



# Water, everyone's future

Facing the six challenges that will help  
promote access to water and sanitation  
in the urban developing world





# Editorials

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**F**or the first time in human history, urban population has exceeded rural population, expanding every month by 5,5 million, an amount equivalent to that of Madrid city's community. According to the United Nations' forecasts, by 2015, 23 out of the 27 largest cities in the world will be located in Less Developed Countries (LDCs). Municipal services are faced with an increasing number of consumers and individual needs, thus finding it difficult to modernise their water and sewerage systems, to reach satisfactory coverage, and to guarantee everyone's access to essential services.

Water is especially affected by urban expansion, as witnessed in Asia, Africa and Latin America. Over-exploitation and pollution of resources, inadequate facilities used to collect and purify wastewater, together with lack of public networks in shantytowns are the breeding ground of crises affecting public health and the environment. Losses of up to 60% are sometimes observed in distribution systems, producing a great deal of wastage and heightening the risk of large-scale shortages.

Such challenges demand concrete, lasting solutions. These require the mobilisation of national governments, local authorities, international financial insti-

tutions as well as private-sector operators and non-governmental organisations (NGOs).

Through its worldwide presence, Vivendi Environnement wishes to share its technical expertise and its ability to innovate in differing contexts. Our research and development efforts would enable better access for all to new technology. When addressing underprivileged urban areas, we seek to build partnerships with support groups, consumer associations and local businesses. We feel these conditions to be necessary in order for our combined efforts to result in lasting solutions providing high-quality public services.

Through Vivendi Water's programme, AQUADEV, we hope to create a forum enabling renewed thought, debate and sharing of experiences around the theme of access to water by underprivileged urban populations. This document, jointly produced with the Solidarité-Eau programme, is our initial contribution; it outlines six challenges to be met in order to provide a better service for all.



**Henri PROGLIO**

CHAIRMAN OF THE BOARD  
VIVENDI ENVIRONNEMENT

# Edito

In the Millennium Declaration, the General Assembly of the United Nations set itself the goal of halving, by 2015, the percentage of people with no access to drinking water or lacking the means to obtain it.

We consider access to drinking water and sanitation an inalienable human right: implementing this right is everyone's duty.

Water and sanitation services take on general interest and contribute to the prosperity of the local economic and social fabric. All economic players – states, communities, investors, NGOs, researchers, operating companies, and the like – should ensure that skills are developed locally through balanced partnerships. Aid networks must contribute to educate and strengthen local skills, as well as to exchange data and information based on individually tailored partnerships.

The current challenge regarding the development of services is to understand the role of each stakeholder, and reinforce their capacity to enact these roles. Users and their representatives should not be deprived of their inherent powers of control and decision-making. The aim should simply be to ensure access to drinking water and sanitation for all.

In African cities today, water management is undergoing major changes: from national to local level (a progressive transfer of authority from the State to

local bodies); from the all-powerful State to multi-agency consortia (which implies increased efficiency of the regulatory framework); from associations and community-based groups to the private sector; and from management by a single agency to the farming out and subcontracting of water services.

There is no ideal management structure; on the contrary, the type of management should be chosen on a case-by-case basis, allowing for diversity of contexts. Considerations include the existence and drive of local groups, the availability of water resources, the complex engineering of the installations, the local economy and demand.

Whichever solution is chosen, elected user representatives should be capable of negotiating the subcontracting of public services and should participate fully in the organisation of the service and the choice of providers.

ps-Eau has been working to this end for many years, by bringing together the skills and expertise of local groups, associations, companies and researchers so that efficient, durable public services can be rapidly established. Pooling of resources and cooperation amongst individuals is the only means of meeting the challenge of providing access to drinking water and sanitation for all.

**René ALA**  
PRESIDENT OF PS-EAU  
FRENCH AMBASSADOR

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# *The metamorphosis* of cities

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# The metamorphosis of cities



*The water sector is experiencing a period of great upheaval in developing countries. Cities expand and face new constraints. Consumers are requesting for services better adapted to their actual needs and circumstances, while traditional stakeholders are having to deal with the call for increased cooperation at local level.*

## THE DYNAMICS OF URBAN GROWTH

A century ago, the Industrial Revolution triggered the lightning growth of towns and cities across Europe and North America. Today, it is the developing world's turn to experience rural exodus on an unprecedented scale. By 2020, the number of cities including 1 to 5 million inhabitants is expected to rise by some 13%, whereas those with 0.5 to 1 million residents should rise by 25%.

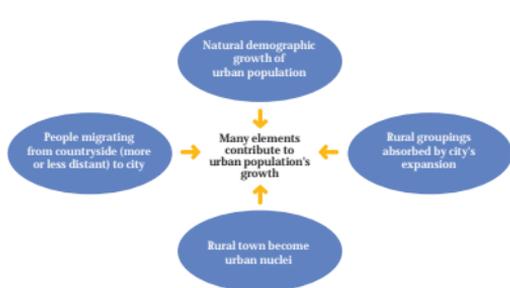
**Over the next 15 years, cities with fewer than 5 million inhabitants will undergo the largest increases in number.**

Urban expansion is often accompanied by an increasing number of unplanned settlements such as Brazil's favelas (shantytowns), South African townships, and Indian slums. People from the countryside are now attracted to towns. Their arrival kindles social tension, hence requiring new forms of governance within the community.

These newcomers often live on the city's outskirts, under indeterminate conditions, beside rubbish dumps, in abandoned buildings or in low-lying, marshy areas. Urban areas with inadequate structures complicate the operations that must be devised to serve populations living in heterogeneous, insecure housing conditions.

**Insecure housing conditions are a major problem, affecting up to 40% of urban residents in developing countries\*.**

\*Source: PRECEUP programme.



## Urban population's growth factors



PHILIPPINES, MANILLA  
NAVOTAS NEIGHBOURHOOD

Low-income populations living on the outer edges of towns are often the first to be affected by sanitary crises or lack of water. Due to inadequate financial resources, public distribution networks have not been able to develop fast enough to reach these outlying areas. Estimates state that a 1% increase of the urban growth rate corresponds to a 2.5% drop in access to drinking water\*.

### Number of cities worldwide exceeding 500,000 inhabitants in 2000.

|           |                  |     |
|-----------|------------------|-----|
| Segment 1 | > 10 million     | 19  |
| Segment 2 | 5 to 10 million  | 22  |
| Segment 3 | 1 to 5 million   | 370 |
| Segment 4 | 0.5 to 1 million | 433 |

Source: United Nations.

### Urbanisation growth rate



Source: United Nations.

\*Source: PRECEUP programme.

## COMPLEX FIELD SITUATIONS

### → The organisation of a local water economy

*Providing water supply in areas that public authorities fail to recognise is often more complicated than it might seem. The ambiguous nature of property ownership, the prevalence of illegal occupancy, the high number of temporary dwellings, and the chaotic way in which some populations have settled can often hinder the development of water systems by official operators and public services.*

**Faced with the absence of official services, local water economies develop in order to compensate for defective water provision.**

The local water economy, prior to some districts' connection, will often continue to operate alongside the official operator –whether public or private– in providing an alternative to those who cannot be connected to the public network or simply to offer a supply for newcomers. In this way, the differing circumstances and requirements of the end consumer open up micro-markets to a wide range of independent suppliers (water-carriers, resellers, cooperatives, fleets of tankers, and so on), all categorised as part of the “unofficial sector” even though what they actually do is highly varied.

These “intermediaries”, who are often accused of providing substandard services at exorbitant prices, provide community distribution to users with no individual access. Among all the different levels of service offered by the official supplier (public taps, standpipes, tanks, and individual connections), independent local suppliers, and (re)sale by private individuals, consumers who are not connected to the network can be treated very inequitably depending



PHILIPPINES, CEBU  
WATER CARRIER IN MABOLO



PHILIPPINES, CEBU  
PARADISE ISLAND NEIGHBOURHOOD

on local circumstances. As a result, supplies are extremely variable, as much in the prices charged as in the quality and quantity of water available.

**Generally speaking, the more middlemen there are, the more the end user suffers in terms of water quality, availability, and cost.**

Though abuses of monopoly situations exist (services controlled by organisations not recognised by the local authorities), in most cases, these local water suppliers satisfy the users' specific needs in varied ways, something the official operator is often prevented from doing because of its own standards. These services transactions are often hard to measure, as benefits to the users are sometimes difficult to understand without a profound knowledge of the local socio-economic context.

#### → Serious risks to public health

Whilst water provision is not always equitable, sewerage systems, for their part, are often neglected or even nonexistent, despite the dramatic consequences on environment and health. Sewerage issues are most urgent where the population density is greatest.

**In areas where life is precarious, crowded conditions worsen consequences bred by lack of public sanitation systems.**

Through lack of money and awareness about such issues, populations that originated from the countryside may sustain their rural habits and generate inappropriate living conditions in an urban setting. Where they exist, improvised systems observed on the ground often make use of the wrong materials or lack

sufficient separation the water delivery networks, thus increasing the risk of contaminating the drinking water with wastewater.

## MOBILISING STAKEHOLDERS IN THE WATER SECTOR

*In confronting this situation, all stakeholders likely to make an effective contribution must be secured in order for a supply of quality water to be reliably provided to all in sufficient quantities. The solution lies in each of the stakeholder's hands: local groups, public authorities, private enterprise, international financial institutions, NGOs, and, of course, the local population itself.*

*The required solutions cover technological, financial and organisational aspects; every stage along the water supply chain must be addressed.*

**New types of partnerships must be contemplated in order to help implement realistic public service policies. These policies must be compatible with the needs and customs of all consumers, including the poorest amongst them.**

As such, some towns and cities have already agreed to share responsibility with other operators in the public, private, and even unofficial sector. Partnerships such as these aim at bringing together all those working in the water sector, from newcomers to more traditional entities that have built up a greater degree of autonomy. Such stakeholders include:

#### ■ Local authorities:

Many countries have committed themselves to decentralisation, transferring major decision-making powers to local authorities – with or without the corresponding means – regarding the provision of public drinking water.

■ **Major public and private sector suppliers:**

These bodies offer their technical, commercial and organisational expertise to local authorities, so as to assist them in improving the organisation and functioning of their drinking water and sanitation services.

■ **Investors:**

They play the fundamental role of asset suppliers when projects need to be financed. Among them are international financial institutions (the World Bank, the Asian Development Bank, etc.), private suppliers (which can support other operators in putting together financial packages), national development banks of various countries, and even some public sector agencies (such as the AFD, the French development agency).

■ **Non-governmental organisations:**

NGOs play an important part in the water sector. Their origins (from both Northern and Southern hemispheres) as well as the scale of their operations (local, regional, national or international), their activities (from emergency humanitarian aid to development aid programmes), their size and the way they are financed are all very diversified. From local charity to large organisations based on private funding, the sector abounds in diversity. A perfect example of this variety lies in the immense city of Manila in the Philippines, home to several thousands of NGOs.

■ **Representatives of community groups:**

To compensate for deficiencies found in local governments within deprived areas of large cities, self-help groups (churches, neighbourhood associations, women's groups, youth groups, etc.) often take into their own hands major public services such as the



PHILIPPINES, CEBU  
PARADISE ISLAND NEIGHBOURHOOD

## WHICH CHALLENGES SHOULD BE TACKLED?

### Challenge n° 1

#### DEVELOPING OPTIMUM INVOLVEMENT OF WATER PROFESSIONALS

In order to build lasting urbanisation, the water sector requires rational management and increased funding. Both private and public professionals can be appealed to for these missions. When private stakeholders do participate, the organisation of an efficient partnership with the public authorities is of crucial importance. Which contractual arrangements make best allowance for local diversity?

### Challenge n° 2

#### RECONCILING WATER COSTS AND WATER RIGHTS

The concept of a "universal right to water" implies that water, being a natural resource, may not be priced. Yet, as a consequence of uncontrolled urban growth, the provision of water becomes an economic scheme benefiting vested interests often at the expense of the poor. Beyond the issue of the private sector's involvement in the management of the service, reality proves that concrete financial solutions must be found that will guarantee fair access to the service.



### Challenge n° 3

#### BUILDING A PARTNERSHIP APPROACH

It still is difficult to establish practical rules for local partnerships among the various stakeholders active in the water supply and sanitation sector (local authorities, operators, communities and NGOs). Yet, experience has shown that a single entity cannot be entrusted with the full burden of responsibility; learning to cooperate is therefore fundamental. Consequently, operators must on occasion surround themselves with partners possessing an intimate knowledge of local circumstances and able to maintain relationships with members of the community.



..... PHILIPPINES  
..... TOWN OF CEBU  
.....



..... MALI  
..... RAISED DRINKING FOUNTAIN  
.....

## Challenge n° 4

### SHARING TECHNICAL EXPERTISE AND INNOVATION

Recent technological innovations are already bringing concrete solutions for efficient management of water and sanitation services in large developing cities. In future years, research and development will enable further reduction in the cost of implementing these techniques, thus making them more widely available. It is this very kind of progress that will enable tailor-made solutions to be found, allowing everyone to get the maximum benefit from a top-quality public service.



## Challenge n° 5

### BETTER UNDERSTANDING CONSUMERS AND THEIR NEEDS

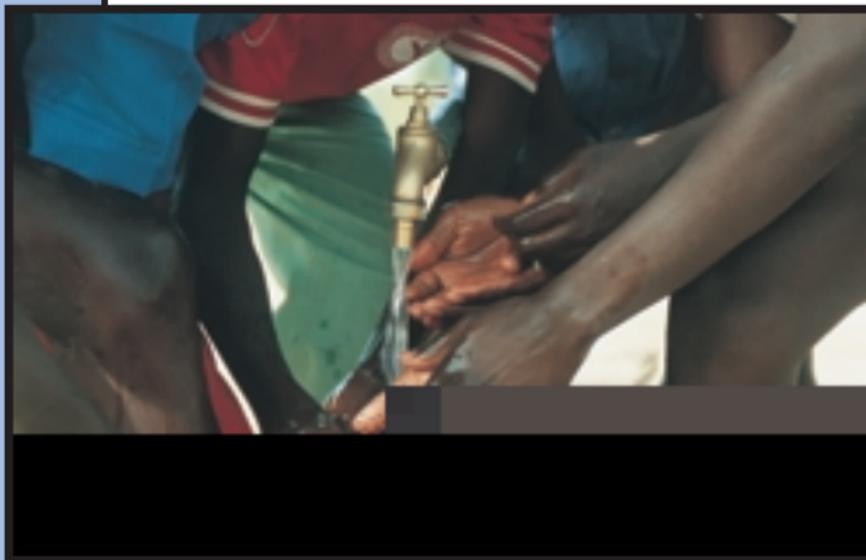
Consumers' needs and concerns must imperatively recover their place at the heart of the decision-making process. For a long time now, municipal departments traditionally responsible for urban services have taken all technical and organisational decisions alone, without sufficiently consulting the wider community. The truth is that deprived areas are complex environments, of difficult access due to their location, topography, crime rates, and also lack of statistical data.

## Challenge n° 6

### PROMOTING RESPONSIBLE CONSUMER BEHAVIOUR

Promoting the responsible use of water and sanitation infrastructures is essential to ensure that the improvements brought to the local living conditions of a deprived urban community will last. Basic messages about hygiene and the protection of resources are sometimes hindered by persistent practices and habits, which become inappropriate when living in a high-density urban context.





# Six challenges for the future

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BURKINA FASO, BOBO DIALOUSSO,  
DRINKING FOUNTAINS AND CARTERS

*Whether dealing with renovating the networks, introducing new water purification systems, launching social communication campaigns or signing management contracts, modernisation of the water sector presents real challenges – partly technological and economic, of course, yet human and social challenges as well.*

amount of investment necessary also requires private capital, even while competition for a share of global financial resources is intensifying in every economic sector. Depending on the type of contract, the operator may or may not contribute to finance the infrastructure. The type of operation chosen defines the operator's actual function: he may act as a banker, or simply as an additional guarantor when raising funds from investors. Assuming that the cost of raising private capital is often greater than that of calling upon public funds, the idea is therefore to determine upon a mix of private and public funding. Furthermore, foreign exchange risks justify increased participation by local investors, even if it involves some kind of guarantee by international financial institutions, should a party pull out or the available investment capital prove insufficient. As for the operators, they may undertake part of the commercial risk without having to support its entire financial burden.

■ **Ownership of the former public monopoly's infrastructure** also raises many questions. Historically, the network belonged either to the municipality or to the state. By definition, its commercial value depends entirely on the use that can be made of it. The so-called "Anglo-American" model, which favours total privatisation of the entire infrastructure (private operator becomes owner), hardly seems appropriate in many LDC cases. What's more, this model requires the creation of a public watchdog to regulate private supplier's actions and to defend the end consumer. Subcontracting the service as part of a public-private partnership appears to be better adapted. In this way, the supplier remains under the supervision of the public authority, which retains ownership of the infrastructure and ensures that the actual running of the service corresponds exactly to the terms of the contract. Consequently, the organisational role must be entrusted to the public authority (central or local, i.e. either the state or the municipality itself, as appropriate) that originally negotiated and signed the subcontracting agreement with the private sector partner.

## Challenge n° 1

### → Developing optimum involvement of water professionals

*In order to build lasting urbanisation, the water sector requires rational management and increased funding. Both private and public professionals can be appealed to for these missions. When private stakeholders do participate, the organisation of an efficient partnership with the public authorities is of crucial importance. Which contractual arrangements make best allowance for local diversity?*

■ **The private sector's participation** is not limited to a circle of suppliers offering to share their experience on water and sanitation service management. The



.....MALI, SEGOU.....

.....CIVIC SOCIETY IN BOUGOUFI.....

■ Through the subcontracting arrangements, authorities entrust water services to private sector suppliers for a given period. When dealing with this specific case, the *terms of the contract* must ensure that three main aims are met:

1. Public administrators should have the power to supervise –and, if necessary, to support or redirect– the actions of its private sector partner in order to manage the service under the best possible conditions (respect the postulate that access to basic services should be fair, allow for planning of investments needed to upgrade and extend the existing networks...);

2. Local inhabitants, whether or not they are subscribers, should see that the quantitative and qualitative benefits gained from the private sector's involvement be guaranteed (insure essential services, propose affordable rates, consult and take into account the wider community's wishes...);

3. Private suppliers should receive the necessary guarantees and freedom of action in order to allow for the best fulfillment of their contractual obligations. Freedom of choice of the best strategic and technical options would ensure that operations run smoothly (without neglecting such constraints as costs and forecasted returns on investment).

## > CHAD: AN EVOLVING, TAILOR-MADE PARTNERSHIP

Chad's poor public infrastructure and scattered population (relative to the scale of the country) meant that an immediate operating contract was not an option. The proposal put forward by Vivendi Water was therefore based on a progressive takeover by the private supplier. As a result, the contract includes an initial phase during which Vivendi Water will carry out all management tasks for the Société Tchadienne d'Electricité et de l'Eau. (STEE) as part of a global management subcontracting arrangement. The latter includes:

- Providing skilled teams to ensure that the existing system functions correctly;
- Acquiring a better understanding of the system;
- Adapting the size to meet genuine needs, thus taking into account the planned loss decreases;
- Drawing up an investment plan to increase production capacity.

The contract's second phase consists in an operating agreement, during which international capital investment comes on-stream, with the supplier carrying the full financial risk.

Finally, once the initial investments and rates are settled, a third phase can be considered, during which the supplier takes on the concession and assumes full responsibility for investment funds.



NIGERIA  
WELLS

|                                     |   |   |  |
|-------------------------------------|---|---|--|
| <b>BASIC CONTRACTUAL FRAMEWORK</b>  | <b>CONCESSION AGREEMENT: STATE-STEE (Société Tchadienne d'Électricité et d'Eau)</b>   |   |  |
| <b>EVENTS</b>                       | <b>Financial agreements</b>   | <b>Bringing Farcha on-stream (power station and refinery)</b>   | <b>Acquisition of majority shareholding in the STEE by the Group</b>   |
| <b>CONCESSION MANAGEMENT STATUS</b> | <b>PHASE 1</b><br>Management without majority shareholding  |   | <b>PHASE 2</b><br>Private management with majority shareholding  |
|                                     | <p><b>Overall management</b></p> <ul style="list-style-type: none"> <li>■ Help from investors;</li> <li>■ Upgrading of installations and management structures;</li> <li>■ Anticipated in year one: two 5-MW diesel generators and bringing Farcha on-stream</li> </ul> | <p><b>Operating under a fixed payment scheme</b></p> <p>(If the criteria for proceeding to Phase 2 are not reached by the end of the 'overall management' phase)</p> <ul style="list-style-type: none"> <li>■ Legal, financial and technical management of the concession;</li> <li>■ Operation of the services for a fixed fee determined by the rates.</li> </ul> | <p><b>CONCESSION</b></p> <p>Management of the concession by the majority-shareholder private partner</p> <ul style="list-style-type: none"> <li>■ Overall management of the sector at the shareholders' own liability in accordance with the Concession Agreement between the STEE and the State;</li> <li>■ Provision by operator of accounting information from operating company (merger).</li> </ul> |
|                                     | <p><b>EXISTENCE OF AN INVESTMENT AND FINANCE ACCOUNT FOR THE PROJECT</b></p> <p>Management of investments by the private partner on the STEE's behalf.</p> <p>Rates, aid, and sums from investors all paid into account.</p>  |   |  |
| <b>FINANCIAL LIABILITY OF GROUP</b> | Operating company's capitalisation entirely underwritten by the Group   |   | At least a 51% shareholding in the capital of the STEE   |



PHILIPPINES, CEBU  
A SUBSCRIBER PROVIDING RETAIL WATER



PHILIPPINES, CEBU  
NEIGHBOURHOOD RESALE AT CELIA'S

## Challenge n° 2

### → Reconciling water costs and water rights

*The concept of a "universal right to water" implies that water, being a natural resource, may not be priced. Yet, as a consequence of uncontrolled urban growth, the provision of water becomes an economic scheme benefiting vested interests often at the expense of the poor. Beyond the issue of the private sector's involvement in the management of the service, reality proves that concrete financial solutions must be found that will guarantee fair access to the service.*

■ Water is everyone's birthright: all individuals have the right to daily access to clean, safe water, ideally in their own homes. In ever-expanding urban centres, this fundamental right can only be respected if provided a just and fair water supply system: "right to water" also means "right to quality water supply", i.e. a continuous, or at least predictable, service provision, which also covers the collection and treatment of wastewater. Such a service is not inexpensive; putting into place a concept such as "free water for all" on a large scale has shown that providing a free water supply is incompatible with quality service. When water management is financially unsustainable, it sooner or later becomes unsustainable in technical, environmental and sanitary terms. Urban growth and the increasing number of low-income consumers raise the additional question of modernisation and extension of the existing networks. The enterprise is an expensive one yet essential when seeking to respect the fundamental principle of fair access to the service.

■ Even before considering new investment programmes, existing infrastructures must first be optimised so that a greater number of consumers can be supplied with existing means. Considerable reductions in water loss can be achieved through leak detection programmes, which require specific skills that only professionals can provide. The need for new

financial resources can be postponed by making better use of the existing infrastructure's capacities (i.e. by achieving better cost/quality ratios). This is one way of attempting to resolve the conflict between the budgetary problems of the local authorities and their enormous need for investment.

■ Subsequently, there are several ways of providing easier access to water in the most deprived households:

- The cost of connection is frequently the main financial obstacle hindering access to a water supply. Faced with the absence of connection policies, low-income families can rarely afford the initial outlay necessary to connect themselves to the official network. As a first step, local authorities have often promoted the installation of shared connections, resulting in failure. Another solution is to encourage the creation of user groups, which increase local financial solidarity and saving capacity, especially through techniques of community empowerment and microloans.
- The pricing policy must apportion the charges in such a way that everyone can afford them, even though experience has shown that the prospect of total recovery of investment and running costs from consumers' payments alone is often unrealistic. The fact that rates exist does not imply that everyone pay the same price for water: charging for water does not prohibit the implementation of a subsidised rate, nor does it prevent the taxpayer from financing investment. Setting up rates on a sliding scale reconciles social considerations (consumer solidarity) and environmental ones (more responsible use of the resource); it also usually proves to be reasonably inexpensive for both the authorities and the supplier. However, the consequences are sometimes contradictory: when a connection is shared amongst several households, the level of consumption tends to go up, thereby cancelling out the positive effect of the subsidised price.



HAÏTI, PORT AU PRINCE, CITÉ SOLEIL

WATER DISTRIBUTION BY A CHARITY ORGANISATION

■ Lastly, improving water and sanitation services promotes economic development and reduction of poverty. It can involve increasing the daily output of a standpipe, putting in individual low-pressure connections, increasing the number of hours during which

water is supplied, etc. Surveys carried out in underprivileged districts underline the existence of a demand for better service, even if a cubic metre of water costs a little more.

## > GABON: A SUCCESSFUL TRANSITION TO DELEGATED MANAGEMENT

As a result of the electricity and drinking water sectors' institutional reform which was completed in 1993, the Gabonese government decided in 1996 to hand over management of these operations to the private sector. It sought a reputable shareholder for the Gabonese Water and Electricity Company (Société d'Énergie et d'Eau du Gabon – SEEG), of which it was the majority shareholder.

With the help of the International Finance Corporation, a subsidiary of the World Bank, an international invitation to tender led to choosing Vivendi Water in 1997 as majority shareholder of the SEEG.

Whilst Vivendi Water held 51% of the capital, the rest remained in Gabonese investors' hands.

The Gabonese State wanted to free itself from financing infrastructure while ensuring that services were extended and improved: delegating management was the ideal solution. The twenty-year concession agreement, starting on July 1st, 1997, comprised several unusual elements:

- **The invitation to tender specified a large reduction of the rate:** a 17.25% decrease for both water and electricity, with a price-revision formula linked to changes in production costs (fuel, equipment, staff, etc.);
- **Shared management of water and electricity was to be maintained,** for both historical and economic reasons (economies of scale regarding commercial aspects, and cross-subsidisation between the two sectors);
- **Population supply targets,** divided in geographical regions (urban centres and isolated areas) were to be met during the period of the concession.

Due to its oil production, Gabon is often thought of as a rich African country. Yet poverty is not altogether absent from its territory. In addition to isolated spots in the middle of the forest and outlying districts of urban centres, poverty has sometimes developed in the inner city, an area hard to get to and supply. For the time being, there are two methods to help underprivileged residents gain easier access to drinking water:



AFRICA

WATER FOUNTAINS: LIFE'S REALM

- A subsidised connection charge, along with a subsidised rate for monthly consumptions under 15 cubic metres, as well as a potential 24 months' interest-free credit. By the end of 2001, the number of subsidised connections had reached 11,320, i.e. 15% of all water connections;
- Free access to standpipes for all residents, the corresponding bills are settled by a fund paid to which all customers contribute (except those on the subsidised rate) through a levy on each cubic metre consumed.

When comparing the targets set in the contract with the results reached by the end of 2000, the stipulated coverage ratios had been exceeded by far in all the zones already supplied at the time of the privatisation, thus representing an increase of over 30% in four years. In the coming years, particular emphasis will be given to other isolated centres in the country.

### > Gabon's progress in drinking-water coverage ratio

|                                  | CONCESSION AGREEMENT   |              | RESULTS OF THE 2000 SURVEY |
|----------------------------------|------------------------|--------------|----------------------------|
|                                  | Existing coverage 1993 | Targets 2000 | 2000                       |
| Libreville network               | 49.3                   | 53           | 61.3                       |
| Franceville                      | 38.6                   | 43           | 58                         |
| Port Gentil                      | 37.7                   | 43           | 49.5                       |
| Isolated centres covered in 1996 | 33                     | 38           | 40.1                       |
| Isolated centres to be covered   | 0                      | 12           | 7                          |

### > Comparison between Gabonese rates for regular and subsidised subscribers (pre-tax rate in FCFA)

|                                  | REGULAR SUBSCRIBERS (1) | SUBSIDISED SUBSCRIBERS (2) | DIFFERENCE (1) - (2) |
|----------------------------------|-------------------------|----------------------------|----------------------|
| Connections                      | 120 000                 | 63 129                     | - 47%                |
| Monthly meter rental             | 236                     | 236                        | 0%                   |
| Price per cubic metre (01/01/02) | 266.71 FCFA*            | 136.08 FCFA*               | - 49%                |

\* 650 FCFA = 1 Euro



PHILIPPINES, CEBU, PUNTA...

WATER FOUNTAIN ORGANISATION: PARTNERSHIP INVOLVING MUNICIPALITY AND OPERATOR

## Challenge n° 3

### → Building a partnership approach

*It still is difficult to establish practical rules for local partnerships among the various stakeholders active in the water supply and sanitation sector (local authorities, operators, communities and NGOs). Yet, experience has shown that a single entity cannot be entrusted with the full burden of responsibility; learning to cooperate is therefore fundamental. Consequently, operators must on occasion surround themselves with partners possessing an intimate knowledge of local circumstances and able to maintain relationships with members of the community.*

■ **Public-private partnerships must become more flexible and open to new partners.** This would allow the operators to evolve towards local work with representatives of civil society (NGOs, district associations, community leaders), and with local operators in the water distribution and resale sectors (the so-called "unofficial sector": water-carriers, cooperatives, etc.). The decentralisation process undertaken

in many countries, while incomplete, has helped to bring populations and decision-makers closer together, making participation easier for all citizens, users and consumers. Above all a local service, water supply must be at the heart of all such reforms. People who live in deprived areas only get involved in order to meet needs they regard as being important; hence the importance of involving them when defining their district's water policy and heightening their awareness of the need for efficient sanitation systems.

■ **The actual building of partnerships in this sector remains a tricky business,** although it does generally improve coverage ratios by helping to expand the network. It is in the local authorities' own interest to harness popular energies by subcontracting services to associations or user groups (for example, construction and management of latrines and septic tanks in India). The cost and quality levels of the service must be defined and negotiated with operators and users, and competition amongst the various operators should be organised in a transparent manner. Nevertheless, such processes bring together operators of widely different size and legitimacy. Therefore, it is



### ➤ PUBLIC-PRIVATE-NGO PARTNERSHIPS: The example of a pilot project in KwaZulu-Natal (South Africa)

Since March 1999, Vivendi Water has been coordinating an innovative pilot project in two townships (overspill settlements created under the apartheid regime) in the South African province of KwaZulu-Natal. The project is jointly run with the cities of Durban and Pietermaritzburg, the Umgeni Water Company, the Water Research Commission of the South African Government, and the NGOs Mvula Trust and ELET.

Its aim is to set up permanent water supply and sanitation services in underprivileged urban and suburban communities. This initiative contributes to the broader framework defined by Business Partners for Development (BPD), a programme set up by the World Bank and intended to encourage convergence of resources, skills and interests of three distinct sectors: private suppliers, public authorities, and civil society, (especially NGOs).



..... SOUTH AFRICA, DURBAN  
..... DMWS, DURBAN'S WATER COMPANY  
.....





ABU DHABI, JEBEL DHANNA

SEAWATER DESALINATION UNIT

## Challenge n° 4

### → Sharing technical expertise and innovation

*Recent technological innovations are already bringing concrete solutions for efficient management of water and sanitation services in large developing cities. In future years, research and development will enable further reduction in the cost of implementing these techniques, thus making them more widely available. It is this very kind of progress that will enable tailor-made solutions to be found, allowing everyone to get the maximum benefit from a top-quality public service.*

■ Vivendi Environnement has become highly involved in **membrane based technology**, a field which is likely to undergo extensive development. This technology regularly produces major innovations including nanofiltration, submerged membranes, reverse osmosis, and more. Until recently, it was considered an expensive high technology, yet thanks to research efforts and optimisation, such innovations are becoming more widely used. It has specifically allowed to provide both fixed and mobile desalination plants, available at various price ranges and water treatment capacities, thus more attractive than high cost transportation of water over long distances.

■ Membrane-based technology can also be applied when building and operating sewage treatment plants. Added to a more effective protection of the ecosystem, it enables recycled water to be used for industry and irrigation. Based on a 20-year BOOT contract (Build, Own, Operate and Transfer) starting in May of 2001, **wastewater recycling technology** has in this way enabled the city of Durban, South Africa, to better husband its resources while increasing the amount of available water, particularly for the supplying of outlying districts (8% more drinking water has been made available for human consumption).

■ Other major challenges include the renovation, efficient management and optimised functioning of drinking water distribution networks. Thanks to the many applications of the **Geographical Information Systems (GISs)**, planning agreements together with leak detection and reduction programmes are being implemented. With resource wastage problems tackled effectively, network efficiency is now close to 80%. These systems can also help design the network and provide useful support for the implementation of health education programmes.

■ Consulting the local residents and **concerted adaptation of the technology, based on individual needs and means**, are essential keys to efficient development work. Consequently, field reality can be taken into consideration by supplying a complete range of levels of service. A low-pressure system, for example, can often be a viable alternative in a household whose income is insufficient to allow direct access to an individual high-pressure system.

### DESALINATION OF SEAWATER

**Fresh water constitutes but 2% of the world's water resources, and is becoming ever scarcer. Anticipating an increased demand from its customers in undersupplied areas, Vivendi Water has developed a unique expertise through its desalination of brackish water and seawater. Two methods exist: thermic desalination and membrane desalination, that can be combined to reduce costs and improve performances.**



GIS

(GEOGRAPHICAL INFORMATION UNIT)

## > RENOVATION PROGRAMME for the Kolkata DWS\* network in West Bengal, India

In 1999, Seureca Space (one of Vivendi Water's subsidiaries involved in design and engineering) succeeded in signing a contract to improve the management of water services in Kolkata. The contract consists in carrying out various investigations:

- Modeling the system and transcribing the results onto new maps;
- Setting up a pressure outflow monitoring system;
- Installing and managing meters for the heaviest consumers;
- Developing a software package, GIS-based, to monitor performance using indicators such as flow rate, pressure, consumption, billing, and cost recovery;
- Launching of a leak detection programme.

As in most large Indian cities, water services in Kolkata are facing problems linked to water shortage and obsolescent infrastructure. At best, water is only available four hours a day, at very low pressure; water metering, where it exists, is unreliable, with considerable loss. Estimates evaluate the total volume of water lost from the city network to amount to up to 40% of the quantity produced, i.e. more than 450,000 cubic meters each day.

Seureca Space's operations are due to last three years, and will enable the service and quality of the water distributed to be improved. Though based on a limited degree of investment, its operations will have major, lasting consequences. Among the chief benefits to the city one can find:

- A comprehensive survey of the water supply and sanitation networks in specific areas;
- The use of high-tech equipment and training of the staff operating it;
- A better awareness of consumption levels, especially those of the hundred largest industrial and commercial customers;
- A clear improvement in network efficiency through the leakage reduction programme.

\* DWS: Drinking Water Supply



INDIA  
CLOTHES WASHING IN THE GANGES

## Challenge n° 5

### → Better understanding consumers and their needs

*Consumers' needs and concerns must imperatively recover their place at the heart of the decision-making process. For a long time now, municipal departments traditionally responsible for urban services have taken all technical and organisational decisions alone, without sufficiently consulting the wider community. The truth is that deprived areas are complex environments, of difficult access due to their location, topography, crime rates, and also lack of statistical data.*

■ Nowadays, many of the LDCs' local authorities are expressing a genuine need for methods improving their understanding of users' customs and expectations in order to raise their public services' quality and their residents' satisfaction. Such skills may, on the one hand, be provided by water distribution professionals, accustomed to evaluating their performance on a customer satisfaction standard; on the other hand, these skills may be provided by NGOs and other organisations with extensive field experience of community liaison techniques.

■ **Understanding the daily practices** and various uses of water in deprived urban areas must be based on establishing, over time, a genuine dialogue with its users. A relationship based on confidence and mutual respect is the only sure way of obtaining valid qualitative and quantitative data. Understanding the relationship between men and women within the community is also necessary in identifying the right people to talk to, and in allowing them to speak freely. Men frequently come forward to describe the household's needs and preferences, when it is paradoxically the women who deal with water on a daily basis. Preference must therefore be given to **the consultation and participation of women**, as they represent the main water users (and day-to-day managers) for

both domestic (jobs such as washing dishes and personal hygiene, which use water) and economic tasks (crafts or small-scale catering).

■ Identification of user's needs also involve the **observing neighbourhood services** that have developed within the community. A detailed analysis of what is available locally (operators, technical characteristics, prices charged, derived services, deficiencies, and expected improvements) often sheds a great deal of light on the genuine needs linked to water supply and sanitation services. Users will therefore express their preferences according to various criteria, mainly the way access is shared, its availability, proximity, quality, and price. The more the expectations vary from one household to another, the harder it is to establish a scale of preferences among these criteria. Some users are therefore ready to pay a lot for small quantities of water, if in return they get a hygienic place in which to wash their clothes. As such, the pitcher of water is only the pricing unit for the service involved.

■ Alongside the various supply modes offered by local traders, the operator could then analyse and implement various "levels of service". Depending on the situation, access can be individual or shared, rationed or not, continuous or periodic, etc. Such characteristics are subject to both technical feasibility as well as the administrative status of the area being served. Even when all these different constraints are taken into account, it is still possible to conceive a wide range of services. Notwithstanding the will to improve access to water, this change may involve certain modifications of roles and balance of power within the community.



CAMBODGE

PIT LATRINES



PHILIPPINES, CEBU

GENERAL MEETING OF A WATER FOUNTAIN ORGANISATION

## > THE IMPORTANCE OF WOMEN'S PARTICIPATION

### The introduction of a new purification system in a suburb of Bogotá, Colombia

*(An experience recorded by ENDA Colombia as part of the "Gender and Water" electronic conference led by the Solidarité-Eau programme)*

#### BACKGROUND

The project took place in a Bogotá suburb and focused on implementing slow sand filters suitable for community kindergartens. When the filters work properly, there is no need to boil the water to make it drinkable, thus allowing to build up a stock of water in case the supply were to be interrupted (saving time for the women).

This new system of water purification was set up with the help of existing women's groups, and is now managed independently by them. These filters were made to fit each individual kindergarten, and built with their help; what's more, the women were assisted for several years as regards the system's maintenance. A joint effort allowed to produce a construction and maintenance manual designed to help in case of mishaps, to aid in repairs, and to train new people to take charge.

#### IMPACT

The project helped women develop new skills:

- A better understanding of the major aspects of water management (production, quality control, visits to purification stations, etc.);
- The ability to carry out plumbing and maintenance work in their homes and other places, which allowed to save money and even, in some cases, bring in a small income;
- Helping with training, and participating in local civic movements (the cost of water and public services);
- Forums and education concerning the subject of development;
- Broadening the scope of education in the kindergartens, and teaching parents and youth groups about water and the environment, so that self-managed ecological projects can be set up (specifically experimental ecological composting stations and urban agriculture).

#### ELEMENTS OF SUCCESS

- Filter management groups **work democratically** (information distribution, regular maintenance, etc.);
- The project deals with hygiene-consciousness issues as well as an **environmental approach** that emphasizes health and the control residents have over their environment;
- Women receive **technical training** in maintenance (plumbing, functional biology, monitoring of samples);
- Elements **slowing down the acquisition of knowledge are identified and dealt with** (fear of making mistakes, overly frequent management rotation, oral instructions without backup, etc);
- **Integrating women into a broader spectrum of community work** leads to integration of new knowledge in children's education as well as other community activities (e.g. annual environmental festival), and add to the exchange and shared training among various self-managed kindergartens.



..... PHILIPPINES, CEBU  
..... PARADISE ISLAND NEIGHBOURHOOD  
.....



..... INDIA  
..... YOUNG PEOPLE WASHING IN THE STREET  
.....



..... SOUTH AFRICA, PIETERMARITZBURG,  
..... PIT LATRINES

■ Monitoring and evaluation tools must also be put in place to measure the effectiveness of a given campaign, and, possibly, to see whether it could be repeated in different contexts. Qualitative indicators, such as hygiene-related practices, consumer behaviour, and the degree of awareness consumers have of their rights and responsibilities, may serve as a basis for this. Monitoring tools may also serve as channels of communication between service providers and customers, and may spark a genuine learning process among all parties involved.

■ Women and children are the main vectors for change within a community (and are in any case expected to undertake numerous daily household duties). They are the ones towards which education and awareness campaigns must be oriented if good practices are to be adopted by succeeding generations. Hopefully, the children, in addition to absorbing messages through the use of simple game-based methods, will also raise the awareness of their parents, who are often less interested and harder to reach. A good balance between play and promoting responsibility should therefore succeed in drawing the children's attention, and hence that of the rest of the household, to possible improvements in domestic water management (reporting leaks, reducing wastage, improving storage conditions, and the like).



THE MAIN EDUCATION CAMPAIGN MESSAGES

## > CAASA'S SOCIAL COMMUNICATION CAMPAIGNS IN AGUASCALIENTES, MEXICO

The city of Aguascalientes is a few hundred kilometres to the north of Mexico City. Its municipal water supply was privatised in 1993 and ceded to CAASA, a Vivendi Water subsidiary. The concession holder thought it necessary to set up, in 1996, a department in charge of social communication. Its main objective was to foster a "culture around water", based on two target lines: economy and careful use of water, on the one hand, and increasing awareness of the value of the service, on the other. Two communication campaigns were launched between September 1998 and November 1999:

- "¡Tu que la tienes, cuidala!" (You've got it, take care of it!): Regardless of the level of service, saving water is essential. This campaign focuses on the cost of water as a resource.
- "¡Salvemos el agua!" (Let's save the water!): Water is essential but it is exhaustible, hence the necessity for residents to report leaks and reduce their consumption.

These two poster and television campaigns were aimed at children, who are considered to be the main vectors for change. The management uses marketing tools, especially qualitative market surveys (focus groups and customer satisfaction polls), but the most important aspect is to act as a role model, especially through quicker responses when leaks are reported.

These communication campaigns have already begun to bear their fruits: young people in particular are increasingly aware of the value of water as a resource and of the high cost of supplying it. During radio debates, in which listeners were asked about paying for water, seven out of ten said it was reasonable to pay for a water service, and that it should be metered and used responsibly.







**V**ivendi Water initiated the AQUADEV programme launched in June of 2001. It has brought together some fifty correspondents throughout the world (South America, Africa, Asia, ...).

Alongside Water Force, Vivendi Water's emergency humanitarian assistance unit, it seeks to go beyond crises response and adopt a development ethos. Through autonomous projects, locally launched and supported, its aim is to propose solutions – in partnership with public bodies and citizens' representatives – that will provide easier access for all to water and sanitary services.

So as to tackle the challenges facing urbanisation, its defined missions are:

- **To support the teams of field workers**, faced with managing water and sanitary services by collating and providing the tools and experience of network members (as regards advising public bodies, choosing equipment, and community liaison);

- **To identify viable and appropriate technical solutions** for underprivileged districts, whether linked to engineering tasks on the network or invoice processing and installation maintenance. In addition to technical considerations, AQUADEV takes into account social and cultural practices so that the local communities can take over projects and infrastructure more quickly.

- **To promote an innovative partnership model**, based on "good governance", between private suppliers, public authorities and citizens' representatives.

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# Profiles &



The pS-Eau organisation was founded in 1984, during the International Drinking Water Supply and Sanitation Decade, at the behest of the European Ministers for the Environment, who wished to increase European cooperation in the water sector.

Its Board of Management gathers representatives from local authorities, specialised water companies (water authorities, distributors, and consultancies), the research sector, international support agencies, and governments.

It aims at facilitating local initiatives for international cooperation as well as Northern Hemisphere/Southern Hemisphere dialogue by improving the various projects' global coherence. It encourages exchanges and concerted action, capitalisation, the spread of information, and support for project creation. It also organises five other action programmes: "Water and the Environment in the Mediterranean" and "Senegal River Basin" (geographical programmes); and "Drinking Water and Sanitation in Suburban Districts and Small Municipalities", "Economic Initiatives, Development and Migration" and "Gender and Water" (thematic programmes).

**Partners:**

Académie de l'Eau, Agence française de Développement, Aquassistace, Association des Maires de France, Groupe de Recherche et d'Echanges Technologiques, Groupe de Recherche et de Réalisation pour le Développement Rural dans le tiers-monde, Ingénieurs Sans Frontières, Institut des sciences et des techniques de l'Equipement et de l'Environnement pour le Développement, ministère de l'Aménagement du Territoire et de l'Environnement, ministère des Affaires étrangères, ministère de l'Emploi et de la Solidarité, Agence de l'Eau Seine Normandie, Conseil Régional Limousin, Conseil Régional Nord Pas-de-Calais, Syndicat des Eaux d'Ile-de-France, and Vivendi Water.

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