

Water and Sanitation Program

An international partnership to help the poor gain sustained access to improved water supply and sanitation services

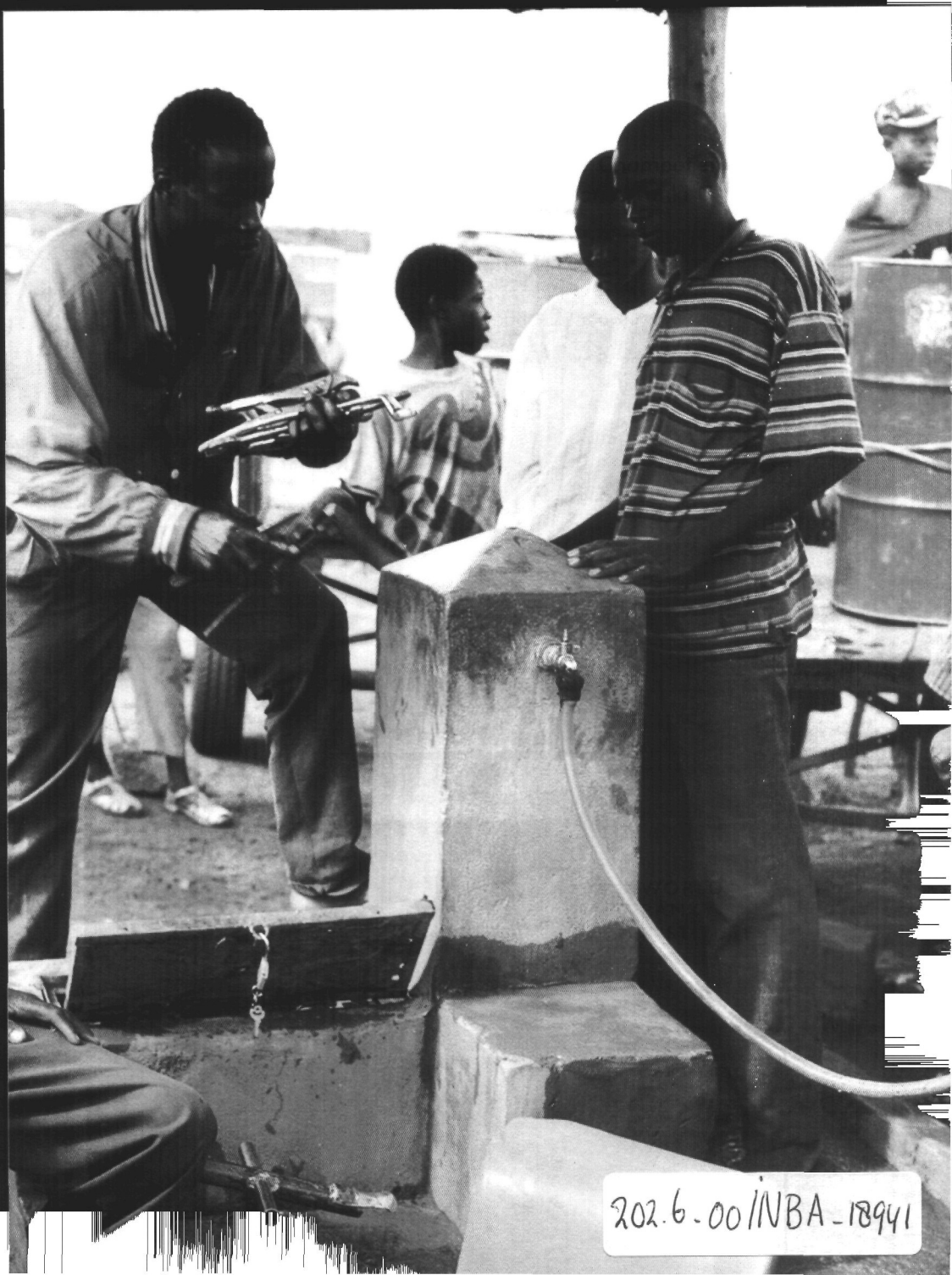
Independent Water and Sanitation Providers in Africa

Bamako MALI

6

West and Central Africa Region

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Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
on behalf of the
Federal German Ministry
for Economic Cooperation
and Development

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The importance of independent operators in the potable water network

Still weak in water production...



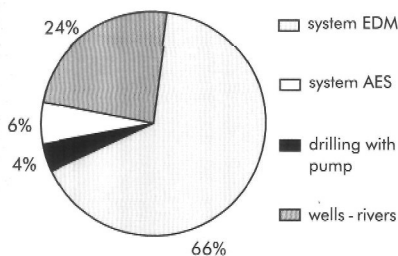
Potable water production in Mali is mainly supplied by the mixed economy company Energy of Mali (EDM), and could be sufficient for the population's needs (daily estimated needs in 1996, 69 l. per inhabitant). Most households, however, reside in the outskirts that are not serviced by public utilities.

Simplified Water Adductions (AES) have been appearing since 1997 in peri-urban areas. A borehole equipped with a submerged electric pump supplies a network of 2 to 5 standpipes. Approximately 2,000 families use this service that is managed by the Associations of Water Users (AUE).

Some boreholes with manual pumps also contribute to water production, but they are not managed in such a way as to guarantee any kind of longevity.

Wells, however, remain the principal source of water supply for almost a quarter of households, complementing

Population serviced by type of water source



alternative sources sometimes exclusively (50,000 families against 35,000 for standpipes).

...but important in water distribution...

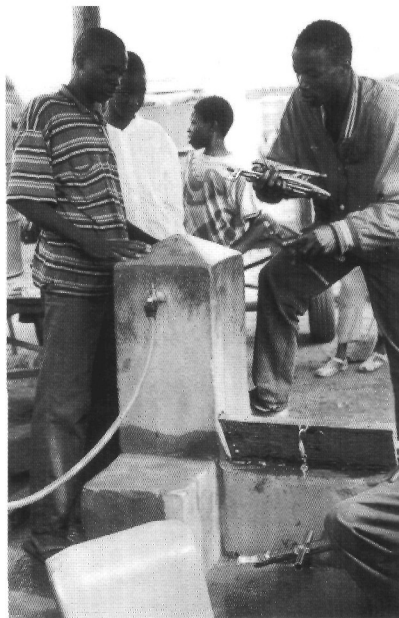
EDM supplies potable water distribution through 23,000 private connections. Standpipe operators supply more than half the population through standpipes (700) connected to EDM or to AES systems (8). The management of these standpipes is left to independent operators for public utilities and to the Associations of Water Users (AEU), EIG or farmers for AES systems.

Carters and handcarters operate outside of these networks and deliver water to homes.

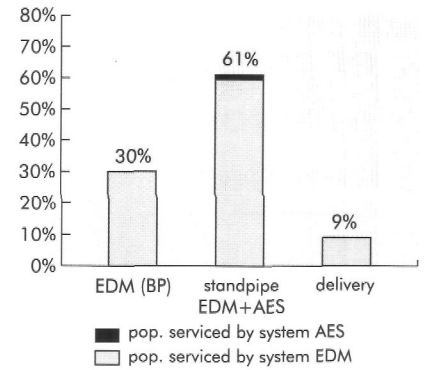
...for the underprivileged population of peri-urban areas

EDM's restricted network mainly supplies higher-income households in central districts.

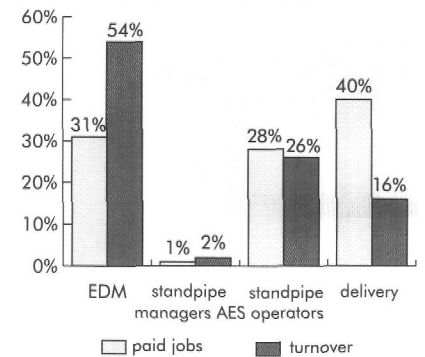
At the limits of EDM's network near the outskirts, standpipe operators sell water to the poorer households from



Population serviced by type of operators



Potable water



private connections (some connected resellers, a kind of official standpipe operator) or from standpipe operators recognized by EDM.

Only AES operators, carters, handcarters and water carriers supply people in the informal settlements where the poorest population lives.

Variable turnover, but job-generating activities

In spite of the considerable importance of EDM in the network's total turnover, private operators generate more jobs.

Carters and handcarters number more than one thousand rural poor who migrated to Bamako. Some women from the Dogon area carry water during the dry season. Almost 300 people make a good living from standpipe management within EDM's network or AES systems in their neighborhood.

The considerable importance of private operators in the sanitation network

In the construction and maintenance of sanitary facilities



A sewer system is practically non-existent. The absence of public sanitation concerns about 85% of the population in the outskirts.

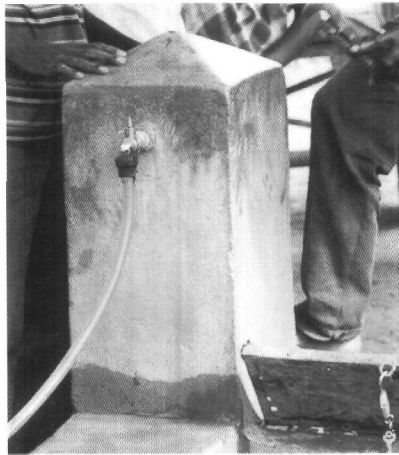
Ninety-eight percent of the population receives sanitation services through independent facilities built by masons specializing in the construction of pits and wastewater wells. Only manual cleaners are able to maintain these facilities correctly, and to a lesser extent sludge suction trucks (40,000 families use manual cleaners and 33,000 trucks).

There is no treatment system for wastewater and sludge.

...in relation to the underprivileged population of peri-urban areas

Only manual cleaners work on traditional latrines that are mainly used by the poorer population.

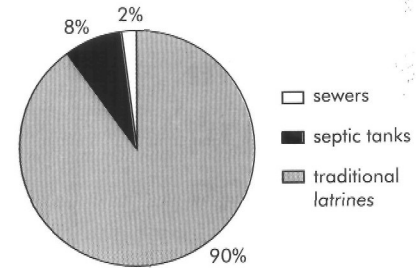
Sludge suction trucks operate in paved road areas servicing the more affluent population and the Government with high volume septic tanks.



Global turnover and high employment

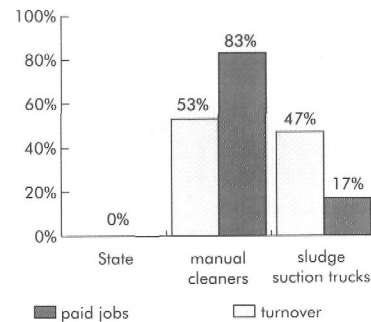
The Government is completely absent from the sanitation sector that is mainly handled by manual and mechanical cleaners, generating many remunerated jobs.

Population serviced by type of equipment



About one thousand people are employed as manual cleaners, usually coming from the poor areas they work in. Sludge suction trucks employ more than 200 people (managers, drivers, coxers, cleaners). Many women and unemployed young people have succeeded in entering the job market through sanitation, especially in latrine and public shower management.

Sanitation



SIMPLIFIED WATER SUPPLY SYSTEMS (AES), A SPECIALITY OF BAMAKO

In peri-urban areas not serviced by EDM, AES systems, numerous in rural areas, have been installed. Management, by the Associations of Water Users, is limited; non-remuneration of members leads to dysfunction. Hence the interest in delegated management as used by AUE in Virmadio, previously a village, now an outskirt of Bamako. Mamatou Traoré, a teacher from this district, made a deposit of 500,000 Fcfa and became a private AES system operator. AUE is responsible for large repairs and he is responsible for everyday maintenance and water quality. AUE establishes the price (250 Fcfa per m³) and collects 80 Fcfa per m³ sold by the operator.

Offer of services from private operators adapted to the specific needs of the population in peri-urban areas

Potable water operators	Types of services and areas of intervention	Sale price FcFA/m ³
Connected resellers	<ul style="list-style-type: none"> • Retail water sale from a private connection linked to EDM • Good quality potable water supply • Especially close to the outskirts 	Potable water 500
Standpipe managers	<ul style="list-style-type: none"> • Retail water sale from a standpipe connected to EDM • Good quality potable water supply • In central districts and close to outskirts 	Potable water 500
AES managers	<ul style="list-style-type: none"> • Retail water sale from a standpipe connected to a mini-system without private connection • Potable water supply high in iron • In peri-urban areas not connected to mains 	Potable water 250
Handcarters	<ul style="list-style-type: none"> • Home water delivery by handcarts • Well-preserved potable water (20 l.) in medium quantities (up to 120 l.). • Price varies according to distance given high activity around water points • In all areas including those with the worst terrain not serviced by mains 	Potable water 2,500
Carters	<ul style="list-style-type: none"> • Home water delivery by cart • Potable and/or well water supply • Retail water sale, usually large quantities (can 20 l./barrel 100-200 l.) • Stable prices given limited delivery radius of 200-300 m. from water point • In normal terrain areas not serviced by mains 	Potable water 2,500 Well water 1,250
Water carriers	<ul style="list-style-type: none"> • Home water delivery • Supply of cheaper well water • Retail water sale (bucket 20-30 l.) with membership possibilities • Price according to distance from water point • In poor areas not serviced by mains 	Well water 1,250 to 1,500
Traditional well operators	<ul style="list-style-type: none"> • Retail water sale • Cheaper water sometimes stocked in 200 l. barrels to facilitate distribution • In poor areas 	Well water 500 to 1,250

Private water operators are more attentive to the specific needs of people living in the outskirts who are unable to connect to mains and/or can use a private well (cost: 40 to 60,000 FcFA/household).

They respond to the poorer households concerns to:

- reduce the water costs by diversifying supply sources: good quality drinking water and lower quality for household chores (laundry, cooking, hygiene, as water to be consumed);

- save time in water chores and find water during shortages or eliminate long waits at the standpipe by home delivery;

- control spending by paying for water in cash daily.

In the area of sanitation, construction of a fixed pit and wastewater well by a mason costs from 10 to 30,000 FCFA per household and maintenance represents an annual expense of 10,000 FCFA per family on average. Manual cleaners, in direct contact with the client (door-to-door), offer complete service for poor families. As independents they are able to negotiate prices and offer credit or a service in correlation with the client's payment capacities or requirements (total or partial cleaning, on-site sludge burial or removal by cart).

Clients of sludge suction trucks, on



the contrary, are contacted by an intermediary, a "coxeur", or have to go where the trucks are parked to have their pits emptied. They have to pay cash for this incomplete and costly service. Clients sometimes ask manual cleaners to then come and clean the emptied pit.

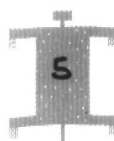
Facing supply from public utilities

In a changing institutional context



The "Energy of Mali" company (EDM) is responsible for both water services and electricity. The company will be privatized by the year 2000 and these 2 entities will be

Sanitation operators	Types of services and areas of intervention	Price in FCFA
Manual cleaners	<ul style="list-style-type: none"> • Complete cleaning of dry latrines, small, poorly or unbuilt pits and wastewater wells, method chosen by poorest families • On-site burial of sludge or removal by cart • Inspection and repair of cleaned pits • Cleaning of watertight pits or septic tanks by sludge suction trucks • Occasional pit construction (June-October) • Negotiable price, credit for nearby customers • In all badly built inaccessible areas and those where trucks can go 	Wastewater wells 3 to 5,000 Pit 5 to 10,000
Large and average sanitation companies	<ul style="list-style-type: none"> • Liquid cleaning by mini-spiro trucks (2 m³ cisterns), small watertight or septic tanks of affluent customers • Sludge removal far from concessions • Cash payment • In central districts or accessible outskirts 	6,000 to 7,000
Sludge suction trucks	<ul style="list-style-type: none"> • Liquid cleaning by spiro truck (7 m³ cistern), large watertight or septic tanks, method chosen by affluent families or buildings • Sludge removal far from concessions • Cash payment • In central districts and outskirts accessible by road 	12,000 to 15,000
Coxer/manual cleaners	<ul style="list-style-type: none"> • Identification of latrines and fixed pits to be cleaned and introduction of client to spiro truck operator for liquid cleaning • Manual cleaning of pits emptied by truck • Possible vehicle rental for sludge removal far from concessions • In central districts and road accessible outskirts 	Pit 20,000 to 30,000
Latrine and public shower managers	<ul style="list-style-type: none"> • Implementation of public sanitary facilities • Near meeting places (stations, markets) 	Shower 50 WC 25 Urinal 10



separated. Water services only represent 20% of EDM's turnover that subcontracts out a large part of individual connections and new construction.

Public sanitation, with its multi-sectoral approach, involved different departments in an uncoordinated and scattered way. The state has re-centered its actions in the elaboration and implementation of sanitation policies by the Department of Sanitation and Control of Pollution and Nuisances of the Ministry of Environment, founded in September 1998.

No longer part of standpipe management since 1984, municipalities are still involved in drain cleaning projects with sanitation EIG's and the City Hall's Department of Urban Services for Roads and Sanitation (DSUVA). Regarding transferred competencies in the context of decentralization, communities take a more active role in water and sanitation matters in conjunction with local private operators.

A limited offer of public services

Public utilities try to respond to the needs of the poorer sector by constantly increasing the number of standpipes and applying specific pricing. Compared to neighboring countries, social level prices at standpipes are the lowest in real terms and also in terms

of individual monthly consumption (20 m³ for Mali compared to 10 m³ for other countries).

Connections are still expensive. The social price for private connections only benefits middle-income households in serviced districts. The network is insufficient to respond to the needs of the households in the outskirts where the majority of the poor live.

The state has not established any fees for connecting to the sewer system that is, anyway, almost non-existent.

Perspectives of development for private operators

Bamako, a growing city...



Bamako, situated by the river Niger, has more than a million inhabitants today with more than 50% in the outskirts. Its population is growing by 5% annually, by natural growth as well as the arrival of a rural population. In the 1980s, the new population was absorbed mainly by the densification of existing structures, whereas today it is more by extension, especially on the Right Bank (70% of the population).

NEW, COMMERCIALIZATION OF PRIVATE WELLS

A water supply difficulty during the dry season and the extreme poverty of an important part of the population seem to have instigated commercialization of traditionally private wells. Although in the minority, this practice appears to be a sign of the present social evolution. For families typically excluded from social structures, it could become a characteristic supply source for the poorest areas.

The city's development, especially in informal settlements, was often due to absorption of the old villages. Mainly comprising a rural population that tends to engage in village-like activities, these haphazardly developed areas, often in mountainous land, are poor and undergo strong demographic growth.

In a context of increasing poverty

More than 50% of Bamako's population lives in poor areas (poverty threshold estimated at 102,971 FCFA per person and per year in 1996). Employment problems and the influx of migrants without professional qualifications are the origin of increasing poverty in Bamako's outskirts.

Some constraints...

The development of private operators' activities is hindered by problems.

- Administrative: no official discharge sites for sludge (fines imposed by the

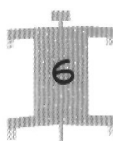
Types of services and areas of intervention

Price in FCFA/m³

Sale of water in central districts and close to outskirts:

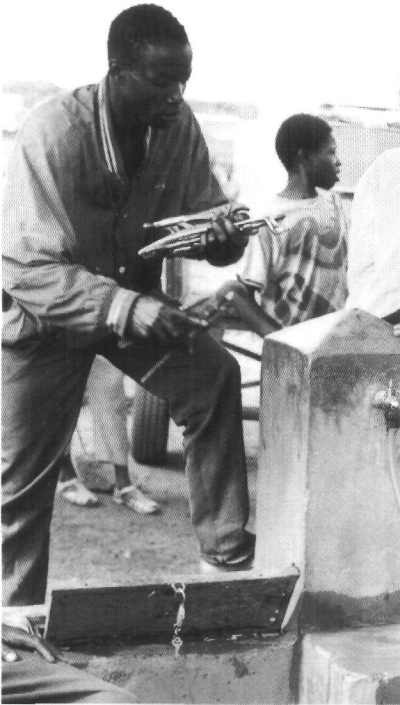
- by private connection to households and the Government: membership, monthly billing, 3-level pricing
- by standpipe to operators: monthly billing, one price

3-level pricing for private connections:
114 (0-20 m³/month)
283 (20-60 m³ month)
409 (>60 m³/month)
one price for standpipes: 114



hygiene services or confiscation of equipment by the police); no authorized parking areas for sludge suction trucks (permanent risk of trucks having to flee); difficult to access new municipal land (near to stations and markets) to build public latrines and showers managed by private operators.

- Legal: lack of recognition of the manual cleaners' profession, in particular, prevents them from obtaining public jobs.



STILL PLENTY OF WATER AVAILABLE

- permanent surface water from the Niger river
- superficial water table to supply traditional wells
- plentiful subsurface table for EDM boreholes and also boreholes equipped with manual or submerged electric pumps (AES systems).

FROM MECHANICAL TO MANUAL CLEANING, COMPLEMENTARITIES OF PRIVATE SANITATION OPERATORS

Bamako's cleaning market seems to be the object of a tacit agreement between mechanical and manual cleaners depending on the type of pit, its contents, area accessibility and the type of clientele.

Working informally without social protection or good working or hygiene conditions, manual cleaners offer complete service at affordable prices mainly in informal settlements. Mechanical cleaners, who depend on intermediaries to find clients, and who must make an important initial investment, offer a more expensive service adapted to large facilities in central districts. A sanitation promoter invented a style of spiro truck with manual drive that adapts to the unstable terrain of informal settlements, but that is not very profitable. Only large and middle-size companies and commercial companies managing several sludge suction trucks are given public jobs. Sludge removal and irregular demand are constraints for both types of cleaners. Between jobs, manual cleaners become casual labor, masons, whilst truckers use their trucks for construction, transportation, water sales.

BUDDING ORGANIZATIONS GATHERING IN PARKING AREAS

An official "handcarters" association does not exist. Yet 40 or so of them gather every night in front of the movie theater in the Sikoroni district, to exchange ideas on their profession and agree on items such as prices. Sludge suction truck drivers also gather around 5 parking lots by Bamako's main arteries. This is where their clients contact them. Although these parking areas are not official in any way, they are well-known by the population and by coxers.

TO THE FOUNDING OF ASSOCIATIONS WITH COMMON DEMANDS

Connected resellers formed an association in 1998. They sell water near vehicle-washing stations or public buildings in small markets. The 3-level pricing that is imposed on them considerably limits their profit margin and they are demanding the social price applied to standpipe operators.

- Socio-sanitary: poor working and hygienic conditions, absence of social protection, a non-valorizing image particularly affects manual cleaners.

- In organization and management: AUE's choice of delegating the management of their AES systems to volunteers sometimes leads to abuse.

- Technical: an initial inappropriate

technological choice of purchasing solar panels (difficult to renew and often stolen) rather than thermal for AES systems; EDM's stoppages that result in irregular water supply at standpipes (some operators build reservoirs to remedy this); pit construction ill-adapted to the manual cleaner's work (manhole too small).

PUBLIC SANITATION SERVICES PRIVATELY MANAGED, AN ACTIVITY IN FULL EXPANSION

COFESFA (cooperative of women for education, family health and sanitation) was founded in 1989 by 16 unemployed young women with diplomas. They manage a facility of 8 latrines, 5 showers and a standpipe at Sogoniko's bus-station. The facility was built in 1992 with the aid of CREPA (Regional Center for Inexpensive Potable Water and Sanitation), and is very busy.

A monthly fee is versed to the Bamako local Government and 30% of income for the future construction of facilities.

...but real possibilities of improving water and sanitation services with existing partners

The Consultant Department of Potable Water Adduction (CCAEP) structure-project in the process of being privatized is already active in rural AEP associations and could give technical and managerial help to Bamako's AES systems.

Manual cleaners, working informally, registered with the National Federation of Artisans of Mali (FNAM) as a professional association in order to be recognized and benefit from its services: support and advice in management, operations, training and constituting a prevention fund.

EIG sanitation groups in the districts of Bamako joined together. Working with the Regional Health Department, some of them implement sanitation programs with the help of NGO partners. This indicates possible cooperation between the Government and private institutions.

There are many different structures that could help private operators in their individual or collective initiatives to improve potable water and sanitation access to the poor populations of Bamako's outskirts.

Some proposals

Following the Bamako Conference (September 25 to 29, 1999) representatives from Mali identified the following priorities:

- organize community meetings to be informed of state structures and regulations concerning AEP, identify demand in the sector and provide good management of standpipes;
- put water and sanitation operators into contact with training and support structures, financial partners and Government technical services.



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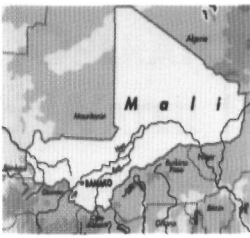
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The Water and Sanitation Program is an international partnership to help the poor gain sustained access to improved water supply and sanitation services. The Program's main funding partners are the Governments of Australia, Belgium, Canada, Denmark,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

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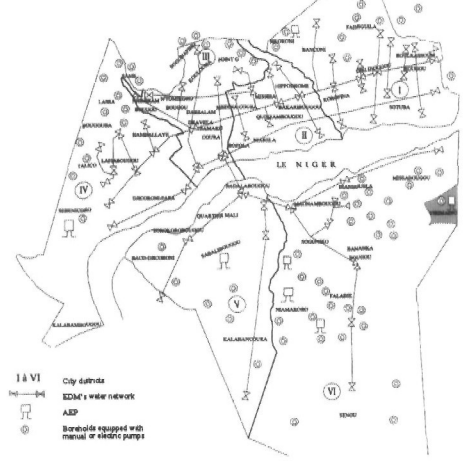
PRIVATE OPERATOR OF A SIMPLIFIED WATER SYSTEM

Bamako - MALI

Bamako: population 1,100,000 - 1,000 CFAF = US\$ 1.60



The water network has not expanded to keep pace with the growth of Bamako's urban area, especially along the river's right bank, where 70 percent of residents live.



1 & VI City districts
 EDM's water network
 ASP
 Standpipes equipped with manual or electric pumps

SIMPLIFIED WATER SYSTEMS IN PERI-URBAN AREAS

The peri-urban areas, where more than half of Bamako's population lives, remain beyond the reach of the water network run by Mali Energy (EDM).

- Eight simplified water distribution systems have been built in peri-urban areas since 1997 with donor project support.
- These systems serve about 2,000 households.
- Most systems are managed by a neighborhood Water Users' Association (AEU), which hires standpipe managers and pays them a salary.

CHOOSING A PRIVATE WATER OPERATOR IN YIRIMADIO

In the Yirimadio district (11,000 residents), the Water Users' Association delegated water system management to a private operator. The arrangement involves

- shared management responsibilities, to limit the risk of malfunction resulting from direct technical involvement by volunteer association members,
- a security deposit of CFAF 500,000 paid by the operator, who signs a one-year contract, renewable subject to approval by the Users' Association.



Yirimadio's Simplified Water System: A well with an electric pump feeds a raised water storage tank, which provides water to three standpipes.

SHARED MANAGEMENT RESPONSIBILITIES

The terms of the leasing contract stipulate that:

- The Users' Association is responsible for supervision water production, network extension, and major repairs (to the water storage tower, the electric pumping system, the network mains).
- The contractor is responsible for production, distribution, and sale of treated water, for routine maintenance, and for network security.

The contractor employs three standpipe vendors and a watchman. He takes care of:

- selling water at the price set by the Users' Association: CFAF 250/m³, of which CFAF 80/m³ sold is handed over to the Association,
- paying the electricity bill, maintenance bills, and payroll, along with any city taxes on the business.

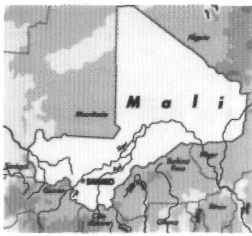


The private operator chosen by Yirimadio's Water Users' Association is a native of the district and the director of a private school there.



The plumber repairs a standpipe.

Average annual sales: CFAF 6 million, depending on the season and the supply of electricity.



PUBLIC TOILET MANAGERS

Bamako - MALI

Bamako: population 1,100,000 - 1,000 CFAF = US\$ 1.60

SANITATION IN BAMAKO

- Ninety percent of households have traditional latrines.
- Eight percent use septic tanks
- Two percent are connected to the sewerage system.

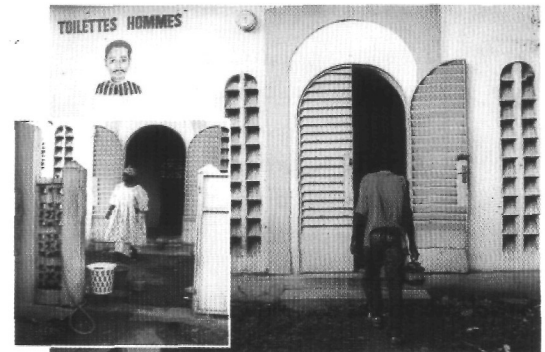


The sewerage network is very limited in Bamako

PUBLIC TOILETS CREATE GOOD INCOMES AND GOOD JOBS

In Bamako, independent operators sell water and provide urinal, toilet, and shower facilities at high-traffic locations such as train and bus stations and marketplaces.

- They charge CFAF 10 for urinal use, CFAF 25 for toilet use, and CFAF 50 for a shower.
- They take in CFAF 10,000 to 20,000 a day, earning them CFAF 300,000 to 600,000 a month.
- They provide steady employment for many young people and women.



Water kiosk and toilet facilities in a neighborhood market.



COFESFA public toilets, constructed in 1992 with the support of the Regional Center for Low-cost Water and Sanitation (CREPA).

A PUBLIC FACILITY RUN BY A WOMEN'S COOPERATIVE

At the Sogoniko train station, the Women's Cooperative for Education, Family Health and Sanitation (COFESFA), started in 1989 by 16 young women, runs a facility with 8 latrines, five showers, and a standpipe.

- Their average annual sales volume: CFAF 5,159,545.
- They return a fixed monthly fee to the Bamako municipal government and deposit 30 percent of their monthly revenue in a bank account to finance the construction of additional facilities.
- They also manage a standpipe in the Faladié neighborhood.

A PUBLIC FACILITY RUN BY YOUNG PEOPLE

At the Bamako main train station, the economic interest group (GIE) called SEMA SANIYA, started in 1991 by three young people, runs a facility with six showers, two latrines, and three urinals:

- they signed a lease with the Mali railway company,
- their annual sales volume amounts to CFAF 3,550,120,
- their other business ventures include the sale of trash cans and the collection and sorting of household waste for resale and recycling.



SEMA SANIYA public toilets are used 200 times every day of the workweek



VIP latrines and showers in small neighborhood markets, as envisaged by the Strategic Sanitation Plan for Bamako.

NEXT STEPS

- Diversify services offered, open facilities at new locations.
- Negotiate with local authorities to obtain permission to construct street-side shower and latrine facilities.