

Community Involvement in Municipal Solid Waste Collection in two West

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African Cities - Findings of a Mission

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A mission to Ouagadougou, the capital of Burkina Faso, and to Abidjan, the capital of the Ivory Coast, was carried out in April/May '93 to analyse the current situation and experiences of community involvement in municipal solid waste collection. The mission was combined with a visit to different community-based primary refuse collection (COPRICOL) schemes. The future role of community involvement was assessed in order to increase coverage of solid waste management (SWM) to unserved urban areas. This article describes the visited schemes and summarises the main findings and lessons learnt.

Definitions:

Primary collection (PRICOL): Refuse collected from households and transported to a communal collection point

Secondary collection: Refuse collected from communal collection points and transported to a transfer station or disposal site

Municipal collection: Refuse collection managed by the municipality. The operator is either municipal or private

Communal collection point: Public refuse collection site serving as interface between primary and secondary collection systems

Community-based primary collection (COPRICOL): Scheme managed and operated by local representatives of the community of residents.

1. OUAGADOUGOU (BURKINA FASO)

In Ouagadougou the refuse collection service coverage is estimated at less than 25%. About half of the collection is carried out by the municipality, the remaining service is provided against fees by a semi-public corporation, various small private enterprises and by cooperatives. Due to rather high collection fees, these services are mainly used by upper-income households and commercial enterprises.

The city is divided into five districts called "communes" in French. They are, in contrast to Abidjan, not involved in SWM. Ouagadougou has sufficient space for urban expansion

and a liberal settlement policy. This led to the development of large peri-urban residential areas with a low population density. Ouagadougou has a planned regular urban settlement pattern and a vast road network. Due to the large urban area and low population density, the technical infrastructure such as roads, water and sanitation systems, including SWM services, are still underdeveloped. The natural earthen roads limit regular house access for heavy collection trucks, and long collection distances cause high transportation costs especially in peri-urban low-income areas.

In unserved areas, families usually dump their refuse on nearby uncontrolled public land, vacant lots or carry it to one of the roughly 80 common dumping grounds, and/or burn it. To prevent flood damages resulting from clogged storm water surface drains with indiscriminately dumped refuse, the population was recently sensitized to change its disposal practices.

To increase the municipal (secondary) collection capacity in Ouagadougou, the 2nd Urban Development Project (UDP), financed by the World Bank, will soon provide an additional fleet of seven refuse collection trucks and 113 skip containers. Although the consequences of this new collection fleet on the existing heterogeneous collection system are still unpredictable, it will certainly influence the future development of primary collection schemes and community participation.

COPRICOL in Wogodogo (Baskuy)

A different approach regarding an increased coverage in underserved municipal areas has been applied by a COPRICOL pilot project assisted by CREPA (Centre Régional pour l'Eau Potable et l'Assainissement à Faible Coût) and IAGU (Institut Africain de Gestion Urbaine). In Wogodogo, a typical residential area of the Baskuy "commune", a local waste management committee has been formed to manage and operate a primary collection scheme. Households have been requested to subscribe to a biweekly collection against a monthly fee. The door-to-door collection is carried out by local collectors with indigenously designed and produced donkey carts (see Photo 1). This type of collection was introduced in Wogodogo only in April '93.

A current problem of the COPRICOL scheme is the accumulation of refuse at the communal collection point. The present municipal (secondary) collection is irregular and



Photo 1: Door-to-Door Collection in Wogodogo by Locally Developed Donkey Cart

insufficient. This situation expresses the missing link between the primary and secondary collection schemes. Complementary private transportation to a nearby landfill can be financed if COPRICOL subscriptions develop as predicted. With the new secondary collection fleet, which will be extended by the additional vehicles of the 2nd UDP, the local management committee hopes to find a more economical solution.

CREPA/IAGU will further assist the local committees with the solving of initial problems to gradually improve the COPRICOL systems and monitor the process. The experiences made with this pilot project and with the additional municipal collection fleet of the 2nd UDP will provide a good basis for the SWM programme of the planned 3rd UDP.

2. ABIDJAN (IVORY COAST)

In contrast to Ouagadougou, refuse collection in the seaside capital of Abidjan reached a high coverage level of 77% when the city was serviced by a French company over a period of 30 years. The contract was phased out in 1990. After an interim collection phase of low coverage by the municipal and communal services, a private company (Société "H"), was contracted again by the municipality in mid '92 to provide collection service.

Abidjan is divided into ten "communes" whose administrations are actively involved in SWM. They have to financially contribute to the municipality to cover the refuse collection costs and help ensure the general cleanliness of their area. Abidjan extends over a large urban area interrupted by lagoons, large forests and plantations. The city has a varied settlement pattern ranging from fully-serviced modern commercial areas with skyscrapers and vast luxury residential areas to poorly accessible high-density squatter areas packed

with fugitives and migrants from conflict-stricken areas of the region. An excellent urban road network which highly facilitates municipal refuse collection and transportation, connects the sub-centres and provides house access in all planned areas. However, recently urbanised peripheral areas and a few incorporated old villages with dense irregular settlement patterns are still suffering from a lack of adequate road, water and sanitation infrastructure, including a refuse collection service.

To increase refuse collection coverage in such unserved areas, COPRICOL pilot projects were initiated in the settlements of Avocatier, Adjoufou II and Alladjan, located in different "communes" and assisted by different donors. (A comparative overview of the COPRICOL schemes is given in a table at the end of this paper.)

COPRICOL in Avocatier (Abobo)

Avocatier is a rapidly expanding low-income area in the "commune" of Abobo. A primary collection pilot scheme was set up in 1991 with the technical assistance of the EEC (Commission of European Economic Community). Seriously eroded local lanes were improved in collaboration with the technical service of the "commune". A local cooperative and a small enterprise were given a few simple one-axle wooden handcarts to rapidly increase the capacity of the primary collection service. Meanwhile, the handcarts are being replaced by more efficient two-axle handcarts (see Photo 2). The household refuse is collected daily by local collection teams from subscribed families, transported to one of the communal collection points at the border of Avocatier and transferred into mobile container skips of about 6 and 14 m³ capacity. These skips are then collected by the "Société H" which is in charge of the municipal collection service.

The "commune's" administration officially assigns the collection areas to local enterprises and inspects the general cleanliness, however, it is not actively engaged in promoting a community-based approach. Participation of the community of residents is limited to paying primary collection fees and maintaining public cleanliness within the household's direct living environment. Since there is no active community management, this cannot be considered a typical "community-based" primary collection scheme.

However, the primary collection services in Avocatier have been fully operative for more than two years. Private initiatives to improve the collection efficiency were observed. Furthermore, several other small enterprises have taken up the idea and started to offer primary collection services in

other unserved areas of Abobo.

COPRICOL in Adjoufou II (Port Bouët)

In the coastal irregular resettlement area of Adjoufou II in Port Bouët, bordering Abidjan's airstrip, a different primary collection system was set up in 1991 with the technical assistance of the EEC and the technical service of the "commune". A local sanitation committee was formed to discuss the main problems and decide on optimal solutions. In the meantime, the collection scheme was operated by the local committee which included mainly young unemployed residents appointed by the local chiefs of the different ethnic groups. The primary collection system, which comprised several hundred refuse barrels located in all neighbourhoods, reduced the walking distance to less than 30 m to each house. Households were motivated to throw their refuse into those refuse drums. The collection teams used two-wheeled barrows to transport the full standard barrels to the nearest communal collection point. The barrows were pushed on a ramp to a platform from where the drums were tipped into standardized skip containers of the secondary collection system. This type of system served every family regardless of its willingness or ability to pay for the weekly fees. Despite of all the information campaigns, willingness to pay declined and resulted in a decrease in cost recovery. The teams offered additional services such as toilet/bathroom cleaning etc. to improve cost recovery.

The COPRICOL scheme stopped functioning in autumn '92 when the new private municipal collection company, the "Société H", changed its method of secondary collection from communal skip containers to direct collection by compactor trucks along the main road. The compactor trucks now announce their service by tooting and stopping every 50 meters to accept domestic refuse. In a first phase, many households preferred to carry their refuse over long distances (up to 250 m) to a by-passing collection truck rather than to pay for primary collection. Meanwhile, willingness to bring the refuse is declining. This leads to a decrease in coverage and to a deterioration of the environment. Discussions on the reintroduction of the COPRICOL systems are under way, especially among those officials at local and municipal government level who really want to increase refuse collection coverage in low-income areas.

COPRICOL in Alladjan (Port Bouët)

In the traditional densely populated and irregular fishing village of Alladjan in the "commune" of Port Bouët, a management committee was formed in collaboration with a local NGO, the AMCAV (Association pour l'Amélioration et l'Aménagement de la Commune de Port Bouët) and an



Photo 2: Locally developed two-axle hand cart of about 1 m³ capacity after tipping operation at the communal collection point in Avocatier

international NGO, the CHF (Cooperative Housing Foundation based in the USA). A local sanitation committee was formed consisting of selected representatives of the main ethnic groups. The committee and the AMCAV operated the primary collection system which was set up with minimum financial input. Locally produced two-wheeled light push-carts holding four small barrels were introduced. Collection teams comprising two collectors announced their daily arrival in the neighbourhood by whistling. Women and children would hand over their garbage to the primary collection team. The full barrels were then transported by push-carts to one of the communal collection points equipped with skip containers of 6 to 14 m³ capacity of the secondary collection service. The teams collected the service fees on a weekly basis. Their salary, consisting of 80% of the collected fees, motivated them to attain a high cost recovery rate. The COPRICOL scheme functioned on a high cost recovery basis for more than a year.

The "commune's" administration of Port Bouët, headed by a judicious mayor, took up an active role in improving the living conditions in squatter areas. In order to promote self-help activities through community participation beside governmental programmes, a separate NGO, the AMCAV, was founded in the mid 1980s. Its main concern is health education as well as water and sanitation improvement, including community-based primary refuse collection. The AMCAV has been sharing the financial management of primary collection in order to overcome the local political power constraints. CHF has put stress on continuous monitoring of the processes.

Nevertheless, the COPRICOL scheme stopped functioning in autumn '92 for the same reasons as in Adjoufou II. The mayor of Port Bouët has not resigned and hopes to negotiate with the municipal government and the "Société H" to return



Photo 3: The COPRICOL scheme in Alladjan stopped functioning because of the new collection system by compactor truck. Women and children carry their refuse over long distances to a collection truck

to the previous skip container secondary collection system which is being successfully used in other inaccessible areas of Abidjan and in many other cities.

3. MAIN FINDINGS

1. Community involvement

The level of community involvement of the four schemes varies considerably. High level community-based decisions and community managed collection operations have been observed in Wogodogo, Adjoufou II and Alladjan. These community-based primary collection schemes enjoy a high level of collection coverage. The Adjoufou II scheme for instance enjoyed full (100%) collection coverage. However, community involvement and mobilisation in these pilot schemes are or were always promoted by external support agencies.

In contrast, a low level of community involvement prevails in Avocatier. Due to missing community involvement and lack of communal support, the private primary collection operators of Avocatier face enormous difficulties with regard to an increase in coverage. In order to increase the number of clients, the small enterprises extend their services to other collection areas.

A direct relation has been identified between the level of community involvement and the collection coverage rate.

2. Financial viability

The Avocatier scheme, served by the two small enterprises, could reach full cost recovery in primary collection. Their

basic motivation is to generate their own income, reach full cost recovery and even become profitable. In the Alladjan scheme the collectors, which are employed by the committee, had a personal incentive to reach a high cost recovery rate as their salaries were directly dependent on it.

A low cost recovery rate in primary collection was reached in Adjoufou II. The local decision-making committee was, in the meantime, in charge of collection operation. Main emphasis was therefore placed on full collection service coverage and on local job creation opportunities. Non-paying households could not be excluded from the collection services due to the system's design. Willingness to pay for provided primary collection services decreased when families realised that there is no legal obligation to pay for the services. The scheme remained dependent on external financial resources.

3. Collection coordination at the interface

All four primary collection schemes had difficulties in linking with the secondary collection scheme. The problems are apparent at the communal collection points; i. e., the "interfaces" between the two schemes: Uncollected refuse piles up at the communal collection points in Wogodogo. In Avocatier, the same constraints of uncollected refuse appear but are not so apparent due to indiscriminate dumping into a nearby gully.

The main reason for the interruption of the primary collection schemes in Alladjan and Adjoufou II was the change effected at the interfaces of the secondary collection method without agreement of the partners.

4. LESSONS LEARNT

1. There are conflicting public and private interests as regards the reaching of full community collection coverage and full cost recovery.
2. To reach a high level of refuse collection coverage in unserved poor areas, the active involvement in community decisions regarding primary refuse collection has been experienced as a promising approach.
3. Mixing of community involvement with collection organisations to reach a high level of cost recovery in primary collection operation, however, does not necessarily provide the best form of organisation for reasons of conflicting communal and individual interests. Small local enterprises contracted by communities have shown to be quite an appropriate form of

organisation. Direct incentives and private sector initiative have shown to be important tools for reaching high efficiency and high cost recovery.

- Active coordination and enforcement efforts by the responsible local and municipal governments are required to link the technical and institutional interfaces between primary and secondary collection schemes.

TABLE : Overview of the Characteristics of the Visited Schemes

Community area: "Commune": Municipality:	<i>Wogodogo Baskuy Ouagadougou</i>	<i>Avocatier Abobo Abidjan</i>	<i>Adjoufou II Port Bouët Abidjan</i>	<i>Alladjan Port Bouët Abidjan</i>
PRICOL - responsibility:	CBO	LGO	CBO	CBO
PRICOL - coverage:	20% increasing	30%	100% 1991/1992	70% 1991/1992
PRICOL - operator:	CBO board	- cooperative - small enterprise	CBO	CBO board/ NGO
PRICOL - cost recovery rate:	(low) increasing	high profitable	low	high
Operation period:	since April '93	since '91	91- Sept. '92	91- Sept. '92
Operational condition:	operational	operational	suspended	suspended
Link to secondary collection:	irregular insufficient	regular insufficient	interrupted since July '92	interrupted since July '92

Abbreviations:

CBO
LGO

Community-Based Organisation
Local Government Organisation
(French: Commune)

NGO
PRICOL

Non-Governmental Organisation
Primary Collection

Important Events in the Hygiene Sector

From May 18-20, 1992 a **WHO Informal Consultation** on Interventions to Improve Water- and Sanitation-Related Hygiene Behaviours took place in Geneva, Switzerland under the title:

Improving Water and Sanitation Behaviours for the Reduction of Diarrhoeal Diseases.

Epidemiologic evidence has accumulated in recent years which refines our knowledge of water-related hygiene behaviours associated with increased risk of diarrhoea. At the same time, information has increased on the implementation of various programmatic interventions and their success in promoting improved hygiene. In view of the awareness that this information needed to be reviewed in a way that facilitated its programmatic application, an informal consultation was jointly organized by WHO's Diarrhoeal Disease Control Programme (CDD) and Community Water Supply and Sanitation Unit (CWS) to:

- Define and recommend a minimum complex of water- and sanitation-related hygiene behaviours which should be promoted to reduce diarrhoea morbidity

- Identify and recommend approaches to the promotion of improvements in water-related hygiene behaviours.

A large number of factors have been associated with increased transmission of diarrhoea pathogens. This complexity, coupled with difficulties in measuring and assessing their relative importance, might easily lead to confusion and misdirection when choosing where to intervene. Too often hygiene education interventions involve far too many behaviours targeted for change or address behaviours that would have limited impact in terms of reducing the disease burden.

This informal consultation called upon the expertise of epidemiologists, anthropologists, sanitation engineers, health education, and communications experts to review the evidence and provide recommendations for further action. The epidemiological review indicated that transmission might be better controlled at each end of the spectrum of faecal-oral transmission, i.e., at the deposition of faeces in the environment and at the level of the new host. Programs should focus on preventing the faecal contamination of the environment and removing or destroying the pathogenic organisms prior to contamination of the new host.

Recommendations on key water-related hygiene behaviours, approaches to hygiene promotion and on the implementation of water-related hygiene education interventions were stated.

The Report of this informal Consultation is available free of charge from the Division of Environmental Health Service of Information, WHO, CH-1211 Geneva.

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Publication Announcements

- **Environmental Management of Schistosomiasis Control. River-Flushing - A Case Study in Namwawala, Kilombero District, Tanzania**, by Martin Fritsch, 1992, 200 pp, illustrated, ISBN 3-7281-1940-7, paperbacked about SFr. 40.- .
Available from vdf Verlag der Fachvereine, Auslieferung, Postfach 566, CH-6314 Unterägeri, Switzerland, Tel. +41-42/72 10 26; Fax +41-42/72 13 33.
- **Reuse of Human Wastes in Aquaculture - A Technical Review**, by Peter Edwards, 1992, 350 pp. Available from UNDP-World Bank, Water and Sanitation Program, Water and Sanitation Division, 1818 H Street, N.W., Washington, D.C. 20433, USA.
- **The Poor Die Young: Urbanization without Health**, by Sandy Cairncross, Jorge Hardoy and David Satterthwaite, 1990, 309 pp, ISBN 1- 85383-019-4. Available from Earthscan Publications Ltd., 3 Endsleigh Street, London WC1H 0DD, U.K.
- **A Guide to the Development of On-Site Sanitation**, by R. Franceys, J. Pickford and R. Reed, 1992, 237 pp, ISBN 92-4-154443-0, SFr. 47.-/US \$ 42.30, in developing countries: SFr. 32.90.
Available in English and French (Spanish in preparation) from World Health Organization, Distribution and Sales, CH-1211 Geneva 27.

- **Insect and Rodent Control Through Environmental Management. A Community Action Programme.** An innovative kit containing all the information needed to help communities take action against urban insect and rodent pests, 1991, 107 pp + 62 cards + 7 games, ISBN 92-4- 154411-2, SFr. 90.-/US \$ 81.00, in dev. countries: SFr. 63.-.
Available in English and French (Spanish in prepration) from World Health Organization, Distribution and Sales, CH-1211 Geneva 27.
- **Actions Speak, The study of hygiene behaviour in water and sanitation projects**, Marieke T. Boot and Sandy Cairncross, Editors, 1993, 139 pp, figs., tabs., ISBN 90-6687-023-0, US \$ 32.00.
Available from IRC, Inter. Water and Sanitation Centre, P.O.Box 93190, 2509 AD The Hague, The Netherlands, Phone:+31-(0)70-33 141 33, Fax: +31-(0)70-38 140 34.

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FIELDS OF INTEREST

- Community Water Supply Sanitation Municipal Solid Waste Management

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