Household waste collection in Abidjan

by G.B. MARTELLI (*), J. TOUBLANC(**) and F. MICHA(***)

Serious environmental problem in suburban Abidjan — Economic expansion, encouraged by Abidjan's geographical situation, has brought extremely fast urbanisation in its wake over the past few decades.

One of the acute problems of this spreading city is the collection and disposal of household waste, which mounts up as the population increases. The size of the problem is clear from the tonnage collected — 425 000 t of rubbish in 1988, or 75% of the waste actually produced and costing the municipality a substantial part of its annual budget.

The collection rate may seem satisfactory overall, but it does in fact vary from one part of the city to another and of course the remaining 25%, some 140 000 t p.a., is not collected at all. This is a lot of rubbish and most of it is left in poor, outlying areas where distance adds to the cost of disposal and the state of the roads makes access difficult, if not impossible, for waste trucks.

The only thing the people in these underprivileged districts can do with their rubbish is take it to one of the external highways and dump it in the large 7 m^2 metal skips there which are periodically taken away for emptying by special waste trucks. But there are not enough of these skips and they can only be used by the people who live nearby, so the majority of the population disposes of its waste as best it can, in alleyways and ditches.

Much of this waste ferments and stagnates and is a serious threat both to public health and the environment.

Abidjan's waste collection and disposal plan recommends a number of schemes for the near future and one of the priorities is to improve the collection rate, in particular by having the proper means to do so in the poor areas.

(*) Civil engineering consultant and AI delegate in Côte d'Ivoire.
(**) Technical adviser.
(***) Association Française des Volontaires de Progrès

Household waste problems can only get worse with population expansion, which is far faster than average in these parts of the city, so it was vital to find and apply solutions to fit the existing technical conditions and economic situation.

Solution suggested for Port-Bouet and Abobo

How it works

The particular conditions of underprivileged residential areas had to be catered for when first stage rubbish collection, bringing services nearer the user, was organised. These were:

— the state of the roads, which made it difficult for the trucks to get about and sometimes prevented it entirely in the rainy season;

— high housing density, sometimes more than 600 people per hectare;

— a population which had no dustbins;

— rubbish with a high sand content (40%);

— major health hazards;

— a population with very strained financial means.

So, first of all, the main roads in the districts were re-edged and consolidated so that the increased numbers of metal skips on new sites could be reached in all weathers and the waste trucks could get round to them more easily.

Collective dustbins were placed near the houses, by the roadways inside the districts, and hand carts used to empty them into the skips. This precluded the need for a large increase in the number of these bigger containers.

Full skips are dealt with, as elsewhere in the city, under the contract with the Société Industrielle de Transport Automobile and the Abidjan municipality. Where conditions allow, the skips are placed on properly fitted transfer lay-bys with sheds for carts and replacement collective bins.



A Wautro (300 l, 150 kg) wooden hand cart. 'Wautro' means a man-powered cart in the local language

Setting it up

The programme reflects one of the priorities in the government's drive to improve the environment in which the people live.

The Commission of the European Communities has helped here by financing (1) a pilot project to extend the waste collection service, perfect the best equipment and method and demonstrate feasibility. This began in August 1989 and was expected to take two years, but was successfully completed five months ahead of schedule. The main idea was to push further the commune decentralisation policy by encouraging the local mayors to shoulder their responsibility for the environment and better living conditions.

One of the important things was to inform the people and make them aware of the waste issue, since they have to pay for the services provided.

The four-line pilot scheme involved:

— a specialised consultancy identifying the best collection systems and equipment for the household waste in question and the districts from which it was to be collected;

— work being undertaken and equipment produced by small firms and cooperatives from the commune;

(1) Financed outside the indicative programme, under Article 946 of the Commission budget for 1989 (environment policy).

— a functional commune management, operation and result monitoring system being set up;

— an information and awareness campaign being run to tell people about hygiene and waste disposal.

The installations

Adjoufou II (Commune of Port-Bouet)

This area, which has a very fast-growing population (9.6% p.a. and 20 000 inhabitants in 1990), generates nearly 15 t of waste every day. Access to the housing is by footpath in most cases. One or two proper roads were put through, but the sandy soil was somewhat unsuitable for vehicles and 3.5 km have had to be re-edged and reballasted.

The waste collection system involves public (100 litre) dustbins permanently sited on concrete platforms near the dwellings. Local hygiene committee officers shift full bins on trolleys to the sloping transfer points where they are emptied into SITAF skips, the contents of which can then be gravity-fed into the waste trucks.

The transfer posts, where there is always room for two skips so the truck can put down an empty one before removing the full one, are along the roads improved as part of the project.

The facilities include:

— 450 (100 litre) dustbins equipped for handling;

— 12 trolleys;

— six transfer posts;

— two spare 7 m^2 skips.

Twenty jobs have been created for young people in the district to man these installations.

Avocatier district (Commune of Abobo)

This area, which is developing and has a fast expanding population (8.7% p.a. and 22 000 inhabitants in 1990), has a dense road network. However, since the roads have not been surfaced, erosion is active, plant-life is encroaching and it is difficult for services to get to the houses.

About 20 t of rubbish are generated every day, but there were only two skips and they were on the very edge of the area.

The first thing to do was improve 4.5 km of track and build six drainage installations to ensure permanent access to the five platforms.

Under the privatised waste collection system used here, families pay daily for a 30 l bin (a recycled paint drum), which is collected, also daily, from the door by a two-man team with a Wautro (300 l, 150 kg) wooden hand cart.

The contents of the cart are tipped onto a slab at the transfer post, where a handler shovels it into the skip.

The facilities here are:

— 1000 (30 l) dustbins;

— 100 (100 l dustbins);

— 10 hand carts;

— three spare 7 m^2 skips.

This waste collection service is run by two small private local firms employing 30 staff.

Financing

The overall cost of the operation, CFAF 79.5 million, was financed as follows:

— CFAF 58 million from the budget of the Commission of the European Communities (Article B 946);

— CFAF 15 million from the communes and populations of Port-Bouet and Abobo;

— the remainder, an estimated CFAF 6.5 million, from the State.

Operations which can be reproduced elsewhere

Both these pilot schemes are successful and could be generalised, something the Government intends to do. They have given the communes a choice of waste collection equipment and management methods that are right for the various types of soil, housing, housing density etc in the towns.

However, household waste is collected only at considerable extra cost and a system of this kind will not be viable without the cooperation of the inhabitants who have to pay for the service.○

G.B.M., J.T. & F.M.





Waste transfer point where hygiene committee officers wheel collective bins on hand carts for emptying