



# Research and Surveys Series: Cost Recovery in Partnership: Results, Attitudes, Lessons and Strategies

**Authors** Kristin Komives and Linda Stalker Prokopy

**Written** October 2000

BPD Water and Sanitation Cluster  
c/o WaterAid, First Floor  
Prince Consort House  
27-29 Albert Embankment  
London SE1 7UB

Telephone + 44 20 7793 4557

Facsimile + 44 20 7582 0962

Email [bpd@wateraid.org.uk](mailto:bpd@wateraid.org.uk)

Web site [www.bpd-waterandsanitation.org](http://www.bpd-waterandsanitation.org)

## **Business Partners for Development**

Sustainable development is a global imperative, and strategic partnerships involving business, government, and civil society may present a successful new model for the development of communities around the world. Business Partners for Development is an informal network of partners who seek to demonstrate that partnerships among these three sectors can achieve more at the local level than any of the groups acting individually.

Among the three groups, perspectives and motivations vary widely, however, and reaching consensus often proves difficult. Different work processes, methods of communication and approaches to decision-making are common obstacles, but when these tri-sector partnerships succeed, communities benefit, governments serve more effectively and private enterprise profits, resulting in the win-win-win situation that is the ultimate aim of BPD and its divisions, or clusters.

### **THE WATER AND SANITATION CLUSTER**

One of four sector clusters within the BPD framework, the Water and Sanitation Cluster aims – through focus projects, study, and the sharing of lessons learned – to improve access to safe water and effective sanitation for the rising number of urban poor in developing countries.

Focus projects are the mainstay of the Cluster's work, yielding lessons that inform project field work, help the Cluster measure the partnership's efficacy and identify priority research areas, including technology and terrain, land tenure and non-payment culture. Through focus projects, the Cluster seeks to illustrate that – by pooling their unique assets and expertise – tri-sector partnerships can truly provide mutual gains for all. Governments can ensure the health of their citizens with safe water and effective sanitation while apportioning the financial and technical burden. Corporations can showcase good works while ensuring financial sustainability over the long term and communities can gain a real voice in their development.

The Cluster disseminates findings through newsletters, a Web site, and other key publications to share best practice widely. The ultimate objective is to explore how partnerships can most effectively benefit from the strengths of the different stakeholders.

### **THE FOCUS PROJECTS**

The Water and Sanitation Cluster's eight focus projects respond to the specific demands and conditions of the communities they serve. As a result of these dynamics, each project's objective is a work in progress.

- 1) Drinking water supply and sewer system in the El Pozón quarter, Cartagena, Colombia
- 2) Water supply improvements to Marunda District, Jakarta, Indonesia
- 3) Restructuring public water service in shanty towns, Port-au-Prince, Haiti
- 4) Developing water supply and sanitation services for marginal urban populations, La Paz and El Alto, Bolivia
- 5) Innovative water solutions for underprivileged districts, Buenos Aires, Argentina
- 6) Sustainable water and wastewater services in underprivileged areas, Eastern Cape and Northern Province, South Africa
- 7) Management of water services, Durban and Pietermaritzburg, South Africa
- 8) Upgrade and expansion of local water networks, Dakar, Senegal

## Executive Summary

This paper explores cost recovery in the eight focus projects of the Business Partners for Development (BPD) Water and Sanitation Cluster. The focus projects are located in seven countries: Argentina, Bolivia, Colombia, Haiti, Indonesia, Senegal and South Africa. The wealth of experience in these eight projects offers general lessons about achieving cost recovery in water and sanitation projects in poor neighbourhoods. In addition, the BPD's focus on partnerships between the private sector, the public sector and civil society enables us to examine how partnership contributes to, or complicates, cost recovery.

Cost recovery was not set out as an agreed upon indicator of success for all of the BPD partnerships and full cost recovery was not the goal in many cases. Our objective here is, therefore, not to evaluate or judge the projects with respect to their cost recovery goals or achievements, but rather to learn from their experience. Most of the BPD focus projects are still running; thus, the projects themselves as well as a more general audience can benefit from these early lessons.

### METHODOLOGY

The information contained in this report is drawn from a series of surveys and telephone interviews, which were conducted with a majority of project partners. Three key limitations of this study bear mentioning:

- the report predominantly focuses on recovering costs for water supply, not sanitation;
- the community groups that play a critical role in some projects were not interviewed;
- the data for this report has been collected from project managers and we rely on their knowledge and experience to point us towards the most important activities, problems, and successes in their project areas.

### COST RECOVERY ATTITUDES AND GOALS

Most BPD projects are trying to recover 100 per cent of operation and maintenance costs through some sort of tariff.<sup>1</sup> However, setting a cost recovery tariff is complicated by politics and the poverty of the population. Additionally, some projects cannot set the tariff in the project area – tariffs are set for the entire service area by governments or through contracts with private operators.

The BPD projects only aim to recover part (or none) of the capital cost of building the system directly from consumers. In the BPD standpost projects, households have usually not been required to make any significant contribution towards the infrastructure costs. In the case of private connections, households are asked to pay a connection fee, but this fee is often lower than the actual cost of the household connection. To partially make up for this shortfall, customers in some BPD projects contribute to infrastructure expansion through a monthly tariff or through a monthly set fee for network expansion.

Project partners were asked to consider what the ramifications for both their projects and their organisations would be if cost recovery goals were not met. Some projects will not be expanded if they are unable to recover costs. In other projects, water will probably continue to flow regardless of revenue collection.

The project partners were asked their opinion about whether consumers should be charged the full operation and maintenance (O&M) cost and/or the full infrastructure

---

<sup>1</sup> The projects do not always know what their exact costs are, but they have tried to set tariffs that they expect to cover their costs if water consumption and use of the service meets the a priori expectations of the producers.

cost of the water service. None of the partner groups are overwhelmingly ready to charge poor consumers for the full cost of their water service, though the private partners are more willing to have consumers pay these costs than are the other project partners. All the partners are much more willing to charge a full cost recovery tariff than a full infrastructure fee.

## **OUTCOMES OF COST RECOVERY GOALS**

Partners were asked to identify the factors that make it harder to collect tariff from households. 'High' tariffs and a history of non-payment for water stand out as the biggest obstacles. Close behind is the lack of a convenient payment place, poverty of the population, violence in the project area and organisational/billing problems.

Of the projects that have started collecting tariff in poor areas, Bolivia, Indonesia, Haiti and Senegal have relatively high revenue collection rates, while BoTT and Argentina have mixed results.

None of the BPD projects have systematically studied which consumers do and do not pay their bills and why. A few projects reported that they think payment is especially low among jobless households, landless households and larger households.

## **STRATEGIES FOR ACHIEVING AND IMPROVING COST RECOVERY**

The eight BPD projects have tried many strategies to achieve or improve cost recovery. A number of points stand out from this experience.

- Service improvement: None of the projects is trying to increase cost recovery without offering customers some type of service improvement in return.
- Institutional solutions: In standpost projects, the BPD project partners have created new institutional structures to manage the standposts and cost recovery. Institutional solutions are less common in projects with private connections. The cost recovery relationship in these projects is directly between the customer and the utility.
- Communication with the community: Every BPD project has implemented some kind of education or promotion campaign, ranging from pre-project information, to hygiene education during the project period, to follow-up training for standpost operators once the project is constructed. Many said that these campaigns had been among their most successful cost recovery efforts, in part because they encourage water use.
- Technology options: Technology plays an important role in a number of the projects – through pre-payment technology and lower cost technology options.
- Billing, charging and payment systems: Improving billing, charging, and payment systems is of major importance for several projects. Getting bills to customers is clearly a common problem in poor urban areas.
- Tariffs and connection fees: For the most part, tariffs were not reduced to make service especially affordable in the BPD areas. On the other hand, connection fees in the project areas are in some cases lower than the fees applied in the greater service area.
- Disconnection: Three BPD projects are employing disconnection as a strategy to encourage households to pay. In the other BPD projects, disconnection is either not allowed or not enforced.

## **PARTNERSHIP AND COST RECOVERY**

BPD project partners expressed confidence that working together helped improve cost recovery; by working together the partners can each focus on their areas of strength. The public sector partner is generally responsible for setting and approving tariffs.

Billing and collection is usually done by the private sector – either a private urban utility or a small private standpost operator. The civil society partner has largely carried out work with the community. In some projects, the value of these partnerships is seen by the fact that they are replicated in other areas or that one project partner has, over time, learned and taken on functions of the other.

## **CONCLUSION**

The BPD project experience generates some lessons to add to the global body of knowledge about cost recovery. Examples include when and where to use pre-payment systems versus community management institutions in standpost projects, how to use multi-actor project oversight committees to avoid inevitable problems and misunderstandings that arise in projects, and how to encourage partnerships in privatisation contract design.

Many decisions that affect cost recovery outcomes are not made at the project level, but rather in the local or national government policy arena. BPD could serve as a forum for discussing these broader policy problems and for sharing insights from experience with political leaders.

This report leaves many questions about cost recovery unanswered, because it relies only on the existing knowledge and experience in the BPD projects. There is a great deal that can be learned from international experience in areas like tariff and subsidy design, community participation and new technologies. The BPD partners, as a group, could collect this information and share the learning among themselves.

Another type of information missing from this cost recovery story is information about the cost of the strategies that BPD partners have employed. We encourage all partners to try to evaluate the cost effectiveness of the measures they take. The BPD cluster may have a role to play in developing and implementing a methodology.

This report suggests some ways in which partnerships between the private sector, public sector and civil society make it easier to achieve cost recovery, but there is clearly more to learn. Facilitated discussions with all project partners could help bring out more details of ‘who did what’ in the different projects and how those specific contributions have impacted cost recovery issues.

## **Acknowledgements**

We would like to thank the Secretariat of the BPD Water and Sanitation Cluster office for their assistance and support. We appreciate the effort made by many BPD project partners to respond to our survey and answer our many questions. This report is about what has been learned in the BPD projects. The research project would not have been possible without the enthusiasm and collaboration of the partners themselves. We also thank the many external reviewers who provided us with their comments and suggestions: Jon Lane, Teun Bastemeyer / IRC, Tamsyn Barton / ITDG, Malcolm Smart / DfID, Simon Trace / WaterAid, Barbara Evans / WSP.

Business Partners for Development  
Water and Sanitation Cluster

*Cost Recovery in Partnership: Results, attitudes, lessons and  
strategies*

**Contents**

1 – Introduction	1
2 – Methodology	2
3 – The Focus Projects	3
4 – Cost Recovery Attitudes / Goals	6
5 – Outcomes of Cost Recovery Goals	13
6 – Strategies for Achieving or Improving Cost Recovery	17
7 – Partnerships and cost recovery	29
8 – Conclusion	31

## 1 – Introduction

Achieving financial sustainability is an increasingly important goal in water and sanitation projects around the world. This stems from a growing recognition that water is an economic good and that the benefits of projects are likely to be short-lived if the projects are unable to recover costs. Government subsidies for water programmes have proven to be unreliable and unsustainable in many instances. As a result, governments and donors are placing more emphasis on the role of user charges in project finance. Consumers are increasingly expected to pay fees and tariffs to use formalised water systems. But there are frequently barriers to overcome before governments will charge and consumers will pay for water. These barriers include, among others, cultural beliefs that water should be free, consumers' lack of confidence in historically unreliable services and the availability of alternative water sources. These barriers make cost recovery a challenge for most projects. This paper explores in detail the issue of cost recovery in the eight focus projects of the Business Partners for Development Water and Sanitation Cluster. As the report will show, the private sector partners, in partnership with the public sector and civil society, are showing significant initiative and creativity in achieving and improving cost recovery in these focus projects.

While cost recovery is an important piece of sustainable service delivery, it cannot be studied in a vacuum. Sustainability in water and sanitation projects is multi-faceted. Technical, institutional and financial sustainability are all important. The technical (service level, service quality and reliability) and institutional (community involvement, service delivery institution) structure of a water and sanitation programme will affect how much and whether households are willing to pay for service. Household willingness to pay in turn has a direct effect on cost recovery. The cost recovery challenge in any water and sanitation project is to find the right balance between these elements: (1) a service that households want, are willing to pay for and actually do pay for; and (2) an operational and institutional system that is capable of collecting these contributions.

This report examines eight projects in seven countries. The BPD focus projects represent a variety of scenarios and important general lessons about cost recovery can be drawn from their experiences. Additionally, the partnership structure of these projects gives us the unique opportunity to consider how partnership can contribute to, or complicate, cost recovery. We cover several aspects of cost recovery throughout this report including: willingness to charge for water by different project partners; the projects' goals in terms of cost recovery; how well the projects are actually doing at achieving their goals; and strategies that projects are using to improve cost recovery.

The purpose of this report is not to rate the BPD projects with respect to their cost recovery successes. Any effort to do so would be misleading because the projects each have different challenges and goals and have adopted different strategies and time frames for achieving cost recovery. Indeed, cost recovery was not an agreed indicator of success for many of the partnerships and full cost recovery was only rarely an explicit goal. Our overarching goal in this report is simply to bring cost recovery challenges, goals and strategies to light, and to identify where there are lessons to be learned from this diverse and rich experience. This report adds to a growing literature on the challenges of cost recovery in water and sanitation projects.<sup>2</sup>

We hope that this information will be useful to all BPD partners, as well as to other water and sanitation projects around the world who are grappling with similar issues

---

<sup>2</sup> See for example work by Water, Engineering and Development Centre (WEDC), International Water and Sanitation Centre (IRC), International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE), and the Water and Sanitation Program (WSP).

concerning cost recovery. In addition, as the first cross-project Water and Sanitation Cluster research report, this report will introduce all project partners to many detailed aspects of the operations of each project. Sharing this information could help increase cooperation and learning between the projects and will be the basis for future cross-project research efforts.

The report is organised as follows. Section 2 briefly describes the methodology used to gather data for this report and Section 3 presents the eight BPD focus projects. Section 4 describes the cost recovery goals in the projects – what percentage of costs are the projects trying to recover from users and why. Section 5 looks at cost recovery outcomes – how close are the projects to meeting their goals. In Section 6, we turn to the specific activities and strategies that project partners have tried in an effort to reach their goals. In Section 7, we look at cost recovery efforts from the tripartite perspective – what roles have the public sector, private sector and civil society played with respect to cost recovery. We conclude, in Section 8, with general recommendations about how project partners can continue the learning process to answer some outstanding questions.

## 2 – Methodology

The information contained in this report is drawn from a series of surveys and telephone interviews, which were conducted with a majority of project partners. The surveys contained questions pertaining to the following topics: 1) basic information about the project area and water and sanitation services available prior to the BPD project; 2) willingness to charge by different partners; 3) relative difficulty of different project tasks; 4) infrastructure and connection fees – goals and outcomes; 5) operation and maintenance tariffs – goals and outcomes; 6) role of project partners in cost recovery; and 7) lessons learned. After receiving survey responses, follow-up telephone interviews were conducted with at least one partner per project in order to clarify some issues and to gather more details about the interesting stories that emerged out of the surveys.

There are three key limitations of this study that bear mentioning. First, as only three of the BPD projects have piped sanitation components, the report predominantly focuses on experiences with recovering costs for water supply.<sup>3</sup> Second, the project partners considered in this study include the private sector, the public sector and civil society – but not the community groups that, as the report will show, play a critical role in cost recovery in some projects. These community groups were not surveyed or interviewed for this report. Finally, the data for this report has been collected from project managers, not from households, or even from project staff who are in day to day contact with the communities. Therefore, we can not draw any firm conclusions about willingness to pay on the part of the consumers or the factors that influence their willingness to pay. Nor can we draw conclusions with any certainty about what activities or factors are responsible for the cost recovery achievements of each project. We rely here on the knowledge and experience of managers in the BPD partner organisations to point us towards the most important activities, problems and successes in their project areas.

---

<sup>3</sup> This does not mean that there are not interesting stories with regards to sanitation among the BPD cluster projects. The Bolivia project has been very innovative with its use of condominal technology, one area within the Argentina project is experimenting with solids-free sewers, the KwaZulu-Natal project in South Africa offers waterborne sewer systems with its higher levels of water service and in South Africa's Northern Province Metisco is working to improve pit latrine projects.



### 3 – The Focus Projects

The Business Partners for Development Water and Sanitation Cluster has eight focus projects in seven countries: Argentina, Bolivia, Colombia, Haiti, Indonesia, Senegal and South Africa. The eight projects range in scope from providing services in one peri-urban district (600 households in the Marunda District of Jakarta, Indonesia) to a major government investment programme for rural and peri-urban areas (the BoTT programme in South Africa). Two of the projects have met the initial partnership goals and are moving into new and extended forms of collaboration among partners (Haiti and Senegal); the rest of the projects are well on their way. Only the Colombia project is still in the planning phase and infrastructure construction will soon begin.

Most of the projects are located in urban or peri-urban areas. Before work began in these focus projects, households in the focus communities relied on a variety of informal and illegal water services (rivers, private water vendors, illegal connections, purchasing water from neighbours) or on poorly functioning utility services. The challenge for the focus projects is to find a way to bring reliable utility water (and in some cases sewer) services to poor, poorly served areas in a financially sustainable way. Each project attempts to solve this problem in a different way: private connections or standposts, metered or unmetered, pre-payment systems or billing, billing of households or of neighbourhood organisations. The eight projects taken together represent a wealth of information about alternatives for water service provision in poor urban and peri-urban areas (see Table 1).<sup>4</sup>

TABLE 1: DESCRIPTION OF BPD FOCUS PROJECTS

	GENERAL CONTEXT BEFORE PROJECT	SERVICE LEVEL IN BPD FOCUS PROJECT	PAYMENT TECHNOLOGY IN PROJECT
<i>Argentina (select barrios of Buenos Aires)</i>	<i>Urban/peri-urban area. Illegal connections, poor quality standposts</i>	<i>Private water connections and sanitation in some areas</i>	<i>Unmetered connections; bimonthly billing of 'neighbourhood units' or of individual households</i>
<i>Bolivia (El Alto)</i>	<i>Urban/peri-urban area. Private vendors, unmetered standposts</i>	<i>Private water and sewer connections with condominal technology</i>	<i>Metered connections; monthly billing of individual households</i>
<i>Colombia (El Pozón area of Cartagena)</i>	<i>Urban/peri-urban area. Private vendors, public tanks</i>	<i>Private water connections</i>	<i>Metered connections; billing of individual households</i>
<i>Haiti (14 Port-au-Prince shanty towns)</i>	<i>Urban/peri-urban area. Vendors, irregular piped services</i>	<i>Standposts with storage tanks</i>	<i>Monitored standposts; households pay standpost operator; operator pays utility for bulk water</i>

<sup>4</sup> The BoTT programme in South Africa's Eastern Cape is the only predominantly rural project of the eight.

<i>Indonesia (Makunda District of Jakarta)</i>	<i>Urban/peri-urban area. Private connections, wells, vendors, tanker trucks</i>	<i>Private water connections</i>	<i>Metered connections; billing of individual households</i>
<i>Senegal (Fass Mbab area of Cape Verte, Dakar)</i>	<i>Urban/peri-urban area. Wells and other</i>	<i>Standposts</i>	<i>Metered standposts; households pay standpost operator; operator pays utility for bulk water at a social tariff rate fixed by the State</i>
<i>South Africa BoTT (Northern Province and Eastern Cape)</i>	<i>Urban/peri-urban/small town/rural. Rivers, rain water collection, unreliable private connections</i>	<i>Private water connections and standposts</i>	<i>Metered connections with billing of households; pre-payment standposts systems; unmetered standposts with village water committee</i>
<i>South Africa KwaZulu-Natal (Durban, Pietermaritzburg)</i>	<i>Urban/peri-urban areas. Unreliable private connections, standpipes, tankers</i>	<i>Private connections (with a choice of pressure levels) and standposts</i>	<i>Metered connections; unmetered connections with limited-size storage tank; pre-payment standposts</i>

All of the BPD focus projects are partnerships: between public or private utilities, NGOs, government institutions and/or community organisations. Below is a brief description of each project and of the project partners.

- **Argentina:** Aguas Argentinas is a private utility that has had the concession for water and sewer services in Buenos Aires since 1993. Aguas Argentinas has a mandate to expand formal service coverage over time into poor neighbourhoods where illegal connections have been a problem. The utility is working with community groups, NGOs and local government to find solutions for many poor areas around the city. The three examples that we will consider in this study are Barrio San Jorge (350 households) and Barrio Hardoy (260 households), where Aguas Argentinas has worked with the NGO International Institute for Environment and Development, and Villa Jardín (580 households), where the utility is working with Programa Riachuelo. In all of these areas, community organisations play a large role in organising households for the project and, in some cases, in collecting payment from households.
- **Bolivia:** Aguas del Illimani is a private utility with a concession to provide water and sanitation services in the La Paz/El Alto metropolitan area. In an effort to meet its expansion mandates, the company began a pilot project to extend lower-cost private condominium water and sewer connections to 10,000 households in El Alto. This new technology was not contemplated in the concession contract, so the pilot project required the support of Bolivia's water regulator.<sup>5</sup> The pilot project also involved extensive social work with communities, including hygiene education, micro-credit schemes and help in constructing bathroom facilities. The cost recovery relationship in this project is directly between the utility and the household.

<sup>5</sup> Aguas del Illimani would like to adopt the condominium technology for all of its expansion areas and is currently awaiting the changes to Bolivian regulations that this would require.

- **Colombia:** In Colombia, Aguas del Cartagena is just beginning the extension of private water connections to the 8,000 households in the El Pozón area of Cartagena. The company has partnered with the NGO MPDL to do an initial study of the area. From this study, the company hopes to learn how to structure billing and collection in a way that is compatible with the income streams of El Pozón residents.
- **Haiti:** The public water utility CAMEP provides water services in Port au Prince, but this service was not reaching many of the shantytowns surrounding the city. In 1994, the French NGO GRET and CAMEP initiated a project to take bulk water to the borders of 14 shantytowns. Distribution networks inside the shantytowns are the responsibility of local water committees. Water is distributed to standposts that are operated by private resellers chosen by the communities. Resellers buy bulk water from CAMEP and then charge households at a fixed price for that water at the standposts. Some of the excess revenue is used to fund other infrastructure improvements in the communities (e.g. drainage, bridges). Since the initial collaboration began in 1994, the project has been expanded into 35 shantytowns.
- **Indonesia:** Thames Pam Jaya is a private water utility with a concession to provide water and sanitation services in Jakarta. The BPD focus project in Jakarta aims to provide private water connections to the approximately 600 households in the Marunda District of Jakarta. Public sector agencies were involved in choosing the project site, but now the project is entirely in private sector hands.<sup>6</sup> The cost recovery relationship here is directly between the utility and the household.
- **Senegal:** In Dakar, the private company SDE has a lease for water services. Capital investment for the expansion of the system is provided by the public entity SONES. SONES and SDE turned to the NGO Environment Development Action (ENDA) for help in extending water services in the Cape Verde region of Dakar. Since 1994, ENDA has worked with its own funds (and a 25 per cent capital contribution from the community) to extend water service into unserved neighbourhoods. ENDA installed approximately 130 new standposts through this programme. Since the co-operative work with SONES began in 1998, ENDA and SONES have installed 252 additional standposts in disadvantaged areas. Operators chosen by the communities and trained by ENDA run these standposts. The operators pay SDE for the bulk water and then resell this water to households at a tariff set by the national government.
- **South Africa BoTT:** The BoTT (Build Operate Train Transfer) programme is a large-scale government investment project that seeks to make a minimum level of water service available to all households in the country (standposts at 200 metres from each home). The programme is implemented in four provinces through private consortiums. Each consortium is itself a partnership between various private sector actors and an NGO. The Northern Province consortium Metsico and the Eastern Cape consortium Amanz'abantu are BPD focus projects. The consortiums are charged with creating financially sustainable systems (with either local water committees or local government acting as operators) and then turning these systems over to local authorities. Metsico and Amanz'abantu work in multiple sites, each with its own challenges and project plan. In general, the companies have worked to install standposts (sometimes with pre-payment meters) in areas without service and to rehabilitate private connections and billing systems in

---

<sup>6</sup> The consumer protection NGO Yayasan Lembaga Konsumen has supported this effort, but has not been directly involved.

other areas. In rural areas, village water committees play an important role in cost recovery.

- **South Africa KwaZulu-Natal:** Water services in the cities of Durban and Pietermaritzburg are operated by the public sector: Durban Metro Water Services and Pietermaritzburg-Msunduzi Local Council. The bulk water provider (Umgeni Water), the private sector (Generale des Eaux) and an NGO (Mvula Trust) have formed a partnership with the service providers to develop solutions for water provision in poor peri-urban areas. Five communities in these two cities (most with a population of roughly 700 to 1,000 households) have been chosen for the focus project. In these areas, a variety of technical solutions will be implemented, including three different levels of private connection service for water, standposts with pre-payment meters and waterborne sewer systems for higher levels of service. Like the BoTT projects in South Africa, the Durban/Pietermaritzburg focus projects face the challenge of overcoming a long history of non-payment for services in South Africa's former townships.

## 4 – Cost Recovery Attitudes / Goals

### A. COST RECOVERY BASICS

There are three different types of costs typically associated with water projects: 1) Infrastructure costs – the cost of actually providing the infrastructure to run water up to and through neighbourhoods; 2) Connection costs – the cost of connecting an individual household to the system (in private connection schemes); and 3) Operation and maintenance (O&M) costs – the cost of actually operating and maintaining the system. Throughout this report, the word fee is used for both infrastructure and connection charges. The word tariff is used for O&M charges (see Text Box 1 for a discussion about the importance of setting and collecting a 'cost recovery' tariff).

The different BPD projects are all trying to recover at least some costs for O&M from consumers; some also try to recover partial costs for infrastructure and connection fees. When costs are not recovered directly from consumers, projects rely on a variety of subsidies. In some projects, cross-subsidies help pay costs of service for the poor; in this scenario, richer consumers pay higher fees and tariffs than the poorer consumers. There are several direct subsidies available, especially for infrastructure costs, from local and national governments, donors and NGOs.

It is important to remember, however, that full cost recovery is not a foregone conclusion in water and sanitation projects. Many projects around the world never recover all costs. Project partners were asked to consider what the ramifications for both their projects and their organisations would be if cost recovery goals were not met in their projects. Some reported that there would be serious ramifications for both communities and project partners if cost recovery goals were not realised. In other projects, however, water will probably continue to flow in the communities, due to subsidies and the government's belief that water should always be available.

The South Africa BoTT, Colombia and Haiti projects all fear that the project will either slow down or stop entirely if cost recovery goals are not met. Five of the projects (Indonesia, BoTT, Colombia, Argentina and Senegal) mentioned that future expansion and replication of the project would be negatively impacted. In these cases, it is the remaining unconnected poor who are most likely to suffer. The partners in three projects (Indonesia, Argentina and BoTT) felt that operations would continue in the existing project areas even if cost recovery were low; however, this does not imply that service levels in these areas would be maintained (see Text Box 1).

### **Text Box 1: Vicious cycles and cost recovery**

Determining which costs users, especially poor users, should cover is a tricky issue. Global experience suggests that there are two vicious cycles that water projects can fall into if insufficient attention is paid to tariff levels, cost recovery and revenue collection (see figures below). The first cycle details what happens when revenue collection is low with a full cost recovery tariff that few users pay.<sup>7</sup> Low revenue collection leads to insufficient income to make necessary repairs, which leads to a run-down service. As the service level deteriorates, consumers become less and less willing to continue paying for the service, and the cycle perpetuates itself.

The second type of cycle begins when projects set low tariffs for poor consumers to address their concern about affordability and offset these low tariffs with subsidies.<sup>8</sup> Both the low tariffs and the reliance on subsidies in this scenario can cause problems.

There is much evidence to suggest that when households pay low amounts for services they have a lower sense of ownership, do not respect the service and they are more likely to inadvertently damage the facilities. As a result of these damages people become less willing to continue paying even the token tariff. A similar argument regarding 'sense of ownership' can be made for requiring households to pay at least nominal amounts for infrastructure/connection fees. Requiring households to pay some type of up front fee can lead to a greater appreciation and respect for the project.

Even if the low tariff does not encourage misuse or neglect of the system, the reliance on subsidies can set off this second type of vicious cycle. If the subsidies that were expected to make up for the lower tariff dry up, maintenance often suffers.<sup>9</sup> Households are in turn less likely to want to pay for a deteriorated service level. Cost recovery then takes a double hit, with losses from subsidy revenue as well as user fees.

Most of the BPD projects are trying to avoid falling into one of these traps as they extend new water systems into poor neighbourhoods. The urban projects in South Africa's Northern Province – the only BPD areas with existing private connection service – are trying to pull themselves out of the second cycle.

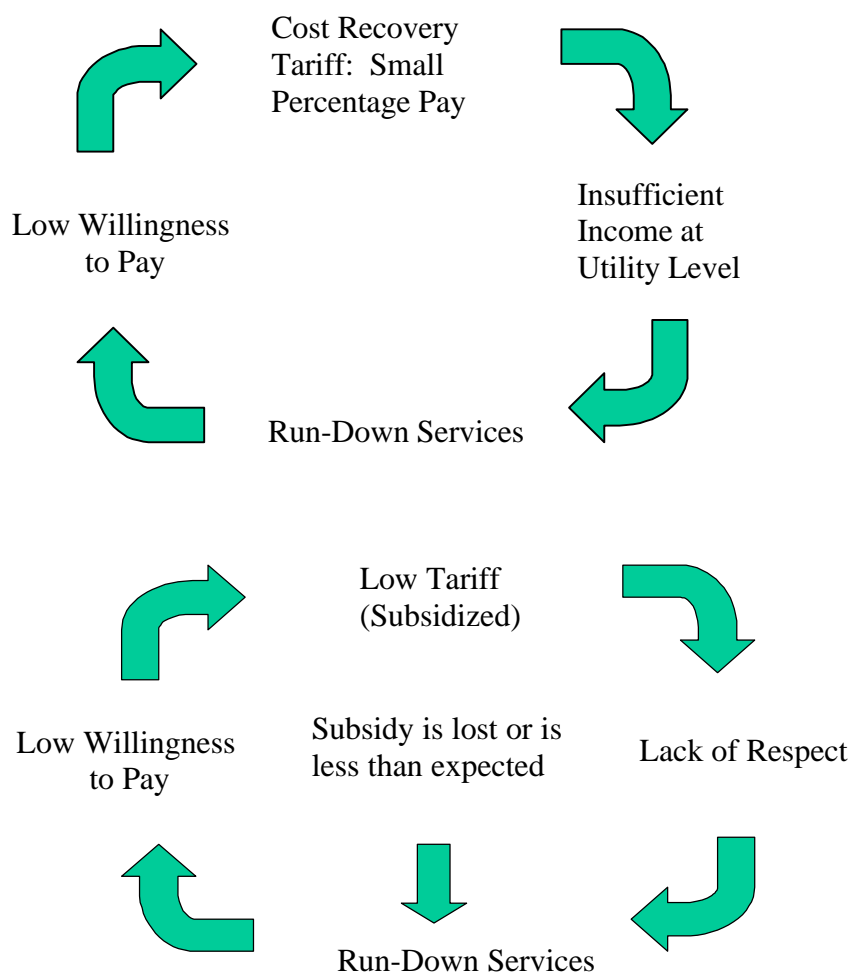
---

<sup>7</sup> The low payment rate can be due to a variety of causes including lack of penalties for non-payment, a cultural belief that water should be free, inability to pay, etc. The specific difficulties that the BPD projects are having to overcome in order to get people to pay tariffs is discussed in Sections 5-9.)

<sup>8</sup> Governments are often understandably cautious about charging consumers for the actual costs of providing them with water service because they believe that this amount is unaffordable and an unjust hardship to poor households. However, evidence suggests that poor households are often used to paying high prices for unimproved water – either in time or money. Many poor households traditionally pay large sums to water vendors, or else they walk for several hours for water of questionable quality. While improved water services do impose a formal billing system on these consumers, they do not necessarily cost more.

<sup>9</sup> Direct government or donor subsidies can dry up with financial hardship or altered priorities. Cross-subsidies can also become insufficient, if the number of cross-subsidisers versus cross-subsidised consumers declines.

TEXT BOX FIGURE: VICIOUS CIRCLES<sup>10</sup>



## B. WILLINGNESS TO CHARGE IN THE BPD PROJECTS

The unique thing about the eight cases being studied in this report is the partnership nature of the projects. Partnership has the potential to be both a help and a hindrance in the process of establishing cost recovery goals. It can be expected that different partners will have different goals – the private sector is liable to want to charge a full cost recovery tariff in order to recoup its investment; the public sector can be expected to be cautious about having a full cost recovery tariff for reasons of affordability, politics and cultural ideals; and the NGOs might err on the side of being overly sensitive to the community’s needs in terms of affordability.<sup>11</sup>

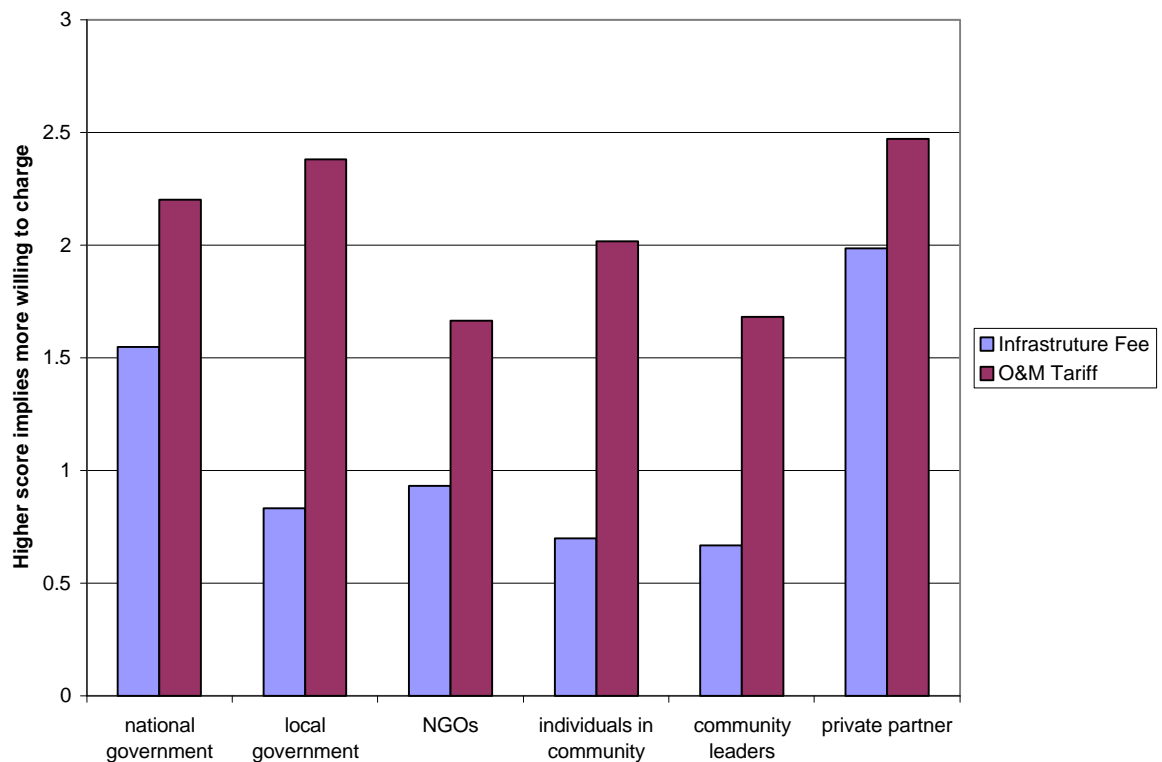
As can be seen in Figure 1, these expectations largely play out when partners are asked to rank themselves and each other in terms of their willingness to charge either

<sup>10</sup> Figures are adapted from those found in: DFID, March 2000, ‘Strategies for Achieving the International Development Targets: Addressing the Water Crisis – Healthier and More Productive Lives for Poor People’, London.

<sup>11</sup> A recent review of the literature pertaining to willingness to pay studies in South Asia concluded that, despite evidence suggesting that households are willing to pay more for water, there is considerable resistance to actually raising the tariffs (Water and Sanitation Program – South Asia, 2000, ‘Willing to Pay But Unwilling to Charge: Do ‘Willingness-to-Pay’ Studies Make a Difference?’, New Delhi.).

a full infrastructure fee or a full cost recovery tariff.<sup>12</sup> The different groups are ranked on a 0-4 scale, where 0 means that the group believes households should pay nothing and 4 implies that the group believes households should pay the full cost. There are two striking pieces of information in Figure 1: none of the partner groups is overwhelmingly ready to charge consumers for the full cost of their water service, and all the partners are much more willing to charge a full cost recovery tariff than a full infrastructure fee. Looking separately at the infrastructure fee and the O&M tariff marks, it is clear that private partners are more willing to charge than other groups. Governments and NGOs are far less willing than the private partner to charge an infrastructure fee, although not far behind the private partner in terms of willingness to charge an O&M tariff.

FIGURE 1: WILLINGNESS TO CHARGE COSTS TO CONSUMERS, BY DIFFERENT PROJECT PARTNERS



These results are not surprising given that the different project partners also have different stakes in the project outcomes and in cost recovery. Some of the NGOs who were involved only in the early stages of the projects will bear little direct consequence if goals are not met. However, NGOs that have been more actively involved in the project fear that they will lose credibility if cost recovery is low. In general, the public and private sector partners are concerned about losing both money and credibility if cost recovery goals are not achieved. As personal stakes differ so too will the incentives to pursue strategies that enhance both revenue collection and cost recovery.

<sup>12</sup> Partners were asked 'How do the following groups involved in your project feel about requiring households to contribute towards the full infrastructure cost of a water system?' and 'How do the following groups involved in your project feel about requiring households to pay a tariff that will cover the full operation and maintenance costs of the water project?' When more than one response was received for a given project, the answers were averaged so that each project is only counted once in the figure. Partners ranked both themselves and the other partners; asking each partner to only rank themselves would have led to incomplete data as not all partners within a project responded to the survey. It is believed that the partners are capable of providing relative rankings for each other because they worked together to make difficult decisions about cost recovery.

## C. COST RECOVERY GOALS

Most BPD projects are trying to recover 100 per cent of operating and maintenance costs from the system users. By contrast, the projects only aim to recover part (or none) of the capital cost of building the system from consumers.

The only BPD standpost project which asked households to make a significant contribution towards the infrastructure costs was Senegal: when standposts in Senegal are installed with funding from the NGO ENDA, ENDA requires communities to contribute 25 per cent of the capital cost<sup>13</sup>. However, the Eastern Cape standpost projects did ask households to make an initial token contribution during the implementation phase of the projects.<sup>14</sup> This contribution was meant to measure household interest in the project and instill a sense of ownership. The remainder of the standpost projects did not require any infrastructure contribution up front from households.

In the projects that involve installing private connections, households are asked to pay a connection fee, but this fee is often lower than the actual cost of the household connection (the exact nature of the connection fees will be discussed in section 6). This means, of course, that connection fees are also not high enough to cover the cost of network expansion. To partially make up for this shortfall, customers in some BPD projects are asked to contribute to infrastructure expansion costs in one of two ways: through the monthly tariff or through a monthly set fee for network expansion. In the KwaZulu project in South Africa, for example, there is a charge built into the tariff for future system expansion. Similarly, the Bolivian tariff structure includes some of the capital cost in the tariff. In the Aguas Argentinas concession, network expansion is currently funded through a monthly fee, which is added to all customers' bills. So while other consumers covered some of the infrastructure costs in the Argentinian BPD project areas, the BPD project customers now help fund future expansion of the network.<sup>15</sup>

Turning to cost recovery goals for O&M, it is important to remember that cost recovery and full revenue collection are not one and the same. If a project does not set a cost recovery tariff, yet everyone pays the tariff, they have not achieved cost recovery. Conversely, if a project sets a tariff higher than necessary for cost recovery, but not everyone pays it, they can still achieve cost recovery. Generally, however, the first step to total cost recovery is setting a cost recovery tariff.

None of the survey respondents said that they or any other partner was unwilling to charge a tariff to cover some or all operation and maintenance costs. However while there is willingness to charge some tariff in all the schemes, it is not always easy to actually set a tariff. There are many factors which can influence a project's ability to set a tariff: service contract with private partner, laws and regulations, community's feeling about the project, poor population, politics such as upcoming elections and a cultural belief that water should be free. In many cases, project partners have limited ability to even influence the tariff that is applied in the project area. In Colombia, the tariff is calculated according to a nationally mandated tariff formula that means that the project partners in Cartagena have no control over it.<sup>16</sup> Similarly, in Senegal, the national government sets the tariff for water from standposts (as well as the bulk water price that the standpost operators must pay). In Bolivia, Argentina and Indonesia the tariffs are set and negotiated through a concession contract. Tariffs for the BPD areas are the same as for the rest of the concession (though some projects managed to negotiate lower connection fees for the BPD projects). The

---

<sup>13</sup> This figure could include labour as well as financial contributions.

<sup>14</sup> This money has been held for use as an emergency maintenance fund.

<sup>15</sup> In addition to these monthly infrastructure fees, the NGO and households in the Barrio Villa Jardín project in Argentina made an additional capital contribution. This contribution was required because Barrio Villa Jardín was not on Aguas Argentinas' five-year expansion programme.

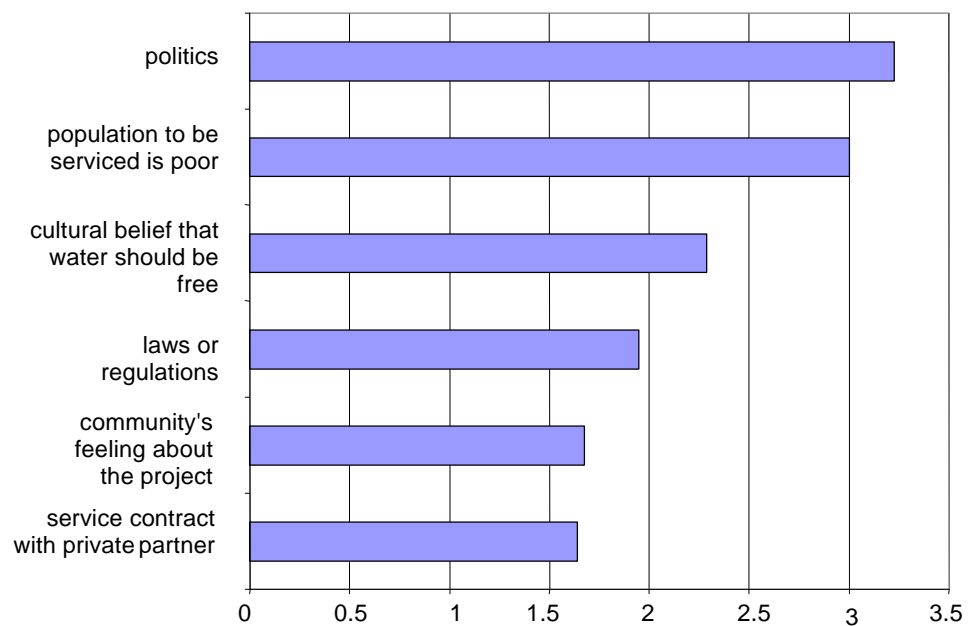
<sup>16</sup> The national tariff formula is applied to a reference price provided by each local utility company.



local governments must approve South African tariffs, though the national government has prepared guidelines for tariff design.

The partners were asked whether various factors made it easier or harder to actually set a cost recovery tariff for their projects; factors were ranked from 0-4 with a higher score implying that this factor made setting a cost recovery tariff more difficult. As can be seen in Figure 2, politics and the poverty of the population stand out as the factors that project partners think make it difficult to set a cost recovery tariff. Laws and the cultural belief that water should be free (very often related to politics) are also key obstacles to making the tariff cover costs. The BoTT project in South Africa’s Eastern Cape presents an interesting story of how politics and the cultural belief that water should be free can interfere with the ability to set a cost recovery tariff. Each project area within the BoTT programme has slightly different costs based upon technology type, population size and other variables. The consortium, Amanz’abantu, calculates the appropriate cost recovery tariff for each area and presents this information to the local government. It is then in the hands of the local government to set the tariff; frequently, they choose to subsidise project operation out of their own funds and set a tariff which is lower than a full cost recovery tariff. At the moment, local governments have an incentive to do this because fiscal responsibility for water service has not yet been completely transferred from national government to local government; the national government is still covering the cost of operating shortfalls.

FIGURE 2: FACTORS AFFECTING THE ABILITY TO SET A COST RECOVERY TARIFF



**Higher score implies more difficult factor**

Another difficulty that projects face in setting cost recovery tariffs is simply knowing what their true costs are. The actual costs of the individual projects are difficult to ascertain at these early stages in the projects – the costs are dependent upon many variable factors including actual usage, durability of the system, administrative and labour costs. Therefore, it is difficult to assess whether the existing tariffs will indeed cover costs. However, when asked, all of the projects (except South Africa’s Eastern Cape, with primarily rural projects) said that they aim to recover 100 per cent of estimated O&M costs directly from households. The projects recognise that they face many obstacles to achieving these goals. Cost estimates, the O&M cost recovery goals and complications that stand in the way of these goals are listed in Table 2. As can be seen in the table, not all the projects

actually know what their costs are, but they have still set cost recovery goals. The tariff levels may need to be adjusted as cost becomes clearer. (More details on the tariffs are provided in Section 6.)

TABLE 2: PROJECT GOALS IN TERMS OF COST RECOVERY FOR O&M

PROJECT	COST TO OPERATE	O&M COST RECOVERY GOAL	COMPLICATIONS (MORE DETAILS AVAILABLE IN SECTION 6)
<i>Argentina</i>	<i>Not available</i>	<i>100%</i>	<i>Since few of the households have meters, it is difficult to know who is actually paying the true cost of the water they use.</i>
<i>Bolivia</i>	<i>Estimated<sup>17</sup> at \$0.44/m<sup>3</sup></i>	<i>100%</i>	<i>The concession has to attain full cost recovery because they receive no subsidies. If tariff fails to cover costs (including cost of expansion), concessionaire can request tariff revisions. The contract calls for regular tariff revisions every five years and allows for extraordinary revisions in some situations.</i>
<i>Colombia</i>	<i>\$0.18/m<sup>3</sup></i>	<i>100%</i>	<i>Tariff is calculated using a set formula (established in national legislation) and is based upon a reference price that the company determines. Tariff formula will not necessarily lead to full cost recovery in all cities in which it is applied.</i>
<i>Haiti</i>	<i>\$0.30/m<sup>3</sup></i>	<i>100%</i>	<i>Tariff set by CAMEP.</i>
<i>Indonesia</i>	<i>Not available</i>	<i>100%</i>	<i>The tariff was originally high enough for cost recovery, but due to increasing costs (electricity and labour) the tariff is no longer sufficient. Thames Water is currently petitioning the government to increase the tariff.</i>
<i>Senegal</i>	<i>\$0.37/m<sup>3</sup></i>	<i>100%</i>	<i>Tariff paid by households and bulk water price paid by standpost operators are set by the national government. These are flat rate tariffs that do not vary with the quantity of water consumed.</i>
<i>South Africa BoTT</i>	<i>Examples: Peddie Regional: \$0.83 per household per month  Qanda: \$0.67 per household per month.</i>	<i>Variable – each project has a different goal.</i>	<i>The consortium tells the local governments what the appropriate cost recovery tariff should be. Then the local governments set the tariff; if they set it too low, they should pay the difference. However, in reality, the national government pays the difference although this will change as further decentralisation occurs.</i>

<sup>17</sup> According to study commissioned by government to calculate tariff currently in place

<p><i>South Africa KwaZulu- Natal</i></p>	<p><i>Durban: \$0.40/kl</i></p> <p><i>Pietermaritzbu rg: \$0.18- \$0.27/kl</i></p>	<p><i>100%</i></p>	<p><i>A full cost recovery tariff is calculated internally but has to be approved by the city council – sometimes the city council lowers the tariff.</i></p>
---	--	--------------------	---

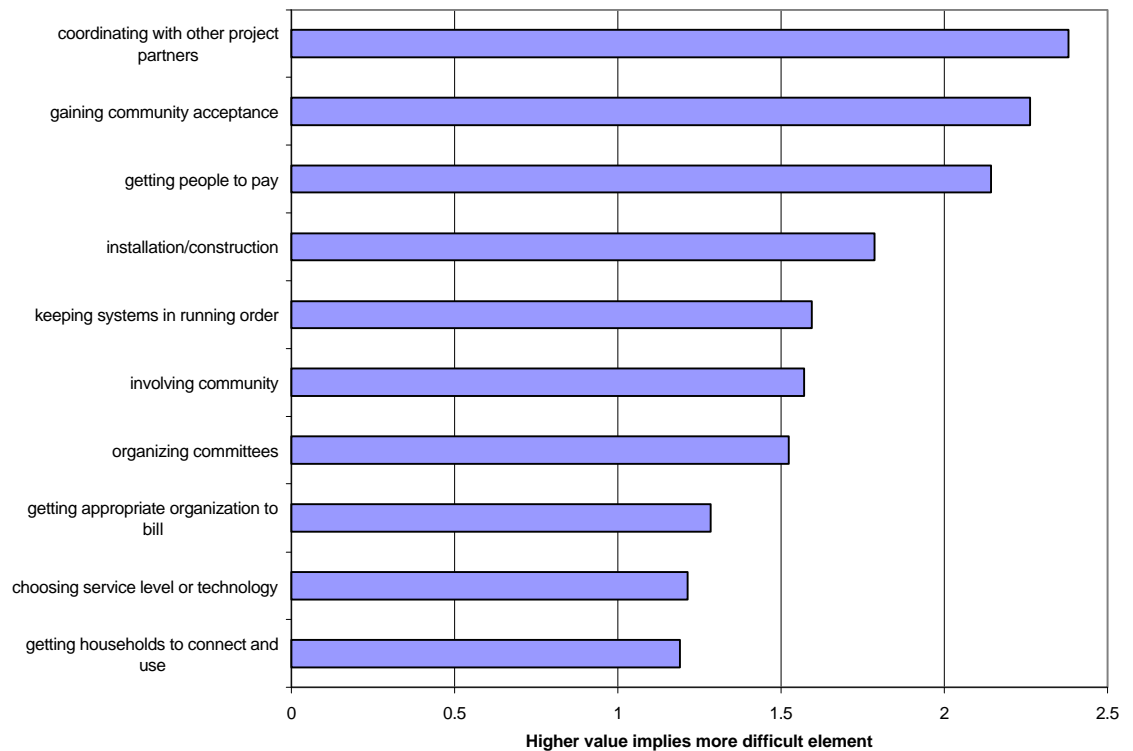
(In US\$, September 2000 exchange rates)

## 5 – Outcomes of Cost Recovery Goals

### A. RELATIVE DIFFICULTY OF COST RECOVERY

The first challenge for a project is to actually set a tariff, but this is not the entire picture. After the key actors agree upon a tariff, consumers still need to be billed and revenue has to be collected. It is interesting to think about the difficulty of tariff collection relative to other project elements in order to understand the enormity of this task for the projects. Figure 3 shows how the various projects rated different project tasks according to difficulty. They were asked to rate each task on a 0-4 scale, where 4 is extremely difficult. Interestingly, ‘coordinating with project partners’ was on average rated as the most difficult task (though partners commented that the partnerships, once formed, were rewarding). This is followed closely by ‘gaining community acceptance’ and ‘getting people to pay’. Collecting revenue is thus clearly one of the most difficult challenges in the BPD projects. A number of the other project elements on the list are also either directly (e.g. getting appropriate organisation to send out bills) or indirectly (e.g. choosing service level or technology) related to the revenue collection challenge.

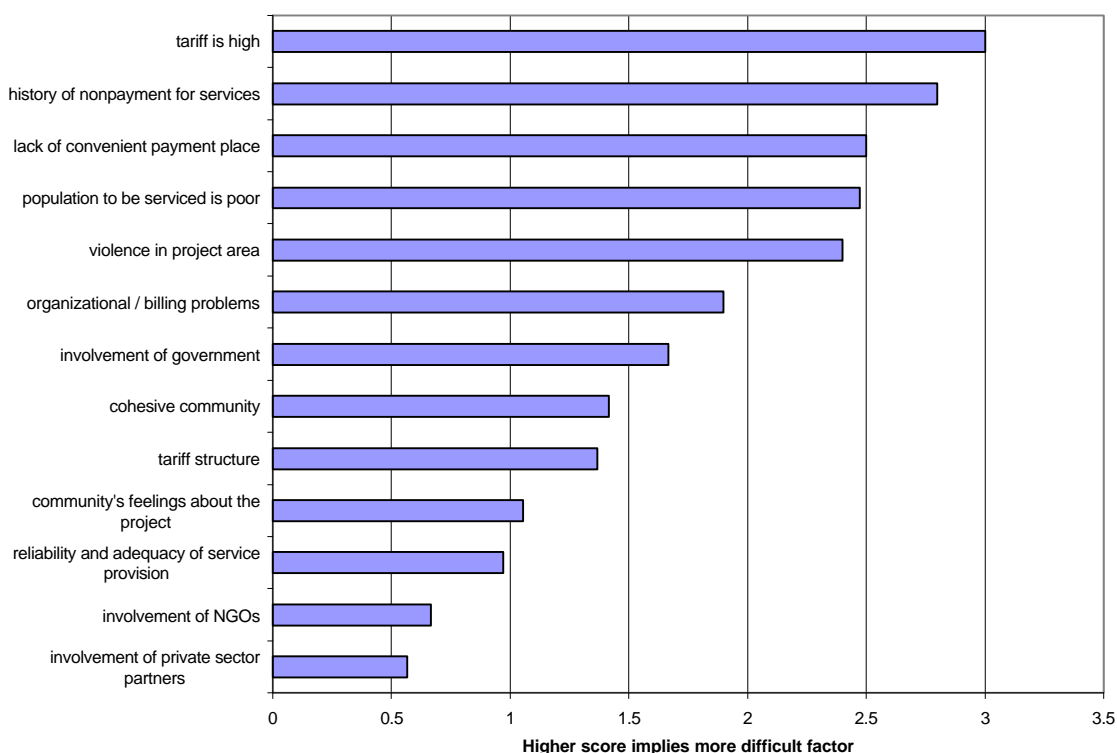
FIGURE 3: RELATIVE DIFFICULTY OF DIFFERENT PROJECT TASKS



## B. BARRIERS TO REVENUE COLLECTION

Most of the projects are in the early days of operation and revenue collection. Nonetheless, it is still useful to look at the obstacles that they have encountered in their efforts to collect. Partners were asked to reflect upon factors that make it easier or harder to actually collect tariff; these results are presented in Figure 4. 'High' tariffs and a history of non-payment for water stand out as the biggest obstacles to collecting tariff. Close behind are the lack of convenient payment place, poverty of the population, violence in project area and organisational/billing problems. The following sections of the report describe measures that project partners have taken to counter these problems.

FIGURE 4: FACTORS AFFECTING THE ABILITY TO ACTUALLY COLLECT TARIFF



## C. REVENUE COLLECTION AND COST RECOVERY ACHIEVEMENTS IN BPD PROJECTS

Of the projects that have started collecting tariff, Bolivia, Indonesia, Haiti and Senegal have relatively high revenue collection rates, while BoTT and Argentina have mixed results (see Table 3). Bolivia and Indonesia are private connection projects, while the Haiti and Senegal projects focus on standposts. Aguas del Illimani partly attributes the success in Bolivia to a culture in which people respect and honour their debts; the high rate of cost recovery is also attributable to some successful cost recovery strategies (outlined in Section 6). Similarly strategies to ensure payment have been very successful in Indonesia where 70-80 per cent of consumers regularly pay their bills.<sup>18</sup> In Haiti, almost 100 per cent of users pay for water. This is in an environment where consumers had earlier been paying exorbitant fees for water to water vendors. Paying the full operation and maintenance costs for the new standpipe systems actually results in households spending less money on water. Moreover, households that do not pay are not

<sup>18</sup> Indonesia suffered a slight setback in collecting tariffs last year when they implemented a new billing system. However, most of the bugs are now out of the system, and Thames Water is confident that revenue collection will return to high levels (85-90 per cent).

allowed to obtain water from the standpipes; standpost operators are private entrepreneurs so collecting revenue from households is in their financial interest. In Senegal, about 80 per cent of households in disadvantaged neighbourhoods choose to use the standposts and those using the standposts must pay. As in Haiti, the standpost operators in Senegal must collect from households because they are responsible for paying the utility for the bulk water. Virtually all standpost operators are paying SDE as expected.

TABLE 3: ACHIEVEMENTS IN REVENUE COLLECTION (NOT COST RECOVERY)<sup>19</sup>

PROJECT	PERCENTAGE OF HOUSEHOLDS WHICH PAID INFRASTRUCTURE/ CONNECTION FEES	PERCENTAGE OF HOUSEHOLDS WHICH PAY O&M TARIFF	CONTRIBUTING FACTORS: AIDS (A) OR BARRIERS (B)
<p><i>Argentina;</i></p> <ul style="list-style-type: none"> <li><i>Barrios San Jorge and Hardoy</i></li> <li><i>Barrio Villa Jardín</i></li> </ul>	<p><i>San Jorge: 29% entirely; 38% partially</i>  <i>Hardoy: 24% entirely; 28% partially</i></p> <p><i>V. Jardín: Nearly all household groups (see Section 8)</i></p>	<p><i>San Jorge: entirely 29%; partially 38%</i>  <i>Hardoy: entirely 24%; partially 28%</i>  <i>V. Jardín: 98%</i></p>	<p><i>B: Billing problems, lack of cohesion</i>  <i>B: Increasing unemployment and lack of funds at household level</i></p>
<i>Bolivia</i>	<i>Nearly 100%<sup>20</sup></i>	<i>Almost 100%</i>	<i>A: People respect and honour their debts</i>
<i>Colombia</i>	<i>Too early to know</i>	<i>60-70% - in general for poor areas; too early to know for BPD project</i>	<i>B: Difficult for people to save money and pay monthly bill</i>
<i>Haiti</i>	<i>Not applicable for standpost areas</i>	<i>100%</i>	<i>A: Households were paying a great deal to vendors prior to the system; must pay to use system</i>
<i>Indonesia</i>	<i>100%</i>	<i>85-90% (70-80% during implementation of new billing system)</i>	<i>B: Cultural belief that water should be free</i>
<i>Senegal</i>	<i>75% of households made initial contribution to get standpost project</i>	<i>80% of households are using standposts (and paying)</i> <i>Virtually all of standpost operators are paying private utility</i>	

<sup>19</sup> In many projects it is too early to know yet if costs are being fully recovered. In others, the tariff is set by national or local law rather than by the project itself. In these cases, the tariff is unlikely to reflect the projects true costs.

<sup>20</sup> Only households that pay the connection fee receive a connection. Most households in newly served neighbourhoods have decided to connect.

<p><i>South Africa - BoTT</i></p> <p><i>Vondo, Northern Province</i></p>	<p>100%</p>	<p>42% in areas with 24 hour service (in Thohoyandou and Vuwani respectively, 38% and 10% of total value billed to customers is collected )</p>	<p><i>B: Many alternate water sources; cultural and political belief that water should be free; tradition of non-payment</i></p>
<p><i>Qanda, Eastern Cape</i></p>	<p>NA</p>	<p>Unknown</p>	
<p><i>Peddie, Eastern Cape</i></p>	<p>NA</p>	<p>100% (paying for the water they use)</p>	
<p><i>South Africa – KwaZulu Natal</i></p>	<p><i>Too early to know</i></p>	<p><i>Too early to know</i></p>	<p><i>B: Many meters do not work; cultural and political belief that water should be free</i></p>

NA = Not applicable

In Vondo, in South Africa’s Northern Province, between 10 and 38 per cent of the total value billed to customers is on average collected (see Table 3). By some estimates, 15 per cent of households are paying the O&M bills regularly, but system problems make it difficult to estimate with precision the number of households paying their bills. This level of cost recovery represents a significant improvement given that no money was being collected 17 months ago. Metsico (the BoTT consortium operating here) has met and even exceeded its expectations for increasing collection rates.

In the Eastern Cape, it is possible to monitor not just revenue collection, but also cost recovery thanks to detailed statistics maintained by Amanz’abantu. Average cost recovery for O&M in the Quanda standpost project is 43 per cent, and 36 per cent for the Peddie Regional project. There is a dramatic link between water consumption and rainfall in these two projects – as rainfall increases, water usage declines and cost recovery is very low. For instance in Peddie Regional, March 2000 saw the highest level of rainfall and the lowest level of cost recovery at only 13 per cent. Given this situation, Amanz’abantu is interested in strategies (like educational campaigns) for increasing water use.

Revenue collection results differ dramatically between the three project areas in Argentina. In one area, approximately 40 per cent of households are paying their bills regularly, while in another area (Villa Jardín), about 98 per cent of households pay their bills. Strategies that contribute to the cost recovery successes in Villa Jardín, and the factors that make cost recovery in the other BPD areas in Buenos Aires difficult are discussed in more detail in the sections that follow.

Unfortunately, none of the BPD projects have systematically studied which consumers do and do not pay their bills and why. Therefore, it is difficult to have a clear picture at this stage of what type of households are contributing to revenue collection problems or successes. A few projects nonetheless reported that they think that payment is especially low among jobless households, landless households and larger households. In some of the projects, jobless and landless households receive lower levels of service or are not even billed which results in the lower payment rates.

## 6 – Strategies for Achieving or Improving Cost Recovery

One reason that cost recovery is a difficult goal to achieve is that so many factors and so many different parts of project design and operation affect it. Many water and sanitation projects begin without fully acknowledging the importance of these interrelationships. The service level (e.g. public standposts, in-house taps, etc) or the institutional structure, for example, is often chosen before a project even begins – either because the project aims to reform an existing water or sanitation system or because the project planners felt they had identified the best technical solution. In this situation, the cost recovery problem is seen as the need to collect enough revenue from users to cover the cost of the system that was installed (see Text Box 2). The challenge then becomes getting people to use the system and getting people to pay. Strategies might include: (1) education and promotion campaigns for consumers; (2) improved customer relations; (3) introducing disconnection for non-payment; (4) altering institutional structures to change incentives to charge and to pay; or (5) revising tariff structures and connection fees, possibly through implementing different tariff structures for the poor.

Getting people to cover the cost of a specific service is important, but is not the only approach to improving cost recovery. There is another set of possible strategies that may either reduce costs (lowering the cost recovery target) or increase demand (by creating a service that is more desirable to households). In this perspective, there are three main strategies that can help achieve cost recovery: (1) changing technologies or service levels; (2) improving service quality or reliability; or (3) reducing operational costs.

The eight BPD projects have tried all three types of strategies to achieve or improve cost recovery. Table 4 below shows which strategies the BPD project partners reported trying in their projects (or in their greater service area). The bold type in the table signals those strategies that the partners considered most successful in their case. The strategies will be discussed in more detail below, but a number of points stand out in the overview table.

TABLE 4: STRATEGIES FOR IMPROVING COST RECOVERY<sup>21</sup>

COST RECOVERY STRATEGY	PROJECTS WITH STANDPOSTS		PROJECTS WITH PRIVATE CONNECTIONS AND STANDPOSTS		PROJECTS WITH PRIVATE HOUSEHOLD CONNECTIONS			
	HAITI	SENEGAL	S. AFRICA: BOTT	S. AFRICA: KWAZULU	ARGENTINA	BOLIVIA	COLOMBIA	INDONESIA
<b>Rewards and punishments</b>								
<i>Rewards for households that pay</i>					X			
<i>Cut-off in case of non-payment</i>		X <sup>22</sup>	X <sup>23</sup>	X <sup>21</sup>	X <sup>21</sup>	X		X <sup>21</sup>

<sup>21</sup> Bold type indicates strategies that project partners consider most successful in their areas.

<sup>22</sup> If the standpost operator does not pay SDE for the bulk water, the standpost is turned off and is not turned back on again until the operator pays her debt.

<sup>23</sup> Penalties exist on paper but are rarely enforced.

<b>Tariff and fee structure</b>								
Payment options/pay over time		X <sup>24</sup>		X	X	X	X	X
Block tariff with low price first block				X		X	X	X
Targeted subsidy (based on house size)					X			X
Targeted subsidy (for poor neighbourhoods)							X	
Lower connection fee				X	X	X		X
<b>Billing, charging, payment</b>								
Change frequency of payments							X	
Improve billing system and delivery			X		X			
Increase/change payment points /provide multiple points			X	X	X	X		X
<b>Customer relations /education</b>								
Improve customer relations	X	X	X	X	X		X	X
Pre-project information	X		X	X	X	X		
Education/ promotion campaigns	X	X	X	X		X	X	X
<b>Institutions and organisations</b>								
Problem solving committees					X			
Village/neighbourhood committees to run system	X	X	X					
Group households into single customer					X			
Train/create standpost vendors	X	X <sup>25</sup>						
<b>Service, technology and costs</b>								
Improve quality or type of service	X	X	X	X	X	X	X	X
Pre-payment technology			X	X				
Lower cost technology				X	X	X		
Reduce O&M costs			X					

<sup>24</sup> After first 50 per cent of the fee is paid.

<sup>25</sup> In standpost projects financed by ENDA.



- **Service improvement** None of the projects is trying to increase cost recovery without offering customers some type of service improvement in return.
- **Institutional solutions** In standpost projects, the BPD project partners have created new institutional structures to manage the standposts and cost recovery. Institutional solutions such as these are less common in projects with private connections. In most of the private connection projects, the cost recovery relationship remains the traditional direct relationship between the customer and the utility.
- **Communication with communities** Every BPD project has implemented some kind of education or promotion campaign, ranging from pre-project information, to hygiene education during the project period, to follow-up training for standpost operators once the project is constructed. Many project partners said that these campaigns had been among their most successful cost recovery efforts.
- **Technology options** Technology plays an important role in a number of the projects – through pre-payment technology and lower cost technology options.
- **Billing, charging and payment systems** Improving billing, charging and payment systems is of major importance for several projects. Getting bills to customers is clearly a common problem in poor urban areas.
- **Tariff and subsidy design** For the most part, the tariffs applied in the BPD project areas are the same tariffs applied in the larger service area. Tariffs were not reduced to make service especially affordable in the BPD areas, but in some cities the general tariff attempts to provide some cross-subsidy to the poorest households.
- **Connection fees** In contrast to the tariffs, the connection fees in the BPD project areas are in some cases lower than the connection fees that are applied in the greater service area.
- **Increasing water consumption**<sup>26</sup> A few projects are trying to improve cost recovery, not by improving revenue collection but by increasing water consumption. These projects are using hygiene education programmes to explain the importance of using water for bathing and washing, and of having sanitation technologies (e.g. toilet) in the home.
- **Disconnection** Three BPD projects are employing disconnection as a strategy to encourage households to pay. In the other BPD projects, disconnection is either not allowed or not enforced.

Below we examine some of these strategies in more detail.

## A TARIFFS, FEES AND SUBSIDIES

The project partners in most BPD projects are concerned that high tariffs and high connection fees could make service unaffordable or undesirable for low-income households. When prices drive households away from standposts and private taps, it presents risks for both households and the service operator. Households risk using alternative water sources that are not safe (streams, for example), and operators risk losing revenue from customers that turn to other sources or reduce consumption (see Text Box 2).

---

<sup>26</sup> While there are clear links between water consumption (especially for sanitation) and improved health outcomes, it should be noted that encouraging people to use more water is not necessarily a sustainable practice in areas of the world where water is a scarce resource.

**TEXT BOX 2:**

**CREATING A COST RECOVERY PROBLEM BY IGNORING DEMAND IN THE PLANNING PROCESS**

Several BPD project partners report that households in their project areas use too little water. Therefore with current prices and low consumption levels, they are unable to collect enough revenue to cover costs. This is particularly a problem in areas where there are alternative cheap water sources (such as abundant rainfall or nearby streams). Conversely, competition from alternative sources is not a problem in areas where the primary alternative is high-cost water vendors. In Haiti, for example, households that use the new standposts pay a fourth of the price that they used to pay vendors.

Ideally, operators would not have to worry that competition from alternative sources would undermine their revenues – in areas where demand for improved water sources (standposts or private connections) was weak, these systems would simply not be built. Unfortunately, this demand-driven planning approach is rarely followed in practice. (For more information on how to apply demand information to infrastructure investment decisions, see World Bank Demand Research Team 'Demand for Water in Rural Areas: Determinants and Policy Implications', World Bank Research Observer Vol. 8, No. 1, January 1993, pp. 47-70.) Projects are built and then it becomes clear that demand for the service is too low to achieve cost recovery.

When demand is not sufficient to achieve cost recovery, system operators are stuck with the problem of having to increase demand in order to achieve cost recovery. Some BPD projects are trying to use education campaigns to increase water demand. Others have considered lowering prices. Lowering water prices is a dangerous way to improve cost recovery, however, unless the price elasticity of demand is known. Price decreases could actually reduce revenue collection if the quantity of water sold does not increase enough to compensate for the lower price.

**Affordability**

When asked how much households could afford to pay for water, most of the survey respondents answered somewhere between three and five per cent of monthly household income. For the most part, the BPD projects have not made a special effort to lower water tariffs in the BPD project areas – tariffs in the project areas are the same as they are in the rest of the urban area, or in similar towns. Furthermore, average monthly expenditures in most projects represent a very low percentage of household income – two per cent or less. On the other hand, in some projects the average expenditure is much greater than five per cent (see Table 5). These findings should come as no surprise. Years of research about demand for water in developing countries has revealed that demand is driven by much more than price and income. The availability of substitutes, household preference, the presence of appliances, household size and other factors all affect demand. It is therefore dangerous to use rules of thumb about how much households will spend on water to predict revenue from water projects.

TABLE 5: INCOMES, AVERAGE EXPENDITURES, AND FEES

BPD PROJECT	AVERAGE MONTHLY HOUSEHOLD INCOME IN PROJECT AREA	AVERAGE MONTHLY EXPENDITURE ON WATER, US\$/MONTH (AND AS % OF AVERAGE MONTHLY HOUSEHOLD INCOME)	WATER CONNECTION OR INFRASTRUCTURE FEE
<b>Argentina</b>			
• Barrios San Jorge and Hardoy	\$200-400 (poorest only)	\$5.00 (1.25-2.5 %)	\$120
• Barrio Villa Jardín	\$300-800 (all households)	\$3.75- 5.75 (<1-1.25%)	\$60
<b>Bolivia</b>			
• El Alto	\$150 (all households)	\$1.11 (<1%)	\$100
<b>Colombia</b>			
• El Pozón, Cartagena	Not known	Not known	\$25
<b>Haiti</b>			
• 14 shantytowns around Port-au-Prince	Not known	Not known	\$0 /\$70 (stand/private)
<b>Indonesia</b>			
• Makunda, Jakarta	\$18-\$35 (poorest only)	\$2.95 (8-16%)	\$2.95 (deposit)
<b>Senegal</b>			
• Fass Mbae, Cape Vert, Dakar	\$30-\$40	\$6.50-\$12.00 (20% +)	\$174 approximately
<b>South Africa – BoTT programme:</b>			
• Vondo, Northern Province	\$70 (poorest only)	\$6.30 (9%)	\$168
• Chuene Maja, Northern Province	\$70 (poorest only)	\$1.40 (2%)	\$0
• Qanda & Peddie, Eastern Cape	Under \$70 (all households)	\$1.40 (<2%)	Token fee
<b>South Africa – KwaZulu-Natal</b>			
• Durban BPD areas	\$160 (1994 data)	Not known	\$35-\$234 <sup>27</sup>
• Pietermaritzburg BPD areas	\$253-\$350 (all households)	Not known	\$0 <sup>28</sup>

(In US\$, September 2000 exchange rates)

**Connection and infrastructure fees (see Table 5)**

Only two of the BPD standpost projects charged households an infrastructure fee. The Senegal project charged fees amounting to 25 per cent of the infrastructure costs, while in the rural BoTT projects in South Africa, communities were asked to collect an ‘initial fund’ to demonstrate their interest in the project. This initial fund was not used for construction costs, but is saved to be used as an emergency repair fund for the project once operational.

<sup>27</sup> Three service levels are available, each with a different fee. These are the fees (including deposit) for the lowest and the highest service level.

<sup>28</sup> Normal \$110 fee is paid by housing project in BPD areas.

Most of the private connection projects, on the other hand, did charge connection fees or at least a deposit. The lowest fee was in Indonesia, where households in the BPD project area were asked only to pay the \$2.95 deposit and did not have to pay the standard connection fee (somewhere between \$7 and \$35). In Colombia, households in the BPD project area will also pay a reduced connection fee – \$25, as opposed to the normal fee of \$125.

Bolivia and KwaZulu-Natal take a different approach to making connection fees more affordable for poor households. They offer lower connection fees for lower cost technologies. In Bolivia, for example, the condominial sewer and water connections installed in the BPD project areas cost households \$100 each per water or sewer connection (as opposed to \$150 and \$180 respectively for conventional water and sewer). Households are, however, required to provide some labour in the construction process in order to obtain the lower connection fee. In Durban, in communities that choose to install lower pressure connections with a 200-litre storage tank, households pay a connection fee of approximately \$35, whereas the full pressure connection requires a connection fee of \$234. The community makes this technology choice with the understanding that the community as a whole can choose to upgrade in the future. In the BPD project areas, no communities have the full pressure connection.

### Tariffs (see Table 6)

The BPD projects represent quite an interesting assortment of tariff structures. Most of the tariffs are volumetric (per cubic metre charges). Argentina is the only urban area with unmetered connections and constant monthly fees. Some of the rural South African BoTT projects also have constant fees, which are collected by community water committees either on a regular basis or whenever funds are needed.

TABLE 6: TARIFFS FOR THE POOREST IN BPD PROJECTS

PROJECT	FIXED MONTHLY CHARGE	BLOCK 1 (OR FLAT RATE): PRICE / CUBIC METRE	BLOCKS 2+: PRICE / CUBIC METRE
<i>Argentina Barrios San Jorge and Hardoy Barrio Villa Jardín</i>	<i>\$4.00 on average</i> <i>\$3.75-\$5.75</i>	<i>N/a</i> <i>N/a</i>	<i>N/a</i> <i>N/a</i>
<i>Bolivia El Alto</i>	<i>\$0</i>	<i>First 30m<sup>3</sup>: \$0.22/m<sup>3</sup></i>	<i>\$0.44/m<sup>3</sup>: 31-150 \$0.66/m<sup>3</sup>: 150-300 \$1.19/m<sup>3</sup>: 301 +</i>
<i>Colombia Cartagena (poorest neighbourhoods only)</i>	<i>\$1.06</i>	<i>First 20m<sup>3</sup>: \$0.13/m<sup>3</sup></i>	<i>\$0.43/m<sup>3</sup>: + 21m<sup>3</sup></i>
<i>Haiti Port-au-Prince shantytowns</i>	<i>\$0</i>	<i>Standpost: \$0.64/m<sup>3</sup><sup>29</sup> Private: \$0.90/m<sup>3</sup></i>	<i>N/a</i>
<i>Indonesia Jakarta (houses greater than 36m<sup>2</sup> and less than 70m<sup>2</sup>)</i>	<i>\$0.80<sup>30</sup></i>	<i>First 20m<sup>3</sup>: \$0.12/m<sup>3</sup></i>	<i>\$0.15/m<sup>3</sup>: + 21m<sup>3</sup></i>

<sup>29</sup> Price quoted at September 1999 exchange rate. The actual cost is 15 Haitian gourdes per metre cubed.

<sup>30</sup> Monthly fixed charge plus meter maintenance charge for a 0.5 inch metre.

Senegal Fass Mbae, Cape Vert, Dakar	\$0	\$0.37/m <sup>3</sup>	N/a
South Africa - BoTT			
Vondo, Northern Province	\$0	\$0.21/m <sup>3</sup>	N/a
Chuene Maya, Northern Province	\$1.40-\$2.10	n/a	N/a
Qanda, Eastern Cape	\$0	\$0.64 /m <sup>3</sup>	N/a
Peddie, Eastern Cape	\$0	\$0.36 /m <sup>3</sup>	N/a
South Africa – KwaZulu Natal Durban	\$0 <sup>31</sup>	First 6m <sup>3</sup> : \$0 /m <sup>3</sup>	\$0.30 6-30m <sup>3</sup> \$0.90: 30m <sup>3</sup> + \$0.54: 5m <sup>3</sup> +
Pietermaritzburg	\$0	First 5m <sup>3</sup> : \$0.29/m <sup>3</sup>	

(Unless otherwise noted, in US\$, September 2000 exchange rates)

Volumetric tariffs are employed in the rest of the projects – for both standposts and private connections. The projects are split between constant volumetric charges and increasing block tariffs. The standposts in Haiti and Senegal and the pre-payment standposts in South Africa operate with a flat rate tariff: \$0.64 per cubic metre in Haiti and \$0.36-\$0.64 in South African BoTT projects. The only flat volumetric tariffs for private connections are found in the Vondo project in BoTT (\$0.21) and in Haiti (\$0.90). The other volumetric private connection tariffs feature increasing block rates (where a low price is charged for the first block of consumption, and the price per cubic metre rises in subsequent blocks). These increasing block tariffs are generally considered to be pro-poor, but Text Box 3 explains where that logic can fail. Finally, Colombia and Indonesia have two-part tariffs, with a fixed initial charge (usually meant to cover fixed fees such as billing) and a volumetric charge per cubic metre of water consumed.

### TEXT BOX 3: INCREASING BLOCK TARIFFS AND THE POOR

Increasing block tariffs are commonly assumed to benefit the poor because poor households use less water. In actuality, however, studies have shown that wealthier households often obtain the largest benefit from an increasing block tariff structure. In areas where multiple low-income families share one connection, increasing block tariffs can have another problem<sup>1</sup>. Multiple households on one connection consume more water each month than a single household on a connection would. The grouped households risk paying the higher price that is applied to higher levels of consumption. The result can be that the poorest households pay the highest average price for water.

The best way to make an increasing block tariff benefit primarily the poor is to: (1) keep the first block small; and (2) index the size of the block to the number of households using the connection. The best example of the former among the BPD projects is Durban/Pietermaritzburg. In both these cities there is only one household per connection. In Durban, the first six cubic metres of water are free. In Pietermaritzburg the first five cubic metres are sold at a reduced rate (\$0.29). The other cities with increasing block tariffs all have initial blocks of 20-30 cubic metres.

<sup>1</sup> Whittington, Dale 1992 'Possible Adverse Effects of Increasing Block Water Tariffs in Developing Countries' Economic Development and Cultural Change

<sup>31</sup> A fixed fee is only applied for full pressure connections, which have not been installed in BPD project areas.

An interesting feature of a number of the BPD tariffs is their attempt to reduce water prices for the poor using a targeted subsidy. Targeted subsidies are meant to apply only to certain households (the poor, for example) as opposed to all customers (as in the increasing block tariff). The most accurate way to target benefits to the poor is to use a means-test subsidy, where households must demonstrate their financial situation before qualifying for the subsidy. (A commonly cited example is the water subsidy scheme in Santiago, Chile.) The disadvantage of means testing is that it can be quite costly because it requires an administrative structure. Moreover, if poor households are not well informed, they may not even apply for the subsidy.

An alternative is to use an income proxy – choose a characteristic that is highly correlated with low-income households and give the subsidy to any households exhibiting that characteristic. Two types of income proxies are used in the BPD project tariffs: geographic targeting and targeting by housing unit size. In Colombia, local government officials divide their communities into six different socio-economic strata (geographic areas of different socio-economic levels). Level one is the poorest and level 6 is the richest. The households in level six areas pay 20 per cent more than the ‘reference price’, or base tariff. The households in level one areas pay only half of the ‘reference price’. This cross-subsidy scheme applies to both the volumetric charge and to the fixed monthly charge that each household must pay. In Argentina, Aguas Argentinas officials also did an extensive household survey to determine in what neighbourhoods preferential tariffs should be applied.

Indonesia and Argentina have tariffs that are scaled by house size. In Indonesia, households living in the smallest size homes (under 36 square metres) pay one fifth as much per cubic metre as households living in the largest homes (over 120 square metres), in the first block of the increasing block tariff.<sup>32</sup> Households with homes between 36 and 70 square metres (the majority of households in the BPD project area) pay about 60 per cent as much as those in the largest homes for each of the first 20 cubic metres.

This use of income proxies has two potential pitfalls. The first is that the income proxy (geographic area or house size) is really not a good indicator of household financial status. The only way to determine how good an income proxy is is to do a household survey (or study household level census data). To our knowledge, none of the projects that rely on income proxies have done this analysis. The second danger is that the complicated tariff structure that results might not actually cover costs. In Colombia, for example, the tariff structure assumes that there is enough households in level six areas to cross-subsidise the households in the poorer areas. This is not the case in some Colombian cities. The result is that the nationally mandated tariff structure does not always permit the local water providers to achieve full cost recovery.

## **B. BILLING, COLLECTION AND CUSTOMER RELATIONS**

The majority of the BPD projects faced, at the outset, one of two types of billing and collection problems: the need to overcome a tradition of non-payment, and/or the need to find solutions for service provision in rural areas or informal and unorganised (in the traditional urban development sense) settlements.

### **Tradition of non-payment**

Illegal connections existed in just about every BPD project, but an overarching tradition of non-payment is primarily an issue in South Africa. The former black homelands used non-payment for services as a vehicle to put pressure on the government for political change. Over time, local governments in many areas simply stopped billing for services. The principal cost recovery challenge for the BPD projects in South Africa is to overcome this situation. This is particularly

---

<sup>32</sup> There is an additional category consisting of ‘social’ dwellings such as orphanages which pay the lowest tariffs in the city.

challenging in urban areas where a substantial number of households either have private connections or access to a standpipe (e.g. Vondo in the Northern Province). In these areas, the operators face the additional challenge of getting people who have service to begin to pay for it. Given the magnitude of the cost recovery problem here, the lessons learned in South Africa will be of interest to projects in other countries seeking to increase revenue collection.

A number of billing and collection strategies used in the BPD projects in South Africa are worth highlighting. One is the innovative use of pre-payment technologies. The standposts in a number of rural areas of the Eastern Cape and in Durban/Pietermaritzburg are equipped with pre-payment meters. Households purchase cards (and add money to those cards) at local shops. They can obtain water from the standposts up to the value on the cards. The BoTT consortiums Metsico and Amanz'abantu have learned that these systems are most successful in areas where local shops are available (no need to set up and fund a payment point) and that are not too isolated. In very isolated areas, it is difficult for a maintenance technician to rapidly repair a pre-payment standpipe that stops functioning.

One area in the Northern Province of South Africa (Chuene Maja) uses a different type of pre-payment system. This is a pre-paid bulk water scheme with unmetered standpipes. The community collects money from all households to buy tokens for the pre-payment meter. The tokens are then inserted into the meter in the storage tank, permitting the tank to fill. Water from the full tank is then released to the standpipes below. The disadvantage of this system is that the community must control use at the standpipes if they want to keep away free riders or avoid a small number of families rapidly using the water that the community as a whole purchased. This can result in violence and disagreements at the tap.

Another interesting feature of billing and collection in the South African projects is the decision to tie revenue collection efforts to service improvement. In Vondo, in the Northern Province, for example, only households that have repaired meters and 24-hour service are being actively encouraged to pay their bills. As service improvement expands, so will the revenue collection effort.

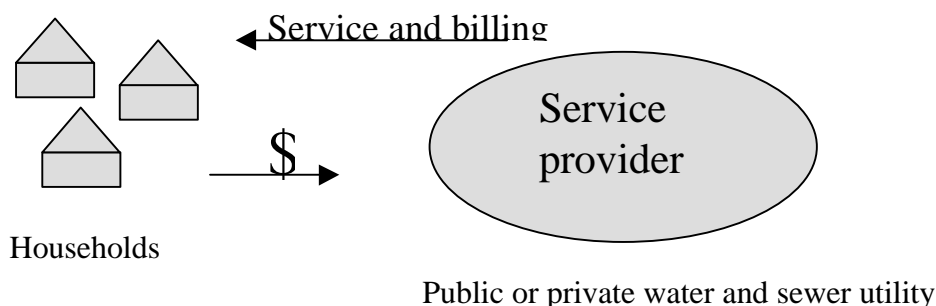
The urban BoTT projects also highlight the fact that having an accurate customer database and an effective bill making system is a prerequisite to cost recovery. In Vondo, these were not in place when the project started. Metsico's first challenge was to help the local government prepare to begin billing. The time and dedication that this task takes should not be underestimated.

### **Informal and unorganised settlements and rural areas**

The projects in Argentina, Haiti and Senegal all involve working in neighbourhoods where the public utilities had never worked before and which have chaotic urban structures (as opposed to numbered houses on a clear network of streets). In South Africa's Eastern Cape, the BoTT programme involves work in rural areas far from any utility. All four projects chose to create new community-level institutions to help achieve cost recovery in this environment.

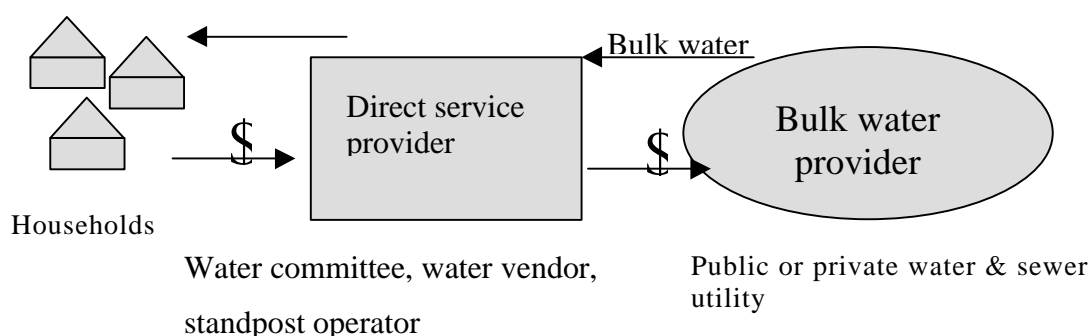
Amanz'abantu's solution for the rural areas in the Eastern Cape has been to form community water committees to manage the standposts and collect O&M costs from users. The 'institutional and social development' arm of the consortium is responsible for building these committees. The cost recovery work of some rural water committees is assisted by pre-payment technology. In other communities, the committee members are responsible for collecting periodic fees from households. In the simplest water systems – boreholes with diesel pumps and standposts – water service stops if the water committee has not collected the money to buy diesel for the pump.

FIGURE 5: TRADITIONAL COST RECOVERY RELATIONSHIP



Traditionally, the cost recovery relationship in an urban water project is directly between the utility and each of its customers (see Figure 5). The utility sends a bill, and the customer pays the bill directly to the utility. In Argentina (Barrio Villa Jardín), Haiti and Senegal, new community-level organisations were created to act as intermediaries between the utility and the individual customers (see Figure 6). The NGO partners played instrumental roles in setting up these utility-community partnerships, but at the end of the day the contract is between the community and the utility.

FIGURE 6: COST RECOVERY RELATIONSHIP IN HAITI AND SENEGAL



In the Haiti and Senegal standpost projects, the utility becomes a bulk water provider and responsibility for providing service to customers and collecting revenue is turned over to community groups or operators chosen by the community. In both cases, contracts set the price for bulk water and for water from the standposts. The operator of the standpost is responsible for paying the bulk water payment to the utility. Households are charged at the standposts for the water they use. Three controls ensure that the standpost operators do not charge too little or too much for water. First, the operator is a private businessperson who receives significant profit from water sold. This gives the operator an incentive to charge. Second, both the Haitian and Senegalese programmes create incentives for the community to watch over the collection behaviour of the standpost operators. In Haiti, the community water committees receive some revenue from water sales for use in other infrastructure projects (bridges, drainage). In Senegal, the community risks losing its standpost if the operator does not pay SDE. Finally, prices are posted at the standpost so the operator cannot charge more than the price agreed upon with the utility. In Senegal, standpost operators have lost their operating license for trying to charge more than the price set by the national government.

In Senegal, 95 per cent of the standpost operators are paying the utility on a regular basis for the bulk water they use. In Haiti, the director of CAMEP (Port-au-Prince's water utility) estimates that the standpost system is functioning well in 95 per cent of



the communities; the committees are paying their bulk water fees to CAMEP. In two shantytowns in Haiti, private connections are also now available. The communities themselves are in charge of billing for the water used from these connections.

The Barrio Villa Jardín project in Argentina has found another institutional solution to the challenge of working in poor, chaotic peri-urban neighbourhoods. Aguas Argentinas has a contractual obligation to expand service into informal settlements in the Buenos Aires metropolitan area. The utility, however, has had many problems billing and serving customers in these areas. Many bills never make it to the households they are destined for and these difficulties reduced the company's incentive to even try to bill and collect from these low volume customers. In the Barrio Hardoy and Barrio San Jorge BPD projects, Aguas Argentinas' first idea was to prepare one bill for the entire community and have the community itself organise collection. This created internal problems, however, and many households felt it was unfair that they should be subjected to this collection system when richer households received individual bills.

In Barrio Villa Jardín, Aguas Argentinas and the NGO partner Programa Riachuelo tried a different tactic. Programa Riachuelo organised households into neighbourhood units. Each neighbourhood unit consists of all households whose homes open onto a single 'road' or path. These groups range in size from three to 40 households. They are official organisations, with rules and procedures and an elected leader. Each neighbourhood unit entered into a contract with Aguas Argentinas for one connection (essentially a communal tap to be shared by all households in the neighbourhood unit). The neighbourhood units can choose to extend service to each house if they so choose, but they are in charge of this work themselves. Aguas Argentinas bills each neighbourhood unit bi-monthly (a fixed fee times the number of households), and the unit leader is in charge of collecting payment from all households. At the moment, this structure is achieving a 98 per cent collection rate.

### **Improving customer relations**

Programa Riachuelo staff credit this success not only to the neighbourhood unit structure. They also recognise the value of the tri-partite Project Management Committee that was created to solve the problems that were certain to arise. This committee began its work once water was running through the pipe and was meant to have a life of two years. The committee consists of representatives from Aguas Argentinas, Programa Riachuelo and the neighbourhood units. In the forum of this committee, the customers were able to bring concerns directly to the company. Problems (billing, water pressure) were rapidly resolved, and misunderstandings avoided.

Other BPD projects have also looked for ways to reduce the number of misunderstandings between customers and the utility company. In Indonesia, for example, Thames Pam Jaya has a customer interactive programme on three radio stations. Customers call with their concerns and utility staff respond right away.

Other projects have taken measures to make it easier for customers to pay their bills. For example, in the Colombian project, Aguas de Cartagena is using survey data and community meetings to identify a billing and payment structure that will be more in tune with the preferences and capabilities of poor households, whose incomes vary by day and who have little savings. In both Argentina and Colombia, customers can pay water bills in banks and supermarkets. In Bolivia, the utility even created a roving payment service that visits local churches and community groups. Respondents in a number of projects also reported opening new utility payment points nearer to, or in, the poor neighbourhoods.

## **Carrots and sticks**

In general, the BPD projects have avoided using service cut-off as a strategy for encouraging households to pay. Only Bolivia and Indonesia regularly cut off customers. Senegal can cut off delinquent standpost operators if they do not pay for bulk water. In Argentina and South Africa, cut-off of household connections is theoretically possible, but not done in practice. South African local government officials are generally against disconnection, so it is difficult for the projects to take this tactic. Aguas Argentinas has little incentive to cut-off service because the procedure that it must follow to do so can cost the company as much as \$800 per connection. Instead, Aguas Argentinas takes the opposite approach. They hold a prize draw for customers that do pay their bills; however this draw includes everyone in the concession not just the low-income settlements.

## **Improving incentives to recover costs**

In some water systems, cost recovery is low not because households are not paying, but because households are not asked to pay. Either households are never billed or households are asked to pay only very low tariffs that do not cover costs. Many governments are turning to privatisation in an effort to overhaul the water and sanitation sector. One hope is that privatisation will provide an opportunity to set cost recovery tariffs and create an incentive structure that encourages operators to collect revenue.

The concession model in particular (where private companies assume control of operations for a 25-30 year period and agree to meet certain capital investment goals in exchange for collecting and keeping revenue from the system) has the potential to turn around cost recovery. First, private concessionaires will not, in the long-term, accept a concession arrangement unless the tariff and fee structure is designed to cover full costs. This then increases the government's incentive to set a cost recovery tariff. Second, the concessionaires' revenues come from their billing and collection, so the concession model increases the concessionaires' incentive to actually charge customers for service.

The Indonesia, Bolivia and Argentina focus projects all take place in the context of a concession contract. As mentioned earlier, in Indonesia and Bolivia billing and collection rates in the BPD areas are high. In Argentina, results are more mixed. Collection rates are very high in the Villa Jardín project, but quite low in the Barrio Hardoy and Barrio San Jorge. In the latter two projects, one major problem has been billing and follow-up. The poor neighbourhoods of Buenos Aires are a small part of the entire concession area. Given the difficulty of billing and collecting in these neighbourhoods, Aguas Argentinas' incentive to resolve problems of non-payment in these areas is quite small.

## **C. COMMUNICATION WITH COMMUNITIES**

Most BPD project partners cited their educational and promotional campaigns as one of the most successful strategies for improving cost recovery. The campaigns in these projects have three major objectives, each related in a different way to cost recovery.

### **Pay your bill**

One objective for a communication campaign is to convince households to pay their bills. The first step in this process is to explain to households before a project is built that they will be expected to pay and how much their contribution will be. Amanz'abantu in South Africa's Eastern Cape and Aguas del Illimani in Bolivia are among the BPD projects that have extensive community meetings before the project begins. In Eastern Cape, this dialogue is reinforced by the requirement that households contribute to an initial fund to demonstrate their willingness to pay for the water project.

Once a project is in place, education campaigns can be used to convince households that are already receiving service to pay their bills. Metsico in South Africa's Northern Province holds community meetings and participates in radio shows to get this message out. They note, however, that the effectiveness of this educational campaign increased dramatically when local politicians joined them in spreading the cost recovery message.<sup>33</sup> This experience would suggest that educating community leaders, and convincing them of the importance of cost recovery, should be an integral part of the educational programme. Metsico also tried doing hand delivery of bills. This one-on-one contact with households provided the opportunity to make a personal appeal about why paying the bill is important. Metsico felt this educational effort was very effective and the Durban project plans to follow a similar approach when they begin billing.

### **Use our system, or use more water**

A second objective of communication campaigns can be to convince households to use the system that is being built (see Text Box 1 for the problems with this situation) or to convince existing customers to use more water. In Indonesia, Thames Pam Jaya has achieved high connection rates by demonstrating to households that they will save money by connecting. In Bolivia, Aguas del Illimani uses hygiene education in an effort to convince households to build bathrooms and sanitary facilities to connect to the newly available sewer service. Micro-credit loans are available for households that do not have the resources to make these investments on their own. The company expects that the new facilities will lead to increased water use.

### **Maintain the system and run it well**

Finally, the communication campaigns in a number of projects were designed to explain to community members, water bailiffs and/or community water committees how to keep the systems up and running. This involved actual maintenance training (in Bolivia and the rural projects in Eastern Cape, South Africa), training in committee process (South Africa BoTT projects) and training of water bailiffs/standpost operators (in Senegal and Haiti). To the extent that these efforts avoid problems that would be costly to fix, they contribute to cost recovery in the long run. The water bailiff training in Senegal is an interesting example of these training programmes. The NGO partner (ENDA) and the community jointly identified water bailiffs in these projects. Water bailiffs must live in the community where the standpost is located, have good moral character and be prepared to pay (or collect from their community) a deposit of 30,000 FCFA (almost US\$40 – more than one month of income for many families in the area). Most of the bailiffs are women with little or no education.

## **7 – Partnerships and cost recovery**

As we have seen, the BPD projects are involved in many interesting efforts to create financially sustainable water and sanitation projects. The story of cost recovery efforts in these eight projects in seven countries is interesting in its own right. But the tripartite cooperation (private sector, public sector and civil society) in most of the BPD projects also introduces a new angle into the study of cost recovery in water and sanitation projects – which partners are best suited to tackling different aspects of the cost recovery challenge, and can the partners working together achieve better results than they would on their own?

As an institution, the BPD Water and Sanitation Cluster hypothesises that tripartite relationships will lead to better results than in traditional single sector projects. The

---

<sup>33</sup> The local politicians in South Africa may be becoming increasingly interested in cost recovery as they plan to take over financial and operational responsibility for the water systems from the national government. Once national subsidies are gone, the local governments will have to make up for revenue shortfalls from their own resources.

project partners we interviewed for this study seem to agree. Though many listed 'working with other project partners' as one of the most difficult aspects of their projects, they also expressed confidence that working together helped improve cost recovery. Only a few respondents offered a theory about how partnerships positively affected cost recovery. The most popular response was that by working together the partners could each focus on their areas of strength. Having the best-qualified actor doing each job leads to the team as a whole producing better results.

So who is best at which task in a tripartite BPD partnership? The traditional view of the strengths of each party goes something like this. While governments are traditionally responsible for providing and administering water and sanitation services for the poor, they often lack the necessary capital for the large investments water systems require. When government partners with the private sector, financial and technical burdens are relegated. With the involvement of the private sector, the government often takes on a regulatory role, to set or approve tariffs, monitor operations and ensure that political goals, such as reliable service for the poor, are achieved. The private sector – which moves in to operate or assist with the operation of a system – is expected to have the experience and incentive to continuously improve consumer relations and maintain a functioning system in order to collect revenue. There is a great deal of evidence to support the notion that communities need to participate and be educated during all project phases – planning, implementation and operation – in order for households to feel a 'sense of ownership' over a project and be willing to pay for the service. Civil society actors, or NGOs, are considered to have a distinct comparative advantage over both the government and the private partner in working with the community and incorporating the community's needs and preferences into the project. It is generally understood that there will come a time for the NGO partner to exit and pave the way for a more traditional supplier-customer relationship. To make this supplier-customer relationship successful, however, the service provider may need to institutionalise some of the role played by the civil society partner.

All of these roles – of government, of the private sector and of civil society – have an effect on cost recovery in a water and sanitation project because cost recovery cannot be divorced from almost any aspect of a project. A project's objectives, technical design, operations and institutional structure all contribute to cost recovery problems and solutions.

In the BPD focus projects, we find that project partners are for the most part following this traditional view of the sector's strengths. The public sector (either the public utility, a public sector law, local government, or a national regulatory or government body) is responsible for setting and approving tariffs. Billing and collection, on the other hand, is usually done by the private sector – either a private urban utility or a small private standpost operator. Even when the public sector runs the billing process, the private sector partner has been involved in helping improve billing procedures and systems (e.g. South Africa's two BPD projects). The civil society partner has largely done work with the community. In some cases, an independent NGO takes on responsibility for organising the community and getting a project off the ground (e.g. Haiti). In other cases, the operator calls on an NGO to undertake certain tasks in the community (e.g. survey in Colombia, education programmes in the early stages of the Bolivia focus projects, community organisation in Argentina, and standpost siting and training of water bailiffs in Senegal and Haiti).

In some projects, the value of these partnerships is seen by the fact that they are replicated in other areas. But in general partnerships play a more subtle but important role in reaching cost recovery goals. Partnerships between the private sector, public sector and NGOs open up avenues of communication that help solve the problems that inevitably arise in water and sanitation projects. They also open the project up to a wider range of options for dealing with the problems and help

ensure wider support for the projects and the cost recovery objectives. The following three examples demonstrate these principles.

- **Billing** Billing is clearly one of the most difficult cost recovery-related problems for these projects. Through the private sector partner, NGOs and the public sector have found the technical assistance and expertise they need to devise and implement solutions to the billing problems. Moreover, constant communication between the three partners and the community helps identify and solve the billing problems that continue to arise.
- **Communication with communities** The eight focus projects include a number of new institutional structures and technology options for households. To form the institutions, train the community members who participate, and explain all the options and prices to households requires much direct contact with the community. Private and public utilities have not traditionally had much experience with this type of community contact, but it is clearly crucial to setting the stage for successful cost recovery. The presence of the NGO partner adds community work to the basket of tools available to the project.
- **Political support and tariff setting** In some projects, support of the public sector has helped increase community commitment to cost recovery. When political leaders support cost recovery goals, the utility and the project team are not isolated voices calling for households to pay their share. The link to the public sector is also important in cases where control over tariffs and fees does not rest in project hands. Through the private sector partners, the project team can appeal to government for tariff and fee changes/exceptions and can share important policy lessons, which could be valuable to other projects around the country.

Of course a list of the critical partners in the search for cost recovery must include households and the communities. As we have seen in this report, community groups and committees play critically important roles in the cost recovery chains in many projects. Their roles in the partnership need to be recognised if we are to truly appreciate how partnerships can be formed to assist in improving cost recovery. Unfortunately, this research does not allow us to explore their thoughts and opinions in the eight projects.

## 8 – Conclusion

The experiences in BPD projects raise a number of interesting points about cost recovery in water and sanitation projects and present some promising strategies for making improvements in this area. The BPD projects also teach us about the relationship between partnership and cost recovery. We conclude by highlighting a few of the most striking observations.

- The public sector, private sector, and civil society partners in these eight focus projects are all more supportive of households paying full O&M costs than full infrastructure costs. There are, nonetheless, differences across the partners in their general attitudes about recovering costs directly from households: the national government and the private sector are more in favour of recovering costs from households than are the local governments, the NGOs and the communities themselves. **It is therefore important for partners to reach an understanding and agreement about cost recovery goals in the early stages of the partnership.**
- Achieving cost recovery goals is an important objective of all partners in these eight projects. Most fear that they will lose credibility if the goals are not reached, though only the public and private sector partners are worried about losing revenue. The financial consequences of failure are felt by private utilities or by governments who are left subsidising shortfalls. **The**

**fact that NGO partners are worried about losing credibility if projects do not reach their cost recovery goals suggests that they are sensitive to the financial concerns of their partners** and are aware that their credibility in the partnership will depend in part on helping reach revenue collection targets.

- One of the key advantages of partnerships is that they build communication links between parties. Formalising this communication through a multi-actor project oversight committee (utility, community representatives, local government and an intermediary such as an NGO) is a promising way to resolve the inevitable problems and misunderstandings that could jeopardise revenue collection if not addressed promptly.
- The experience in these eight BPD projects suggests that institutional solutions are an important part of cost recovery in rural areas and poor neighbourhoods, and particularly in shantytowns. Where utilities are reluctant to work, communities or local entrepreneurs can take on much responsibility for project management. To fully understand how partnership contributes to cost recovery, it is important to include these local actors in the partnership picture.
- Developing a strong customer/provider relationship and a rational tariff/fee/cost structure are important foundations of successful cost recovery. The private sector, public sector and civil society all have important roles to play in achieving this goal – by serving as intermediaries in the development of the relationship (usually an NGO), by setting up an environment that fosters cost recovery (tariff setting and contract design by the public sector), or by improving billing, customer contact and service (private sector or service provider).
- Many of the decisions that affect cost recovery outcomes are not made at the project level, but rather in the local or national government policy arena. That means that resolving the cost recovery problem in some areas will require lobbying for policy changes. On the local level, the project partnerships could help create cross-sector support for needed changes. On a national and international scale, BPD could serve as a forum for discussing these broader policy problems and for sharing insights from experience with political leaders.
- The eight focus projects represent sufficient collective experience to share some lessons about cost recovery strategies with the global water and sanitation community. For example:
  - The BPD standpost projects have all adopted one of two strategies for achieving cost recovery – use of pre-payment meters or creation of a community-based institutional management solution. More discussion between the partners involved in these projects would surely generate a list of the advantages and disadvantages of technological and institutional solutions, as well as recommendations about where a particular solution would be more appropriate.
  - In urban areas, getting bills to households and finding a convenient way for households to pay are common cost recovery problems. The BPD projects suggest a number of interesting solutions – hand delivery of bills, grouping households for billing purposes, roving payment points, bill payment in banks and supermarkets, etc.
  - In KwaZulu-Natal and Bolivia, households are being given multiple service level (e.g. low-pressure, high-pressure) or technology options (e.g. condominial system under sidewalk or

in back yard) at different prices. Through the BoTT programme and in Haiti and KwaZulu-Natal, some households are able to choose between standposts and household connections. These projects will in the coming months and years provide interesting lessons about how service level choice affects cost recovery and about what type of services households choose.

- While they have much to teach, the BPD projects could also learn from international experience. The BPD Cluster could play a role in coordinating that learning process for project partners. Examples of areas where international experience could be valuable include the following:
  - Affordability is clearly a major concern among BPD project partners. And yet, the evidence from these eight projects suggests that many households are paying very little (relative to their income) for water. It is also interesting to note that some of the highest collection rates are achieved in areas with the highest price of water (e.g. Haiti). Thus, the BPD experience appears to support what has been observed in broader water and sanitation project experience – price is one factor that affects household demand, but there are many other factors that are as important and often more important than price. Lowering price may not raise demand enough to improve cost recovery. The BPD projects need to look beyond price for their solutions to the cost recovery problem.
  - There has been surprisingly little use of targeted subsidies in the BPD projects. If the projects are able to identify particular types of households for whom affordability really is the major concern, there is much room in these projects for the development of means-tested or other targeted subsidies.
  - A number of the BPD projects are trying to increase demand for a service that was chosen with little or no community input (e.g. national standards, concession contract requirements, NGO/utility vision of appropriate technology) and without considering the financial consequences of community water use patterns (e.g. low consumption, seasonal choice of water source). A challenge for the BPD Cluster and for these BPD projects is to explore how partnerships can help avoid this problem (which plagues water and sanitation projects around the world) by incorporating demand-driven planning into the project process.

As stated in the introduction, we recognise that the methodology employed in this study had limitations. One of the major limitations is that we are basing our findings on interviews with project managers. This means that we are limited to drawing together and synthesising the knowledge and experience that exists in the projects.

To our knowledge, the BPD project partners have not yet carefully documented how partnerships have contributed to their project outcomes. Facilitated discussions with all project partners could assist to bring out more clearly ‘who did what’ in the different projects and how those contributions have impacted cost recovery issues. Nor have the projects yet completed any systematic studies of how benefits and costs are distributed among households with different tariff and subsidy structures, or measured the impact of strategies they have followed to increase water use or revenue collection (how did results change or households react when measures were taken?). As a result, we cannot provide definitive answers to many questions of interest to the BPD projects, the BPD Cluster, or to other readers. Nonetheless, the

existing BPD experiences offer a host of ideas about strategies that project leaders could use to address the cost recovery problems they are experiencing.

Another type of information missing from this cost recovery story is information about the cost of the strategies that BPD partners have employed. Did the strategies generate an increase in revenue that was greater than the cost of the effort? Virtually all BPD projects expressed confidence that their educational or promotion campaigns had been highly effective. Few, however, had measured the impact of those efforts on cost recovery or estimated the cost of the educational campaign. We encourage all partners to try to evaluate the cost effectiveness of the measures they take, for the betterment of their own projects and for other BPD projects. In the effort to achieve financial sustainability, keeping down costs (and even reducing costs) can be as critical as increasing revenue. The BPD Cluster could play a role here, helping project partners design and use the methodologies for this kind of impact and cost analysis. Credible impact and cost analysis will in the long run help the BPD and others engaged in water and sanitation in the developing world to evaluate how best to achieve cost recovery.





BPD Water and Sanitation Cluster  
c/o WaterAid, First Floor  
Prince Consort House  
27-29 Albert Embankment  
London SE1 7UB

Telephone + 44 20 7793 4557  
Facsimile + 44 20 7582 0962  
Email [bpd@wateraid.org.uk](mailto:bpd@wateraid.org.uk)  
Web site [www.bpd-waterandsanitation.org](http://www.bpd-waterandsanitation.org)

