The Ouagadougou Strategic Sanitation Plan: An Holistic Approach to a City’s Problems

Water, sanitation and hygiene are vital components of sustainable development and the alleviation of poverty. Across Africa, political leaders and sector specialists are generating new momentum in these important areas. This Field Note, together with the others in the same series, constitutes a timely contribution to that work. It is intended principally to help politicians, leaders and professionals in their activities. As the Water Ambassador for Africa, invited by the African Development Bank and endorsed by the African Water Task Force and the African Ministerial Conference on Water (AMCOW), I commend it to your attention.

Salim Ahmed Salim
Water Ambassador for Africa

**Summary**

The Ouagadougou Strategic Sanitation Plan (PSAO) is an integrated sanitation and hygiene promotion programme implemented by the parastatal National Water and Sanitation Office (ONEA). It recognises that conventional sewerage is not an affordable option for the entire city and expects 80% of the city’s residents to adopt on-site solutions to their sanitation needs. Through PSAO, thousands of people in Ouagadougou have been able to upgrade their latrines and install soakaways. Householders are informed about the technical options available. They negotiate the work with artisans trained for that purpose. Some subsidies are available if needed. ONEA’s promotional work and subsidies for on-site sanitation are funded by a surcharge levied on water bills. Ouagadougou’s schools have also benefited from latrine blocks. In order to implement all these activities, ONEA has sub-contracted a local NGO (ADRA) and a regional training centre (CREPA).

Within PSAO, a sewerage system and wastewater treatment works are also under construction to treat sewage from the city centre and the industrial area. Recent legislation requires industries to treat their effluents before discharging them into the sewerage system. They will be entitled to low-interest loans to install the necessary pre-treatment processes. To finance this, ONEA will levy another surcharge on water customers connected to the sewerage system.

While PSAO does have problems, for example in targeting subsidies at the poorest people and in its relationship with local government, it offers a practical example of a city-wide integrated sanitation programme that could be useful in other countries.

Experimental research into the use of aquatic plants for water treatment, Rural Equipment Engineering School (EIER), Ouagadougou.
Background: Ouagadougou and ONEA

In 1999, the 900,000 inhabitants of Ouagadougou, Burkina Faso, were mostly using traditional latrines (70%), while some had access to improved pit latrines (18%) or septic tanks (5%). About 7% of the population were without any sanitation and practised open defecation. Most schools lacked suitable sanitation facilities.

Sewage and wastewater from the central market, the main hotels, the hospital, the brewery, the tanneries and the abattoir were discharged untreated into the surroundings. The quantities discharged had risen to more than 20,000 m³/year of night soil and 600,000 m³/year of industrial effluent.

Ouagadougou was experiencing water shortages, but the volume of water consumed (and hence the volume of wastewater discharged) would soon increase substantially with the opening of a new dam. In summary, Ouagadougou had major problems of water supply, sanitation and wastewater treatment.

The National Water and Sanitation Office (ONEA) was set up in 1985 and became a parastatal in 1996: it is still part of the public sector but financially autonomous from the government. ONEA manages drinking water and sanitation services in Ouagadougou and 50 other centres, with 45,000 customers and over 1,300 public tapstands. In 1997, its staff comprised 50 managers and about 500 operatives. In the same year, its turnover amounted to US$10 million. Its water supply strategy favours public tapstands and the resale of water.

The strategic sanitation approach

The strategic sanitation approach aims to devise sanitation solutions which are demand responsive, flexible and involve the active participation of all stakeholders. Some features of the approach are:

- The sanitation construction programme is not centrally determined but responds to household demand.
- Households are offered a variety of options which they can ‘mix and match’ according to their practices and resources.
- Social development work plays a crucial role, both in understanding the needs of the community and in promoting demand for technically, financially, and socially appropriate solutions.
- Both education and incentives are used to increase uptake of sanitation options.

Putting this approach into practice requires sustainable institutional arrangements, such as the establishment of an agency that can generate its revenue and recover costs from the beneficiaries of sanitation, and thus avoid dependence on central government funds. This agency defines the overall direction and manages the system of incentives; the social development and construction may be carried out by NGOs and/or the private sector. The development of such sustainable arrangements, rather than the construction of a certain number of works over a specified time, is the key to success in implementing the strategic sanitation approach.

Tariffs

ONEA’s tariffs have increased to reflect the scarcity of the resource. The last tariff increase occurred on 30 January 2002, and only affected household connections. In principle, further increases in the water tariff are expected.

Water tariffs levied by ONEA, current and expected in 2008, by level of service

<table>
<thead>
<tr>
<th>Level of service</th>
<th>2002</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public tapstands</td>
<td>0.24</td>
<td>0.26</td>
</tr>
<tr>
<td>Household connections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-6 cubic metres/month</td>
<td>0.23</td>
<td>0.26</td>
</tr>
<tr>
<td>7-30 cubic metres/month</td>
<td>0.49</td>
<td>0.55</td>
</tr>
<tr>
<td>More than 30 cubic metres/month</td>
<td>1.29</td>
<td>1.49</td>
</tr>
</tbody>
</table>
The Ouagadougou Strategic Sanitation Plan (PSAO)

Overall strategies and financing mechanisms

PSAO is an integrated sanitation programme based on the National Sanitation Strategy of 1996. It adopts a strategic sanitation approach (see box), and comprises both construction work and educational and promotional measures. ONEA is responsible for implementing PSAO. It provides for a mix of conventional piped sewerage and on-site sanitation solutions and has three main components:

• **On-site sanitation**
  PSAO selected this as the preferred technology for about 80% of the urban area. Community workers paid by the programme encourage households to upgrade their sanitation facilities by installing one of several options for the disposal of excreta and/or soakaways for sullage disposal.

• **School sanitation facilities**
  ONEA aims to construct latrines for the schools in the city and to provide teachers with educational material about hygiene and sanitation.

• **Off-site sanitation**
  A conventional sewerage system is under construction to serve the city centre and the commercial, administrative and industrial zones. Because waste stabilisation ponds will treat the effluent using aquatic plants, rather than more costly and conventional chemical processes, industries are required to pre-treat the water that they discharge into the sewerage system.

The activities are defined in a long-term contract between ONEA and the government, which specifies the completion of 78,000 sanitation systems by 2010.

ONEA generates some of its own financial resources. It has made provision for two sanitation surcharges levied on the cost of drinking water, only one of which is currently in operation:

• One surcharge fully finances the on-site sanitation activities. It is equivalent to 4% of the average water tariff, and effectively constitutes a sanitation tax of US$0.02 per cubic metre of water sold. In 1999, this surcharge generated a revenue of US$0.5 million. Of this sum, 65% was collected in Ouagadougou and 25% in Bobo-Dioulasso (the country’s second city, with major industrial activity).

• A second surcharge will help industries to finance the pre-treatment facilities that they must now install to meet national discharge standards. It will be channelled into the Fund for Disposal of Industrial Pollution (FODEPI) (see box on page 6). It will apply to water users connected to the main sewerage system. It should amount to approximately US$0.01 per cubic metre.

ONEA also receives significant aid from external support agencies for PSAO. The support of the French Development Agency (AFD) has risen to US$7 million. The
Progress on domestic sanitation

The domestic sanitation component of PSAO adopts a modular approach, offering a range of technical options which can be adapted to the finances of individual households. For on-site sanitation, they can choose between the rehabilitation of traditional latrines and the construction of ventilated improved pit (VIP) latrines or pour-flush latrines. For the disposal of sullage, the soakaway is the only option available.

The households choose a technical option and then contract a qualified artisan to make it. Depending on the choice made, the programme provides the cement, pit covers or the bricks for the vent pipes.

To date (April 2002) the results are impressive: over 19,000 households have constructed over 28,000 on-site sanitation systems. This programme has reached 26% of the 73,000 residential plots that could be equipped with on-site sanitation. The average cost of a system is about US$57. The cost sharing between the households and ONEA is indicated by figure 2. The construction of soakaways and the rehabilitation of traditional latrines constitute the greatest part of the work, probably because of the low investment cost compared to the other options offered (see figure 3).

Some of the factors that influence the householder’s choice are:
- A standard VIP latrine costs about US$100, which is five to ten times more than a soakaway and two to three times more than the rehabilitation of a traditional latrine.
- The rehabilitation of a traditional latrine requires one working day. The construction of a VIP latrine takes between one and fifteen days.

World Bank has approved a loan of more than US$4.5 million. Meanwhile ONEA is providing, from its own funds, US$3.6 million for the on-site sanitation component and US$0.4 million for school sanitation. Figure 1 shows that most of that expenditure is actually on the training and promotional work.
For the same type of work, the price varies significantly because it is negotiated by the client (head of the household) and the artisan. The factors determining the price can include, for example, the contribution of the household (digging the pit, providing sand, etc.) and the possible additions (such as tiled floors). In 1997, the cost of a latrine fell significantly, apparently because of increased competition among artisans.

Soakaways were particularly popular; the programme had to meet a demand of over 150 per month. The other types of components were completed at a rate of about 50 per month.

A survey on willingness to pay did not correctly predict the choice of the households. For example, it indicated that a third of the households would invest in a pour-flush system. In reality, by 1999, less than 1% had chosen this option. Pour-flush latrines have not been successful because the majority of households have their water delivered by vendors, and the water used for flushing the latrine represents a significant expense.

**Phasing and implementing the work**

PSAO’s approach was tested in a pilot phase between 1992 and 1994. This was also an opportunity to test the capacity of the local artisans and small enterprises.

In 1995, the programme was expanded to 30 areas of the city. For the construction of the sanitation components, ONEA used masons, of whom 260 have been trained to date.

To achieve that expansion, ONEA embarked on a genuine partnership with the city’s artisans (see figure 4). It invited a regional training centre, CREPA (Regional Centre for Low-Cost Water and Sanitation), to train artisans in the construction of sanitation components, and appointed private companies to carry out quality control.

The artisans’ output has risen from 1,000 to 6,000 installations rehabilitated or constructed per year.

**Making an NGO responsible for community mobilisation**

ONEA entrusted ADRA (Adventist Development and Relief Agency, a Burkina Faso NGO) with the responsibility for community mobilisation and hygiene promotion. For this purpose, ADRA recruited a team that has grown to 30 field workers and 5 supervisors.

These staff were expected to educate households about environmental health issues and advise them about the options available under the programme, making them
aware of the implications (such as sanitation advantages and recurrent costs) of any option they might choose. Then the field workers brought together the heads of the households and the artisans.

The preferred methods aimed at women were information meetings with visual aids (cards, photos and models), guided visits to the area and home visits. Plots with obvious sanitation problems, such as overflowing soakaways, were targeted as a priority. The number of visits seemed to be a determining factor in whether or not households participated in the programme.

On average, each field worker contributed to the construction of 100 sanitation installations. Women field workers were generally more successful than men. The cost of these mobilisation and promotion activities per household was about US$25.

**Problems of the on-site sanitation work**

**The benefits and subsidies do not yet reach the poorest people**

A sum of US$0.2 million helped to subsidise the components of the latrines and sanitary facilities. For example:

- 96% of the VIP latrines constructed benefited from subsidies of between 0% and 40% of the cost.
- 76% of the soakaways constructed benefited from subsidies of between 21% and 60% of the cost.

In Ouagadougou, most of the households that have had a latrine rehabilitated or a soakaway constructed seem to belong to the middle class, as indicated by their employment or vehicle ownership. They are more able to access information about the subsidy scheme and to apply for subsidies. Subsidies should increasingly be targeted at the poorest households. This requires positive action to reach those people.

**Institutional responsibilities are not matched by financial resources**

The fact that ONEA manages the sanitation surcharge constitutes a stumbling block for its co-operation with the local government. The country’s new decentralisation policies entrust sanitation services to local government. ONEA has committed itself to work, between now and 2010, to strengthen the capacities of the local government municipalities, with a view to an eventual transfer of its sanitation responsibilities to them.

In the meantime, the municipalities find it difficult to second their staff to the programme because they lack the financial resources. The same applies to the central government’s sanitation staff, who are supposed to monitor ADRA’s field workers and ensure that the NGO complies with its terms of reference. Because of lack of means they cannot do this work.

**School sanitation**

As an integral component of PSAO, CREPA conducted a pilot school sanitation programme. It trained private enterprises in the construction of school latrines and produced a guide on hygiene promotion.

With finance from ONEA, 100,000 primary school pupils were provided with 170 school latrine blocks. This attained the objectives of the pilot phase, at a cost of US$343,000.

However, the maintenance and caretaking arrangements for these school latrines were inadequate. The installations were the victims of their own success, in that they suffered from unauthorised use, during the night, by other people living in the neighbourhood. Some latrines were vandalised, and others neglected through lack of maintenance. The school sanitation programme could be improved in the future by the closer and more active involvement of the Ministry of Education.

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**The Fund for Disposal of Industrial Pollution (FODEPI)**

FODEPI is a fund, hosted and managed by ONEA, intended to enable major industries to finance pre-treatment and hence to limit the amount of pollution they discharge. Consultation between the major polluting industries, ONEA and the Ministry of Environment and Water established target discharge levels which are specified in a Special Convention on the Dumping of Industrial Wastewater.

FODEPI will:

- Grant a subsidy of 20%-30% of the pre-tax costs of capital investment
- Guarantee the loans given to industries by banks
- Give a rebate on the interest rates to be paid by the borrowers

The funds for FODEPI will be made up of contributions from external support agencies (France and the Netherlands), as well as interest on long-term deposits. It will also be financed by a surcharge levied on consumption of water by domestic and industrial users connected to the main sewerage system.
Conventional sewerage and low-cost stabilisation ponds

The central part of the city is being equipped with a conventional sewerage system that serves the administrative and university areas and the industrial area. The French Development Agency (AFD) and the World Bank are co-financing this component. It provides for the construction of a network of primary collector sewers, trunk sewers and a wastewater treatment works. It was the subject of an initial feasibility study in 1994 and subsequent technical studies and environmental impact studies. The system is designed to serve 430 plots in the city centre, 2 major hotels, 11 industrial establishments and the hospital. Construction of the sewerage network has already begun. The first contract ends in September 2002 and further contracts to complete the system are in preparation.

Wastewater treatment will be done through waste stabilisation ponds using aquatic plants, with an anaerobic basin at the head. A series of stabilisation ponds will cover 13 hectares, and will treat about 5,400 cubic metres of effluent per day. Of this, industrial effluents are expected to represent two-thirds of the volume to be treated and three-quarters of the pollution load.

Unlike conventional chemical treatment processes, the plants growing in the waste stabilisation ponds cannot withstand toxic products or treat solid matter, otherwise they would suffer serious dysfunction. So the abattoir, the brewery and the tanneries will have to install pre-treatment processes, partly funded by FODEPI (see box on facing page).

The use of the water discharged from the wastewater treatment works for domestic activities or for watering livestock remains banned. Instead, ONEA plans to promote agricultural re-use of this water. The government has set quality standards to permit its use for market gardening. ONEA, the municipality and the relevant ministries will mobilise specialist NGOs to inform the local residents and market gardeners about the health risks. Residents will also have access to public tapstands and latrines in order to prevent domestic use of the water discharged by the works. Sanitary monitoring of the treated water and of the market gardeners and their families is planned.

Lessons from PSAO

A range of different sanitation activities can be integrated

Too often, sanitation master plans call for conventional city-wide sewerage systems. PSAO, in contrast, recognises that on-site sanitation is a more cost-effective solution for a large part of the city, while confirming sewerage as the most appropriate option for the city centre. Thus PSAO comprises a range of hygiene promotion and sanitation activities that together can address the sanitation needs of a whole city, all fitted into one programme.

PSAO is successful because it is an ongoing programme, not a project

PSAO is a framework agreement between ONEA and the Burkina Faso Government. ONEA itself generates the funds to finance the on-site sanitation component. To this end, it levies a surcharge on the cost of treated water. The fact that the same institution is responsible both for levying the surcharge and implementing the programme is critical. Those funds do not go through the central government budget. Also, the government has appointed ONEA as the lead agency in the sanitation sector, which gives it the necessary authority to carry out its work.
Continuity helps scaling up and replication

The same ONEA staff team has, since the beginning of the plan in 1990, prepared the strategy, implemented the pilot stage and then the large-scale programme. This results in stability and continuity, partly due to the fact that the staff are well paid in accordance with their responsibilities, which is difficult within the public sector. In addition, the same NGO has carried out community mobilisation and promotion activities since the pilot stage.

Following the success of PSAO, ONEA is implementing a similar programme in the second city of Bobo-Dioulasso, and may extend this work to four large towns.

Understanding the demand is as important as counting hardware

The monitoring of the programme is limited to the sanitation facilities completed. There are no indicators of the rise in the demand for these services. It would be more useful to monitor both the demand and the growth of provision, area by area.

References


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The Water and Sanitation Program is an international partnership to help the poor gain sustained access to improved water supply and sanitation services. The Program’s main funding partners are the Governments of Australia, Austria, Belgium, Canada, Denmark, France, Germany, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom; the United Nations Development Programme, and the World Bank.