



**018530 - SWITCH**

**Sustainable Water Management in the City of the Future**

Integrated Project  
Global Change and Ecosystems

**D6.1.2 Mapping governance of urban environmental sanitation in Latin America: case studies from Belo Horizonte, Cali, Lima and Tegucigalpa**

Due date of deliverable: April 2007 (Month 15)  
Actual submission date: February 2009

Start date of project: 1 February 2006

Duration: 60 months

Organisation name of lead contractor for this deliverable: 2 IRC

Revision [final]

<b>Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)</b>		
<b>Dissemination Level</b>		
<b>PU</b>	Public	PU
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	



**SWITCH**  
**Sustainable Water Management in the City of the Future**

**Mapping governance of urban environmental sanitation in  
Latin America: case studies from Belo Horizonte, Cali, Lima  
and Tegucigalpa**

Stef Smits (IRC), Alberto Galvis (Cinara/Universidad del Valle), Diana Paola Bernal (Cinara/Universidad del Valle), Jan Teun Visscher (IRC), Alain Santandreu (IPES), Nilo Oliveira de Nascimento (UFMG), Eduardo Sánchez (FHIS/RAS-HON) and John Butterworth (IRC)  
Delft, the Netherlands  
February, 2009

## **Executive summary**

Cities in Latin America face a double challenge in environmental sanitation, of both providing access to basic water supply and sanitation for those currently lacking that, and improving the collection and treatment of wastewater and solid waste. Governance is a crucial factor affecting the way in which these challenges can be met. The last decades have seen a package of governance reforms, such as decentralisation, the establishment of independent regulators and water resources authorities, and democratization of decision-making procedures. However, the degree to which these reforms have actually been implemented and worked out is different in the countries and cities of the region. This report looks into governance arrangements in four Latin American cities: Belo Horizonte (Brazil), Cali (Colombia), Lima (Peru) and Tegucigalpa (Honduras). These cities are all seeing efforts to address environmental sanitation in a more integrated manner; addressing governance aspects is integral to these efforts. Understanding current governance arrangements provides the basis for these. This report provides an analysis of the actual governance arrangements in these cities, and looks into similarities and differences between them. It also provides conclusions and recommendations for addressing governance in efforts to develop integrated approaches to urban environmental sanitation.

The types of governance reforms mentioned above have also been implemented in the four case cities, albeit in different ways. The institutional frameworks are therefore all different. Yet, some trends are observed. First of all, all frameworks are characterised by a high degree of specialization in the roles fulfilled by the different organisations. Water supply and sanitation service provider roles are separated; water resources authorities and independent regulators are established, and specific roles assigned to civil society groups. This specialisation necessarily means a corresponding level of fragmentation of roles and functions over different organisations. In itself, this is not a problem, as long as there is coordination and integration between these actors in planning processes. Specific mechanisms for integrated planning are needed and were seen, including the municipal sanitation council in Belo Horizonte, or participatory budgeting processes in Lima and Belo Horizonte. Water resources institutions, such as catchment authorities or stakeholder platforms potentially have an integrating role as well, but they require instruments to carry out their role. Where these mechanisms are lacking, stakeholders were found to be developing and implementing their own organisational plans, rather than sectoral plans. Besides, civil society is then often excluded from decision-making processes. Leadership by local government was found to be crucial to achieve coordination and integration between these organisations.

Important progress has been made in establishing control and accountability mechanisms at different levels: between water and sanitation service providers and local authorities, between service providers and independent regulators, and between community groups and authorities. Although these can all be strengthened, these were considered having a positive effect on more transparent and accountable decision-making.

Finally, the report looked into the capacity of stakeholders to carry out their functions. It was found that financial capacity is mostly not considered a main limiting factor in governance. But, there are some gaps in terms of human resources, such as the capacity to follow more participatory approaches, and the capacity of community groups and civil society organisations to engage meaningfully in decision-making processes on sanitation improvements. This is related to their limited access to and use of information on innovative and more integrated approaches to urban environmental sanitation.

The study concludes that standard elements of sector reforms, such as decentralisation, the establishment of regulating entities and setting-up water resources authorities are important components in the strengthening of governance over sanitation. But, the study also shows it shouldn't stop there. Strengthening capacity at different levels and developing mechanisms for inclusive and integrated planning, with its accountability mechanisms, are equally important. It is therefore recommended that the initiatives towards more integrated urban environmental sanitation, such as the ones described in this report, focus on pragmatically working with city stakeholders in activities such as joint planning and facilitating access to and use of information.

# Table of contents

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>TABLE OF CONTENTS .....</b>	<b>3</b>
<b>ABBREVIATIONS AND ACRONYMS.....</b>	<b>5</b>
<b>1 BACKGROUND .....</b>	<b>6</b>
1.1 URBAN ENVIRONMENTAL SANITATION AND WATER IN LATIN AMERICA .....	6
1.2 AN INTEGRATED APPROACH.....	7
1.3 GOVERNANCE .....	8
1.4 THE SWITCH PROJECT IN LATIN AMERICA .....	8
1.5 OBJECTIVE AND STRUCTURE OF THIS REPORT .....	8
<b>2 CONCEPTUAL FRAMEWORK.....</b>	<b>9</b>
2.1 AN EMPIRICISTS APPROACH TO GOVERNANCE.....	9
2.2 PLANNING CYCLES .....	10
2.3 INTEGRATED WATER RESOURCES MANAGEMENT .....	11
2.4 CONCEPTUAL FRAMEWORK FOR THIS STUDY .....	12
<b>3 METHODOLOGY .....</b>	<b>12</b>
3.1 CASE STUDY SELECTION .....	13
3.2 DATA COLLECTION AND ANALYSIS .....	14
3.3 LIMITATIONS TO THE STUDY .....	15
<b>4 CONTEXT: IUWM CHALLENGES IN THE FOUR CITIES .....</b>	<b>15</b>
4.1 BELO HORIZONTE: PARADIGM SHIFT ON STORMWATER DRAINAGE.....	15
4.2 CALI: REDUCING POLLUTION TO IMPROVE DRINKING WATER SUPPLY SERVICES FOR THE EXPANDING CITY	16
4.3 LIMA: PLANNING FOR REUSE OF WASTEWATER IN URBAN AGRICULTURE AND GREEN AREAS.....	17
4.4 TEGUCIGALPA: PROVIDING BASIC WATER AND SANITATION SERVICES IN POOR PERI-URBAN COMMUNITIES.....	18
<b>5 FINDINGS.....</b>	<b>18</b>
5.1 INSTITUTIONAL ARRANGEMENTS .....	18
5.1.1 <i>Service providers</i> .....	19
5.1.2 <i>National regulators and control entities</i> .....	20
5.1.3 <i>Pollution control and water resources management</i> .....	21
5.1.4 <i>Civil society</i> .....	22
5.2 INTEGRATED PLANNING FOR ENVIRONMENTAL SANITATION .....	22
5.2.1 <i>Strategic planning of services</i> .....	23
5.2.2 <i>Operational planning for service provision</i> .....	24
5.2.3 <i>Urban planning</i> .....	26
5.2.4 <i>Planning of water resources</i> .....	28
5.2.5 <i>Implications for integrated planning</i> .....	29
5.3 MONITORING, CONTROL AND ACCOUNTABILITY .....	30
5.4 CAPACITY: ENGAGING IN GOVERNANCE FUNCTIONS .....	31
5.4.1 <i>Financial capacity</i> .....	31
5.4.2 <i>Human resources</i> .....	33
5.4.3 <i>Access to and use of information</i> .....	34
<b>6 CONCLUSIONS AND WAY FORWARD .....</b>	<b>35</b>
6.1 CONCLUSIONS.....	35

6.2 IMPLICATIONS FOR THE WAY FORWARD .....38  
**ACKNOWLEDGEMENTS .....39**  
**REFERENCES .....39**

**ANNEX 1: SWITCH DELIVERABLE BRIEFING NOTE TEMPLATE**

## **Abbreviations and acronyms**

IRC	International Water and Sanitation Centre
IUWM	Integrated Urban Water Management
IWRM	Integrated Water Resources Management
JMP	Joint Monitoring Programme
LAC	Latin America and the Caribbean
RAS-HON	Red de Agua y Saneamiento de Honduras
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WSP	Water and Sanitation Programme

# 1 Background

## **1.1 Urban environmental sanitation and water in Latin America**

Most cities in Latin America and the Caribbean (LAC) have shown important progress in providing access to basic water supply services, with a reported nearly universal coverage rate of 96% in urban areas in the region (WHO/UNICEF, 2007) (see Table 1 for coverage rates for the region as a whole and the 4 countries addressed in this study). In the region, with its high urbanization rates, some 119 million more people have been served between 1990 and 2004. These efforts have enabled providers to keep up with the increase of urban dwellers (+ 113 million) and improve coverage by 3%. Notwithstanding this progress, difficulties remain in the actual provision of basic water supply services in urban areas, particularly in aspects such as the quality and continuity of the service, operation and maintenance of infrastructure and affordability and payment for services. Those who remain without access are the poorest and most vulnerable groups.

With much progress made in addressing water supply issues, there is a growing need to focus attention on improving environmental sanitation services, understood to include the provision of basic sanitation (toilets), the collection, treatment and disposal of wastewater, as well as stormwater and solid waste management (DfID, 1998). Indicators for coverage of urban sanitation differ between the most frequently cited sources of statistics, such as the Joint Monitoring Programme (JMP) and official government sources, as reported in WSP (2007a) (see Table 1). These use different definitions of coverage, adequate sanitation facilities and even of “urban areas”. Probably, actual coverage is even lower, as these figures do not take into account aspects such as the state of operation and maintenance of services. More important than the exact figures are the trends that they indicate. First of all, we see clearly that coverage of basic sanitation still lags behind water supply coverage rates. The rate at which sanitation has been provided is only slightly higher than the population growth in urban areas. For example, in Brazil and Peru the coverage in urban sanitation has remained more or less the same since 1990, whereas in Honduras there has been a marked increase in access. In the poorest countries in the region, such as Haiti, Bolivia and Nicaragua, coverage of basic sanitation in urban areas is only around 55-60%.

**Table 1: coverage in water supply and basic sanitation services in urban areas**

Country	Coverage in urban water supply (%) (WHO/UNICEF, 2007)	Coverage in basic sanitation in urban areas (%) (WHO/UNICEF, 2007)	Coverage in basic sanitation in urban areas (%) (WSP, 2007a)	Wastewater treatment (% of all wastewater generated) (WSP, 2007a)	Coverage in solid waste collection (%) (WSP, 2007a)	Safe disposal of solid waste (% of collected waste) (WSP, 2007a)
Brazil	96	83	77	n.d.	89%	41%
Colombia	99	96	92	8	90%	89%
Honduras	95	87	74	22	n.d.	n.d.
Peru	89	74	68	23	74%	30%
LAC Region	96	86	n.d.	15	n.d.	n.d.

Other aspects of environmental sanitation are lagging behind even more, even though reliable and comparable statistics are also lacking in this field. Less than 15% of all wastewater generated in the region is estimated to be treated before final disposal (WSP, 2007). Only Chile has shown a dramatic effort in increasing its wastewater treatment coverage up to 73%, even though this is mainly in secondary treatment. This results in heavy pollution of water courses close to urban areas, as we will see later in this paper. A similar story can be told for solid waste management. Solid waste collection services are relatively well-developed and cover relatively large parts of the population. However, safe disposal is lagging behind.

Urban environmental sanitation in the region faces a double challenge of increasing on the one hand access to basic services of waste collection to keep up with population growth, and secondly to dramatically increase the treatment and disposal of wastewater and solid waste, so as to reduce environmental and health risks in water bodies in urban areas.

## **1.2 An integrated approach**

Urban environmental sanitation problems are inter-related and need to be addressed in an integrated manner. For example, stormwater drains in many cities act *de facto* as places to dump solid waste. One cannot achieve improvements in stormwater drainage without addressing solid waste collection. As resources are often limited and required investments are high, often hard choices need to be made between different investment scenarios. Investments in new infrastructure also lead to increased operation and maintenance cost which then need to be passed on to the citizens or covered by the government in another way. Finally, there is a need to deal with trade-offs and environmental externalities since investments, or the lack thereof, in environmental sanitation will often have impacts on others. For example, providing access to basic sanitation in a certain area may actually lead to increased pollution in a downstream neighbourhood. Given these and other complexities, urban environmental sanitation needs to be addressed within a framework of Integrated Urban Water Management (IUWM) (Mitchell, 2004), within and outside the city.

### **1.3 Governance**

Different actors - including government agencies, communities and their representatives, utility companies, private sector entrepreneurs and downstream users - have different and often divergent interests in urban environmental sanitation and IUWM. This begs the question on how governance arrangements around IUWM can be developed to ensure that these needs and interests are addressed in decision-making on IUWM. A range of different governance arrangements are emerging in Latin America. These are driven by sector reforms happening throughout the region, such as decentralisation, the establishment of water resources institutions at catchment scale, the establishment of independent sector regulators, and the promotion of mechanisms for stakeholder involvement in decision making. At the same time, these stakeholders themselves may also actively shape governance arrangements in a bottom-up manner. Some of these have led to improved services provision and water resources management. Still, there are also gaps and weaknesses. Understanding these actual governance arrangements better is crucial in any attempt to address urban environmental sanitation.

### **1.4 The SWITCH Project in Latin America**

The Sustainable Water Management Improves Tomorrows Cities Health (SWITCH) project is a research partnership funded by the EC ([www.switchurbanwater.eu](http://www.switchurbanwater.eu)). It aims to carry out more demand-led, action-orientated research in 14 cities around the globe, with a view to promoting integrated urban water management, and ultimately more beneficial impacts. In order to do so, it works through so-called learning alliances (Smits et al., 2007; Butterworth and Morris, 2007). These are platforms which bring together the main stakeholders at city level to jointly work together and learn about changes in IUWM and to promote change in different aspects of IUWM including governance.

In Latin America, three cities participate in the SWITCH Project: Belo Horizonte in Brazil, Cali in Colombia and Lima in Peru. Although the specific focus in these three cities differs according to the local context and needs prioritised by the learning alliance members, all three cities have identified the need to focus on strengthening governance arrangements around environmental sanitation. In each of these cities, studies were undertaken aimed at obtaining a better understanding of the actual governance arrangements linked to environmental sanitation (see Smits et al., 2008a, b and c for full reports). These studies aimed to help define a way forward in addressing governance issues as part of IUWM in SWITCH.

### **1.5 Objective and structure of this report**

The objective of this report is to draw generic lessons on actual governance arrangements on urban environmental sanitation based on the cases from the selected cities in Latin America. Lessons from the three SWITCH cities are complemented by case work from Tegucigalpa, because of previous work done on the topic in that city. Further details on case study selection can be found in chapter 4.

The report starts by presenting the conceptual framework used in the study. This is followed by a description of the methodology used. Chapter 4 introduces the context of the 4 case studies are introduced, highlighting the key IUWM issues they are facing.

Chapter 5 presents the findings and discussion from the study. The report ends with the overall conclusions.

## **2 Conceptual framework**

Most of the work on governance in the water sector has focused on that: water. Environmental sanitation has received very little specific attention in governance studies and debates, where it tends to be referred to as part of “water supply and sanitation” (e.g. Rogers and Hall, 2003; UNDP/SIWI, 2008). Or, as Allen and Hofmann (2008) state: “*This...rarely explicitly referred to sanitation per se; rather sanitation became part of the ‘water management package’ and therefore dragged to the same destiny in terms of governance recommendations.*” Many of the governance issues for sanitation can be expected to be similar as for water supply, but important differences may also exist. In absence of a specific framework on governance of environmental sanitation, this section aims to review some of the key concepts that exist for water and identifying differences and potential similarities for sanitation. On the basis of the review, a framework for practically analysing actual governance of urban sanitation is developed. This section therefore doesn’t aim to provide an exhaustive overview on governance but rather identify some key elements to focus later analysis.

### **2.1 An empiricists approach to governance**

Various authors have tried to define what governance implies in the water sector. This study uses the definition by Rogers and Hall (2003) (see chapter 1), who understand governance to be the range of political, social and economic and administrative systems that are in place to develop and manage water resources and the delivery of water services at different levels of society. It is based on the premise that different actors in society, government, civil society and the private sector influence decision making, both through formal and informal mechanisms and structures. Formalised mechanisms include for example the institutional framework, planning procedures and the legal and policy framework. These may differ between spheres of planning, such as water resources, water services and broader urban development. In addition, informal mechanisms may still be of main importance in decision-making processes, including pressure groups but also corrupt relationships.

More controversial is the concept of “good governance”. UNESCO (2006) states that “*sound governance should be open and transparent, inclusive and communicative, coherent and integrative, and equitable and ethical*”. While few would argue against these principles, these have often been interpreted in a narrow way. This has led to a prescriptive approach to good governance, stating how the balance between actors in decision-making *should be*. Under the so-called State-centric perspective, in the 1990s governance debates turned around whether the State or the private sector was in the best position to provide services (Allen and Hofmann, 2008). The society-centric perspective to good governance emphasised the role of civil society, particularly in its role of social control and through participatory democracy (Allen and Hofmann, 2008). However, both approaches are prescriptive on what constitutes good governance. As Heller (2007) argues, the outcomes of an analysis of good water governance will differ significantly depending on the perspective chosen, as he illustrates using the case of Belo Horizonte.

In view of the prescriptivism of both approaches, another stream, dubbed the empiricists by Allen and Hofmann (2008) has emerged. This is focused on merely analysing *actual* governance arrangements (both formal and informal) in a given context and drawing lessons from these. In this way, one can move away from discussions on what *should* be, towards what *is*. It focuses on analysing strengths and weaknesses of current arrangements and drawing lessons and recommendations for improvement for the local context without a predetermined bias.

An example of such an approach can be found in Van der Geest and Obiri-Opareh (2002), who analysed the actual governance of urban sanitation in Accra, Ghana. They concluded that neither State-driven public services provision nor the organised civil society are behind sanitation services provision, but rather “the invisible hand” of small entrepreneurs. Allen and Hofmann (2008) provide examples from other cities showing that the public-private debate of the 1990s largely bypasses the poorest citizens: they develop a wide range of arrangements on their own for governing sanitation services as summarised in their sanitation wheel. Following an empiricist-approach is a way to make such actual arrangements more visible.

This study also takes such an empiricist approach, focusing on analysing actual governance practices and identifying what works and what doesn't work in each of the local contexts. In the final chapter we try to draw some generic lessons, however, we refrain from making generic recommendations given the limitations of the empiricist approach.

## **2.2 Planning cycles**

Governance arrangements are different for different steps or functions in sanitation provision. The governance of implementing new infrastructure is different from day-to-day management or the macro-level planning of infrastructure. One approach to “breaking down” governance is to look at the role of stakeholders in different functions and activities using a planning cycle (e.g. Moriarty et al., 2007). Typical phases in such a planning cycle include assessments, planning, financing, implementation, monitoring and operation & maintenance.

For this study on sanitation, we will follow a similar approach looking at the way in which different stakeholders engage in different steps of the planning cycle. It is realised that in many cases there is no structured planning cycle: sanitation service delivery may in fact more resemble fire-fighting where ad hoc decisions are the rule of the day. Nor, does this imply that following a structured planning cycle is *a priori* a crucial aspect of good governance. Rather, the planning cycle is used as a framework to help analyse how stakeholders participate in different stages of infrastructure development and management, even if those stages are unclear.

For sanitation, three spheres of planning are relevant: planning of service delivery itself, urban planning, and water resources planning (see also next section). The latter two planning domains can have an important impact on the way in which sanitation services

are planned, as they affect boundary conditions, such as the location and development of human settlements, or the way in which wastewater discharges can be dealt with. This study therefore looks into these three planning cycles.

### **2.3 Integrated Water Resources Management**

Sanitation causes large externalities on water resources through the way that waste and wastewater is managed. Governance of sanitation therefore also implies the need to look into how sanitation is addressed within broader frameworks of water resources management. This is done using the concept of Integrated Water Resources Management (IWRM) which has been adopted as the main paradigm in water management for the last decade or so. We won't go into detail here on the origin and key premises, or the merits of IWRM per sé, as they have been discussed widely elsewhere (e.g. GWP, 2000).

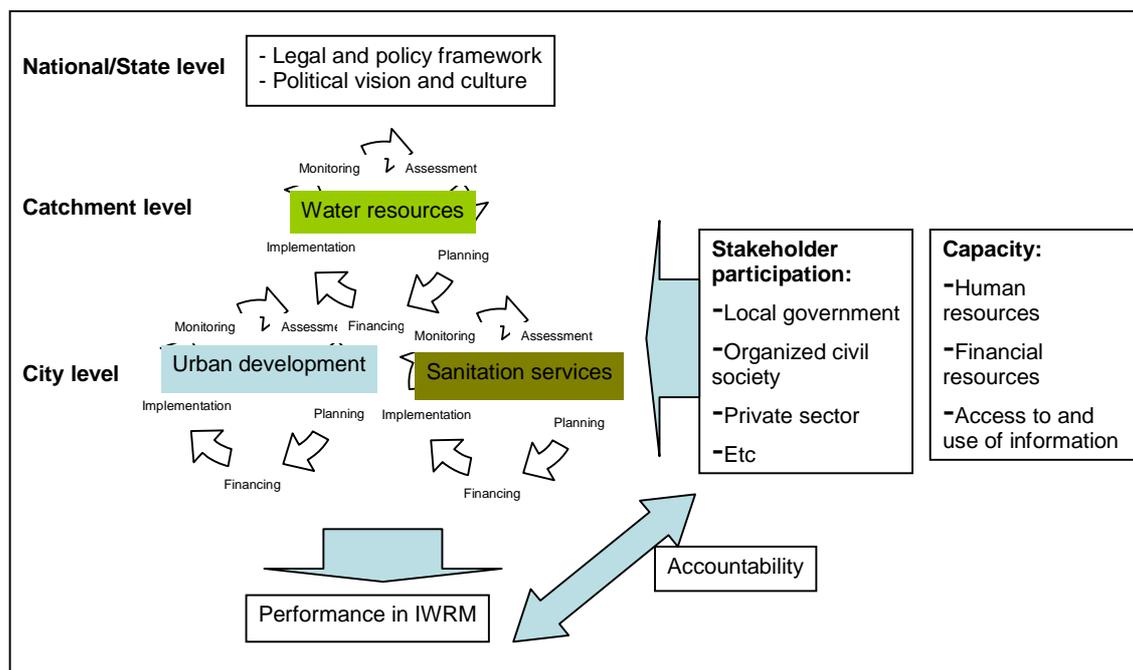
In applying IWRM two different entry-points can be taken, as suggested by Moriarty *et al* (2004), and adapted by Smits and Butterworth (2006). These are particularly relevant for analysing IWRM governance arrangements at the local level (i.e. the level below the river basin) which is most relevant for this study. We take the same entry points in analysing how sanitation is addressed in water resources management. These entry points are:

- Full (or institutional) IWRM. This refers to the establishment of the “conventional” IWRM package, of policy reforms and policies, and the establishment of water resources management institutions, often at catchment or basins-level, and the application of related instruments. In that perspective, cities are seen as a user and polluter of water, but also as a stakeholder that can participate in catchment management institutions. Analysing sanitation governance from this perspective implies analysing how water resources authorities are exercising planning and control functions over sanitation services by cities, and how cities themselves participate in decision making on this issue at catchment scale.
- Light IWRM. This refers to the application of IWRM principles within a sector or within an administrative boundary. It starts from the premise that many of the full IWRM measures have remained on paper only. Yet, there is a lot that can be done by sectors locally, without immediately seeking cross-sectoral integration. There is a range of actions that cities can take, independently of others, to achieve more integrated water management within their city areas, and improve their performance by applying IWRM principles to their work (see for example Smits and Butterworth, 2006; Cox et al., 2008). Analysing sanitation governance from this perspective, implies analysing how governance over sanitation services provision is integrated with other water-related activities of a local government, and how IWRM principles are applied to sanitation services provision.

For this study, we will follow both perspectives, studying both the integration of the cities in their catchments and institutions, and the degree of integration within their cities and sectors.

## 2.4 Conceptual framework for this study

Figure 1 below aims to bring together the key conceptual elements. At local level different stakeholders try to participate, formally or informally in decision making, through various planning and decision-making mechanisms (urban development, sanitation services and water resources). The outcome of these decision-making processes has an impact on the IWRM situation. The resulting performance in IWRM can then in turn influence further stakeholder engagement in the planning cycles, acting as feed-back mechanism. For stakeholders to participate in decision-making processes they need opportunities and capacity: skills, financial resources and access to information and knowledge. In this study, we will analyse how these interactions function in reality.



**Figure 1: Conceptual framework**

Because SWITCH aims to strengthen water management at city level, this study will focus mainly on governance at local (i.e. city or part thereof) level. It is realized that governance at local level is strongly influenced by decision-making processes, including the political culture, at other institutional levels (e.g. departmental, State or national level). Where relevant, this study will refer to these and analyse their relative importance.

## 3 Methodology

The study used a combination of:

- Review of global and regional literature on governance and urban environmental sanitation. This mainly served to develop and inform our conceptual framework, as reflected in the preceding chapter. We haven't explicitly included experiences with governance and sanitation from other Latin American cities in our analysis. These have only informed the development of the conceptual framework.

- Case studies in the four cities (Cali, Lima, Belo Horizonte and Tegucigalpa). These formed the bulk of the study. Through these case studies, we have tried to draw empirical findings on current governance arrangements. Further details on case study selection and methods are given below.
- Cross-case analysis. The cross-case analysis was focused on analyzing trends, similarities and differences across the cases in order to distil lessons learnt. The framework presented in the previous section was used for this analysis.

### **3.1 Case study selection**

Belo Horizonte, Cali and Lima are all cities committed to improving IUWM, through SWITCH and other initiatives, and explicitly address governance issues as part of that effort. Tegucigalpa was included because of work done on local governance of urban sanitation as part of a broader initiative to strengthen local governance of sanitation (both urban and rural) in Honduras, under the umbrella of the collaborative programme between the Red de Agua y Saneamiento de Honduras (RAS-HON) and IRC. Here there is an interest and opportunity to take the results of the study forward in addressing governance issues.



**Figure 2: case study cities in Latin America**

The selection of these cities does not aim to provide an exhaustive overview of how governance is addressed in the region. Yet, they do provide diversity in contexts (see Table 2). Belo Horizonte and Cali are examples of cities from countries with the highest degree of development and have relatively more financial resources at their disposal, while Honduras is among the poorest countries in the region. At the same time, there are all cities characterized by high degrees of inequity, characteristic for the region as a

whole. Population sizes range from relatively small Tegucigalpa with 1.3 million inhabitants, to a true mega-city like Lima with almost 8 million people.

In terms of the physical environment, with exception of Lima, all cities are located in (sub)-tropical and (sub)-humid climate zones and with reasonable amounts of rainfall. Lima, on the other hand, is characterised by a high degree of water scarcity, being the second-largest city in the World located in a desert after Cairo. Cali and parts of Lima have mostly a flat topography being located both at the hills of the Andean mountain range. Belo Horizonte and Tegucigalpa are much more highly undulating with the challenges this brings to infrastructure provision.

Available statistics indicate that coverage of water supply and sanitation services in these cities is higher than the average coverage in urban areas in their respective countries (see Table 1), even though similar doubts as discussed earlier can be raised on the validity of some of the figures presented below in Table 2.

**Table 2: basic indicators for the case cities**

City	Population (million inhabitants)	Rainfall (mm/year)	Water supply coverage (%)	Basic sanitation coverage (%)
Belo Horizonte	2.2 (4.0 million in the metropolitan area)	1500	99.7	92
Cali	2.1	908	97	94.8
Lima	7.8	25	90	84.5 connected to sewer system
Tegucigalpa	1.3	1000	94	98

### **3.2 Data collection and analysis**

The research in each of the cities was carried out by a team of researchers from the city from the project, supported by a researcher from IRC. In each city, data collection followed a similar pattern and used similar tools in order to collect comparable information. This was done through:

- Review of secondary information. This included analysis of previous studies and project documents related to the theme, workshop reports and additional statistical information where needed.
- Interviews with key stakeholders. In each city between 10 and 15 persons were interviewed. These represented some of the key actors related to urban water management identified by the city teams. Typically these included officials from different units within the local authority, the utility company, State or national level government departments, civil society organisations, and community representatives. Open interview guides were prepared for this.

Analysis of these interviews was undertaken by the city teams together with an external reviewer, using the conceptual framework mentioned above. Perspectives of the

interviewees on different aspects of the framework were synthesised where these coincided, or stated as differences where these opposed each other.

Detailed case studies have been written up for each of the cities. See Smits et al. (2008a), Smits et al. (2008b), Smits et al. (2008c) and CRECERH/RASHON (2008) for the full reports.

### **3.3 Limitations to the study**

Through the interviews different perspectives on governance are obtained from different interviewees. Obtaining the perspectives of all stakeholders has not been possible because of time limitations. Therefore it was attempted to interview as broad a spectrum of stakeholders of possible. By selecting these beforehand and trying to capture opposing views, we feel we have been able to draw the contours of the governance situation.

Another limitation lies in the fact that the city teams have their own perspective on the governance situation in their own cities. Besides, they also play a role in facilitating learning alliances of multiple stakeholders, which often requires dealing carefully with the interests of the stakeholders. These factors may have also coloured the analysis. Therefore, we have sought to be self-critical and reflective and to check own our perceptions and views. By using the conceptual framework, we have also tried to bring in an element to critically analyse all elements of governance, and move beyond first impressions. Finally, the lead author of this paper had so far only been limitedly been involved in governance-related interventions in the cities, and has been brought in to add a further element of impartiality.

## **4 Context: IUWM challenges in the four cities**

This section provides a brief description of the context of each of the four cities, specifically focusing on the key IUWM challenges they face. For a more detailed overview of the cities' context, see the individual case study reports.

### **4.1 Belo Horizonte: paradigm shift on stormwater drainage**

Belo Horizonte, the capital city of the State of Minas Gerais, has over 2 million inhabitants. The metropolitan area with around 4 million inhabitants is the 3<sup>rd</sup> largest in Brazil. Over the years Belo Horizonte has achieved relatively high levels of access to water supply and sanitation services. The main problem in the urban water complex lies in the drainage and disposal of both stormwater and wastewater. There is a lack of interceptor drains – still 40% of these need to be constructed (Nascimento et al., 2007). In addition, there are illegal interconnections to the separate stormwater drains leading to contamination of groundwater and surface streams. In the past, stormwater drainage took place by canalizing channels and using concrete culverts. However, with increased population growth and the growth of impervious areas this didn't help reduce the number of flooding of events. Since the mid 1990s, there has been a shift in paradigm towards a more integrated approach to stormwater drainage. Firstly, this aims to improve the quality of drainage effluent by putting emphasis on installing collector drains and separation of storm- and sewage water flows. Secondly, this has included improving drainage works by embedding these better into their natural contexts by providing more space to natural

drainage courses, the use of natural materials, and greening the surroundings of drainage works.

At the same time, Belo Horizonte has put a lot of effort in democratizing its decision-making mechanisms at municipal level, including those linked to water management. Structures and mechanisms have been set-up to provide space to citizens to participate in decision-making on water-related issues at different levels, from participatory planning around local water works to strategic planning at municipal level (see Chapter 5 for further details).

SWITCH in Belo Horizonte aims to build upon these paradigm shifts and to strengthen them. Specifically, its goal is to develop new knowledge on urban drainage and to improve access to and use of information that strengthens the capacities of city stakeholders in democratic decision-making on water management (Smits et al., 2008d). Understanding the current structure of these decision-making mechanisms and the capacity of different stakeholders to participate was the focus of the case study in Belo Horizonte.

#### ***4.2 Cali: reducing pollution to improve drinking water supply services for the expanding city***

Cali, the third largest city of Colombia, is located at the foot of the Western Andes range stretched out along the Cauca River. The Cauca is the main source of drinking water supply for the city alongside water from several smaller tributaries (Pance, Cali and Cañaveralejo rivers) that flow through the city. The water supply system covers nearly the entire population with a reported coverage of 97% (Cinara Universidad del Valle, 2008).

The Cauca is also the main receiving body for the city's wastewater, half of which doesn't receive adequate treatment (Cinara Universidad del Valle, 2008). The problem is particularly acute in the Southern part of the city where the main collector drain collects not only stormwater but also sewage and solid waste and discharges into the Cauca without any treatment at all. Leachate from the garbage dump (which has been recently closed) compounds the situation even more in the Southern part of the city and contributing to the further pollution of the Cauca. The contamination of the river is such that the intake for drinking water, which is located just downstream of the drain outlet, has to be regularly closed when there are pollution peaks. In 2007 this happened 36 times, sometimes for up to six hours at a time (Cinara Universidad del Valle, 2008). A key challenge is to improve water quality in the Cauca river, both to reduce pollution of the river for environmental reasons and to be able to continue providing drinking water services to the city. This requires changes in nearly all aspects of environmental sanitation in the city including sewerage, wastewater treatment and collection and disposal of solid waste. The Southern drain is a key focus point as one of the main channels of pollution. A final challenge is the water supply and sanitation situation in the planned areas of future expansion of the city where there is a need and opportunity to analyse alternative approaches of water supply and sanitation.

The SWITCH Project in Cali has established a learning alliance that brings together a range of stakeholders from the main institutions in the city to jointly learn about its three main water-related challenges (pollution reduction, improving the situation around the Southern drain and services provision in areas of future expansion) and to plan for integrated approaches to address these using innovative technologies (Galvis and Bernal, 2008). A series of workshops and meetings has been held with this alliance. During these meetings, current governance practices were identified as one of the limiting factors currently hampering effective responses to the IUWM challenges, particularly around joint planning. At the same time, the stakeholders expressed an interest in pragmatically addressing some of these governance limitations, amongst others through the learning alliance activities. The Cali case study therefore focused largely on understanding governance arrangements around joint planning to address its linked water challenges.

### ***4.3 Lima: planning for reuse of wastewater in urban agriculture and green areas***

Lima, being located in a desert, faces two related problems in its water management:

- Increasing coverage of water supply services to the entire population. Officially, 10% of the population doesn't have access yet to the drinking water supply network. However, since there are few alternative sources these persons most likely get water indirectly from the system.
- Wastewater treatment. This has never been a priority, and currently only 15% of the wastewater generated in the city receives treatment, before being disposed into the Pacific Ocean. However, this is increasingly seen as a health and environmental risk especially for those communities living along the beaches.

In order to increase coverage, the city has invested in securing access to sources of water in the upper catchment. However, these come at very high cost because of the distances involved. In addition, efforts have gone into reducing physical and commercial losses in the network. Although access to water resources is now adequate, the networks still need to be extended to those areas which do not have services yet. These are mainly the poorer neighbourhoods which are developing on the outskirts of the city.

Strategies for wastewater treatment are not yet so clear-cut, and subject to debate. On the one hand, there is the possibility for centralized treatment and disposal into the sea as an "end-of-pipe" solution. The alternative is treatment with a view towards reuse, both in urban agriculture and for watering green areas like parks. Considering reuse opens up a range of possible scenarios for treatment, and even other reuse alternatives, such as the recharge of aquifers or use in industry. Each of these scenarios has a range of technical, social, economic, and environmental requirements and implications for the actors involved. Hence, there is a need to analyse these so that decisions can be taken in an integrated way and optimizing the reuse of wastewater in this water scarce environment.

The SWITCH Project in Lima aims to contribute to improved water management by developing knowledge on different alternative reuse scenarios. In addition, it tries to promote access to and use of information about reuse options amongst different stakeholder groups including national policy makers, the utility company, local

authorities and community groups. It is considered important to understand where and how reuse can be taken into account in decision-making processes. Therefore the governance analysis in Lima focused on developing a better understanding of decision-making processes around wastewater management and the roles of different stakeholders, with a view to promoting reuse options in the different stages of these processes.

#### ***4.4 Tegucigalpa: providing basic water and sanitation services in poor peri-urban communities***

Tegucigalpa is the capital of Honduras and also the biggest city in the country. Since 1950 it has been attracting large flows of migrants from rural areas, many of whom live in informal peri-urban settlements that are now home to 40% of Tegucigalpa's population. The city was built in a very small valley and is surrounded by relatively steep mountains. Most of the peri-urban settlements have now occupied these hilly areas with risks of landslides and flooding. Moreover, due to the height differences many of these settlements couldn't be connected to the formal water supply and sewerage networks of SANAA (the utility).

In response to this problem, a special unit was established in 1987 that is now called the Executive Unit for Districts in Development (UEBD) (Sánchez et al., 2008). Its basic purpose is to develop and monitor and sustain the supply of drinking water supply and sewerage in these communities. Day-to-day management is done by water and sanitation committees. Through this approach a lot of progress has been made in improving service provision to these neighbourhoods in very difficult geographical and socio-economic conditions.

However, environmental sanitation remains a big challenge. When new neighbourhoods develop, water supply services are always provided first. Sewage systems are often a much lower priority, and people continue using self-built latrines often in precarious conditions or even resort to open defecation. The coverage rate in sewerage systems is lagging behind at 80%. Another 17% of the population do have access to latrines, but their state of maintenance may not be adequate (Mairena, 2007). Across the board, sustainability of services remains a problem (Sánchez et al., 2008).

Despite these challenges, the strategy has been considered successful partially also due to the approaches followed by UEBD in developing new services, and the sharing of responsibilities between the committees, UEBD and SANAA. At the moment, various initiatives are underway in Honduras to strengthen governance of sanitation amongst the poorest communities, in rural, small-town and peri-urban settings. This study on governance of sanitation in Tegucigalpa aims to support those efforts.

## **5 Findings**

### ***5.1 Institutional arrangements***

This section describes the roles of the key actors in each of the cities, and tries to analyse their implications for the governance framework. This section does not aim to provide an exhaustive overview of all stakeholders in each of the cities. . Rather, it aims to analyse

some of the fundamental roles and functions and further information can be found in the full case studies.

In all countries a range of ministries and other national-level entities is involved in setting policies. We explicitly leave out these policies, or those entities in this discussion. Although they of course shape the way in which local governance works out, we don't provide a detailed discussion since it would distract from the main focus here on local governance.

### 5.1.1 Service providers

The institutional arrangements for environmental sanitation in all the four cases are characterized by a strong degree of decentralization of responsibilities to local authorities. They all have the so-called water services authority function, i.e. they are responsible for overseeing that environmental sanitation services are provided according to specifications stipulated in national laws and policies. The only exception is Lima, where this function lies at national level, because of the strategic position of the capital city.

Decentralization provides the local authority the possibility to develop its own preferred arrangement for actual service provision, i.e. the entity responsible for the day-to-day operation, maintenance and administration of the service. This is also in line with the principle of separation of authority and actual service-provision tasks, which has been pursued as part of governance reforms in many countries. As a result different options have been developed, often based on previously existing service contracts, ranging from a State-level company in Belo Horizonte, a municipal company in Cali to a national level entity in Lima and Tegucigalpa. Cali and Tegucigalpa also have community-based service providers working with peri-urban communities.

For stormwater drainage and solid waste management, either the municipality itself is the service provider or it does so through a municipal company.

It is noteworthy that in none of these cases do (informal) small-scale private entrepreneurs play a role in sanitation services. Figures on the extent of their involvement in the region are scarce, but a study on such entrepreneurs in Peru revealed that they are mainly involved in providing water supply services, and not sanitation (WSP, 2007c).

**Table 3: responsibilities for sanitation services provision in the 4 cities**

City	Authority for water supply and sewerage provision	Water supply and sewerage provider	Responsible for stormwater drainage	Responsible for solid waste management
Belo Horizonte	Municipality	COPASA, a mixed (public-private) company at State level	Municipality	SLU, a municipal company
Cali	Municipality	EMCALI, a municipal company	EMCALI, a municipal company	EMSIRVA, a municipal company

		Community-based service providers		
Lima	Ministry of Housing, Construction and Sanitation	SEDAPAL, a national level public entity	Not applicable as it never rains in Lima	Various private companies
Tegucigalpa	SANAA	SANAA, a national level public agency Community-based service providers	Municipality	Municipality

Decentralisation and the separation of authority and service provision roles, hasn't automatically led to a situation in which municipalities, as authorities, have final control over the service providers, even when those are public companies. One of the key reasons for that is that big utilities, whether public or private, have become strong bastions of technical expertise over time. They often do have strong technical capacity and a lot of know-how on the services they provide. Their municipal counterparts often don't have equivalent capacity. This makes it difficult for municipalities to hold providers accountable. Because capital cities like Lima and Tegucigalpa have a special position in their respective countries, utilities like SEDAPAL and SANAA have a higher degree of autonomy and respond more directly to national control bodies than to municipalities directly.

A logical consequence of the separation of authority and service provision roles is that in all of the cities a number of agencies are somehow involved in urban environmental sanitation. That in itself is not a problem. In fact, the separation of authority and service provision functions tried to achieve that, and encourage specialisation as well. Yet, this calls for strong coordination between the authority and its various service providers, an issue which we will examine in more detail in section 5.2.

### 5.1.2 National regulators and control entities

With exception of Brazil, all countries have established water and sanitation sector regulators and control entities at national level, as part of sector reforms of the past decade. As we will see in section 5.4, these do play an important role in accountability and have at times, strong local presence. Here we will introduce them briefly.

In Colombia, the role of regulator and superintendent are separated between two agencies, called the CRA (Regulatory Commission on Drinking Water and Sanitation) and the SSPD (Superintendent over Domestic Public Services). The CRA sets the regulatory guidelines that service providers need to comply with, whilst the SSPD controls the financial and operational performance of service providers. Service providers, such as EMCALI, normally would need to provide accountability both to the Municipality (as municipal company) and to the SSPD, as the sector watchdog. However, because EMCALI is under fiscal adjustment (a form of special central government

control), the SSPD plays a much more active role in restructuring the financial management of EMCALI, and there is a much stricter accountability relation between the two. In Peru, there is only a superintendent, called SUNASS. It develops norms and standards for service providers, controls whether these are complied with, and even actively supports service providers in developing their business plans, such as was done between SUNASS and SEDAPAL. In Honduras, the regulating entity is called ERSAPS. It has a role in control and oversight over service providers. However, it has only been established a few years ago, and has very limited staff, so its role isn't evaluated here. Brazil doesn't have a sector regulator, although it is in process of establishing one. This means that COPASA provides accountability over its performance in three ways: to its shareholders (being a stock-listed company), to the municipalities with whom it has a service contract, and to the State Accountants for fiscal auditing.

### 5.1.3 Pollution control and water resources management

All the countries have developed policies and institutions for pollution control. In Brazil this role has been decentralized to river basin committees. In Belo Horizonte it lies with the catchment committee of the Velhas river, which still covers a large area. The committee is responsible for setting water quality standards for the catchment and ensuring compliance. It is in the process of establishing an agency with executive powers of enforcement. In Colombia, a similar arrangement is in place with the main difference being that the responsibility isn't organized on a catchment but rather on a Departmental basis. The upper stretch of the Cauca river (within which Cali is located) crosses two departments, with two different agencies therefore responsible for pollution control. Downstream its catchment covers many more departments so there are even more agencies. For the Valle del Cauca Department in which Cali is directly located this agency is called the CVC. To complicate it even further, in cities with more than one 1 million inhabitants like Cali, a municipal entity, here called DAGMA, is responsible for pollution control. This situation leads to a high level of geographical fragmentation of control functions, and limits planning at a catchment basis. Both in Honduras and Peru, the responsibility for pollution control hasn't been decentralized yet, and remains with a national agency, respectively called SERNA and DIGESA. In both countries, these agencies have limited staff on the ground to fulfil their roles.

**Table 4: responsible entities for pollution control**

City	Responsible for setting pollution targets and control
Belo Horizonte	Velhas catchment committee
Cali	CVC, a departmental level environmental authority and DAGMA, a municipal entity
Lima	DIGESA, a national level entity
Tegucigalpa	SERNA, a national level entity

In all 4 countries, the role of control over pollution is separated from agencies that may cause it. This avoids a situation in which a municipality for example is both judge and jury. Despite this separation of powers, it has proven difficult for these environmental agencies to hold other government agencies to account. One of the reasons cited was a

weak political culture of accountability between government agencies. Instead of forcing compliance of environmental norms through coercion and fines and fees between government entities, these try to cooperate and come to a consensus plan for investment in treatment facilities for example. For example, the Velhas catchment committee tries to discuss with municipality that are lagging behind in investments in wastewater management to jointly plan for these investments and mobilize financial resources.

#### **5.1.4 Civil society**

Community-based service providers in Cali and Tegucigalpa are guided by a clear legal framework that recognises their roles and responsibilities in service provision. In addition to actual service provision, community groups may also have a formal role in urban planning. In Belo Horizonte and Lima, community groups can participate in the participatory budgeting process (see next section) and in Cali communities are organised in so-called Local Action Committees (JALs) that have a voice in urban planning and control over public works. These roles are all established by law.

Although Latin America is known for its active and vocal social movements in water management, there is less engagement on issues of sanitation, at least in these four cities. Only in Belo Horizonte are strong social movements such as *Projeto Manuelzao* and the *Frente Estadual de Saneamento* found playing a role in community mobilization and awareness raising on sanitation. Along the Cauca river there are also some active NGOs advocating for the rivers clean-up yet their influence and impact is limited to date. One possible explanation for the more limited role of social movement in sanitation, is that originally concerns of civil society have been around ensuring access to water supply services and water resources for all citizens. Now that water quality and broader environmental sanitation issues become visible, civil society is starting to get organised around themes as pollution and water quality improvement. However, further research would be needed into the role of organised civil society and social movements to draw stronger conclusions on this.

Technical NGOs and professional bodies also fulfil a much respected role in capacity building, information and knowledge sharing and research in all three cities. Only in Belo Horizonte do they have a formal role in decision-making procedures. There, representatives from such technical civil society organisations, such as the University or the association of engineers, have seats in the Municipal Sanitation Council (COMUSA) as well as in the river basin committee (see next section for further details).

### **5.2 Integrated planning for environmental sanitation**

Having seen the actual responsible institutional arrangements for environmental sanitation services in the previous section, this section, will look into how these organisations actually work together in the different phases of the planning cycle. The analysis looks into the three spheres of planning separately. But, in the discussion we will also look into how the three domains of planning integrate.

### 5.2.1 Strategic planning of services

Strategic planning of environmental sanitation refers to the multi-annual planning of major investments in infrastructure for environmental sanitation. In all cities, interviewees considered it crucial that strategic planning of investments in environmental sanitation is carried out. They cited various reasons:

- Urban environmental sanitation requires often large investments, such as treatment plants, extension of sewer systems and replacement of old infrastructure. These investments cannot be covered in annual or even short-term investment plans, as for example the required investments in wastewater treatment in Lima. So multi-annual plans are needed to cover these investments.
- Decisions over environmental sanitation will have a bearing on finances and operational capacity of the city or utility to provide those services, as well as of the users of the services. These thus need to be taken in a multi-annual strategic planning framework.
- Often a careful analysis of alternatives is needed when existing infrastructure or water resources is reaching the limits of its capacity. Different alternatives have often fundamental implications for the way the urban water system is managed. Careful balancing of alternatives is then needed, for example when comparing different scenarios of treatment and reuse of wastewater in Lima, or future options for pollution reduction in Cali.
- Mobilising external funds. Most urban environmental sanitation programmes require additional funds than municipal ones alone. Financers, whether those are national or State government, or international lending agencies, do require careful analysis and planning as basis before they can agree with funding. For example, in Belo Horizonte, the strategic planning approach followed has allowed the municipality to raise more external funds.
- Prioritizing investments, where these are most needed. This was mentioned particularly in Belo Horizonte, where the Municipal Sanitation Plan (see below) allowed identifying those areas where backlogs in service provision are highest and where priority should be given to.

The interviewees also indicated that strategic planning of environmental sanitation needs to have a number of pre-requisites:

- It needs to be multi-annual, because of investments involved, and to avoid budgets being changed by the government of the day
- It needs to be based on strong technical criteria and analysis of technical alternatives
- It needs to be based on a future vision or goal, rather than based on solving immediate problems, to avoid getting bogged down in such problems
- It needs to be a sectoral plan, rather than an organisational plan. This implies that it sets out a strategy for environmental sanitation services provision, to which different organisations can contribute, and that different entities can include in their own annual or organisational plan.

Despite this expressed demand for strategic planning of environmental sanitation, the reality of how that is done is highly diverse:

- Belo Horizonte has established a Municipal Sanitation Council (COMUSA), composed by 8 representatives from different entities within the Municipality, and 8 other stakeholders including the utility company (COPASA) and civil society organisations. COMUSA is responsible for developing the Municipal Sanitation Plan (PMS). This plan provides the priorities for investment in sanitation, on the basis of a clear set of indicators.
- In Lima, strategic planning is more an organisational responsibility. SEDAPAL, as the utility company, has developed its own multi-annual investment plan, called the Optimized Master Plan (PMO). However, participation of other stakeholders has been limited. Only SUNASS has played an active role in shaping the PMO, which eventually led to a conflict between the two entities, where SUNASS focused nearly exclusively on the financial aspects of the PMO, whereas SEDAPAL tried to relate the financial necessities to the required technical and operational ambitions.
- In Cali most interviewees commented that it is actually the lack of strategic planning that is causing many problems. Most entities have their own plans, but these are organisational plans, not a sanitation sectoral plan. Besides, the time horizon of these plans tends to be short: only three to four years linked to governance periods between elections.

### **5.2.2 Operational planning for service provision**

Very different to long-term strategic planning of sanitation services, is decision making on specific local sanitation interventions, such as a stormwater drain, or sewerage network in a specific neighbourhood.

Typically, the responsibility for planning and implementing such infrastructure lies with the service providers mentioned in the previous section. Their way of operation differs between the cities. UEBD in Tegucigalpa has developed a demand-based approach to water and sanitation infrastructure development in new neighbourhoods. Under this approach communities need to organise themselves, putting in a request for support from UEBD. UEBD then carries out a baseline assessment, looking into issues such as land tenure, topographic conditions, possibility to link to existing networks, etc. On the basis of that, a feasibility assessment is made. If positive, the project can be designed. The design and implementation of these facilities used to follow a participatory approach as well, in which communities had a say in technology selection and supervision of the works. This aspect of the programme is considered to be less strong nowadays (see Sánchez et al, 2008 for a full description). In Belo Horizonte, a participatory planning methodology has been developed around stormwater drainage interventions by DRENURBS, a programme run by the Municipality itself, but responding partially to priorities set in the COMUSA programme (see Box 1). This participatory planning approach is far from mainstreamed in the Municipality. For example, intervention cycles by COPASA around sewerage are more top-down, with little room for participation by users in issues such as technology selection or siting of works. Not even other units within the Municipality follow this approach.

<b>Box 1: Intervention cycle of the DRENURBS programme</b>
--

The DRENURBS programme follows a participatory approach to planning and implementing urban drainage works. It follows these steps:

1. Informal contact with community leaders. Sometimes the initiative for this first contact comes from the community, or the programme contacts the community because of known problems from the Municipal Sanitation Plan.
2. Rapid assessment. A rapid assessment is done of both the physical situation in an area but also the status of knowledge and awareness of environmental issues among the population.
3. Establishing and/or strengthening the capacity of the resident committee. The committee is open for anyone to participate and typically consist of some 30 persons. Its main tasks are: act as communication channel between the community and the municipality, mobilize the community further, and monitoring and control of the implementation. Capacity building activities included training, exchange visits and skills development.
4. Defining general directions for water course improvement interventions. In this community members start to participate.
5. Proposal development for specific interventions. This is done with community participation. This may include proposals for physical interventions and environmental education activities.
6. Detailed design of physical interventions. The community reviews the detailed design of physical interventions and checks whether the design meets their criteria.
7. Implementation of the interventions. These included: 1) physical drainage works, 2) land appropriation and resettlement and 3) environmental education activities.
8. Monitoring and control of implementation. The committee checks the day-to-day implementation of the physical works (*fiscalização*). Monthly control visits are carried out (*vistoria*), in which quality of the works is checked and where explanations are given of the maintenance of the works.
9. Handing over responsibility for maintenance. Depending on the type of intervention the works are handed over to PBH or COPASA for maintenance.

The most frequently mentioned reasons for the limited participation of communities in the operational planning and implementation of sanitation interventions is a lack of knowledge and experiences with participatory planning approaches among staff of municipalities and utilities. These staff tend to have been trained in largely very traditional engineering approaches. A second reason mentioned is that community participation in urban areas requires different approaches to rural. All countries do have ample experience in community participation in rural water supply and sanitation projects, which are often also known to staff in the utilities. Yet, these approaches do not necessarily work in urban settings, where communities are organised in a different way and have different dynamics. For example, both in Belo Horizonte and Lima, respondents mentioned that communities are more easily mobilised around broader neighbourhood improvement projects, than about specific sanitation projects. This means that entry points of community-mobilization are for such broader projects, in which sanitation can be included as part of a kind of package-deal. Besides, communities tend to be larger, with less social cohesion, and hence other organisation forms or no organisations at all.

The research found that a lack of participation by the community in operational planning does lead to very real problems. In Lima, SEDAPAL started implementing condominial sewers in an attempt to reduce costs and make sewerage systems more accessible to low-income communities. However, various communities expressed doubts on whether these systems would work since they weren't aware about how the technology functions, and how it differs from conventional technologies. This resulted in communities protesting against the implementation. In response, SEDAPAL started a communication and awareness campaign but this should have been anticipated sooner. Similar experiences have occurred in other cities too. In Belo Horizonte, the utility tends to lay sewer lines and households are expected to connect to these and pay a connection charge. Yet, many households do not connect legally to avoid the connection charge. Instead they connect illegally to sewerage systems, or even to stormwater drains. In the early years of the UEBD programme in Tegucigalpa, communities were closely involved in issues such as technology selection for sewerage systems and training on their operation and maintenance. However, recently their involvement has been reduced with potentially negative effects on sustainability of services. In one of the communities studied the community had hardly participated in the development of the condominial sewer system. At the moment of this research, it was being handed over the responsibility for operation and maintenance without there having been developed any understanding how to carry out these functions, posing grave risks of sustainability. Even though a normal good practice, we still find a lack of community participation in operational planning and implementation of sanitation works, reducing acceptability and sustainability of the interventions.

### **5.2.3 Urban planning**

Wider urban planning processes in all four cities have important implications for water and environmental sanitation. These urban development plans are driven by the Municipality in all four cases, sometimes through dedicated secretaries within the Municipality. Different approaches are followed to involvement of citizens in such planning but in general these tend to be more participatory and open than in the development of specific sanitation plans. In Cali, community participation in the development of the Spatial Development Plan (POT) is channelled through the JALs, as formal community organisations. In Lima, the degree of participation of communities in the urban development plan differs from Municipality to Municipality (Lima is subdivided into 64 municipalities). In fact, one of the largest low-income municipalities, Villa El Salvador, is known for its tradition of bottom-up planning and strong mechanisms for community participation in the development of the municipal urban development plan. This is done through a wide range of community organisations, including neighbourhood groups, youth and women organisations, and other special-interest groups.

These urban plans are much more general in outline, in contrast to the much more technical and detailed sanitation plans. Probably, that is why communities find it easier to participate, and why authorities are more willing to facilitate such participation. Besides, these urban planning activities allow for the linking of water and sanitation interventions to broader neighbourhood improvement activities, such as developing parks, green areas

and recreation grounds along restored natural drainage courses. This has been done successfully for example, in Belo Horizonte. Linking urban development plans to sanitation development plans, allows for making such “package deals”, which may be of more interest to citizens.

It appears that in some cases the sanitation utilities and service providers do not participate very actively in such planning exercises. Neither in Cali, nor Lima, did the utilities participate in the development of the urban plan. As a result of their non-participation, Municipalities need to undertake bilateral negotiations with the utility to ensure the relevant priorities of the urban planning process are included in the sanitation plans. In Lima for example, the community in Villa El Salvador was interested in getting access to wastewater for reuse to irrigate its green areas. However, SEDAPAL was not forthcoming on that. Only by linking to outcomes of the municipal planning could they convince SEDAPAL that the Municipality should have its own small treatment plant and reuse facilities. Several other municipalities in Lima undertook similar bilateral deals with SEDAPAL as outcome of their urban planning processes. However, all these municipalities had to invest their own funds in that, even though it is the utility’s responsibility to invest in wastewater treatment (Smits et al., 2008c).

Another mechanism through which communities can directly influence decision-making in urban planning is through “participatory budgeting”. Both Belo Horizonte and Lima set aside a portion of the municipal budget for works proposed and prioritised by the communities themselves. At neighbourhood level, citizens can propose certain works. The community organisations can vote for those works that they consider as a priority. Monitoring and control committees are then established which have a role in ensuring the improvements are carried out according to the technical and financial specifications agreed in an attempt to improve transparency. Participatory budgeting has provided communities the opportunity to plan for local water-related works. For example, in Belo Horizonte, communities linked to SWITCH have started prioritizing drainage and flood control measures (Smits et al., 2008d).

Although broader urban planning can thus be an important mechanism to identify and prioritize water- and sanitation-related works, that may later feed into specific sector plans, it also has its limitations. One of these is that such plans often focus on smaller local works, and less on larger scale municipal infrastructure, whereas some sanitation works require consideration of the entire city or metropolitan area. For example in Lima, the urban development plans have some influence on investments in sanitation, these cannot address more strategic issues that fall directly under the PMO of SEDAPAL. As the metropolitan municipality is split in 64 district municipalities, all with their own vision and needs, the metropolitan municipality cannot as a whole negotiate with SEDAPAL on a strategic approach to wastewater management for the entire municipality. A similar situation is found in the Belo Horizonte metropolitan area. There is a Council for the Belo Horizonte Metropolitan Region, bringing together all 36 municipalities in the metropolitan area. However, this council hasn’t succeeded in giving priority to environmental sanitation issues, or planning for improving water resources at this higher level of scale.

#### 5.2.4 Planning of water resources

A final sphere of planning to consider is the planning of water resources for the catchments of these cities. Across the cases, a number of planning instruments have been identified, with implications for development of sanitation services:

- Development of a vision, plan and goals for water courses. This is the case both in Belo Horizonte and Cali. For the Velhas River, a plan has been set with goals for improvement in water quality (the so called *Goal 2010*). Municipalities are supposed to invest in wastewater treatment in order to meet these goals. Where municipalities are struggling to meet the goals, the river basin committee, tries to support them in developing plans to keep on track. For Belo Horizonte this goal didn't make a lot of difference, as most of the targets were less ambitious than other existing targets. In addition, it must be noted that the executive capacity of the Velhas River committee is still very limited, though this is expected to change in future. Also in Colombia, the DAGMA and EMCALI are negotiating about meeting treatment targets in order to reduce downstream pollution. A next step, on which the learning alliance in Cali is promoting water quality targets.
- Pollution targets and permits. These are used by the environmental agencies in both Peru and Colombia. Permits define a certain permissible discharge level and in case of non-compliance, a fine needs to be paid. Often, the need to invest in treatment so as to reduce pollution over time is also specified. In Colombia this has worked to some extent to reduce industrial pollution but has had little impact on reducing municipal waste flows. In Lima, DIGESA is the entity managing permits, but plays a more reactive role of solving problems when they occur, rather than planning for certain water quality levels.

Despite having some instruments for planning of water resources management, the research found that their scope and impact in pro-actively addressing wastewater-related problem has remained limited. Rather, stakeholders resort to mechanisms for ad hoc problem solving. A case in point is the Quebrada de Huaycoloro, a small catchment on the outskirts of Lima. Because of a lack of access to sanitation and other water resources problems, a sanitary emergency was declared in this catchment. In response, DIGESA set-up a stakeholder platform, bringing together the Ministry of Housing, Construction and Sanitation, the utility company, community groups and others. In this platform, solutions were rapidly identified and responsibilities for addressing the situation specified. However, such platforms do not commonly exist, or often only come into existence in case of an emergency.

in Belo Horizonte, more local water resources management plans have been developed, though not in an ad hoc manner as the case in Lima. A good example is the Lake Pampulha. The catchment of this small but characteristic lake is shared between the municipalities of Betim and Belo Horizonte. Over time it got heavily polluted through diffuse pollution from both municipalities. By the end of the 1990s, Belo Horizonte wanted to clean up the lake. Initially, Betim wasn't interested in investing in a clean up since they are in the upper part of the catchment and wouldn't benefit from an improved quality of the lake. But, by developing a joint proposal for obtaining external funding to improve both the sanitary systems in the upper and lower catchments, Betim joined the

effort and the lake got recovered. It was realised that investing in sanitation could help leveraging funds from other sources.

### **5.2.5 Implications for integrated planning**

The way in which planning happens within each of the planning domains has important implications for integration of planning between them. The fragmentation of the planning domains (water resources, services delivery and urban development), reflects the institutional fragmentation seen in the previous section, sometimes compounded by geographical fragmentation, e.g. where different institutions have different kinds of areas of jurisdiction. As a result, planning may become an institutional issue, rather than a sectoral one, to which all institutions contribute. This problem is clearest in Cali, where the different institutions develop their own plans in accordance with their own mandates. There are no spaces at sectoral level where these plans are coordinated or aligned. Nor is there strong participation of other institutional stakeholders in the development of the other stakeholders' plans. So, EMCALI representatives do not actively participate in the municipal urban development plan. In Lima the municipality doesn't provide inputs into SEDAPAL's PMO, or the other way round. Only in Belo Horizonte, have mechanisms been set-up to move more towards sector plans, such as the PMS and COMUSA.

Leadership by local government can overcome some of the limitations. In Belo Horizonte, the municipality has clearly taken leadership and slowly built mechanisms and structures for coordination and integrated planning to overcome some of the fragmentation which is inherent to large administrations. In Cali, on the other hand, many commented that it was the lack of municipal leadership which has resulted in the lack of strategic planning, which used to exist more strongly in the past. A similar sentiment was expressed in Lima. This is compounded by the fragmentation of the Municipality over its 64 districts.

Political culture also emerges as an important factor affecting both the extent of civil society participation and the degree to which inter-institutional integration can be achieved. Belo Horizonte has had several administrations that have emphasised democratization of the municipal administration. This has resulted in the sustained development of mechanisms through which citizens can directly express their voices in planning, such as through participatory budgeting. Besides, it has supported the opening up of spaces for joint planning between the municipality and other actors represented in the COMUSA. Respondents feel that this has helped to prioritise investments more strategically and in areas where the needs are greatest. Several interviewees also commented that in many of the cities there is a strong culture of party politics, which does cause politicization of relations and frictions between institutions that limits the possibility for joint planning between different agencies, or between communities and government bodies.

Finally, water resources management planning has the potential to act as mechanism for integration since such plans are typically developed at higher levels of scale than the city or municipality. However, our findings show that even where instruments and institutions have been developed, these have been applied more in a reactive manner when problems

arise, rather than proactively influencing sanitation development plans or providing a framework for integration. Rather, stakeholders resort to local ad-hoc mechanisms in problem solving. Although these may be effective locally in addressing problems, these are developed when the problems are already there, and may not provide the full integrated perspective. This implies that even though long-term integrated planning may be desirable, current governance arrangements are not geared to that.

### **5.3 Monitoring, control and accountability**

In the previous section we looked at how different stakeholders are involved in decision making around the day-to-day planning of sanitation services, as well as longer term and much wider broader urban planning and water resources management. To be really useful such planning needs to be followed up by regular monitoring and enforcement. Organisations also need to be accountable for what they have promised. This section looks into the supposed mechanisms for monitoring, control and accountability between the different stakeholders in the four cities and how these work out in practice. Various accountability relations can be distinguished:

- between service providers and municipalities (or other agencies acting as an authority)
- between service providers and national superintendents
- between community groups and local governments and service providers

Because there are different types of formal relations between the service provider and the local authorities (municipalities), the accountability mechanisms are also different. Belo Horizonte municipality has a service contract with COPASA. COPASA only provides operational accountability to the municipality on the basis of technical indicators. However, it doesn't provide any financial reports to the municipality. COPASA provides services to most other municipalities in the State of Minas Gerais, but doesn't have separate accounts for each municipality with whom it has a contract. It is known that some of the income from tariffs from Belo Horizonte is used to cross-subsidize users in poorer municipalities elsewhere in the State. However, this is not done transparently. This lack of financial accountability adds to the strained relation between COPASA and the Municipality. In Cali, accountability between EMCALI and the municipality is much more direct, as EMCALI is a municipal company. Both in Lima and Tegucigalpa there is no formal accountability between local authority and utility, in Lima because SEDAPAL is a direct dependent entity from the Ministry, and in Tegucigalpa because SANAA is in the process of being transferred to the Municipality.

In all cases, except Belo Horizonte, the national superintendents have a role in controlling the service providers. This is strongest in Cali and Lima, where the SSPD and SUNASS have even actively engaged with the management of EMCALI and SEDAPAL respectively. However, in both cases, there was a feeling that these superintendents focus their control only on financial performance and not on other performance indicators. In Lima, it even led to a conflict, as it was felt that the SUNASS became too actively involved in influencing the utility's plan, rather than in only providing control afterwards. Yet, superintendents and regulators do provide a valued additional form of control according to most of the respondents.

Sector reforms have also put more emphasis on the establishment of control and accountability mechanisms by community groups over service providers. In Belo Horizonte and Cali community monitoring groups are established to monitor projects in their localities. In Lima and Belo Horizonte, similar groups exist linked to the participatory budgeting process. These groups are trained to supervise and monitor works to ensure that these are carried out according to technical and financial specifications. One of the aims of more local supervision is that this would lead to improve transparency and reduction of corruption. In Cali, other control mechanisms were mentioned. For example, communities have the right to veto projects which they think would not benefit their community. The experience with these types and groups and instruments is mixed. In some cases, they have contributed to a sense of improved transparency as well as to better ownership of works by communities, as some respondents mentioned in Belo Horizonte and Lima. However, others mentioned that these groups can fall prey to party politics and the same corrupt practices they are aimed to prevent. A few bad experiences can give a bad name to the idea. Most of this evidence is anecdotal and it would require more detailed research to assess the real impact of more social accountability in improving transparency and project implementation. A final limitation to these community control mechanisms is that they cannot easily be applied to major works that go beyond the boundaries of a neighbourhood.

Apart from these formal mechanisms for monitoring and control, communities also mobilise and protest as means to hold authorities or utilities to account. In Lima, communities living by the outfall drains into the Ocean, or in the Quebrada de Huaycoloro, have resorted to protest and social mobilisation to get their issues on the agenda, and to hold the utility to account for their environmental impacts. In the latter case it resulted in the establishment of a platform to discuss the issue, as we have seen earlier. The former case was still ongoing at the time of research.

#### ***5.4 Capacity: engaging in governance functions***

Governance not only refers to how stakeholders engage in decision-making, but also on their capacity to carry out decisions. In the previous sections, various references were made to stakeholders' capacity. This section aims to draw these together and report findings on the capacity of stakeholders to engage in governance functions. This will be disaggregated in terms of financial and human resources capacity, and access to and use of information.

##### **5.4.1 Financial capacity**

###### ***Capital investment costs***

In all cases, except Tegucigalpa, the utility assumes the capital investment costs upfront for sanitation infrastructure such as sewers, stormwater drains and wastewater treatment facilities. These investments are often very high given the magnitude of the cities and the type of infrastructure required. This is particularly true of the costs of wastewater treatment facilities. Raising these upfront costs can be difficult particularly if utilities are

limited to raising funds only locally. Different types of financing mechanisms have been set-up:

- In Belo Horizonte a Municipal Sanitation Fund has been established. This fund is replenished by funds from the municipality proper, as well as by a certain fixed contribution from COPASA, who in turn get this through tariffs paid by consumers. This implies thus a contribution from those consumers who already have access to services, contribute to development of services for those who don't.
- Fund raising at State and national level is considered in Belo Horizonte and Cali. Belo Horizonte has been successful in that, partially due to its careful strategic planning. This provides a stronger justification for obtaining such funds. National governments have also special funds to cover investments in water and sanitation. In Peru, the current government pledged to make "a shock investment" in water and sanitation to reach the MDGs. In Brazil, investments in water and sanitation are prioritised in national government plans.
- Strategic planning also has helped in utilities and municipalities obtaining loans from international banks. However, these also have limitations. According to one of the respondents, the loan required to finance the PMO developed by COPASA would be more or less equal to the size of new debts that Peru can obtain.

Given these measures, most interviewees were confident that access to funds for investment in capital costs would not be a major limitation in developing basic sanitation infrastructure. The only, and major, exception felt is where it concerns wastewater treatment. Although hard financial data were not obtained, interviewees felt that investments in developing wastewater treatment works are too high to be affordable for the communities, even taking into account cross-subsidy mechanisms. The National Planning Department in Colombia (2002) calculated that for a typical lower-middle income family<sup>1</sup>, its monthly bill would double if a tariff would be added to its water supply and sewerage bill to recover investment costs and operation and maintenance costs of wastewater treatment plants. Hence, most would look for subsidies from central government or long terms loans to cover at least investment costs, and only pass on operational costs to consumers. The need for subsidies for investments in wastewater treatment was also confirmed by Moreno (2007) in his analysis of potential avenues for funding of wastewater treatment in the region. Still, it would have big implications for monthly bills just given the operation costs. As a result one avenue being explored is searching for alternative technologies with lower costs (see also final section of this chapter).

Users are normally expected to contribute to the capital investments costs through the payment of a connection fee for sewer systems. Sometimes these are prohibitively high for users. In such cases, utilities may come up with facilities for payments in instalments, as COPASA is doing in Belo Horizonte. In Tegucigalpa communities need to pay their contribution partially upfront, partially through a rotating fund which is also used for operation and maintenance. Instead, some households don't pay the connection fee but resort to illegal connections (see also section 5.2.2). Or communities choose first to invest

---

<sup>1</sup> This was calculated for a family of "stratus 3", or a lower middle-income family. At the time of writing around 34% of the Colombian population was classified in that social stratum.

in a water supply system and only years later in a sewer system because of these upfront costs. In the meantime, they use their own latrines or other on-site solutions that are normally paid for fully by the households themselves. No data has been collected on how households deal with emptying of pit latrines in case these are full, or how these costs are covered. This means that during that period these communities do have reasonable access to water supply, but poor drainage of their grey water. There may also be a risk that latrines are in poor condition, with all the related health and environmental risks. WSP (2007b) noted that this risk is not very high in the case of Tegucigalpa. Most latrines in the city's peri-urban areas appear to be in good condition.

#### ***Operation and maintenance costs***

Operation and maintenance costs are nearly exclusively put on the account of the users. However, cross-subsidy mechanisms were identified: between poor and better-off users in Belo Horizonte and Cali, between poorer municipalities and richer ones in the service area of COPASA, and even between water supply and sewerage in Belo Horizonte. The latter is basically a trick of the utility to make users pay for the costs of sanitation services. People tend to be more willing to pay for water supply than for sewerage. On their monthly bills the amount for sewerage is lower than the actual costs, whilst the amount for water supply is higher. Yet, cross-subsidies are not without their problems. It can be difficult to establish different wealth categories as is ensuring that cross-subsidies in fact do reach the poorest as shown in a study in Bogotá (Martínez, 2007).

Tariffs may also be subject to political expediency, as found for example in Lima. Whereas the utility wanted to increase tariffs, the SUNASS kept the increases limited. This may mean that not all operational costs are recovered, or that necessary investments are postponed. But where there is no political control over tariffs, the opposite may happen. In Belo Horizonte, where COPASA has a much higher degree of autonomy, tariffs were raised far above the level of inflation.

Despite the various limitations mentioned both in terms of capital costs and operation and maintenance, the general feeling expressed in the interviews is that financial resources are not the main limitation in achieving IUWM, and that stakeholders have reasonable financial resources to carry out their governance functions.

#### **5.4.2 Human resources**

We found that utilities and other agencies are well-staffed with highly educated professionals, most of them with a strong technical background. Municipalities tend to have such capacity to a lesser extent, particularly in Lima and Tegucigalpa leading to the earlier-mentioned asymmetric relation between municipality and utilities. A commonly identified gap is the lack of staff trained in facilitating participatory processes around operational implementation of sanitation works. Although good experiences with such approaches exist, these are still far from mainstreamed in these institutions. Neither are there enough contractors or specialised consultants with such skills, as one of the interviewees in Belo Horizonte indicated. Others emphasised the need to develop a cadre of consultants and contractors that are experienced in such methods, alongside further mainstreaming such skills in municipalities and utilities.

These capacity gaps around governance of water and sanitation are not exclusive to these four cities. Various initiatives exist to overcome such limitations:

- In many countries, the level above municipalities, such as provinces, departments or prefectures, is increasingly given a responsibility of providing technical assistance to municipalities, and supervising them, where municipalities themselves may not have those human resources. This mechanism is not applied around the bigger cities, as considered in this study. In Belo Horizonte and Lima, there is a metropolitan council, and a metropolitan municipality respectively, but these don't have a role in providing capacity support to the member municipalities.
- Local authorities joining up in *mancomunidades*, or associations of municipalities within a certain region. In this way, smaller municipalities can pool resources and technical expertise, and achieve economies of scale. This is happening for example in Lima. The district municipalities in the poor southern part of Lima have formed an association to pool resources, for example to jointly hire engineering capacity.
- National government providing technical assistance. This has happened again in Lima, where the Ministry has been involved in pilots around reuse of wastewater to green areas, supporting district municipalities.

Capacity of civil society organisations to participate in a meaningful way in strategic and operational planning processes is deemed limited. Partially, this lies in the manner in which those processes are organised, partially in the manner in which community groups and to a lesser extent civil society are prepared. Decision-making on sanitation interventions often requires knowledge on technical and financial details, particularly when costly decisions are at stake. The approach mostly taken is to train community groups on such water issues. Belo Horizonte and Lima both have programmes to strengthen the capacity and skills of community groups involved in participatory budgeting and urban planning. Through the SWITCH project, the municipality trains the COMFORCAS (the community control groups established alongside participatory budgeting works), on drainage technologies, so that they can better fulfil their monitoring role. Also, the UEBD in Tegucigalpa explicitly addresses capacity building of the water committees as part of its programme. But also after project completion, these water committees can receive support in their operation and maintenance tasks from SANAA. Despite these efforts, interviewees felt that in many cases, community capacity to engage in decision-making remains limited, needing further efforts to strengthen capacities.

### **5.4.3 Access to and use of information**

There are also some capacity gaps in access to and use of information, although they are not considered the biggest limitations. Most cities have advanced information systems that are used in planning. However, some of these are incompatible between different agencies, as in Lima, thus limiting the exchange of data. Collection and use of hydraulic and water quality data also is seen as a limitation in Cali and Belo Horizonte.

Interviewees also considered that there is limited access to and use of information on best-practices, low-cost technologies and alternative approaches to sanitation services provision. Latin America has been at the forefront of developing and piloting new

technologies for sanitation, brought about by the rapid rate of urbanization and the need to search for alternative technologies which can also be applied in poor urban areas. Particular examples include:

- Alternative sewer systems such as condominial and small-bore sewers as seen in Lima and Tegucigalpa.
- Wastewater treatment facilities, including natural treatment methods, and the reuse of wastewater in agriculture. These are known in places like Cali and Lima.
- Natural approaches to stormwater drainage, using natural drainage courses, and less capital intensive materials, such as in Belo Horizonte

Despite these technological advances, some of these are still little known among both authorities and community groups. One of the fundamental reasons is that knowledge development on these kinds of innovations has mainly been driven by NGOs, universities and research organisations but often with some isolation from authorities and utilities and limiting scaling-up. Over the last few years this has changed, and some of the cities here show examples of how this can be done differently. In Belo Horizonte, the University and Municipality jointly work around alternative approaches to drainage. All cities follow the mentioned learning alliance approach, which aims to act also as a platform for sharing knowledge on alternative technologies and approaches to sanitation development. By having better access to this kind of knowledge it is expected that stakeholders can take better decisions in governance processes.

## **6 Conclusions and way forward**

This report looked into actual governance arrangements around urban environmental sanitation in four cities in Latin America: Belo Horizonte (Brazil), Cali (Colombia), Lima (Peru) and Tegucigalpa (Honduras). In all four cities, attempts are underway to improve environmental sanitation services provision, as part of the SWITCH Project, or other initiatives. They face different challenges related to environmental sanitation. These include stormwater management in Belo Horizonte, pollution reduction and drinking water supply in Cali, wastewater management and reuse in Lima, and basic services provision in low-income settlements in Tegucigalpa. In all cases, governance was identified as a key factor affecting, positively or negatively, the success and sustainability of these efforts. Hence, the need to better understand current governance arrangements, so as to be better able to take these into account and where possible take action on. The objective of this paper was to bring together and synthesise these experiences and identify lessons learnt across the four cases.

### **6.1 Conclusions**

#### ***Institutional reforms in different stages of progress***

In all cases, common water sector reforms are being implemented, such as decentralisation, separation of water services authority and provision functions, the establishment of independent sector regulators and superintendents, democratisation, the promotion of civil society participation and establishment of water resources management authorities. However, all countries are in different stages of these reforms, or may have implemented only part of these institutional changes. In all cases, the utilities have remained important and somehow autonomous service providers. They are

showing a reasonably good performance in technical service provision and have good technical expertise. However, their relative autonomy and distance from political bodies, such as Municipalities, implies a risk that they do not provide political accountability on strategic decisions on sanitation.

### ***Fragmentation in planning***

The sector reforms have created necessarily a certain degree of specialisation of institutional responsibilities, with a corresponding risk of fragmentation. This fragmentation of roles and responsibilities becomes clear in the way in which decisions are made in different types of planning processes. Strategic planning of sanitation interventions is deemed crucial by all agencies. It is considered that this should be a multi-stakeholder exercise towards a long-term horizon. Yet, reality in most cases is one of organisational planning rather than sectoral planning. Different organisations develop their own plans in line with their specific institutional mandate. A common framework to which these institutions contribute is lacking in most cases. Belo Horizonte is the only case where such a common planning framework has been made explicit and to which different institutional plans contribute. A crucial factor in overcoming the fragmentation and working towards a common framework is the political leadership, particularly of municipalities. In Belo Horizonte, the municipal leadership has allowed coordination and alignment of plans between the agencies. Where such municipal leadership is lacking, fragmentation is reflected in the institutional planning procedures. Water resources management institutions in theory also provide a common framework through which agencies can articulate and coordinate sanitation interventions. In practice, it has been the application of certain water resources management instruments which have determined the success in influencing sanitation plans. Instruments which have had some success include the catchment plans and targets, as in Brazil and a lesser extent in Colombia, but also more *ad hoc* multi-stakeholder fora, as in Lima.

### ***Civil society participation***

The extent to which civil society, understood both in terms of community groups and organised groups like NGOs, universities and technical and professional organisations, have been able to influence decision-making is largely related to the degree of openness provided by the institutions for them to participate. Most local authorities have provided space to community groups, as parts of attempts to democratise public administrations. These spaces are more related to broader urban development, such as the participatory budgeting in Belo Horizonte and Lima and participation in the development of the urban development plan in Cali and Lima. Only in Belo Horizonte has this gone as far as opening up participation of civil society in strategic decision-making on sanitation specifically through the COMUSA. Probably, an important reason for the limited participation of civil society in decision-making on sanitation lies in the fact that there is no incentive for them to open up towards civil society participation in their decision-making processes. For municipalities, as elected bodies, the pressure to do so is much stronger, as they are held politically accountable for that, unlike utilities.

Community participation in operational decision-making on implementation of sanitation works also remains limited. Some dedicated programmes such as UEBD in Tegucigalpa

and DRENURBS in Belo Horizonte have developed strong participatory methods for sanitation development. But these are far from mainstreamed in these municipalities. One of the reasons mentioned for that is that many professionals working for municipalities and utilities alike haven't been trained in the use of participatory methods.

### ***Control and accountability mechanism***

Control and accountability mechanisms are being strengthened at different levels. A strong role is given to independent regulators and superintendents, which have been established in all case countries, except Brazil. They are actively trying to control the utilities. But, this sometimes may go too far. For example, the utility in Lima felt the superintendent got too much involved in management through its proactive engagement with the sanitation master plan. In addition, utilities are accountable to political bodies, either Municipalities (as in Belo Horizonte and Cali) or national government as in Lima and Tegucigalpa. Water resources authorities also struggle to hold municipalities, or utilities, to account, as in Cali, where the environmental authority has failed to enforce pollution norms and levies. But also in the other countries it is difficult for environmental authorities to hold other government bodies to account. Rather, a pragmatic way of jointly finding solutions is preferred, in which instead of fines, investments are made in wastewater management and treatment, even though this may mean long delays.

Civil society has also been given a role in monitoring and control. In all cases, community groups have formal power in monitoring and control of specific projects, as well as in oversight over budgets dedicated to participatory budgeting. Even though such groups may not always perform as expected, according to the interviewees this has contributed to increased transparency in use of budgets. In Belo Horizonte and Lima, social movements and protest have played some role in holding authorities and the utility to account for environmental management. But only in Belo Horizonte, do social movements like *Projeto Manuelzão* and the *Frente Estadual de Saneamento* have a more proactive role in putting sanitation on the agenda of the authorities and monitoring strategic decisions on this.

### ***Financial capacity***

Although utilities face some challenges in mobilising the financial resources required for investments in environmental sanitation, interviewees express confidence that they do have the financial capacity to make such investments. The main limitation identified is around financing wastewater treatment. If the capital costs of that is passed on to consumers, tariffs would rise to levels which are unaffordable, particularly for the poorest consumers. Here, additional financing would be needed from national or even international level. At the same time, costs could be reduced by making better use of low-costs technologies, which are being developed and adapted in the region and particularly in the cities part of this study.

### ***Human resources and access to and use of information***

There are some gaps in terms of human resources, such as the capacity to follow more participatory approaches, and the capacity of community groups and civil society organisations to engage meaningfully in decision-making processes on sanitation

improvements. Overcoming these capacity limitations will mean first and foremost, facilitating better access to and use of information on low-cost technologies, good practices on sanitation and different approaches to sanitation. Universities, knowledge centers and technical and professional bodies have played an important role in such research and knowledge brokering in the past, a role which is much respected. However, this role could be strengthened by particularly facilitating uptake and use of knowledge in these innovative approaches among the types of actors we have seen in this study: municipalities, utilities, water resources authorities and community-based organisations.

The study concludes that standard elements of sector reforms, such as decentralisation, the establishment of regulating entities and setting-up water resources authorities are important components in the strengthening of governance over sanitation. But, the study also shows it shouldn't stop with institutional reform. Strengthening capacity at different levels and developing a democratic political culture, with its accountability mechanisms, are equally important. Pragmatically working with city stakeholders in activities such as joint planning and facilitating access to and use of information, can contribute to the latter, and holds as much potential for contributing to strengthened governance of urban environmental sanitation.

## **6.2 Implications for the way forward**

In line with the methodology chosen, this study didn't aim to develop specific recommendations for changes in governance arrangements in the different cities. Rather, we have identified implications for *how to* continue working on overcoming some of the difficulties in current governance arrangements, as part of the ongoing IUWM initiatives in the cities. City-specific implications have been developed in each of the city reports. Here we provide more generic suggestions for the way forward, which we think can be accommodated within SWITCH and other initiatives.

- Providing space to start-up processes of ***integrated long-term planning*** for urban sanitation. As we have seen, most cities lack the space and methodologies for joint integrated planning. It is realised that even starting up such processes take time and resources. But as part of SWITCH and other initiatives, such processes can be put in motion, by convening the stakeholders, e.g. through the learning alliances, and providing them with approaches, methodologies and tools for doing so.
- Related to the previous recommendation is a need for strengthening ***capacity of key stakeholders***. Various stakeholder groups have been identified who may lack capacity to engage in both operational and strategic decision-making processes. This applies particularly to civil society and organised community groups, and to a lesser extent to municipalities. Capacity gaps lie both on the methodological side (i.e. how to facilitate participatory and integrated planning processes) as well as on the content side of alternative and innovative approaches to sanitation. Capacity strengthening may take the form of training of these stakeholders in such aspects. In addition, through the learning alliances, effort can also focus on joint learning about these alternative approaches.
- More ***in-depth research on governance***. This study has identified the broad governance panorama in these cities. There is scope and need for more in-depth research on gaps identified in this report. A first gap refers to the political aspects of

governance such as political relationships between different stakeholders and politicization of functions. Particular emphasis could be given to mechanisms for transparency and accountability at the different levels. These issues are often sensitive, and need to be dealt with the appropriate methodologies. A second gap would lie in a more quantitative analysis of the capacity for governance. This could deepen understanding of financial investments made, and their implications.

## Acknowledgements

The study in Belo Horizonte, Cali and Lima was carried out within the SWITCH project. The authors kindly acknowledge the financial support of the EC FP6 programme for this project. The study in Tegucigalpa was funded by IRC, with financing from DGIS (Dutch Directorate General for International Cooperation).

We would like to thank everyone who have supported the original case studies: Sônia Knauer, Tarcísio Nunes and Janise Dias in Belo Horizonte, Diana Amparo Cardona and in Cali, Gunther Merzthal, Ernesto Bustamante, Alicia Román, Rafael Muñoz and Jorge Barriga in Lima, and Tupac Mejía in Tegucigalpa. We would also like to thank all the persons we interviewed for sharing their perspectives and experiences.

## References

- Allen, A. and P. Hofmann (2008) *Moving down the ladder: Governance and sanitation that works for the urban poor*. Essay for the Symposium on Sanitation for the Urban Poor; Partnerships and Governance. IRC International Water and Sanitation Centre, the Netherlands
- Butterworth, J.A. and M. Morris (2007) *Developing processes for delivering demand-led research in urban water management*. SWITCH Working Paper [online] Available at [http://www.switchurbanwater.eu/la\\_guidance.php](http://www.switchurbanwater.eu/la_guidance.php)
- Cinara Universidad del Valle (2008) *Urban Water Management for the City of Cali; Diagnosis Report*. SWITCH Project, Cali, Colombia
- Cleaver, F. Franks, T., Boesten, J. and A. Kiire (2005) *Water governance and poverty; what works for the poor?* Bradford Centre for International Development, Bradford, UK
- CRECERH/RASHON (2008) *Fortalecimiento de las capacidades en la gobernanza local de los servicios en saneamiento en las poblaciones mas pobres en Honduras*. Red de Agua y Saneamiento de Honduras, Tegucigalpa, Honduras
- DNP (2002) *Acciones prioritarias y lineamientos para la formulación del plan nacional de manejo de aguas residuales*. CONPES 3177. Departamento Nacional de Planeación, Bogotá, Colombia
- DFID (1998) *DFID Guidance manual on water supply and sanitation programmes*. London, UK, DFID

- Galvis, A., Bernal, D.P. (2008) *SWITCH Learning Alliances Progress Report: Cali*, CINARA report.
- Geest, S. Van der et N. Obirih Opareh (2006) Getting out of the shit: toilets and the daily failure of governance in Ghana. In: *Le bulletin de l'APAD, N° 23-24, La gouvernance au quotidien en Afrique*. <http://apad.revues.org/document150.html>
- Heller, L. (2007) *Different approaches in analyzing water governance; implications to the case of Belo Horizonte, Brazil*. Paper presented at the SWITCH Scientific Meeting, University of Birmingham, 9-10 January 2007
- CID (2004) *Equidad en las tarifas de los servicios públicos; impacto en la capacidad de pago de los hogares de Bogotá D.C. (Colombia)*. Centro de Investigaciones para el Desarrollo (CID), Departamento Administrativo de Planeación Distrital (DAPD), Universidad Nacional de Colombia  
[http://www.dapd.gov.co/www/resources/vzy\\_2\\_la\\_equidad.pdf](http://www.dapd.gov.co/www/resources/vzy_2_la_equidad.pdf)
- Mitchell V.G. (2004) *Integrated Urban Water Management. A review of Australian practice*. CSIRO and AWA report CMIT-2004-075
- Moreno, H. (2007) *Mecanismos de financiación de proyectos de descontaminación de ríos urbanos*. Paper presented at LatinoSan 2007, Cali, Colombia.  
[http://www.latinosan2007.net/2008/PYPs/4\\_GSSBA/Presentaciones/SEGUNDO\\_DIA/TARDE/3HenryMorenoUSA.pdf](http://www.latinosan2007.net/2008/PYPs/4_GSSBA/Presentaciones/SEGUNDO_DIA/TARDE/3HenryMorenoUSA.pdf)
- Moriarty, P., Batchelor, C., Abd-Alhadi, F.T., Laban, P., and H. Fahmy (2007) *The EMPOWERS Approach to Water Governance: Guidelines, Methods and Tools*. INWRDAM, Amman, Jordan. <http://www.project.empowers.info/page/3344>
- Nascimento, N.O, Heller, L, Baptista, M, Heller, P., Chernicharo, C, Knauer, S. and J.R. Champs (2007) *Long-term uncertainties and potential risks to urban waters in Belo Horizonte*. Paper presented at SWITCH Scientific Meeting, 9-10 Jan 2007, Birmingham, UK
- Rogers, P., and Hall, A.W., (2003) *Effective Water Governance*, TEC Background Papers No. 7, Global Water Partnership, Technical Committee, Stockholm, Sweden. Available at: [www.gwpforum.org/servlet/PSP?iNodeID=215&itemId=197](http://www.gwpforum.org/servlet/PSP?iNodeID=215&itemId=197)
- Sánchez, E., Mejía, T. and S. Smits (2008) *Capacity for local governance of sanitation services provision among poor urban communities in Honduras*. Paper presented at the Symposium sanitation for the urban poor; partnerships and governance, held at IRC International Water and Sanitation Centre, Delft, the Netherlands
- Smits, S., Moriarty, P., and Sijbesma, C., (eds). 2007. *Learning alliances: scaling up innovations in water, sanitation and hygiene*. Technical paper series; no. 47. Delft, The Netherlands, IRC International Water and Sanitation Centre.

Smits, S., Galvis, A., Bernal, D.P., Cardona, D.A. and J.T. Visscher (2008a) *Gobernabilidad e infraestructura hídrica urbana; un caso de estudio de Cali, Colombia*. SWITCH Project, [www.switchurbanwater.eu](http://www.switchurbanwater.eu)

Smits, S., Nascimento, N.O, Dias, J., Nunes, T., and S. Knauer (2008b) *Governance of urban environmental sanitation: a case from Belo Horizonte, Brazil*. SWITCH Project. [www.switchurbanwater.eu](http://www.switchurbanwater.eu)

Smits, S., Santandreu, A., Bustamante, E., Merzthal, G. and Román, A. (2008c) *Gobernabilidad e infraestructura hídrica urbana; un caso de estudio de Lima, Perú*. SWITCH Project, [www.switchurbanwater.eu](http://www.switchurbanwater.eu)

Smits, S., Knauer, S., Nascimento, N.O., Dias, J. and T. Nunes (2008d) *Strengthening and democratising decision-making on integrated urban water management through learning alliances; a mid-term review from Belo Horizonte, Brazil*. SWITCH Project. [www.switchurbanwater.eu](http://www.switchurbanwater.eu)

UNDP Water Governance Facility (2008) *Water governance facility*. UNDP/SIWI [www.watgovernance.org](http://www.watgovernance.org)

UNESCO (2006) *Water: a shared responsibility*. The United Nations World Water Development Report 2. Barcelona, UNESCO & Berghahn Books

WHO/UNICEF (2007) *Joint Monitoring Programme*. [www.wssinfo.org/en/238\\_wat\\_latino.html](http://www.wssinfo.org/en/238_wat_latino.html)

WSP (2007a) *Saneamiento para el desarrollo ¿Cómo estamos en 21 países de América Latina y el Caribe?* Water and Sanitation Programme Latin America and Caribbean, Lima, Peru

WSP (2007b) *Pobreza y saneamiento; un análisis de vínculo pobreza y acceso a saneamiento básico en Honduras*. Programa de Agua y Saneamiento del Banco Mundial, Tegucigalpa, Honduras [http://www.wsp.org/UserFiles/file/1162007120126\\_Pobreza\\_y\\_Saneamiento\\_en\\_Honduras.pdf](http://www.wsp.org/UserFiles/file/1162007120126_Pobreza_y_Saneamiento_en_Honduras.pdf)

WSP (2007c) *Evaluación de los operadores locales de pequeña escala de agua y saneamiento en el Perú*. Programa de Agua y Saneamiento del Banco Mundial, MVCS, Lima, Perú [http://www.wsp.org/UserFiles/file/79200740230\\_OLPEFINAL.pdf](http://www.wsp.org/UserFiles/file/79200740230_OLPEFINAL.pdf)

## Annex 1: SWITCH Deliverable Briefing Note Template

<p><b>SWITCH Document</b> Mapping governance of urban environmental sanitation in Latin America: case studies from Belo Horizonte, Cali, Lima and Tegucigalpa</p>
<p><b>Deliverable reference:</b> D6.1.2</p>
<p><b>Author(s) and Institution(s)</b> Stef Smits (IRC), Alberto Galvis (Cinara/Universidad del Valle), Diana Paola Bernal (Cinara/Universidad del Valle), Jan Teun Visscher (IRC), Alain Santandreu (IPES), Nilo Oliveira de Nascimento (UFMG), Eduardo Sánchez (FHIS/RAS-HON) and John Butterworth (IRC)</p>
<p><b>Publication date:</b> Feb 2009</p>
<p><b>Audience</b> This document is targeted at researchers with an interest in governance and uptake of innovations by institutions; and at officials involved in governance reform processes in the water sector.</p>
<p><b>Purpose</b> The purpose of this document is to analyse current governance arrangements in 4 Latin American cities with a particular view towards how these arrangements facilitate or not inclusive integrated planning of sanitation services, and what activities can be undertaken to strengthen these governance arrangements.</p>
<p><b>Background</b>            Cities in Latin America face a double challenge in environmental sanitation, of both providing access to basic water supply and sanitation for those currently lacking that, and improving the collection and treatment of wastewater and solid waste. Governance is a crucial factor affecting whether these challenges can be met. The last decades have seen a package of governance reforms, such as decentralisation, the establishment of independent regulators and water resources authorities, and democratization of decision-making procedures. However, the degree to which these reforms have actually been implemented and the outcomes are very different in the countries and cities of the region. This report looks into governance arrangements in four Latin American cities: Belo Horizonte (Brazil), Cali (Colombia), Lima (Peru) and Tegucigalpa (Honduras). These cities are all the location of efforts to address environmental sanitation in a more integrated manner and addressing governance is integral to these efforts. Understanding current governance arrangements is a good starting point. This report provides an analysis of the actual governance arrangements in these cities, and looks at similarities and differences. It provides conclusions and recommendations for addressing governance in efforts to develop integrated approaches to urban environmental sanitation.</p>
<p><b>Potential Impact</b> The impact of this report would mainly be local in the 4 cities involved. It provides a framework to enable development of appropriate entry points for doing more integrated planning and the promotion of innovative approaches to urban water management. In addition, the method followed for this analysis could be applied in other non-SWITCH cities.</p>
<p><b>Recommendations</b>            The report lists three areas of recommendations:</p> <ul style="list-style-type: none"> <li>• Providing space to start-up processes of <i>integrated long-term planning</i> for urban sanitation in these cities</li> <li>• Strengthening <i>capacity of key stakeholders</i> to engage in both operational and</li> </ul>

strategic decision-making processes, providing them with access to and promote the use of information and knowledge on innovative urban water management and integrated planning processes in these.

- More *in-depth research on governance*

Further details on these recommendations are given in the final chapter of the report.