

According to the national policies on drinking water and sanitation, in what is considered urban areas (more than 2000 inhabitants) systems have to be funded through loans guaranteed by Municipal governments (with their co participation money) which should be repaid through water charges to consumers. This policy has led to some Municipalities becoming highly indebted and without any possibility to make more investments. In the late 1990s, annual investment in water and sanitation across urban and rural areas was on average 90 USD millions (second place in public investment after transport) but it has been decreasing in recent years to 74,5 USD millions in 2001 and 50.5 USD millions in 2002.

In irrigation, which is considered a productive investment, there is a different policy. That is why, most of the funds given in counterpart by the Municipalities are non reimbursable, and transferred according to poverty categories through the National Fund for Productive and Social Public Investment (FPS). In the year 2001, 132.7 USD millions were invested on rural development (that includes irrigation) and 168.3 USD million in 2002 with a tendency to increase. A big part of this investments were made through Municipal governments building systems and transferring them to the communities, though in most of the cases there is no clarity about who actually finally owns those systems.

### *Participatory development planning and community's demands about water*

One of the important changes introduced by the Popular Participation Law is the participatory development planning process that allows communities to set their priorities for investment of the resources assigned to the Municipality. In many of these plans, water projects have been placed as a priority but the problem remains on how to balance needs with the resources and capacities that Municipalities have. In some cases, decisions about investment are taken on the basis of particular interests (like being re-elected), response to conflictive situations and other factors that are not linked to planning, and leaving many demands unattended. In many cases Municipalities have been accused of being manipulated by political interests. This has led to an extended distrust of municipal efficiency and capability to manage public resources, and to propose the public-private partnerships idea. Very recently the process for electing the Municipal governments has changed and besides political parties other civic organizations can now also participate in the elections. This has broadened the possibilities for participation but has not yet changed the practices of governing.



### *Water resources management: the possibilities and constraints*

Municipalities now have a mandate to look after the natural resources in their territory. The majority of them are not however ready for this new responsibility because of a lack of money, personnel and political will. Working on Management Plans (for water resources for instance) is usually expensive and doesn't show results in the short term. It is usually only done when there is external financial support to pay specifically for it, but even in then Municipalities may not have much interest because the money can be deducted from their co-participation accounts.

### *Conclusions*

*Local may be beautiful but...* delegating new responsibilities without at the same time providing the resources and the proper support (technical, administrative,...) leads to frustration in participatory processes because initial expectations are usually not fulfilled. Local development must be linked to regional and national, and supported by policies and mechanisms that allow decentralization to be effective. In the case of Bolivia this would probably imply that resources must be transferred to the Municipalities on the basis of poverty levels and identified needs that have to be fulfilled, and not only considering their capacity for obtaining more loans or according to the limits established by the national compensation policy.

The public – private partnership alternative that has been tried out in some places needs to be more carefully considered, in order to avoid that there becomes more private than public in the partnership, and that the collective interest is taken care off. Regulation capacities in government remain weak.

There is an urgent need to work on institutional strengthening of local governments in order to create the knowledge, capabilities and power for self management and sustainability. This of course implies improving the technical skills of the personnel working on water issues, but also to “empower” the institution as such in order to lead processes of development according to the needs and priorities of people.

There is also a new tendency to eliminate the Municipality as an intermediary actor and to transfer resources directly to water companies (EPSAs) or to communities (that are part of a public-private partnership). This new trend is linked to the problems faced by Municipal governments in relation to investment.

### *Sources and links*

[www.enlared.org.bo](http://www.enlared.org.bo)

[www.cebem.com](http://www.cebem.com)

[www.padem.org.bo](http://www.padem.org.bo)

[www.municipio-productivo-pader.com](http://www.municipio-productivo-pader.com)

[www.municipio.gov.bo](http://www.municipio.gov.bo)

### 3.2 Case study 2: Local-level water governance and some consequences of political reforms in Andhra Pradesh, India (by Charles Batchelor)

#### *A model state prioritises water reforms*

Administrative reforms in the Indian State of Andhra Pradesh (AP) during the period that Chandrababu Naidu was Chief Minister (1995 – 2004) have received a lot of attention from academics and funding agencies. This was because Andhra Pradesh was considered to be a model that could be copied by other states. A striking characteristic of these reforms was the emphasis on governance and the stated intention that government should be made simple, transparent, accountable and responsive, and that people should have a strong voice in the governance of the State (GoAP, 1999:3–4).

Chandrababu Naidu gave a high priority to improving access to water for domestic and productive uses. Amongst the many initiatives were high levels of funding for watershed<sup>1</sup> development and rural water supply programmes and the creation of a state-level Water Conservation Mission. At the village level, the *Janmabhoomi* (literally, land of one's birth) programme was created as part of a somewhat bureaucratic attempt to decentralise governance to village-level institutions. Essentially, it involved the organisation of village-level stakeholder groups and committees related to, for example, watershed development, health and education. It was implemented in rounds. Initially there were four rounds every year, later this was brought down to two. During each round, officials went to the villages and conducted *Janmabhoomi* meetings, in which local people came forward with their complaints and/or demands. Some problems were resolved immediately. Others involving allocation of funds and community participation were planned for later implementation.

#### *Results of the reforms*

Opinions on the success of the reforms are divided. Those involved, particularly politicians, claimed that the reforms led to improved performance, reduced corruption and increased professionalism at all levels. Opponents of the Chandrababu Naidu regime claimed that the reforms comprised of a lot of gimmicks and successes were hyped (Mooij, 2003). The strong emphasis on performance and the relative immediacy of the e-government (e.g. regular tele-conferences, demands for information or action at relatively short notice) put considerable pressure on line department staff at all levels. Not least because of the need to generate results that showed that political initiatives were producing excellent results and that the line departments and staff with responsibility were doing their jobs well. This was in addition to the normal pressures on and tendency of decision-makers at all levels to direct funds to activities and locations that had the highest political or financial return.

The net result was that a policy of improving water governance, that at first sight, appeared to include all the elements that might advocated by specialists in water governance, resulted in many undesirable and, arguably, unintended consequences. These included:

- *At the state-level, manipulation of official statistics to support both the need for and the benefits of specific water-related programmes.* For example, it was an "open secret" that official figures from the A.P. Groundwater Dept that showed a large level of under-utilised groundwater were incorrect (see Figure 1). Also the "official figures" on state-scale surface runoff provided by the AP Water Conservation Mission ([www.wcmap.org/home.html](http://www.wcmap.org/home.html)) were not at all consistent with data from Central Water Commission gauging stations (Rama Mohan Rao *et al.*, 2003). By showing that there was huge scope for developing additional water resources, it was possible to justify high-levels of expenditure on a whole range of supply-side activities (e.g. construction of dams, water conservation works, borewells);
- *At the district-level, manipulation of official statistics to show a higher level of achievement than was justified.* For example in a survey of domestic points in southern AP, users classified 40% of over 650 water points as having problems. Official statistics suggested that around 95% of water points were meeting government norms (Rama Mohan Rao *et al.*, 2003). Of even greater concern, a detailed survey by the WHiRL Project (Batchelor *et al.*, 2005) indicated that under-reporting of fluoride levels in drinking water supplies was taking place in southern AP. As a consequence, large numbers of people were needlessly suffering health problems;



<sup>1</sup> Watersheds being small areas, typically 500 hectares.

- *Cramming of new village-level institutions with political activists.* Watershed committees, for instance, were criticised for being packed with party workers who then took control of the resources made available to these committees from government programmes. There were tremendous personal benefits to those who were part of the implementing machinery and in return these people acted as mobilisers during election time and generated party interests at other times (Nayak et al., 2002).

Whilst the reform process had the stated intention of removing politics from development (Mooij, 2003), it was used as a mean of strengthening the Chandrababu Naidu's party in rural villages. The reform process also contributed to the politicisation of middlemen and contractors who often made huge profits from the implementation of construction works carried out as part of water supply and watershed development programmes. Nayak *et al.* (2002) noted that while contractors and middlemen could previously be independent of political parties, the "contractor class" had also effectively entered into politics and access of non-party contractors to the bureaucracy was effectively closed off.

### Conclusions

The reform and decentralisation process initiated by Chandrababu Naidu in Andhra Pradesh appeared to have all the elements that should have led to improved local-level water governance. Nevertheless, the outcomes were very different.

- Crucially, the programme seemed to ignore or corrupt the professional and technical knowledge of government staff at district level, and it lacked checks and balances to ensure that interventions were effective and consistent with improved water management at an appropriate (e.g. district or catchment) level.
- A reform process aimed at reducing corruption and stakeholder participation was, in general, used by political elites, middlemen and contractors to consolidate and improve their positions, particularly at the village level, and to generate large amounts of income often from construction works that could not be justified without the manipulation of water-related information. Politics are clearly crucial to the outcomes of water-related reforms.
- Lessons can also be learnt from the fact that many components of e-government aimed at improving transparency were used to "hype and hide" information rather than to make government more responsive. The result being a widening of the gap between information in glossy government or donor-sponsored handouts (and web sites) and ground-level realities. District-level local government should provide one mechanism to bridge this gap between the village and stage level, but in the water sector at least, this level of government is currently inadequately responsive to the needs of citizens.

### Sources and links

- Batchelor, C.H., Butterworth, J.A., Cousins, T., James, A.J., Pollard, S., Moriarty, P.M., Malla Reddy, Y.V., Reddy, G.V., Renuka, B., Smits, S., du Toit, D. 2005. Water, Households and Rural Livelihoods: a guide to local water management. Multimedia CD and booklet. IRC International Water and Sanitation Centre, Delft.
- Government of Andhra Pradesh (1999) Swarna Andhra Pradesh Vision 2020, Hyderabad: State Secretariat, GoAP.
- Mooij, J. 2003. Smart governance? Politics in the policy process in Andhra Pradesh, India. ODI Working Paper 228, London: Overseas Development Institute.
- Nayak, R., Saxena, N.C. and Farrington, J. (2002) 'Reaching the Poor: The Influence of Policy and Administrative Processes on the Implementation of Government Poverty Schemes in India', ODI Working Paper 175, London: Overseas Development Institute.
- Rama Mohan Rao, M.S., Batchelor, C.H., James, A.J., Nagaraja, R., Seeley, J. and Butterworth, J.A. 2003. Andhra Pradesh Rural Livelihood Project Water Audit Report. APRLP, Rajendranagar, Hyderabad 500030, India

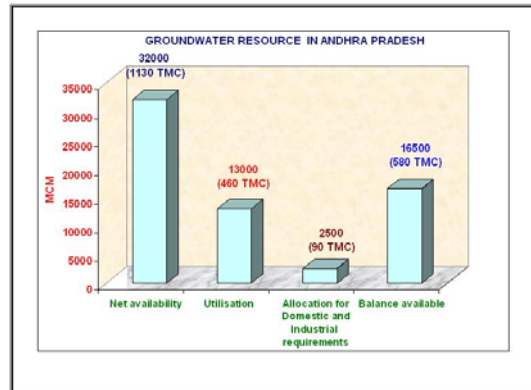


Figure 1. Information from AP Groundwater Dept. web site ([www.aponline.gov.in/apportal/departments/](http://www.aponline.gov.in/apportal/departments/)) showing high-level of under-utilised groundwater resources. There is a large disparity between these figures, which are based on erroneous irrigation statistics, and facts on the ground.

into politics and access of non-party contractors to the



### 3.3 Case study 3: Dealing with diversity in local-level integrated water resource management, the Netherlands (Jeroen Warner, WUR)

#### *Introduction*

A key current water management issue in the Netherlands is the new collaboration between municipalities (responsible for spatial planning) and *waterschappen* (local water boards) responsible for drainage and waterway management. The drive to further decentralise water governance, started in the early 1990s, has meant to tackle the tension between the principle of subsidiarity, which aims to bring water management down to the lowest relevant level and the national interest, which prevents decentralisation. With 60% of the country being below sea level flood management is seen as a national security concern.

Against a background of change in response to new priorities and policies, many of the internal and external tensions in the Dutch experience are encountered at the local level by municipal authorities who find themselves squeezed between the demands of higher-level authorities and representatives of local interest. This case study focuses on how municipal authorities are responding to this challenge. In their favour, municipal authorities<sup>2</sup> in the Netherlands have significant budgetary and discretionary powers (in addition to *medebewind* or *shared rule* administering central policies).

#### *Changing priorities in water management*

Riding on the crest of the wave of environmentalism in the mid-eighties, Integrated Water Resource Management became widely accepted as a principle that was enshrined in national policy in the form of the Third White Paper on Water Management (*Derde Nota Waterhuishouding*). The *waterschappen* became responsible for all surface water, rural and urban, decentralising provincial responsibility for surface water, a process which had already started to take shape with the 1970 Surface Water Act (Wet Oppervlaktewater, WVO).

Initially, the focus of IWRM was on improving water quality by improved management of the water chain from precipitation to wastewater. But the shock of the 1993 and 1995 (near) floods in the Rhine and Meuse rivers brought drainage issues to the forefront. Local decision-makers in Gelderland and Groningen had been forced to consider controlled flooding of sparsely populated areas to save the lower lying cities downstream. This drove home the realisation that traditional water management policies were no longer adequate. Different levels of government got together and pledged to integrate their policies more in the WB21 (Water Management for the 21st century) document. The key triad in the new policy became 'retention - storage - discharge': retention being a fairly novel idea in a country where space is at a premium. WB 21 was also significant in mainstreaming the idea of 'Water as an organising principle' (for spatial planning).

Integration has brought a tension, and readjustment process, between the 'policy column' for main river management (Ministry of Waterways-provinces-water board) on the one hand and that of spatial planning (Ministry of Spatial Planning-provinces-municipalities) on the other. *Waterschappen* and municipalities, who traditionally worked in splendid isolation from each other, have been forced to work more closely together.

#### *Integrating spatial planning, water management and stakeholder groups at local level*

Spatial planning comes within predefined limits: municipal spatial planning (*bestemingsplan*) must fit the regional plan (*streekplan*), which in turn must comply with environmental and water management plans. In the context of regional planning, a responsibility of the Provinces, there is much consensus-building or 'poldering' between the different stakeholders. But in the water sector and at local level, this is far less commonplace. *Waterschappen*, until recent electoral reforms, mainly represented agrarian interests, while the Rijkswaterstaat is only finding its feet in participation and becoming a party in deliberative planning 'behind' (rather than just between) the dikes'. A major 'mistake' agencies have consistently made is trying to 'create' a support base in society. 'Selling' projects to stakeholders usually brings discontent and a sense of being manipulated. A support base rather should develop, or evolve, in the interaction between different stakeholders. This requires direct communication with citizens, which is easier to do for municipal authorities than for national ones, given shorter communication lines and their rooted-ness in local communities. Mid-sized Dutch cities like Nijmegen and Groningen have made huge strides recently towards improved water management based upon principles of multi-stakeholder participation.

<sup>2</sup> The word 'municipal' will be used here in preference to 'local' since in Dutch parlance, 'local authorities' may refer to municipalities as well as water boards. As explained later, the two cannot really be treated under the same umbrella in the Dutch context.

### *Nijmegen: Interactive implementation*

Nijmegen realised its premium waterfront location some decades ago, and redirected its boulevard to face the water. There was, however, no integrated approach to water at municipal level. Nijmegen's recently launched Water Plan became a successful example in encouraging the decoupling of stormwater to avoid overtopping of stormwater basins and to improve water quality. In 1997, the Directorate General for Public Works and Water Management, drinking water companies, water boards, and the Province conducted a workshop to develop the Water Plan. Representatives of farmers, industries, environmental groups, citizens groups, public authorities, research organisations, public representatives and the project partners attended the workshop. It was decided to go for 'Interactive Implementation', and to make communication the central concept. The approach banks on the willingness and energies of citizens and indeed elicited any initiatives came from the part of citizens, such as the Kastanjehof district and a Water Fair on the river Waal quay. In 2000 the water plan was finalised.

The central idea underlying so-called 'interactive implementation' is that only when the complexity of the governed system is fully addressed by involving a diversity of actors in the governing system ('Ashby's Law') will the full range of values of water be considered. 'Interactive implementation' has four tenets (Lems & Valkman 2003):

- working in parallel rather than in sequence: policy making, planning and implementation
- switching between scales: the global scale or bird's eye view (focusing on coherence) and the local scale (practical feasibility)
- learning by doing: early implementation reveals strengths and weaknesses
- the snowball effect: enthusiasm will grow when results are tangible

### *Groningen: improving urban water quality and amenity values*

Another interesting example of citizens' initiative supported by responsive local government concerns the Lewenborg, a district in decline in Groningen. Here citizens are involved in keeping the green spaces 'natural', which means a somewhat rough appearance. While the water board manages water quality, the municipality of Groningen is the manager of the sewer system which contaminates ten public ponds within these areas. In addition to a wider revitalisation scheme and nature-friendly banks, the municipality put in a canal connecting the ponds which enabled regular flushing. The improved flushing capacity has reduced the need for regular dredging and reduced nasty smells from rotting leaves and sewerage. There has also been an economic benefit: if the water as an amenity improves, the price of dwellings overlooking water bodies goes up as well. Manpower of citizens is used to operate the flushing pump – a kind of 'bicycle pump' - whose capacity is negligible but helps to involve citizens in water management in an enjoyable way.

### *Collaborations between municipalities*

The European-funded *Freude am Fluss* (Enjoyment of the river) initiative has brought together Dutch and German riverine municipalities (supported by actors as diverse as Nijmegen university, WL Delft the water consultancy and a German NGO) to develop municipal plans for coexisting with water and its natural values jointly with citizens. Here, again the 'fun' factor of water is highlighted to counterbalance its 'nuisance' aspect. This new development seems to be yielding interesting co-operative intra-municipal initiatives.

While usually municipalities draw up plans within their own administrative territory, four municipalities in similar hydrological situations, located in the hilly Utrechtse Heuvelrug area (Driebergen, Amerongen, Leersum and Doorn) have started a similar Water Plan to uncouple stormwater flow and clean up public water bodies. The idea is to coordinate the different municipal agencies, provincial government, waterschap and drinking water utility, and Hydron Midden-Nederland.

### *Controlled flooding*

Finally, while Municipal authorities in Gelderland have resisted a national-level plan for controlled flooding in the Ooij, they are now prepared to work with the provincial and national government to 'make space for the river' (*Ruimte voor de Rivier*). The province now proposes bold plans to take rather more than the minimum hydrological requirement needed to cope with climate change-induced extraordinary discharges from the Rhine, with a view to developing new spaces for housing, tourism, and greenery. Municipalities have gained a greater say in the siting and shaping of dikes and river bypasses, and, apparently, are becoming the biggest advocates of such plans in IJssel cities like Deventer and Zutphen.

A provincial water management officer in Gelderland puts the potential for multifunctional use of space as follows: 'instead of taking the hydrological minimum for giving space to the riviere, we can take more, and create space for nature and tourism'. However, the rediscovery of ruimtelijke kwaliteit ('spatial quality') and integrated development seems to provide a backdoor for developers to re-enter the scene to exploit the economic rather than the natural value of river banks. Now that the 'policy columns' functions of Spatial Planning and main river (flood) management are starting to co-operate, a perverse effect can be to succumb to the pressure of urban development in relatively

low-risk locations for the sake of 'spatial quality'. Nijmegen (Waalsprong) has continued planning developments in the floodplain, which seems to clash with the sustainability goals of its own Water Plan.

### *Conclusions*

- IWRM is a welcome driver for co-ordinated planning between municipalities and *waterschappen*, and to integrate citizens in the policy process (Interactive Implementation). Unfortunately the mutual interference between agencies is still not well coordinated and citizen involvement is still incidental. Both require much better communication.
- The positive values of rivers are increasingly recognised and help raise interest on the part of grassroots. Municipal authorities however find themselves squeezed between the demands of higher-level authorities and local interest representation. The economic gain in developing waterfronts can blind municipalities to other important values. Therefore it is advisable for municipalities need to build up knowledge and a coherent vision of IWRM.

### *Sources and links*

Ashby, W. R. (1958). Requisite variety and its implications for the control of complex systems. In George J. Klir (1991), Facets of systems science.

Lems, P., R. Valkman (2003), New Values of Water. Handbook of Practice; Tauw, Deventer, November 2003.

[www.ru.nl/waterkracht](http://www.ru.nl/waterkracht) (Freude am Fluss)

[www.destichtserijnlanden.nl/paginas/nieuws/waterplan\\_heuvelrug.htm](http://www.destichtserijnlanden.nl/paginas/nieuws/waterplan_heuvelrug.htm) (intermunicipal plan Heuvelrug)

## **4 Models for local government engagement in IWRM processes**

As we saw in the previous sections, there are a number of challenges ahead for local government in relation to water resources management. And the complexity of IWRM can at times seem overwhelming. In this chapter we identify two main approaches or models through which local government can support the implementation of IWRM:

1. *Engaging in new IWRM institutions.* IWRM focuses on integrated management across sectors and water users. In many countries implementation has been taken up through the adoption of wide-ranging new policies, revision of water laws and establishment of new institutions for water resources management. These reforms aim to manage water in a fully integrated way, largely based upon the catchment or the river basin as a unit of management. This is what Moriarty and Butterworth (2004) call “full”, or institutional-based implementation of IWRM. Local government has an important, but often neglected, role to play in these new institutions.
2. *Implementing IWRM principles through local actions.* A second way in which IWRM can be implemented is by adopting and following the underlying principles in the implementation of local water actions or projects i.e. in the day-to-day water business in which local governments are engaged. This is what Moriarty and Butterworth (2004) call “light”, or principle-based IWRM. The basic idea behind the principle-based approach is that if all stakeholders from different sub-sectors apply these principles in their own work within their own mandate, better water resources management will emerge.

These two approaches are not mutually exclusive. In fact, in most situations it will make sense for local governments to follow both approaches simultaneously. Each approach has its own severe strengths and weaknesses which are explored further in the following sections. The hypothesis of Moriarty & Butterworth (2004) is that a twin-track approach based upon local government engagement in catchment level institutions combined with the implementation of local level IWRM supporting actions by local government will be the most effective.

ICLEI (2005) have made similar recommendations. In their implementation guide for local government, they identify a macro-level and a micro-level approach for local government in water resources management. The macro-level approach would be about engaging with other local authorities and other stakeholders at the catchment level and (sub)national level to coordinate actions. The micro-level approach is about coordinating local government’s internal activities so that one department’s activities do not adversely affect another.

### **4.1 Engaging in new IWRM institutions**

The principles underlying IWRM include an inherent tension between centralisation and decentralisation of water control. On the one hand, reforms focus on the large catchment or river basin (usually 1000’s km<sup>2</sup>) as the most effective unit for water management (linked to the first Dublin principle – see box). This will normally include several or 10’s or municipalities or local governments. On the other hand, the second Dublin principle makes a strong call for management at the lowest appropriate level.

In water resources management, especially in contexts where water resources are scarce and becoming overexploited or degraded, centralisation holds a powerful logic. There are often good arguments, for example in the case of the Nile in Egypt, for centralising control within a strong central government entity.

However, there are also powerful counter-arguments in favour of decentralisation of water control in many contexts. More local management, such as the traditional institutions and water management arrangements that are still dominant in most of Africa can be better adapted to the local context (van Koppen *et al.*, 2005). States, because of their resource constraints, often fail to penetrate effectively to this local level. An office responsible for licensing farmers irrigation abstractions in a river basin for example may only have a handful of staff compared to tens of thousands of small-scale farmers and with no effective ability to monitor their water use.

## Models for decentralisation of water resources management

Jouravlev (2003) gives an overview of the different models in which decentralisation is taking place. These include:

- Administrative de-concentration
- Catchment coordination and concertation bodies
- Decentralisation to sub-national autonomous entities
  
- Decentralisation to local governments

### *Administrative de-concentration*

This refers to the process of delegating responsibilities and resources from a central authority to its offices at local (catchment, province,..) level. Typical functions that are being de-concentrated include:

- those that do not imply authority, such as water resources monitoring
- those that imply only a limited authority, such as assigning water use licenses up to a certain amount

Well-known examples of this model are the Regional Directorates of the Dirección General de Aguas (DGA) in Chile, and the Regional Administrations of the Comisión Nacional de Aguas

### *Box ?. Guiding principles from the Dublin Statement*

**Principle No. 1: Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.** Since water sustains both life and livelihoods, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or ground water aquifer.

**Principle No. 2: Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.** The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

**Principle No. 3: Women play a central part in the provision, management and safeguarding of water.** This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

**Principle No. 4: Water has an economic value in all its competing uses and should be recognized as an economic good.** Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources (WMO 1992).



(CNA) in México. The role of local government in these models is very limited. They do not have any authority or executive functions over water resources management.

#### *Catchment coordination and concertation bodies*

These are bodies who have some executive power around water resources management, and that bring together a variety of stakeholders, normally including national government representatives, representatives of different user groups and sometimes local government representatives. In order to be

effective, there must be clarity about in whom decision-making power resides in case the coordination body cannot come to agreement internally. Normally, this should be the central government again. Sometimes, coordination bodies are only established in some specific catchments in the country, and not throughout the territory, because of the specific interests and problems at stake. Examples of this model are widespread in southern Africa, including South Africa and Zimbabwe.

#### *Decentralisation to sub-national autonomous entities*

In the first model of de-concentration, responsibility goes to regional offices of the central government entity. In the decentralisation model, responsibility goes to *autonomous* government entities, that have to work within the limitations and strategies set by the central entity. This model is not followed often. An example of this model are the Corporaciones Autónomas Regionales (CARs) or Regional Autonomous Corporations in Colombia. These have to work within the policy framework set by the Ministerio de Ambiente, Vivienda y Desarrollo Territorial (MinAmbiente - Ministry of Environment, Housing and Territorial Development) but have operational autonomy in their area of jurisdiction. Their boards are conformed by the provincial governor, mayors, representatives of the private sector, and environmental NGOs. So, local government is represented in these entities. However, in the case of Colombia, political processes have sometimes hampered the effective functioning of these bodies (Jourvaley, 2003).

#### *Box ? Local government taking the initiative*

In Flanders (Belgium), a pragmatic approach is taken. In first instance, existing municipal plans are being taken together at sub-catchment level. These will then have to be taken together and developed into sub-catchment plans (Van Gils and Hanegreefs, 2003). For example, the Municipalities located in the Melsterbeek sub-catchment decided to come to a common plan. A steering committee was established with politicians from the Province, and the 6 Municipalities, with the main task of decision-making. Officials of the Municipalities formed the Project Group, who drew up the plans. Different interest groups (e.g. representatives of farmer organisations and nature conservation organisations) formed a sounding board for advice to the Project Group (Van Gils and Hanegreefs, 2003). The example shows how initiatives around water resources management do not necessarily have to come from catchment authorities; Municipalities can play a pro-active role in this.

The risk of this kind of representation is that the CAR may become judge and jury: on the one hand it must control pollution, caused by Municipalities, on the other hand, Municipalities are on the board of the CAR, and hence use their political impact to avoid fines to be raised by the CARs upon Municipalities. In reality mixed experiences with this system exist (see Box).

#### *Decentralisation to local governments*

Only in few cases, are water resources management functions decentralised to local government level. The main reason for that is that water resources management implies dealing with externalities. The territorial unit of a Municipality is often not the appropriate scale for dealing in an institutional way with these externalities. Besides, decentralisation of water resources authority functions to Municipalities may not be desirable, because they are also often a water user and polluter with particular responsibilities for water supply and sanitation services. Putting water services and water resources management responsibilities under the same authority would risk placing local government in the role of judge and jury.

Probably, the main exception to this rule is in some big metropolitan areas. For example, in Colombia, Municipalities with more than 1 million inhabitants are responsible for water resources management within their area. However, for actions that cause externalities outside their municipal area, it implies engagement with the CAR, **sometimes, leading to governance conflicts (see Box)**. What is more common is that certain water resources management are partially decentralised to Municipalities. These are often operational functions, such as support in monitoring or protection of protected areas.

A distinct example of decentralisation is the *waterschappen* (water boards) in the Netherlands. These are autonomous boards, which bring together multiple stakeholders and are democratically elected. They are recognised as a separate sphere of local government and within their area of jurisdiction, their mandate only extends to local water issues. As a model, they would be somewhere between a coordination body (they bring together multiple stakeholders), a decentralised autonomous body (they are autonomous) and decentralisation to local government (they are democratically elected and recognised as a separate

#### *Box ? : Enforcing pollution control between environmental authorities and local government in Latin America, with a case from Colombia*

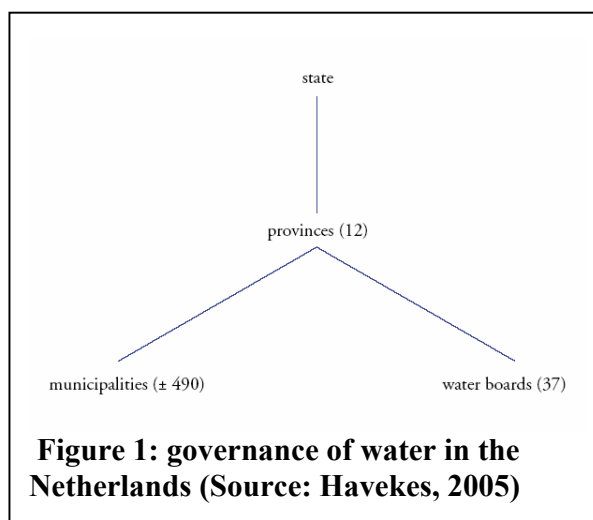
Most countries Latin America tend to rely on administrative or “command and control” regulation for water resources, and environmental management rather than on regulation by incentives (carrots and sticks). While in practice, both approaches are needed, the trend seems to be in favour of introducing incentives to promote desired outcomes and changes in behaviour (Yepes, 2001).

Water pollution control legislation in Colombia, relies heavily on incentives. Decree 901 (1997) established policy instruments to improve the quality of water resources in Colombia. The main economic instrument to induce the usage of environmental technologies is the retributive tax. CARs collect the retributive tax, which must be paid by anyone who uses water bodies for dumping pollutants. The CAR in the Department of Antioquia has set environmental targets in agreement with each municipality in its area of jurisdiction for a five-year period. Rates are reviewed every six months to encourage water utilities and industries to evaluate the convenience of paying the taxes, or building their own treatment facilities at a lower cost. These resources are then re-invested in the construction of treatment facilities in the municipalities under its jurisdiction. For example, in the Municipality of Marinilla, inhabitants currently pay a retributive tax of US\$ 0.40 per month, which is being reinvested (Rosensweig, 2001).

However, in many places users pay the tax, but the Municipality does not pay the tax to the CAR. or the CAR does not carry out the

sphere of local government). They are overseen by provincial authorities (Havekes et al., 2005). Management of the major water bodies, such as rivers and big lakes resides with national government. Municipalities are not represented on the boards of the water boards (do we need to give more detail on the Water Board model, e.g. on representation and financial sustainability, mismatch between catchment and provincial boundaries?).

Another example of local government in relation to IWRM, are associations of Municipalities (Jouravlev, 2003).



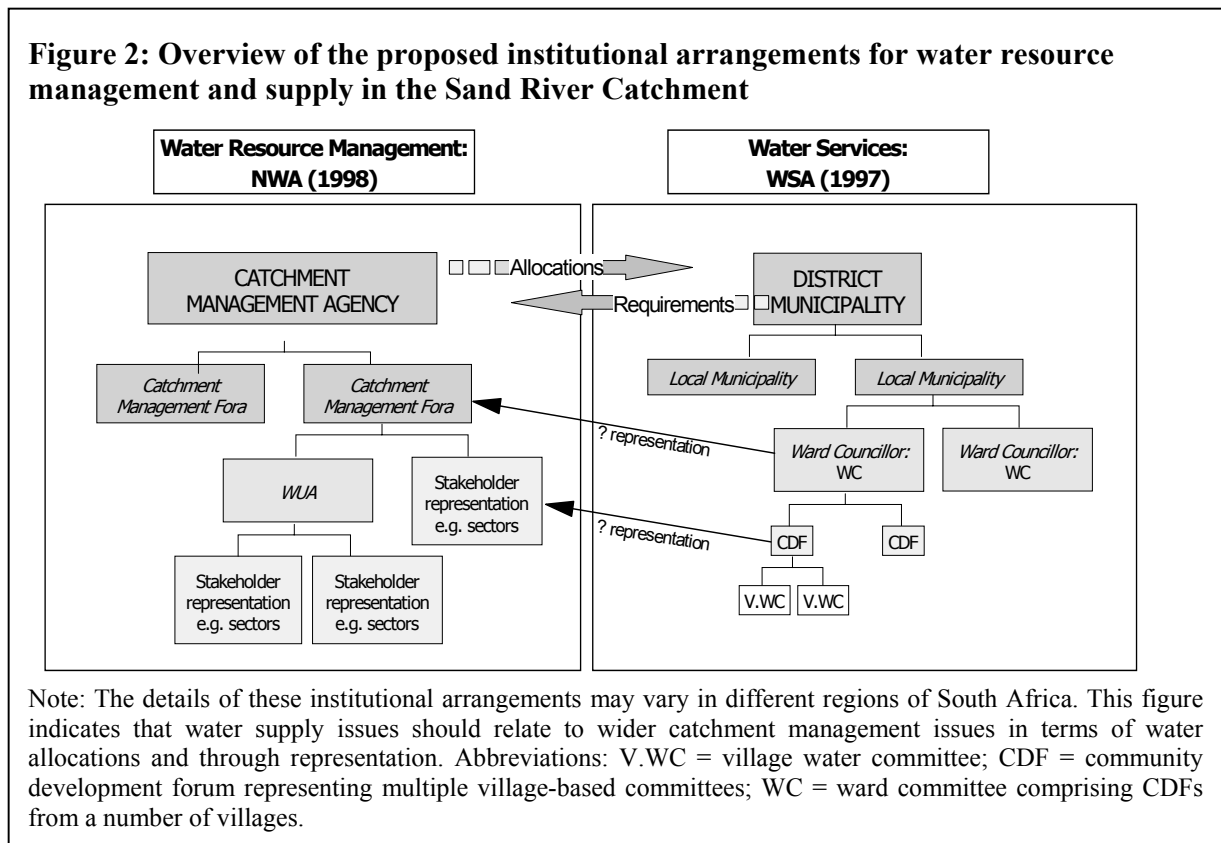
**Table 3 Types of catchment level authorities and role of local government**

Country	Model	Role of local government
<i>Limpopo</i>		
South Africa	Coordination model at catchment level: Catchment Management Agencies (CMA) with DWAF as national custodian	Municipality represented as user in CMA
Zimbabwe	Coordination model at catchment level: (Sub)-catchment councils with MRRWD as national ministry and ZINWA in executive function	RDC represented as user
Mozambique		
Botswana		
<i>Europe</i>		
Netherlands	Decentralised to water boards, as separate autonomous sphere of local government, overseen by Provincial authorities. National government responsible for major water bodies	Municipality represented in water boards. Inhabitants elect their own representatives
<i>Elsewhere</i>		
Colombia	Decentralised to Regional Autonomous Corporations at province or catchment level	Mayors are on the board of the Corporations Major cities have their own environmental authorities for local environmental management
Chile	Deconcentrated offices of the Dirección General de Aguas DGA	
Mexico	Deconcentrated offices of the Comisión Nacional de Aguas	

## Catchment-level institutions in southern Africa

As noted above, examples of the catchment coordination model are widespread in southern Africa associated with IWRM-based reforms that have been pursued enthusiastically in the region. This section explores these models in more details based upon experiences to date in South Africa and Zimbabwe.

In both South Africa and Zimbabwe, final responsibility for water resources management rests with national government entities, the Department of Water Affairs and Forestry (DWA) in South Africa, and the Ministry of Rural Resources and Water Development (MRRWD) in Zimbabwe with day to day regulation and control managed by the parastatal ZINWA (Zimbabwe National Water Authority) (Verweij and Knecht, 2002). However, in both countries reforms are far advanced to establish catchment level agencies with significant delegated responsibility for water resources management in their catchment, including the licensing of water users. These agencies are known as Catchment Management Agencies (CMA) in South Africa and Catchment Councils in Zimbabwe.



### South Africa

In South Africa, Catchment Management Agencies (CMA) are currently being set up that will have executive power over water resources management in a Water Management Area (WMA) (which may cover one or more river catchments). The CMAs bring together representatives of the different water using sectors, including local government. However, it remains unclear exactly how local government will be represented since the first CMAs are still in the process of

establishment (Mazibuko and Pegram, 2004). Pollard and du Toit (2005 and Figure 1) identify some of the key relationships between local government in the Sand River and the new catchment management agency in that area .

There has been quite some discussion on the position of municipalities, particularly based upon their function as WSAs, within CMAs. The South African Local Government Association (SALGA) has argued however that municipalities are not just “another user of water” such as agriculture or mining: it is a sphere of government with a deomocratic mandate to represent its citizens.

A number of researchers (e.g. Pollard and du Toit, 2005; Mazibuko and Pegram, 2004; Smit, 2003) have examined the interface between local government and CMAs and identified a number of constraints and issues to municipal representation in CMAs. These have to do with powers, mandate and functions of both institutions, as well as with the process through which the CMAs are being set up

*Box ? : Regulations for specific interfaces between water services and water resources in South Africa*

**Water Services Development Plans:** Water Services Authorities (WSAs) need to develop Water Services Development Plans (WSDPs). These WSDPs will be the principal source of information for determining water allocations to a municipality and issuing a licence. The plan's requirements must be accounted for in the responsible authority's catchment management strategy. For its part, when preparing its WSDP, a WSA must refer to the relevant catchment management strategy for information about the availability of water to support proposed water services targets, the source of the water, and the requirements for the quality of waste water that is to be returned to the water resource after use.

**Basic sanitation:** The design of sanitation facilities must take account of the potential for polluting water resources, especially with regard to groundwater.

**Basic water supply:** Basic human needs are included in the Reserve described in the National Water Resources Strategy.

**Use of effluent:** The use of effluent for irrigation or to recharge a groundwater aquifer, are controlled activities under section 37 of the Act and must be authorised by a responsible authority.

Source: DWAF, 2004

Issues related to power, mandates and functions include:

- The mismatch of boundaries between the CMAs (working on a boundary scale) and Municipalities (working on the basis of administrative boundaries). In some CMAs there are a large number of municipalities that need represented, and some Municipalities will need to be represented in more than one CMA.
- Local government and CMA as autonomous institutions: What does the CMA do if Local Government fails to comply with its water license agreements? What does Local Government do if the CMA is against certain spatial development initiatives as the resource may not be able to sustain such development?
- Limited recognition of local government in the CMA as a different sphere of government
- Local government has diverse functions, which have to be represented in CMAs
- Function of traditional authorities in CMA
- Role of local government in reserve determination

Issues relating to the process of CMA establishment include:

- There is a limited understanding of role of CMAs by local government, and it does not see IWRM as a priority
- Local government has only been limitedly participating in the establishment of CMAs
- Limited process of nomination of local government representatives in CMA
- Local government does not see IWRM as a priority

The new National Water Resources Strategy (NWRS) (DWAF, 2004) aims to partially respond to a number of the bottlenecks mentioned above. It regulates how legislation and institutions

responsible for water services and for water resources are complementary and how they relate to each other. It contains a number of recommendations relating to specific interfaces between water services and water resources (see Box ?).

An interesting case from South Africa is described by Smit (2003). As mentioned before, in South Africa, Catchment Management Agencies (CMAs) are being established. A first step in that process is the establishment of so-called Catchment Management Forum (CMF), a non-statutory body, who will draft the Catchment Management Strategy, which will in turn lead to the CMA. Smit (2003) compares two different CMFs: one originated from a grassroots movement, and one initiated by DWAF. In the first one, there is substantial community participation, but the participation by other stakeholders is limited. In the second CMF, local stakeholders participate irregularly and don't have ownership of the process: that rests with DWAF and consultants. Strikingly, the Municipality is not actively participating in either of the forums. It does not see a role for itself in catchment management. It does not see itself as part of the forum, but as an invited guest. Finally, the Municipality, is busy becoming an effective and efficient implementing body. It sees the forum as a slowly-progressing discussion forum, only functioning as a sounding board and watchdog.

#### *Zimbabwe*

In Zimbabwe, Catchment Councils (CC) and Sub-Catchment Councils (SCC) have been set up across the country. According to the Water Act, RDCs have no water management responsibilities. However, the Secretary of MRRWD may authorise ZINWA to delegate powers to RDCs in the areas of water quality control and environmental protection. And, with support of ZINWA, RDCs have functions with regards to the provision of potable water and the disposal of wastewater and small rural irrigation projects (Verweij and Knecht, 2002). Local government, in the form of Rural District Councils (RDCs) do have guaranteed seats in Sub-Catchment Councils. Contrary to South Africa, no specific analyses have been done on the role of RDCs vis-à-vis the (sub)-Catchment Councils and issues that may arise from that.

### **Key issues associated with institutional models**

Based on the different models analysed, a number of key issues arise in the relation between local government and water resources management.

First of all, there is the issue of **mandates** between bodies responsible for water resources management, and local government, responsible for water services. It is not wrong to have different mandates between the two; in fact it is feasible to make sure that water and sanitation development is done with a guaranteed access to water sources and with minimum impacts on these sources. However, these need to be clearly defined; where does one stop and the other start. These form the interfaces that need to be managed.

A second key issue is **accountability and enforcement**. Not all institutional set-ups allow for full accountability between the water resources management entity and local government. But even where there are accountability regulations to, it may be difficult to hold each other accountable. In many countries it is difficult for one government body to hold another government body accountable. Enforcement of compliance with rules proves in many cases to be difficult between government bodies.

Thirdly, there is the issue of **power**. A wide range of research on water resources management, and especially on multi-stakeholder platforms have indicated that power relations are more often than not unequal between the different stakeholders. This is also the case for local government. It may be more or may be less powerful than other interest groups, depending on the situation. There are strong and powerful local government, and ones that are very weak, with little negotiation power. Because of its position of being a government body, there are many questions whether local governments are or can be in a position to participate as an equal in those kinds of fora, or whether this in fact should be the case

When analysing the different institutional models, what emerges is not so much only the position of local government in water resources management, but local water **governance**. The role of local government can only be analysed in relation to other stakeholders, including water resources management entities but also other users, communities, etc.

## **4.2 Implementing IWRM principles through local actions**

“Full” IWRM can be seen as a huge and overwhelming task. In fact, in many countries it may still take many years before these become really effective. In the mean time, organisations from different sub-sectors may want to get going on improving the performance in their own sector. At the same time, there is a growing realisation that many water resources problems are in fact local issues. Local solutions for local problems need to be identified, that can fit into the institutional framework. As, Verweij and Knegt (2002) state for the analysis of a Catchment Council (CC) of Zimbabwe: “although there is clearly a need for water management in the South of Zimbabwe, this notion appears more alive with the national Government of Zimbabwe and with international donors, than it is with small-holder irrigators. In fact, many of the problems raised by the small-holder irrigators are not addressed by the CC, although the sustainability of the CC heavily hinges on the viability and health of the small-holder irrigation sector”.

In situations where the kind of over-arching legal and institutional frameworks for river basin planning and allocation of water resources discussed earlier are either missing or ineffective, then ‘light’ IWRM based on the application of key principles to sub-sectoral activities (such as WATSAN) provides an alternative or rather complimentary approach. Principle-based approaches aim to develop guidelines, based on the application of IWRM principles at all stages of the project cycle. The idea behind taking a principle-based approach, is that if all sub-sector actors try to apply good IWRM practice at their own level, in their own work, this will in turn lead to the emergence of better local level water resource management, and will be an important first step in the process of IWRM. It is however, important to realise, that principle-based, sub-sector level IWRM is unlikely to be able to make all the hard decisions discussed in the section on ‘full’ IWRM.

### **Examples of principle-based approaches**

Two useful examples of using guidelines based on the Dublin principles to implement principle-based IWRM at project or sub-sector scales are the working principles for IWRM in WATSAN developed by Visscher et al. (1999) and, with a broader focus, the 1998 EC guidelines for water management. Visscher et al. (1999) developed their principles from field research involving eight WATSAN and three IWRM projects in seven countries where the principles were used as part of a process of self assessment and improvement of IWRM practice (Box ?). The EC guidelines were developed by the European Commission for use in planning, implementing and assessing

water projects in the south (primarily Africa) and the heart of the tool is a series of detailed checklists that, for each stage of the project cycle, ensure that best IWRM practice is adopted.

Other models and tools that have been development based on the concept of principle-based approaches include:

- The Bellagio principles and the Household Centred Environmental Sanitation (HCES) approach
- Principles for multiple use services

This section gives a brief overview of these approaches, how they are structured, and how these are (or can be) used by local government.

### *EC guidelines on IWRM*

Arguably, the most comprehensive and elaborated example of a principle-based approach are the guidelines for water resources management developed by the European Commission (EC, 1998).

#### *Box ? Principles from the EC Guidelines*

##### *Institutional and management principles*

1. Roles of government and official bodies at all levels should be clearly defined and areas of responsibility officially established
2. The structures and systems of management should be designed in such a way as to facilitate involvement by the responsible authorities at different levels
3. Involvement of user organisations and the private sector should be encouraged
4. Ongoing capacity building is needed within institutions and for participant groups at all levels
5. Management systems should be transparent and accountable and appropriate management information systems should be established

##### *Social principles*

6. A sufficient supply of water and an adequate means of sanitation are basic human needs to which everyone should have access
7. Users have an important role to play and their involvement should be fostered via a participatory approach
8. Gender implications should be examined and taken into account at all stages of the planning and implementation process

##### *Economic and financial principles*

9. Water has an economic value and should be recognised as an economic good
10. Charging tariffs for water services is an important component of any strategy for sustainability
11. Demand management should be used in conjunction with supply provision

##### *Environmental principles*

12. Water-related activity should aim to enhance or to cause least detrimental effect on the natural environment and its health and life-giving properties
13. The allocation and consumption of water for environmental purposes should be recognised and given appropriate emphasis
14. Environmental change should be monitored so that improvements can be encouraged and detrimental impacts minimised

##### *Information, education and communication principles*

15. A sound information and knowledge base is needed for effective actions within all water-related activities
16. Education is a vital component of water related schemes if health and life enhancement benefits are to be achieved and sustained
17. Communication and awareness building are essential ingredients in all forms of water resources management

##### *Technological principles*

18. A balanced approach towards hardware and software components of projects should be adopted
19. Choice of technology should be governed by considerations of its efficiency, appropriateness, cost and suitability for local conditions



This set of guidelines combines:

- (Sub)-sets of principles for IWRM. These are 19 principles which are elaborations on the Dublin principles of IWRM (see Box).
- Different focus areas (or sub-sectors). These are the 4 main sub-sectors in which water is used and managed, namely:
  - Water resources assessment and planning - all activities designed to assess resource availability, protect its quality and plan its use
  - Basic water supply and sanitation - service provision in rural areas and marginal urban areas, usually simple technology and community-managed
  - Municipal water and wastewater services - major urban and industrial installations and systems
  - Agricultural water use and management - installations and activities related to agricultural use of water, especially irrigation
- Project cycle management. The principles are to be applied in each phase of the project cycle: programming, identification, formulation, financing, implementation and evaluation. The attention points, related to each principle differ slightly from one phase to the other.
- Question and answer checklists. For each combination of principle, focus area and phase in the project cycle, there is a short question-and-answer mode checklist. This gives suggestions for methods to use to address issues in an integrated way.

Especially relevant for Local Government are of course the focus areas of basic water supply and sanitation and municipal water and wastewater services. When working on projects to develop these services, the guidelines offer a step-by-step approach which through questions-and-answers aim to ensure that services are developed considering an integrated approach towards water resources.

#### *IWRM principles for the WASH sector*

A simplified version of the EC guidelines, is a set of 6 working principles defined for (basic) water and sanitation projects. These have been defined on the basis of lessons learnt from 11 water and sanitation and IWRM projects (Visscher et al., 1999) and subsequent stakeholder consultation.

Catchment management: cases from Jourvalev, e.g. Cuenca, Ecuador

These principles provide more of a framework for analysis, rather than a “to-do” list. Probably, they are most useful as an analytical framework, checking whether a certain project or programme addresses the IWRM principles adequately. Local government can also use these principles in

checking projects they are formulating or evaluating. An example of where these principles have been used to do a quick assessment of the WASH sector in Colombia can be found in Smits

#### *Box ? Working principles for IWRM and WATSAN (Visscher et al., 1999):*

1. Catchment management and source protection are essential to ensuring sustainability of supply
2. Water use efficiency and demand management must be addressed to minimise the need for new source development
3. Multiple uses of water should be acknowledged and encouraged
4. All stakeholders should be involved in decision making, but particular emphasis should be put on the active participation of users
5. Gender and equity issues must be addressed throughout the project cycle
6. Water provision should be priced so as to discourage wasteful use, while ensuring the right to access of a necessary minimum for all

(2002). Similar exercises can be done easily at local level for local government plans and services.

A critique on this list is that it does not give concrete recommendations on how to address these issues, if they are found to be inadequate. Another point of critique is that this list is strongly biased to water supply only, and less specific on sanitation issues.

#### *The Bellagio principles and Household Centred Environmental Sanitation (HCES) approach*

The Bellagio principles (SANDEC/WSSCC, 2000) form a set of principles for changing current approaches to sanitation into a more integrated approach. These principles have been taken a step further into what is called the Household Centred Sanitation approach (Kalbermatten et al., 1999). In brief, the HCES approach conceives of environmental sanitation as an issue that requires the involvement and participation of all stakeholders. It is further based on the principle that waste is a resource whose management should be holistic and form part of integrated water resources, nutrient flows and waste management processes. As such, the domain in which environmental sanitation problems are resolved should be kept to the minimum practicable size (household, community, town, district, catchment, city) and wastes should be diluted as little as possible.

It is argued that following the HCES approach, a huge contribution is made towards solving current pollution problems stemming from sanitation. Again, like with the IWRM principles for the WASH sector, these need to be made more operational for local governments. (add cases where loc gov has applied the HCES)

#### *Box ? Bellagio principles (SANDEC/WSSCC, 2000)*

1. Human dignity, quality of life and environmental security should be at the centre of the new approach, which should be responsive and accountable to needs and demands in the local setting.
  - solutions should be tailored to the full spectrum of social, economic, health and environmental concerns
  - the household and community environment should be protected
  - the economic opportunities of waste recovery and use should be harnessed
2. In line with good governance principles, decision-making should involve participation of all stakeholders, especially the consumers and providers of services.
  - decision-making at all levels should be based on informed choices
  - incentives for provision and consumption of services and facilities should be consistent with the overall goal and objective
  - rights of consumers and providers should be balanced by responsibilities to the wider human community and environment
3. Waste should be considered a resource, and its management should be holistic and form part of integrated water resources, nutrient flows and waste management processes.
  - inputs should be reduced so as to promote efficiency and water and environmental security
  - exports of waste should be minimised to promote efficiency and reduce the spread of pollution
  - wastewater should be recycled and added to the water budget
4. The domain in which environmental sanitation problems are resolved should be kept to the minimum practicable size (household, community, town, district, catchment, city) and wastes diluted as little as possible.
  - waste should be managed as close as possible to its source
  - water should be minimally used to transport waste

#### *Principles for multiple use water services*

As mentioned earlier, planning for multiple uses of water, such as drinking water, water for backyard gardens and livestock at the community level is a key challenge for local government,

as the application of IWRM at the lowest level. A number of initiatives have been taken to come up with principles and guidelines for multiple uses of water. First of all, during an international symposium held in Johannesburg in 2003, a statement has been issued on this issue (Moriarty et al., 2004), saying:

Since then, steps have been taken to develop this statement into an operational framework, supported by action research in the field (see MUS Project, 2005), into the so-called Multiple Use Systems (MUS) approach. Principles have been defined for applying this approach at village level. In addition, principles have been defined for the intermediate and national level, which can provide the enabling environment in which these services at local level can be developed and scaled up (see Moriarty et al., 2005 forthcoming).

*Box ? Principles for productive uses of water at the household level*

- Productive uses of water at the household level by poor people reduces poverty
- People require more than their domestic needs to be productive
- Productive uses enhances the sustainability of water supply systems and services
- People need local solutions and multiple sources for multiple uses
- An integrated approach is essential to achieve significant impacts on poverty

## **5 A reality check: challenges faced by local government**

To be added

## 6 Conclusions

Some very tentative suggestions:

- Local governments can follow two main approaches towards implementing IWRM:
  1. engaging in new IWRM institutions such as catchment-level authorities and
  2. implementing IWRM principles through local actions.
- These two approaches are not mutually exclusive and in fact, in most situations it will make sense for local governments to follow both approaches simultaneously. The hypothesis of Moriarty & Butterworth (2004) is that a twin-track approach based upon local government engagement in catchment level institutions combined with the implementation of local level IWRM supporting actions by local government will be the most effective.
- Decentralisation (if you are a national water manager looking down) or centralisation (if you are a traditional water manager looking up) of water resources management function to catchment-level authorities creates a new political space or territory for contestation over natural resources, investment priorities etc. Local governments or municipalities have a key role to play in this process:
  1. ensuring that basic human needs and water and sanitation services in particular are well managed (local governments often have a key role here), and
  2. encouraging accountability of new catchment-level authorities (local governments represent a constituency and may be democratically elected).
- Whether local governments will play a key role in catchment-level authorities and water resources management will be strongly influenced by context (physical environment, nature of local governments, character of individual catchment-level authorities etc). Lessons from the literature suggest that local level politics are a key determinant in whether local governments play a beneficial role in such types of processes, but also that interactions with civil society and private sector/ economic interests may be just as important in ensuring the accountability of catchment-level authorities.

## 7 Annotated bibliography

Extended summaries of some of the key sources covered in the review are included in this section.

**Brannstrom, C. (2004) Decentralising water management in Brasil. *European Journal of Development Research*. 16(1) pp. 214-234.**

Christian Brannstrom's paper focuses on decentralisation to single-issue users groups (focused in this case on water management) in Brasil, and in particular the role of municipalities. The paper starts off by examining a number of problems facing such platforms.

- Single-issue user groups may work in parallel or in contradiction to multi-purpose groups
- Single issue groups may be formed by appointments rather than democratic elections, becoming less downwardly accountable to local populations
- Watershed committees formed by water users are especially susceptible to top-down intervention through highly technical jargon and debates
- Single-issue groups are potentially damaging to decentralisation and thus should be subordinated to multi-purpose councils

The paper focuses on whether involvement of municipalities is able to overcome some of these problems, especially by improving accountability at the local level. The paper notes that "active participation of municipal governments is thought to be one of the best ways to increase downward accountability and encourage democratic decentralisation, thus producing superior equity and efficiency." The results of case studies in three states fail to support this claim however. The author concludes that "claims stressing the importance of municipalities in democratic decentralisation and the negative effects of single-issue groups may be overstated". He finds that "the participation of municipalities is no guarantee of democratic accountability, nor does exclusion of municipalities eliminate downward accountability" which may also be supported by grassroots activists, NGOs, the judiciary and the press.

Interesting observations are made on the implications of adopting the watershed as a unit. In Sao Paulo, the author suggests that 'state-society relationships developed around watershed committees would have been difficult to form within the confines of the municipality'. Watersheds are seen as new territories and political spaces that potentially encourage democratic decentralisation. Interactions between activists, NGO, state technicians were able to emerge, and issues that had long been neglected by municipalities could then be addressed. In the same catchment, another interesting finding was that one powerful municipality dominated the interests of others. In another case in Bahia, where there was opposition in the water bureaucracy to decentralisation, the author finds that farmer groups, activists lobbying the public attorney and the environmental bureaucracy played a key role in encouraging downward accountability, while municipalities did relatively little.

Encouragement of a three way dynamic between central government, local government and civil society is needed he concludes, more than reliance solely upon municipal governments.

**Faguet, J-P. (2003) *Decentralization and local government in Bolivia: an overview from the bottom up*. Working Paper no.29. Crisis States Programme Development Research Centre London School of Economics and Political Science LSE, London, United Kingdom. <http://www.crisisstates.com/download/wp/WP29JPF.pdf>**

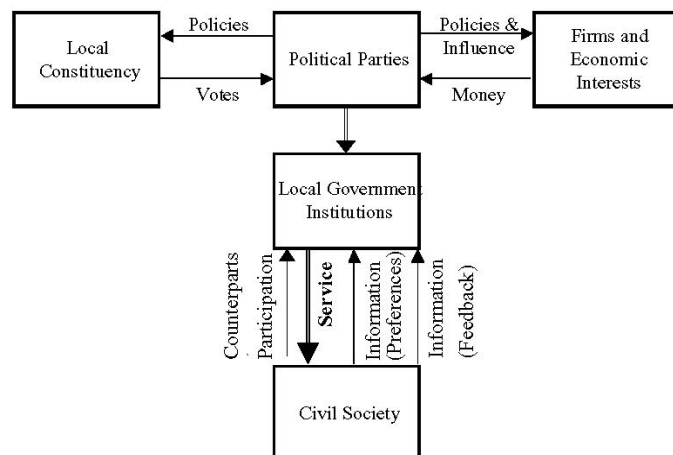
Jean-Paul Faguet argues that, amongst the general lack of conclusive evidence on whether decentralisation around the world has been effective, Bolivia represents a successful case where empowering decentralisation has made government more responsive by re-redirecting investment to areas of greatest need (i.e. rural and poorer municipalities and issues prioritised by poor communities). The paper also asserts that such change can occur relatively quickly within the space of a few years. Based upon a combination of quantitative and qualitative (case studies from a well and poor performing municipality) analysis, the paper considers the impacts of decentralisation reforms introduced in 1994. Prior to then, and excepting the cities, “local government existed at best in name, as an honorary and ceremonial institution devoid of administrative capability and starved of funds....in most of the country it did not exist at all”. After the reforms, 308 Bolivian municipalities took 73% of devolved funds and the three main cities took the remaining 27%, compared to a completely opposite distribution of 14% and 86% respectively prior to the changes.

The paper identifies a number of ‘Bolivian decentralisation stylised facts’:

1. *Local government and central government have very different investment priorities.* For example, watershed management and water and sanitation (as well as urban development and education) were given much higher priority in local compared to central investment (this prioritised transport, communications and hydrocarbons)
2. *Decentralised government distributes public investment much more evenly throughout the country*
3. *Decentralisation increased government responsiveness to real local needs*
4. *Centralised investment was economically regressive, concentrating public investment in richer municipalities and ignoring poorer ones*

Based upon an analysis of one of the best and one of the worst performing local governments in the country, the paper presents a model for local government which sees local politics as the crux of a nexus between local voters, the private sector and economic interests, and civil society. The relations between political parties and voters and between political parties and economic interests are viewed as markets. Politicians compete for votes in elections and they exchange influence for campaign and political funds from economic interests. The third relationship is between local government institutions and civil society where services are delivered with varying degrees of transparency and participation. The author argues that the counterbalance between these three relationships is vital for effective local government.

In Viacha (a badly performing municipality), the government was unresponsive, violent and corrupt and this was linked to the mayors short-circuiting of public accountability and sabotage of institutions of government. In Charagua, where there was a much more favourable social and political consensus, governance was found to be participative and responsive led by strong



institutions of government with high quality policy outputs

**Juuti, P.S., & Katko, T.S. 2005. City in Time. [www.watertime.org](http://www.watertime.org) (accessed 14 July 2005)**

In this report the authors review historical patterns of decision-making relating to urban water supply and sanitation systems in Europe based upon futures research to illustrate the interconnectedness of pasts, presents and futures. Examining 13 countries and 29 cities they make many observations on the historical role of municipalities in water supply and sanitation services with references to a large number of sources. Key observations include:

- In European cities, initial establishment of modern water systems to respond to needs such as better public health, rising demands for industry and fire-fighting demands was based upon private initiatives. Across Europe, with few exceptions (e.g. France where a longer tradition of private water companies has been maintained) as limitations emerged with this organisation model during the 19<sup>th</sup> Century, these private systems were taken over by municipalities and new investments were then dominated by municipalities.
- Quoting Hall (2003, 7) “In the late 19th century, the emphasis was on municipalisation. Democratically elected city councils bought existing utilities and transport systems and set up new ones of their own. This resulted in more effective control, better employment, and greater benefits to the local people. Councils also gained the right to borrow money to invest in the development of their own systems”.
- The role of local government in water management in Europe is related to the legal/institutional cultures (e.g. Roman or Germanic origin) and the organisation of the state (e.g. centralised or subsidiary). It is argued that recently (in the 1990s) most of Europe has been moving down the path of decentralisation with a stronger role for local government, whereas Britain in contrast moved towards greater centralisation and an agency status for local government with a role limited to implementing central government policies under very specific rules. The privatisation and regionalisation of water services in England & Wales is linked to this relative long-term decline of local authorities.
- On the role of local government the authors conclude “It is a historical fact that the vast majority of WSS systems in the western world have been developed under local government ownership while also utilising the services and goods of the private sector, if available. One key policy question is whether now the same chance should be given to developing and transition economies. Some of them may be at the early stages of development which may require temporarily more extensive private involvement. In any case, capacity building by local governments and utilities as well as the local private sector should be the long-term objective.”

**Global Water Partnership. Local authorities.**

**[http://gwpforum.netmasters05.netmasters.nl/en/content/tool\\_1D798ACB-4307-4134-A4E2-BC7140329E2D.html](http://gwpforum.netmasters05.netmasters.nl/en/content/tool_1D798ACB-4307-4134-A4E2-BC7140329E2D.html) (accessed 14 July 2005)**

The Global Water Partnership Toolbox includes the following short summary on local authorities:

“Local authorities can play an important role in overseeing the implementation of IWRM activities both within their boundaries and within the local and regional watersheds. They act both as regulators and as service providers and have a role in raising finance. Despite varying



levels of jurisdiction over water services, local governments have both direct and indirect responsibility for the water security of their communities and their industrial base.

In the context of IWRM, local authorities affect the aquatic ecosystems through their energy supplies, land uses (including zoning and impermeable areas), point and non-point pollution, construction practices, public education, solid waste and urban drainage practices, among other areas. Improved integration of the efforts of all the relevant actors toward commonly accepted goals for their water resources is necessary to improve the quality of water bodies and the security of the watersheds and aquifers on which they depend.

The role of local authorities and governments in supporting IWRM is particularly strong where there are moves towards decentralisation and democratisation of planning and resource management. Local governments offer a strong forum for local participation, particularly through internationally recognised programs, such as Local Agenda 21 planning, and can be instrumental in providing information and supporting dialogue among stakeholders and policy makers.

Local governments have a variety of economic instruments available to them to influence the behaviour of their citizenry. These include rate structures and charges, fees for permits and other governmental services, special taxes and surcharges, incentives (such as bonuses and rebates) as well as fines and penalties. These economic instruments are complemented by a variety of regulatory instruments, such as by-laws, that local governments can use to influence the implementation of IWRM practices within their boundaries.”

**Jouravlev, A. (2003) *Los Municipios y la Gestión de los Recursos Hídricos*. Series Recursos Naturales e Infraestructura No 66. CEPAL, Santiago de Chile, Chile**

Jouravlev (2003) distinguishes three main functional areas of local government: 1) local public services provision (such as water and sanitation, stormwater management, solid waste management, electrification, local roads, market places, green areas and parks), 2) social services provision, (such as health, education, social security, sports) and 3) planning, promotion of development and control (which would include spatial planning, employment creation, public order, regulation and management of control over use of natural resources).

**Mazibuko, G. and G. Pegram (2004) *Evaluation of the Opportunities for Cooperative Governance between Catchment Management Agencies and Local Government*. Water Research Commission, Pretoria, South Africa**

This report focuses on one specific aspect of cooperative government (an important feature of the country’s constitution) within the South African context: how local government and the new catchment management agencies (new agencies to manage water resources within 19 large river basins or water management areas in the country) will interact with each other. It includes a detailed analysis of local government and the emerging CMAs based upon a series of case studies. Three main areas are identified where local government and CMAs interface: 1) planning (specifically sector plans on spatial planning and water services development plans that are both part of an integrated development planning processes); 2) environmental management which includes responsibilities for environmental planning; and 3) service delivery which includes water supply, wastewater discharge, and stormwater management.

Interesting lessons emerging from the case studies and analysis include:

- There is a general lack of understanding on what CMAs are and how they will interact with local government institutions. There is a need for awareness raising. Related to this, there is some resistance to the establishment of CMAs because some LGs perceive there to be a duplication of functions and the creation of an additional layer of bureaucracy whereas some tasks could be delegated or assigned to LG
- There are lots of very different local governments, and CMAs will also be distinct in character. The implication is that relationships should be structured differently according to context.
- CMAs as better resourced institutions and will need to drive processes to promote cooperative governance involving LG who have limited resources, are under stress and many have other priorities than IWRM
- The nature of representation of LG on CMA governing boards is not clear but it is likely that 10-20 municipalities in each WMA will have to be represented by around 3 members. It may be appropriate for LGs to establish a forum to coordinate representation of their interests through representatives on the governing boards.
- There is widespread frustration in relation to delays in responses between departments, for example delays in reserve determination by DWAF. Much of the effective interaction between institutions is nested in informal relationships rather formal coordination e.g. through committees.
- The role of traditional institutions and leaders needs to be more widely considered.
- Byelaws established by LG should be aligned with WRM priorities through coordination with CMAs.

## 8 References

Allen, A., Dávila, J., and P. Hofmann (2004) *Governance and access to water and sanitation in the metropolitan fringe: an overview of five case studies*. Paper presented at: Urban Governance, diversity and social action in cities of the South. N-Aerus Annual Conference, 15 – 16 September 2004, Barcelona, Spain

Bustamante, R., Butterworth, J., Flierman, M., Herbas, D., den Hollander, M., van der Meer, S., Ravenstijn, P., Reynaga, M. and Zurita, G. (2004) *Livelihoods in conflict: disputes over water for household-level productive uses in Tarata, Bolivia*. <http://www.prodwat.watsan.net/page/413>

DWAF (2003) *Strategic Framework for Water Services; Water is Life; Sanitation is Dignity*. Department of Water Affairs and Forestry, Pretoria, South Africa

DWAF (2004) *National Water Resources Strategy; a blueprint for survival*. Department of Water Affairs and Forestry, Pretoria, South Africa

EC (1998) *Towards Sustainable Water Resources Management; A strategic approach*. Luxembourg

EC (2000) *Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy; Water Framework Directive*  
[http://europa.eu.int/comm/environment/water/waterframework/index\\_en.html](http://europa.eu.int/comm/environment/water/waterframework/index_en.html) [accessed 24 June 2005]

Faguet, J-P. (2003) *Decentralization and local government in Bolivia: an overview from the bottom up*. Working Paper no.29. Crisis States Programme Development Research Centre London School of Economics and Political Science LSE, London, United Kingdom.  
<http://www.crisisstates.com/download/wp/WP29JPF.pdf>

FNCA (2004) European Declaration for a New Water Culture. Fundación para la Nueva Cultura del Agua. Zaragoza, Spain <http://www.unizar.es/fnca/euwater/index2.php?x=3&idioma=en> [accessed 27 June 2005]

Fragano, F. (2001) Management Models for Small Towns; Community Water Board in Itagua, Paraguay. In: Rosensweig, F. (ed.) (2001) *Case studies on decentralization of water supply and sanitation services in Latin America*. Environmental Health Project Strategic Paper 1. USAID Bureau for Latin America and the Caribbean. Washington D.C., USA

Guzha, E. (2005) An evaluation of existing institutions, organisations and networks capacity and limitations, strength and weaknesses in scaling up innovations and the role of Learning Alliance approaches into existing water and sanitation sector in Zimbabwe. In: Smits, S., Fonseca, C. and J. Pels (eds.) (2005) *Proceedings of the symposium on Learning Alliances for scaling up innovative approaches in the water and sanitation sector held in Delft, the Netherlands, 7-9 June 2005*. IRC, Delft, the Netherlands. [www.irc.nl/la](http://www.irc.nl/la)

GWP (2005) Peru: Participatory Regional Development Planning - The Provincial Municipality of Cajamarca. In: GWP Tool Box for Integrated Water Resources Management [http://gwpforum.netmasters05.netmasters.nl/en/searchFrame\\_en.cfm](http://gwpforum.netmasters05.netmasters.nl/en/searchFrame_en.cfm)

Havekes, H., Koemans, F., Lazaroms, R., Poos, D., and R. Uijterlinde (2005) *Water governance: the Dutch water board model*. Dutch Association of Water Boards / Nederlandse Waterschapsbank N.V., the Netherlands  
[http://www.uvw.nl/content/TRIBAL\\_tsShop/files/123\\_watergovernance.pdf](http://www.uvw.nl/content/TRIBAL_tsShop/files/123_watergovernance.pdf)

Helmsing, A.H.J. (2002) Decentralisation, enablement, and local governance in low-income countries. In: *Environment and Planning C: Government and Policy* (2002) Volume 20(3) June, pages 317 - 340

ICLEI (2001) *The Local Government Water Code*. City of Lisbon Press, Lisbon, Portugal

ICLEI (2005) *Local Government Implementation Guide for the Johannesburg Plan of Implementation and the Millennium Development Goals. Volume 1: Water, Sanitation and Human Settlements*. <http://www3.iclei.org/implementationguide/>

Jouravlev, A. (2003) *Los Municipios y la Gestión de los Recursos Hídricos*. Series Recursos Naturales e Infraestructura No 66. CEPAL, Santiago de Chile, Chile

Kalbermatten, J. M., Middleton, R., Schertenleib, R. (1999) Household-Centred Environmental Sanitation. WSSCC Working Group Environmental Sanitation, Switzerland. Available at: <http://www.sandec.ch/Publications/PublicationsHome.htm>

Lockwood, H. (2002) *Institutional Support Mechanisms for Community-managed Rural Water Supply and Sanitation Systems in Latin America*. EHP Strategic Report No. 6 [http://www.ehproject.org/PDF/Strategic\\_papers/SR-6.pdf](http://www.ehproject.org/PDF/Strategic_papers/SR-6.pdf)

Lockwood, H. (2004) *Scaling Up Community Management of Rural Water Supply*. Thematic Overview Paper. IRC International Water and Sanitation Centre, the Netherlands. <http://www.irc.nl/page/8857>

Mail and Guardian online (2003) *Sugar venture not so sweet*. [http://www.mg.co.za/articledirect.aspx?articleid=27726&area=%2finsight%2finsight\\_national%2f](http://www.mg.co.za/articledirect.aspx?articleid=27726&area=%2finsight%2finsight_national%2f) [accessed June 2005]

Mazibuko, G. and G. Pegram (2004) Evaluation of the Opportunities for Cooperative Governance between Catchment Management Agencies and Local Government. Water Research Commission, Pretoria, South Africa

Moriarty, P., Butterworth, J. and B. van Koppen (2004) *Beyond Domestic: Case studies on poverty and productive uses of water at the household level*. Technical Paper 41, IRC, NRI, IWMI, the Netherlands.

Moriarty, P. and T. Schouten (2004) *How can the capacity and strength of local government be developed to reach the MDGs for water and sanitation?* Background paper to the session on local government at the WASH Forum, Dakar, Senegal. <http://www.irc.nl/page/16096>

Moriarty, P., Smits, S., and B. van Koppen (2005 forthcoming) *Project Framework for the MUS Action Research: Planning - action – reflection in three-tiered learning wheels*. MUS Project, Delft the Netherlands

MUS Project (2005) [www.musproject.net](http://www.musproject.net)

Pollard, S. and Du Toit, D. (2005). Achieving integrated water resource management: the mismatch in boundaries between water resources management and water supply. In: B. van Koppen, J.A. Butterworth and I.J. Juma (2005) *African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa*. Proceedings of a workshop held in Johannesburg, South Africa, 26-28 January 2005. IWMI, Pretoria. [www.nri.org/waterlaw/workshop](http://www.nri.org/waterlaw/workshop) [accessed June 2005]

Republic of South Africa (1997) *Water Services Act*. Government Gazette Vol. 390 No 18522. Cape Town, South Africa

Republic of South Africa (1998) *National water Act*. Government Gazette Vol. 398 No 19182. Cape Town, South Africa

Rivera, D. (2001) Management models for small towns; Management Contract in Marinilla, Colombia. In: Rosensweig, F. (ed.) (2001) *Case studies on decentralization of water supply and sanitation services in Latin America*. Environmental Health Project Strategic Paper 1. USAID Bureau for Latin America and the Caribbean. Washington D.C., USA

Rogers, P., and Hall, A.W., (2003), *Effective Water Governance*, TEC Background Papers No. 7, Global Water Partnership, Technical Committee, Stockholm, Sweden. Available at: <http://www.gwpforum.org/servlet/PSP?iNodeID=215&itemId=197> [accessed Feb. 2005]

Rosensweig, F. (ed.) (2001) *Case studies on decentralization of water supply and sanitation services in Latin America*. Environmental Health Project Strategic Paper 1. USAID Bureau for Latin America and the Caribbean. Washington D.C., USA

SANDEC/WSSCC (2000) *Bellagio statement; Clean, healthy and productive living: a new approach to environmental sanitation*. WSSCC Working Group Environmental Sanitation, Switzerland. Available at: [http://www.sandec.ch/EnvironmentalSanitation/Documents/Bellagio\\_Statement.pdf](http://www.sandec.ch/EnvironmentalSanitation/Documents/Bellagio_Statement.pdf)

Scott, C. A., Faruqui, N.I. and L. Raschid-Sally (2004) Wastewater use in irrigated agriculture: management challenges in developing countries. In: Scott, C.A., Faruqui, N.I. and L. Raschid-Sally (2004) *Wastewater use in irrigated agriculture: confronting the livelihood and environmental realities*. CABI Publications, United Kingdom

Smit, T. (2003) *Catchment Management Forums in the Eastern Cape Province of South Africa*. Multi-Stakeholder Platforms for Integrated Catchment Management Project report. Irrigation and

Water Engineering Group, Wageningen University, the Netherlands  
[www.dow.wau.nl/msp/content/uk/southAfrica/articles/Forum%20report%20Tim%20Smit.pdf](http://www.dow.wau.nl/msp/content/uk/southAfrica/articles/Forum%20report%20Tim%20Smit.pdf)

Smits, S. (2002) *Mind the Gap: Issue Paper on Policies and Practice of Water and Sanitation in the Context of Integrated Water Resources Management in Colombia*. IRC, Delft, Netherlands  
<http://www.irc.nl/page/16478> [accessed 16 June 2005]

Smits, S.J., Pollard, S., du Toit, D., Butterworth, J., and P. Moriarty (2004) *Understanding the "reserve": linkages between water resources, infrastructure and demand and entitlements in the Sand River Catchment, South Africa*. Paper presented at the IWA Specialist Group Conference on Water and Wastewater Management for Developing Countries. Victoria Falls, Zimbabwe.

Smits, S.J. (2005) *Water and livelihoods*. WELL Factsheet. WELL Resource Centre Network for Water, Sanitation and Environmental Health. United Kingdom  
[www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/water%20and%20live.htm](http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/water%20and%20live.htm)

Smits, S.J. (2005 forthcoming) *Going down the drain? Positioning sanitation within Integrated Water Resources Management*. WELL Resource Centre Network for Water, Sanitation and Environmental Health. United Kingdom

Smits, S.J. and P. Moriarty (2005 forthcoming) *Principle-based approaches to Integrated Water Resources Management*. EMPOWERS Partnership. Delft, the Netherlands

Toulmin, C., and B. Guèye (2003) How will West African countries meet the MDGs? In: David Satterthwaite (ed.), *The Millennium Development Goals and Local Processes: hitting the target or missing the point?* IIED, London; pp. 107-133

Uijterlinde, R.W., Janssen, A.P.A.M. and C.M. Figuerès (2003) *Success factors in self-financing local water management*. Unie van Waterschappen, the Netherlands.  
[http://www.uvw.nl/content/TRIBAL\\_tsShop/files/60\\_succesfactors.pdf](http://www.uvw.nl/content/TRIBAL_tsShop/files/60_succesfactors.pdf)

Van Gils, W. en S. Hanegreefs (2003) *Gemeentelijke handleiding integraal waterbeheer*. Bond Beter Leefmilieu Vlaanderen Brussels, Belgium (in Dutch).  
[www.h2overheid.nl/content.jsp?objectid=2213](http://www.h2overheid.nl/content.jsp?objectid=2213) [accessed June 2005]

Verweij, M. and J.W.F. Knegt (2002) *Towards Users Driving Water Resources Development in Zimbabwe: The Role of Catchment Councils*. Multi-Stakeholder Platforms for Integrated Catchment Management Project report. Irrigation and Water Engineering Group, Wageningen University, the Netherlands

Visscher, J.T., Bury, P., Gould, T., and Moriarty, P. (1999) *Integrated water resource management in water and sanitation projects: lessons from projects in Africa, Asia and South America*. Occasional Paper 31, IRC, Delft, Netherlands <http://www.irc.nl/page/1861> [accessed 15 June 2005]

WaterAid (2005) *Getting to boiling point; turning up the heat on water and sanitation*. WaterAid, London, United Kingdom

WHO/UNICEF (2005) *Water for life: making it happen*. Joint Monitoring Programme for Water Supply and Sanitation. [http://www.wssinfo.org/pdf/JMP\\_05\\_text.pdf](http://www.wssinfo.org/pdf/JMP_05_text.pdf) [accessed 24 June 2005]

WMO (1992) The Dublin Statement and report of the conference. International Conference on Water and the Environment (ICWE): Development issues for the 21<sup>st</sup> century, 26-31 January 1992, Geneva Switzerland, World Meteorological Organization, Hydrology and Water Resources Department. Available at [www.wmo.ch/web/homs/documents/hwrpdocs.html](http://www.wmo.ch/web/homs/documents/hwrpdocs.html) [accessed 24 June 2005]

Yepes, G. (2001) Regulation of WS&S services in small towns; A Review of Experience in Selected Countries in Latin America. In: Rosensweig, F. (ed.) (2001) *Case studies on decentralization of water supply and sanitation services in Latin America*. Environmental Health Project Strategic Paper 1. USAID Bureau for Latin America and the Caribbean. Washington D.C., USA