



# **Privatization of Solid Waste Collection The Tema Experience**

**Edward A. Mba**

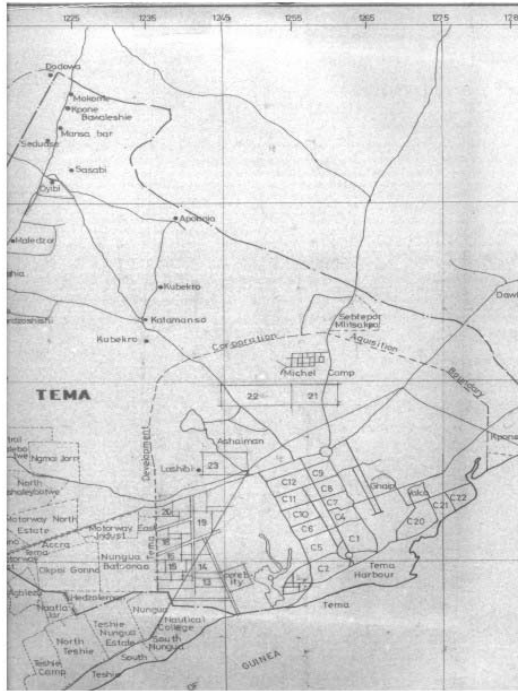
**Regional workshop on shared-  
management responsibility of waste  
in African towns**

**INFOSEC, Cotonou – Benin  
8 –10 July 2002**



## **CITY PROFILE**

- **Administrative authority: TEMA MUNICIPAL ASSEMBLY**
- **Population: about 0.5**
- **Mean annual growth rate 3.6%**
- **Total land area 368.3km<sup>2</sup>**
- **Geographical location: on the Greenwich meridian, about 25km east of Accra**



## OWNERSHIP OF LAND

- **Government acquisition – 165.8 km<sup>2</sup>**
- **Private ownership – 202.5km<sup>2</sup>**



## **OCCUPANCY**

- **80% of population live in Urban area on 45% of land area.**
- **20% of population live in rural area on 55% of land.**



## **ECONOMIC ACTIVITIES**

- **Manufacturing industries (heavy and light)**
- **Deep sea port**
- **Fishing harbour**
- **Retail/Whole sale Trade**

## CLIMATIC CONDITIONS

- **Coastal Savana**
- **High humidity**
- **Temp. between 22 – 32°C**

## SOLID WASTE

- |  |                |
|--|----------------|
| • <b>Municipal Solid Waste</b>           | <b>275 T/d</b> |
| • <b>Industrial Waste</b>                | <b>110 T/d</b> |
| • <b>Hospital Waste – Household type</b> | <b>18 T/d</b>  |
| <b>– Infection Waste</b>                 | <b>11 T/d</b>  |

# SOLID WASTE

**Collection Coverage about 65%**

- **Private sector collects 80%**
- **Municipal Authority 20%**
- **Bulky waste – recovered and reused  
no records**

# MODE OF COLLECTION

- **House – to – House: 10%**
- **Curbside (bell system): 40%**
- **Communal/Large container: 50%**



## **PRIVATE SECTOR PARTICIPATION**

- **1990 - 6 no. Contracts awarded to private contractors basic equipment required at least 2 tipper trucks.**
- **1994 - Private sector requested to replace open tipper trucks with side loaders/compaction vehicle.**



## **PRIVATE SECTOR PARTICIPATION CONT'D**

- **1997 - Award of Large contract zone with world Bank support.**
- **2000 - TMA convert solid waste collection contracts in selected communities to FRANCHISE agreement.**
- **2002 - Propose to convert more contracts including World Bank supported zone to Franchise.**



## **COST AND COST RECOVERY**

- ❑ **Some factors for determining user fees**
  - **Economic classifications – income levels**
  - **Cost of Collection and disposal**
  - **Cost of supervision and monitoring**



## **COST AND COST RECOVERY**

- ❑ **Some factors for determining contract value**
  - **Population**
  - **Housing stock**
  - **Collection distance**
  - **Distance to final disposal**
  - **Type of collection equipment**



## **COST AND COST RECOVERY**

### **☐ Method of Revenue Collection**

- **Domestic, commercial premises – Commissioned Agents**
- **Industries (Large and Medium) – TMA Revenue Collectors**



## **COST AND COST RECOVERY**

### **☐ Major Sources of funding Solid Waste**

- **User fees 80%**
- **Central Government 5%**
- **Other TMA revenue sources 15%**



# COST AND COST RECOVERY

## □ User fees/Rate per month

- **Progressively increase user fees from ₪500 per household/month to a range of between ₪2,000 for tenement communities to ₪25,000 for high income (franchise) communities.**

# COST & COST RECOVERY

## Solid Waste User-Fees per Housing Type TMA 2002

Fees per month	US \$	CFA
Tenement	0.25	169.5
Low-Income	0.50	339.0
Medium Income	0.75	508.5
High Income	1.50	1017.0
<b>Franchisee (negotiated)</b>	<b>3.125</b>	<b>2119.0</b>

### Assumptions:

CFA 1000 = ₪11,800; US\$ = ₪ 8000

Generation rate per caput per day = 0.5kg

Avg. household size = 6 persons

Management cost per tonne = US\$15.00 (collection, transport & improved controlled dumping)



## **CONCLUSION**

- **Privatisation of solid waste management can guarantee sustainable and improved waste service.**
- **But has its problems /challengers that must be adequately addressed.**



## **SAMPLE**

- **COSTING SOLID WASTE COLLECTION CONTRACT: ZONE 1 TEMA.**



# INTRODUCTION

- **Contact Duration**                      **5 years**
- **Characteristics of contact zone**
  - High income – low density area
  - Medium income – medium density
  - Low income – High density



## Design Data:

- **Population**                                      **171,718**
- **No. of Households**                              **23,787**
- **Estimated waste generated --** **104 T/d**
- **Length of Streets**                              **30,400m**
- **Average distance to disposal -** **15 km.**



## **Collection Methods**

- **6,984 households benefit from house – to house collection**
- **16,803 households are serviced with 25No. 15 M<sup>3</sup> containers with 2No. vehicle which pick them at vantage points at various intervals, - residents deposit waste directly into containers – no primary collection.**



## **Collection**

- **1218 m<sup>3</sup> of solid is collected monthly from commercial, institutions/establishments monthly**
- **22 m<sup>3</sup> of Biomedical waste is collected monthly**



## **COST STRUCTURE**

- **Preliminaries ----- ¢2,319,939**
- **House – to – house ----- ¢24,304,320**
- **Door – to Door ----- ¢2,923,200**
- **(Commercial)**
- **Biomedical ----- ¢ 1,416,916**
- **Container service ----- ¢ 11,691,700**
- **Provisional items ----- ¢ 2, 037,500**
- **Monthly Total      ¢44,692,575**