PURSE PROJECT

Private Participation in Urban Services

SOLID WASTE COLLECTION PRE-FEASIBILITY STUDY CITY OF MATARAM

LAPORAN PRA-STUDI KELAYAKAN PENGUMPULAN SAMPAH KOTAMADYA MATARAM

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DRAFT

CITY OF MATARAM

PRIVATE PARTICIPATION IN URBAN SERVICES

SOLID WASTE COLLECTION

PRE-FEASIBILITY STUDY

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1.0 EXECUTIVE SUMMARY

1.1 General

The City of Mataram currently provides full waste services to approximately 64 percent of it estimated total population of 275,000. Future growth is anticipated in the outlying residential areas where informal disposal is having an increasing negative impact on the environment. The City is considering privatizing the majority of the existing waste collection service area as a means of consolidating service performance with fee collection, and extending the collection service into the informal areas. A pre-feasibility study performed by the City BAPPEDA and an unsolicited proposal from a local Yayasan provided needed information, but fell short of providing an adequate definition of the services to be performed. This pre-feasibility study seeks to identify the key issues in privatizing the pilot service area and makes recommendations for proceeding with the project.

1.2 Existing Conditions

Solid waste management services in Mataram have developed along "traditional" lines, with basic residential services provided at the Kelurahan level, administered by the Lurahs in each of the 11 Kelurahans currently being served. The DKK provides centralized transfer services by operating six transfer depots within the existing service area, and operates four truck route collections in the central commercial zones. Street cleaning in the residential Kelurahans is performed by the individual waste collectors using handcarts, while the main roads are cleaned by DKK employees. These existing services can be grouped into the following four tasks which are used to evaluate existing efficiencies and costs, and proposed privatized services:

TASK 1 - Kelurahan Waste Collection and Street Cleaning
TASK 2 - Operation of Transfer Depots
TASK 3 - Operation of Truck Route Collection
TASK 4 - Street Sweeping of Main Roads

Functionally, the services are efficiently provided as evidenced by the Adipura award won by the City in 1994. Financial efficiency, however is low, due to the division of services between the Lurahs and the DKK, with the majority of the user fees collected, and retained by the Lurahs. DKK collection of fees from the truck route customers is not sufficient to cover the costs of operating both the transfer depots and street sweeping. In addition to the division of responsibilities between the Lurahs and the DKK, user fees, established in 1985, are too low and not adequate to cover the actual costs of service.

Although the DKK supplies handcarts to all 23 Kelurahans in the City, transfer depots are only available to the 11 Kelurahans in the existing service area. Disposal in the unserviced areas is by informal methods consisting of dumping along roadsides, filling of low areas and burning. Recycling and animal feeding significantly reduces the amount of waste actually requiring disposal.

The primary goal of the City is to consolidate the functional and financial tasks of the existing services through privatization, while reassigning current DKK resources to servicing the outlying

informal areas. Restructuring and a more balanced administration of the user fee system is also critical to the success of the privatization effort. The DKK reported that new user fees are currently under consideration and will be implemented soon.

1.3 Proposed Services

Both the BAPPEDA pre-feasibility study and the Yayasan proposal, loosely define a pilot area to be privatized, consisting of 9 of the 11 Kelurahans in the existing service area. The two Kelurahans that were not included were judged by the DKK to be too problematic for privatization at this time and would remain under DKK control. The two descriptions of the pilot areas differ in terms of population and area, with neither being sufficiently defined to allow the privatization to proceed.

In addition to the indefinite service area definition, the definition of functional services is inconsistent and does not included all of the services currently provided by the Lurahs and DKK. In particular, the proposed services to be privatized do not include street sweeping, in either Task 1 - Kelurahan Collection or Task 4 - Street Sweeping.

1.4 Yayasan Proposal

The unsolicited Yayasan proposal included a very general description of services and a cost estimate for waste collection and transfer only, specifically excludes street sweeping. One of the goals of the proposal appears to be to balance the costs of service with the anticipated revenue. A detailed listing of waste generators within each Kelurahan and anticipated revenues, based on the 1985 user fees, is presented, but there is no provision for adjusting this estimate after new user fees are adopted.

The Yayasan cost proposal was evaluated and compared to the estimated existing costs. Although a direct comparison was difficult, because the Yayasan proposal did not included street sweeping, it appears that total costs of service would increase significantly if the Yayasan proposal were accepted. This is due primarily to the inefficiency of providing separate street sweeping services.

1.5 Conclusions and Recommendations

The existing waste collection system is functionally efficient but due to the division of responsibilities between the DKK and Kelurahan Lurahs, is difficult to fund under the existing user fee system.

The proposed privatization program as defined by the BAPPEDA pre-feasibility study and the Yayasan proposal, is not sufficiently defined and would be difficult, if not impossible to efficiently implement and administer. After defining the pilot service area in more detail, the Yayasan Bina Gora and other interested companies should be asked to submit new proposals, as outlined in the draft Request for Proposal (RFP) included as Appendix 4. The RFP requests cost proposals by task, which will allow the City the flexibility to group services into franchise areas or service

contracts, matching those services covered by the revised user fee system. The advantages and disadvantages of franchise agreements are presented in Section 5.3 of the report,

Section 5 of this report outlines several options for grouping work tasks for implementing the program. As a minimum, street sweeping should remain combined with waste collection at the Kelurahan level. Option 1 is similar to the Yayasan proposal, with the DKK continuing with Task 4, sweeping of major roads. Under Option 2, Task 4, would be contracted to the private contractor under a separate service contract, or under Option 3 would become part of the franchised services. Options 1, 2 and 3 all assume that the private contractor will take over the local Kelurahan services currently administered by the Lurahs. This may promote conflicts between the Lurahs and private contractor over the provision of services and collection of user fees.

Option 4 maintains the independence and authority of the Lurah by forming Franchise agreements within each Lurah and contracts the transfer depots, truck route collection and street sweeping to the a single private company under a service contract. This option relies on the City adopting a two component user fee, system, with the second component of the fee turned over to the City to fund the centralized services. The dual component user fee system will also help to implement and finance the expanded DKK services in the informal areas of the City.

2.0 INTRODUCTION

2.1 General

The City of Mataram is located on the Island of Lombok and is the capital of West Nusa Tenggara Province which also includes the island of Sumbawa. The City (Kotamadya) of Mataram is made up of three large districts (Kecamatans), consisting of Mataram, Cakra Negara and Ampenan. Cakra Negara is now the main commercial center of Lombok, and was actually the Capital under former Balinese rulers. Ampenan was once the main shipping port of Lombok, but due to its small harbor, this activity was moved to Lembar, approximately 22 km to the south. Today, Ampenan is a small fishing harbor. Major commercial development is located along a main roadway corridor running east/west, connecting the three districts. At the eastern end of this commercial corridor, the Sweta Market and bus station serves as a transportation center for outlying portions of the island.

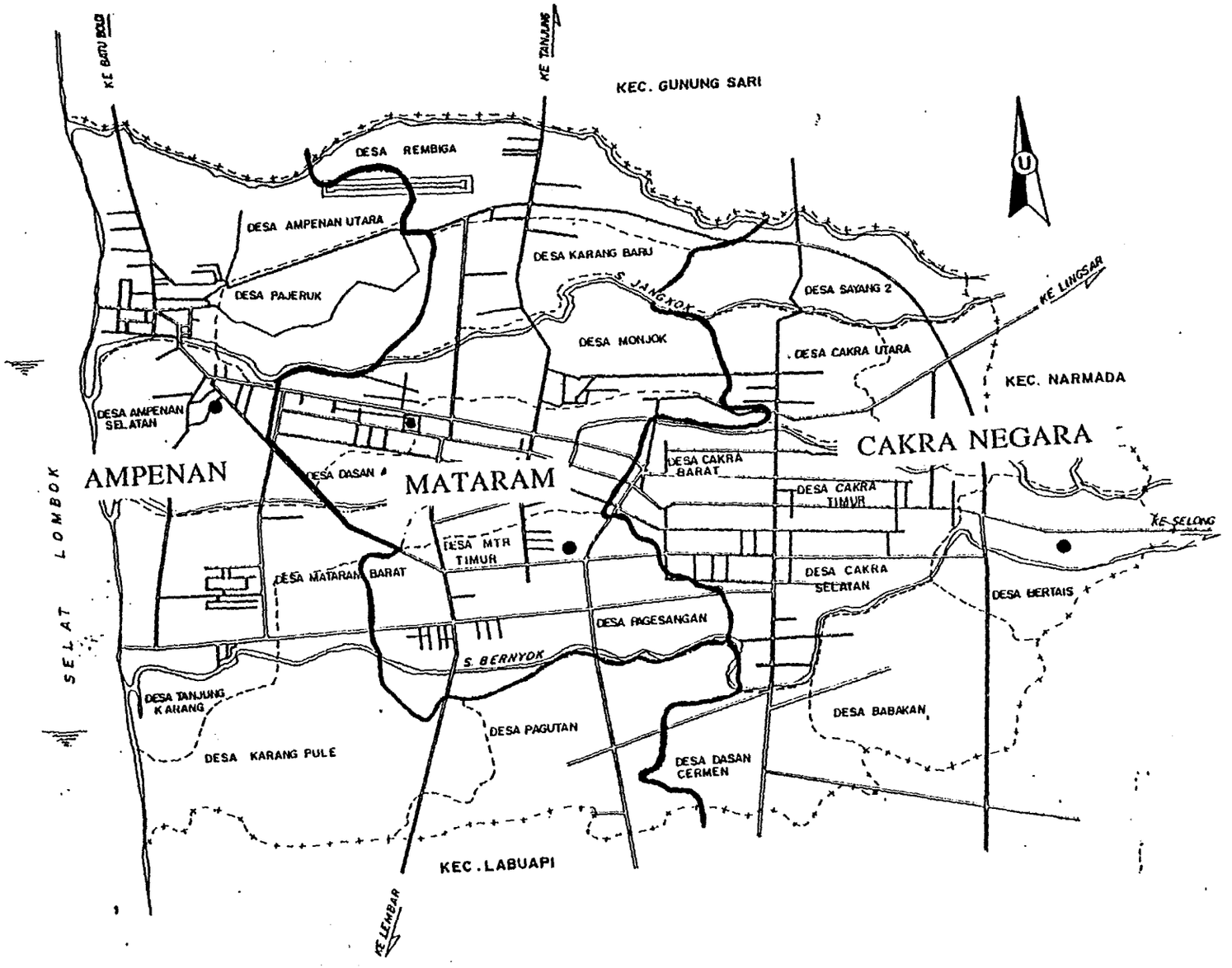
The three districts are further divided into sub-districts called Kelurahans. Mataram and Ampenan are each divided into seven Kelurahans and Cakra Negara includes nine. Each Kelurahan is administered by a Lurah appointed by the Mayor. All these political subdivisions, especially the Kelurahans, play a role in the generation and collection of solid waste. The boundaries of these political subdivisions are shown in the City Map in Figure 2.1, and the political structural is shown in Figure 3.3 which has been generalized and simplified for presentation.

2.2 Future Growth

Like Bali, its neighbor to the west, Lombok has many fine beaches and tropical rain forests and is considered a future tourist destination. Although a few tourist areas already exist, new and expanded tourism is likely to be major part of the local economy in the near future. As the provincial capital, and transportation hub, the City of Mataram is expected to be a center of future development. Planning projections estimate that 40% of the entire provincial population will reside in Mataram within the next 15 years. Problems associated with rapid growth, escalating property values and an influx of low income people will affect the provision of essential public services.

2.3 Background Information

Mataram has been the subject of several recent studies regarding its solid waste management and other infrastructure systems. The most comprehensive of these was a study completed by Pt. Infratama Yakti, in March 1994, which focused on the location, design and implementation of a new landfill. This report is the source of the base map used in Figures 2.1, 3.4, and 4.1 used in this report. The new landfill, located approximately 20 kilometers south of the city center, is nearly completed and should begin commercial operations in the near future. Several sections of the landfill report addressed waste generation and collection, and provided some of the basic information required for this pre-feasibility study on the privatization of waste collection services. A brief review of this data indicates that adjustments may be required to utilize this data for collection system design.



MATARAM CITY MAP

FIGURE 2.1

A portion of Mataram's waste collection system was privatized for a two-month period in 1994. Although this initial attempt at privatization did not attain long term success, it demonstrated that the privatization concept is a viable alternative to accommodate the increased demand for collection services expected in the next few years. This brief experience with privatization prompted the City Planning Agency (BAPPEDA) to prepare a pre-feasibility study for a permanent privatization of the 9 Kelurahans in the existing service area. This study will be utilized in the evaluations performed in Sections 3.0 and 4.0. A copy of the BAPPEDA pre-feasibility study is included as Appendix 1.

In addition to the BAPPEDA pre-feasibility study, the City received an unsolicited proposal for the private operation of waste collection services in the 9 Kelurahans of the pre-feasibility study currently being serviced by the City. The proposal, submitted by a local Yayasan, included information which was useful in evaluating the existing and proposed services. The Yayasan Bina Gora proposal is included as Appendix 2.

2.4 Goals and Objectives

The objective of this pre-feasibility study is to assist the City of Mataram in an evaluation of its current solid waste collection systems and, if justified, develop a system for the contracting of a portion of these services to the private sector. In addition, the pre-feasibility study will provide recommendations regarding methods to improve the delivery of expanded solid waste services that will continue to be performed by City employees.

The City has expressed several concerns over the current provision of waste collection and street sweeping services. The current system includes a combination of traditional collection and street sweeping methods administered at the Kelurahan level, (see Figure 3.3), and City waste collection and street sweeping in the commercial zones, and a City operated waste transfer system to the landfill. Although the City has imposed a user fee system in 1985 to cover all system costs, collection of fees is currently inadequate to cover costs. The difficulty appears to be with managing the collection of fees within the Kelurahan and City operated components of the system. Therefore one of the City's primary goals is to privatize the system in a manner which will result in a totally self supporting system and integrate the fee collection system with functional services.

The second primary City goal is to expand the waste collection services beyond the current service area into the residential areas where unplanned growth is occurring. The privatization of a portion of the existing service area will allow existing equipment and personnel to be transferred to these expansion areas.

2.5 Privatization Issues and Methodology

2.5.1 General

There are many reasons to consider privatizing a service currently being performed by the public sector, including the following:

- o Increase Efficiency
- o Reduce Costs
- o Reduce Size of Government
- o Political Priorities

Public entities are often constrained in their ability to perform services due to cumbersome public purchasing procedures, personnel policies, and management structures. This often results in low performance efficiencies and a lack of accountability for performance by workers performing the service.

Since waste collection and street sweeping are labor intensive activities, inadequate supervision, low worker accountability are often the key deficiencies and will relate directly to poor performance. In other circumstances, accountability may be high, but due to other constraints, the resources are simply not available to perform the required services.

Before proceeding with privatization of a public service, the existing service and its deficiencies must be fully evaluated and understood to obtain a clear understanding of the proposed service.

2.5.2 Service Definition

By far, the most important aspect of the feasibility evaluation is service definition. Without a good service definition, the limits of the services to be performed will be difficult to establish. This will cause problems with contract provisions, payments for services performed and monitoring of performance. Service definition includes both the physical limits of the geographic areas to be served as well as the methods to be employed in delivering the service. This aspect of the feasibility evaluation will be particularly important in Mataram due to the dual responsibilities of waste collection and street sweeping, shared by the City DKK and the local Kelurahans. The functional boundaries of the waste service areas may not coincide with the administrative boundaries of the Kelurahans.

2.5.3 Private Resources

In order for privatization to be successful, private companies or other organizations must exist within or near the community with the adequate resources and experience to perform the service. The private sector can usually perform a given task more efficiently due to a more efficient use of resources, including equipment, manpower and finances. The experience should be in solid waste collection but may also be in a related field seeking to diversify. The most important aspect is efficient management. Many parts of Indonesia, including Lombok

are isolated by distance or natural geographic boundaries and it may be difficult to find private companies with sufficient experience and resources. In many such cases the municipality may provide technical assistance and training to private companies and assist in the financial resources through equipment leases.

2.5.4 Contracting Formats

There are several basic procedures for privatizing a municipal service. The Service Contract is the method most commonly used in developing countries where the cost of service is paid to the private operator by the municipality. This contracting method is often used because the service costs are higher than the ability of the users to pay, and costs have to be subsidized by government.

If the community has an established user fee system and the users have the resources to pay for the service then the municipality may grant an exclusive franchise to a private company to provide services and collect fees with a minimum of government intervention. A franchise fee is normally paid by the company to the municipality for the right to operate in the defined franchise area. The holder of the franchise may be given the authority to establish the user fees according to his costs or the government may dictate the fees that will be charged. The integrity and flexibility of the user fee system is critical to the success of a franchise system.

3.0 EXISTING CONDITIONS

3.1 General

The City of Mataram, according to its pre-feasibility study, provides solid waste collection services to approximately 174,600 residents or approximately 64 percent of its estimated total population of 273,900, based on 1993 data. Although the region is influenced by tourism, most of the tourist waste generation is located outside of the City and seasonal fluctuations in waste generation are minimal. Formal City waste collection and street sweeping services are provided to the central commercial corridor and adjacent residential areas consisting of the built-up areas of 11 of the 23 Kelurahans. Although the City provides handcarts to all Kelurahans in the City, waste disposal occurring outside the existing service area is informal, consisting of burning, filling of low lying areas or other disposal outside of the City boundaries. The following report sections will describe the administrative, technical and financial characteristics of the existing public waste collection system.

3.2 Waste Generation

3.2.1 Population

As mentioned in Section 3.1, the year round 1993 residential population of Mataram is estimated at 273,900. Using the information in the Infratama landfill report, population throughout a 15 year planning period has been estimated, assuming a growth rate of 3 percent per year. This population projection is shown on Figure 3.1.

3.2.2 Waste Generation Factors

In addition to population estimates, a review of waste generation factors was also conducted. Since waste in Mataram is not weighed at the landfill or transfer depots, there is no historical data with which to calculate actual per capita waste generation rates. For the purposes of this study we have assumed a waste generation factor of .5 kg per person per day. This factor is based on a review of waste generation factors from Indonesia and several Asian countries, presented in the Infratama study.

3.2.3 Waste Generation/Collection Estimates

In applying waste generation factors to the design of collection and disposal systems, many other issues must be taken into account. First, the generation factor of .5 kg per person is an average factor and will vary greatly based on social and economic factors. Generally, the factor will decrease in low income and poverty areas found in the kampungs, and will increase in higher income residential and commercial areas.

In most Indonesian cities, the volume and consistency of waste will be altered dramatically between generation and collection. Recycling of materials by scavengers and consumption of organic matter by animals will reduce the amount of waste that actually requires collection and

disposal. Previous reports have indicated 11.3% of the generated waste is recycled and at least another 10% is separated and eaten by animals prior to transfer to the landfill. Several of the six transfer depots observed during the study had considerable resident populations of animals including dogs, cats, chickens, goats and cattle which were feeding on the organic matter in the waste. The transfer depots near markets were particularly attractive to animals.

The methods of recycling and feeding of organic waste to animals will vary according to economic conditions. In the poorer areas, recycling and animal feeding is generally performed by the waste generator or household. The relative value of these materials compared to family income is high, so they are collected within the household and sold to material processors or fed directly to animals. In middle and higher income areas the relative value of the materials is lower so the materials are discarded with the waste, and the recycling is performed by scavengers who operate the collection carts in the Kelurahans or scavengers who collect a specific material such as paper, plastic or glass from household waste storage areas, the transfer depots, or the landfill. Due to the remote location of the landfill, scavenging there appeared minimal.

The 100% waste generation projection shown on Figure 3.2 is based on the population projections of Figure 3.1 and the assumed generation factor of .5 kg/person/day. Since our goals and objectives are to evaluate the waste that is actually collected and disposed of, the chart also plots waste generation at 80, 60 and 40 percent of full generation. Due to the partial service area, amount of recycling, and amount of organic waste eaten by animals, the waste remaining for collection and disposal by the City public works department is estimated at approximately 40 percent of the generated waste, or about 60 tonnes per day in 1993.

As the City continues to grow and expand its waste collection services, the amount of waste collected and disposed of will increase. The curve in Figure 3.2 labeled as "probable collection quantity", assumes that net waste collected and disposed of will increase from 60 tonnes per day in 1993 to 170 tonnes per day in the year 2008, assuming that the entire city is serviced by the collection system in the year 2008 and the current level of recycling and consumption of waste material by animals continues through the period.

Estimates used in the Infratama landfill design report assumed a total daily waste generation in all of Mataram of 700 M^3 and a collected volume of 288 M^3 in 1995. These figures are based on truck capacities, number of trips to the landfill per day and are consistent with the above estimates and waste density assumptions. Actual waste quantities are difficult to determine due to the poor definition of the service area and lack of record keeping.

3.3 City Management Structure

The three districts (Kecamatans) of Ampenan, Mataram and Cakra Negara were granted City (Kotamadya) status as the City of Mataram in 1992. Since obtaining City status, basic city services have been consolidated into City departments and operating divisions. Local services continue to be administered through the three districts and 23 Kelurahans. Responsibility for solid waste collection and street cleaning fall under the City Cleaning Department or Dinas Kebersihan Kota (DKK), although many of the actual services and fee collections are

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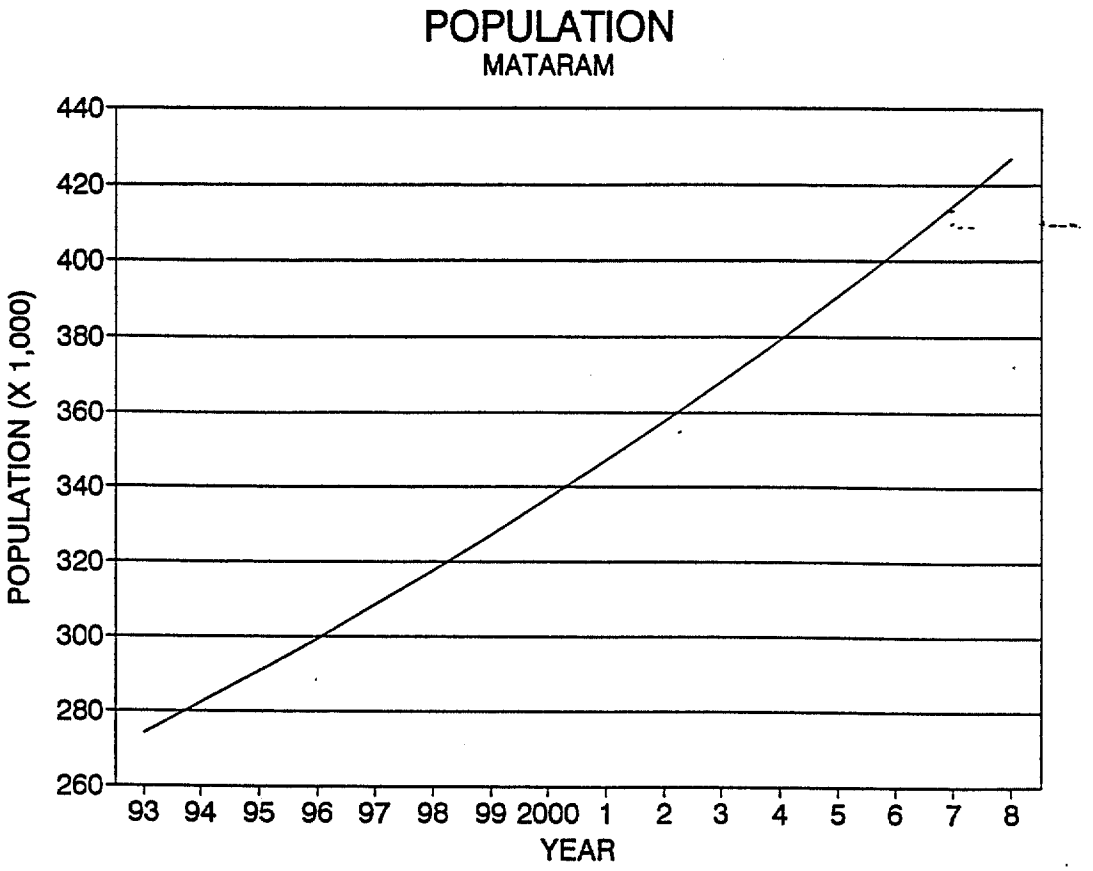

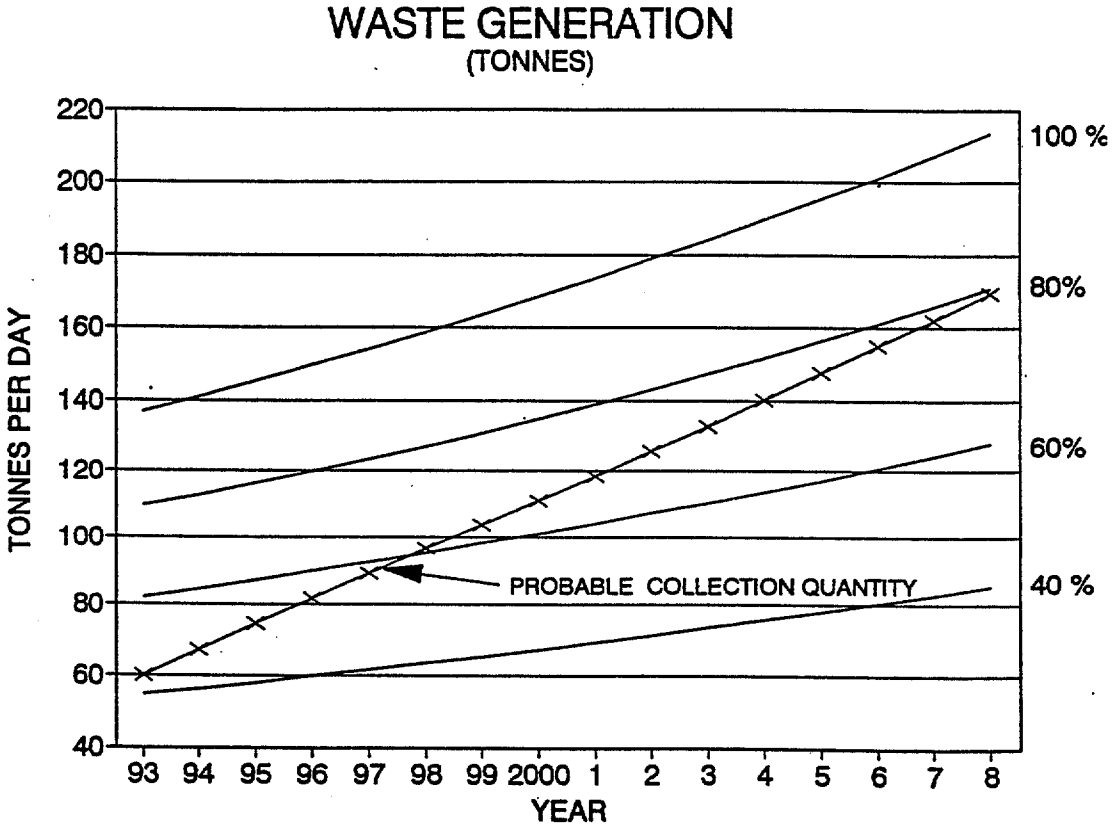

FIGURE 3.1 AND 3.2

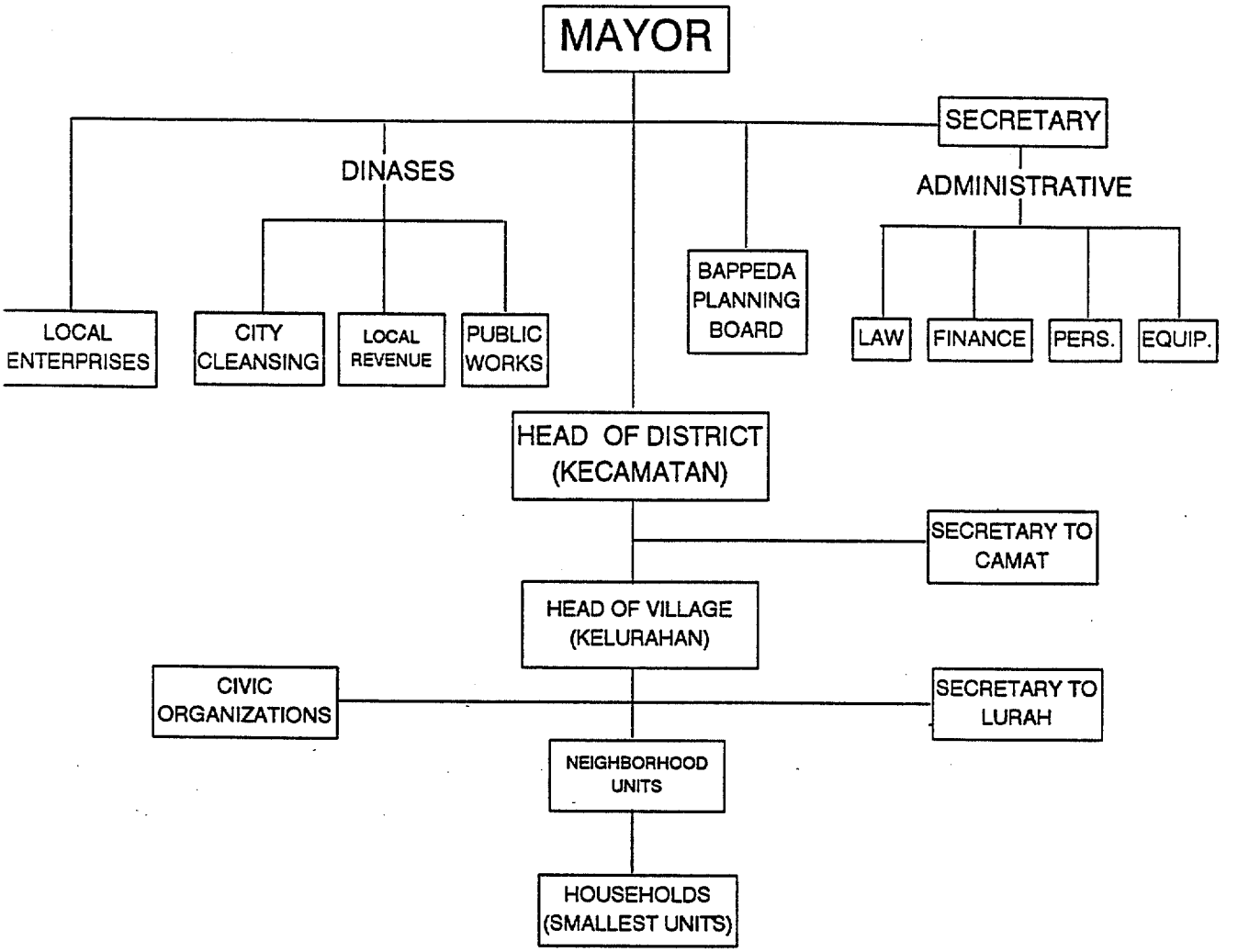
MAYOR
SECRETARY
DINASES
ADMINISTRATIVE
LOCAL ENTERPRISES
CITY CLEANSING
LOCAL REVENUE
PUBLIC WORKS
BAPPEDA PLANNING BOARD
LAW
FINANCE
PERS.
EQUIP.
HEAD OF DISTRICT (KECAMATAN)
SECRETARY TO CAMAT
HEAD OF VILLAGE (KELURAHAN)
CIVIC ORGANIZATIONS
SECRETARY TO LURAH
NEIGHBORHOOD UNITS
HOUSEHOLDS (SMALLEST UNITS)

FIGURE 3.3

performed at the Kelurahan level. This division of responsibilities between the DKK and the Kelurahans is one of the issues of concern in the current system.

3.4 Service Area

3.4.1 Existing

As presented in Section 2.1, the City consists of three districts and 23 Kelurahans. Prior to obtaining City status, solid waste was handled primarily at the local Kelurahan level under the control of the Lurahs. Upon its organization, the DKK assumed responsibility for collection and transfer of waste in the central business district and portions of the adjoining Kelurahans. The DKK operates 6 transfer depots and 4 truck routes within the service area and provides street sweeping services for major streets in the central business district.

Since most of the waste delivered to the transfer depots is collected with hand carts in the Kelurahans, it is difficult to determine the precise boundaries of the service area, especially since disposal outside of the service area is informal, consisting of burning or filling of low areas. On any given day, waste collected along the approximate service area boundary could either be brought to a transfer depot or disposed of informally, outside the service area. The DKK provided the approximate boundaries of the current service area which are shown on Figure 3.4, including the locations of the 6 transfer depots.

3.4.2 Pilot Service Area

The pre-feasibility study performed by the City BAPPEDA provides a general description of the pilot area for privatization which includes only 9 of the presently served Kelurahans, having an estimated service population of 135,800 or approximately 50% of the total City population. The two Kelurahans that are not included are Cakra Timur and Cakra Selatan. The Sweta market was also not included. The study was not clear why these areas were not included in the pilot area. Subsequent discussions with Yayasan Bina Gora indicated that these areas were not included because they were problematic and handcart collection and movement of waste to the transfer depots was not well organized.

Although the BAPPEDA pre-feasibility study includes a considerable amount of detailed information on the 9 Kelurahans in the pilot area, the precise boundaries are not given and must be defined before proceeding with privatizing collection services. This is particularly important along the easterly border of the pilot zone where Cakra Timur and Cakra Selatan are located. These two Kelurahans which have been removed from the service area to be privatized, currently share transfer depots in adjoining Kelurahans which are within the privatization pilot zone. A table, including the BADDEDA information about the 9 Kelurahans in the privatization pilot area is presented as Figure 3.5.

3.5 Methods of Collection

The existing waste collection in the DKK service area can be placed under four separate and distinct tasks, which are shown graphically in Figure 3.6.

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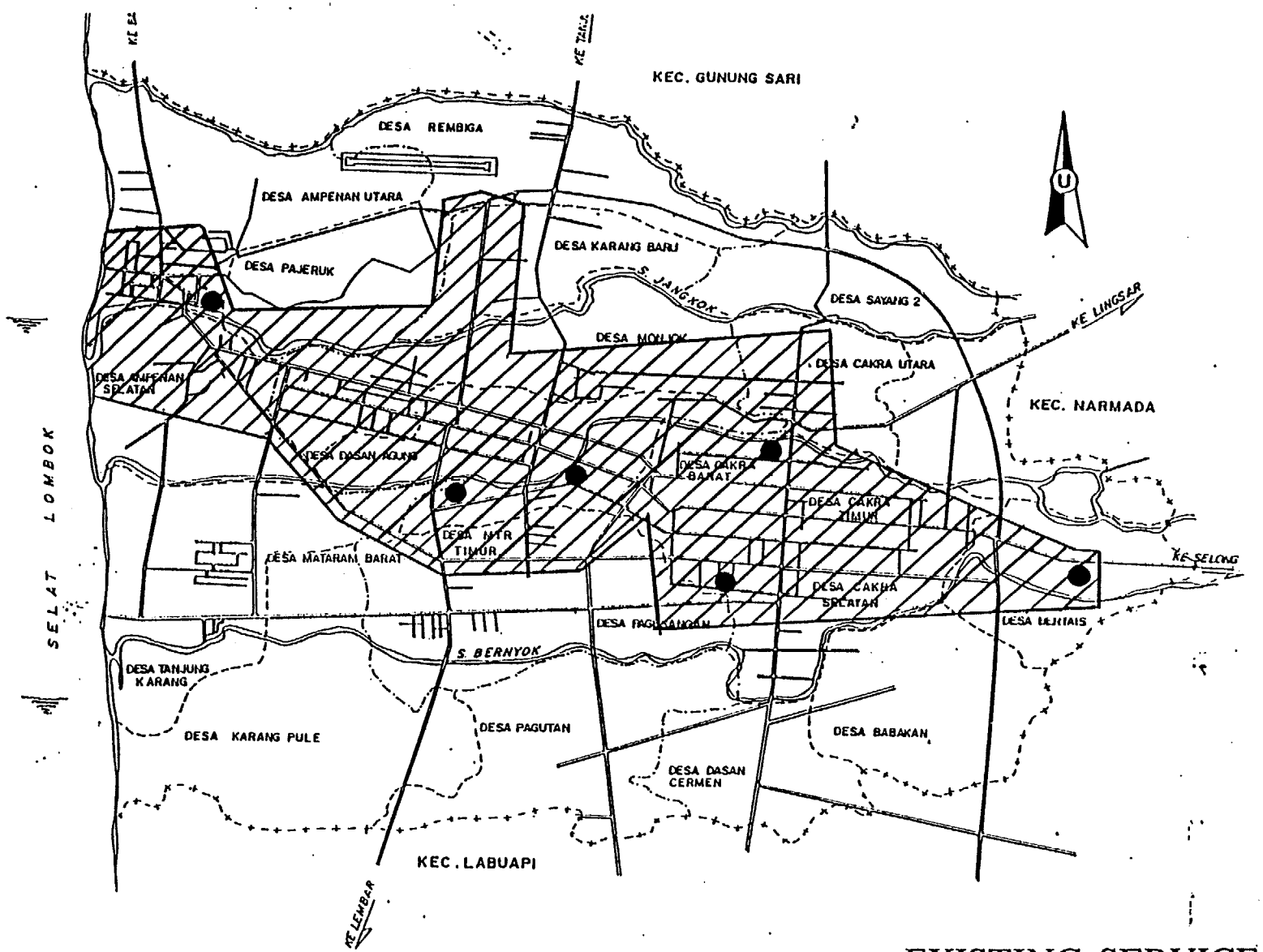

EXISTING SERVICE AREA

FIGURE 3.4

M

Genęral Information on 9 Kelurahan at Mataram - Lombok, 1993

Information Available	Central Ampenan	South Ampenan	Tanjung Karang	West Mataram	East Mataram	Dasan Agung	Monjok	West Cakra	North Cakra	Total 9 Kels.
General,										
1 Area (ha)	54.26	262.40	423.10	179.14	208.71	170.14	203.77	244.52	175.26	1,921.29
2 Total Population	9,446	15,357	16,672	17,245	14,111	18,346	15,917	20,038	8,710	135,842
3 Annual Growth (%)							0	0		
4 Gross Density (pop./ha)	174	59	39	96	68	108	78	82	50	71
5 Working Ages (WA)	5,640	9,636	10,999	11,520	4,718	4,702	9,534	3,874	2,886	63,509
6 % of WA's worked	85.59%	78.27%	43.69%	56.25%	44.62%	34.78%	33.81%	26.33%	52.45%	50.64%
Job Occupation (% of 5)										
7 Farmer	1.40%	1.97%	3.15%	0.38%	3.73%	0.55%	4.18%	2.55%	4.57%	2.50%
8 Livestocker	0.00%	0.22%	0.00%	0.30%	0.00%	0.00%	0.00%	0.43%	0.00%	0.11%
9 Fishman	1.47%	1.92%	1.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.56%
10 Industrial worker	0.00%	0.65%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	0.16%
11 Services	3.16%	1.75%	14.46%	3.41%	0.16%	56.44%	15.79%	5.24%	13.96%	12.71%
12 Governmental	20.55%	29.25%	12.41%	37.51%	31.39%	20.16%	34.28%	42.90%	11.26%	26.63%
13 Others	59.00%	42.50%	12.05%	58.37%	64.70%	22.85%	44.89%	48.88%	70.21%	47.05%
Monthly Income in Rps.,										
14 Low (below Rp. 100.000)	55.55%	50.00%	40.00%	54.54%	10.00%	60.00%	50.00%	30.00%	40.00%	43.34%
15 Middle (up to Rp.250.000)	22.22%	50.00%	40.00%	36.36%	70.00%	40.00%	30.00%	60.00%	20.00%	40.95%
16 High (above Rp.250.000)	22.23%	0.00%	20.00%	9.09%	20.00%	0.00%	20.00%	10.00%	40.00%	15.70%
Education Facilities (unit)										
17 Primary School	5	16	14	6	9	5	6	8	9	78
18 Yunior High School	1	3	1	1	1	0	0	5	1	13
19 Senior High School	0	1	0	0	3	0	0	2	0	6
Health Facilities (unit),										
20 People Health Center	6	11	13	11	9	11	12	13	9	95
21 Private Clinic	1	2	0	0	1	0	0	3	0	7
22 Hospital	0	1	0	1	2	0	0	0	0	4
23 Medical Doctor	0	1	4	2	5	0	0	7	3	22
24 Drug Store	0	2	0	1	4	0	0	6	0	13
Social Facilties (unit),										
25 Meeting Facilities	6	9	5	7	8	4	4	11	11	65
26 Religion Buildings	13	24	25	36	20	44	42	35	22	261
27 Sport Facilities	2	6	3	8	7	3	2	2	4	37
28 Open Space	4	0	0	0	0	0	0	0	1	5
Building blocks (% of total)										
29 Very small block (under 21 m2)	0	20.00%	20.00%	18.18%	40.00%	40.00%	30.00%	10.00%	0.00%	19.80%
30 Small block (21to 45 m2)	88.88%	30.00%	30.00%	54.54%	30.00%	20.00%	30.00%	30.00%	30.00%	38.16%
31 Medium block (45 to 54 m2)	11.12%	40.00%	0.00%	0.00%	10.00%	30.00%	0.00%	10.00%	10.00%	12.35%
32 Large block (54 to 70 m2)	0.00%	10.00%	50.00%	18.18%	20.00%	10.00%	40.00%	30.00%	60.00%	26.46%
Building Quality/Condition (% of total)										
33 Good	55.55%	10.00%	60.00%	NA	NA	NA	NA	NA	NA	NA
34 Fair	33.33%	80.00%	20.00%	NA	NA	NA	NA	NA	NA	NA
35 Poor	11.12%	10.00%	20.00%	NA	NA	NA	NA	NA	NA	NA
Building Contruction,										
36 Permanent/Concrete	55.55%	10.00%	50.00%	27.27%	20.00%	0.00%	0.00%	0.00%	20.00%	20.31%
37 Semi Concrete	22.22%	60.00%	20.00%	54.54%	60.00%	30.00%	20.00%	70.00%	30.00%	40.75%
38 Simple Contruction	22.23%	10.00%	10.00%	18.18%	20.00%	60.00%	80.00%	30.00%	50.00%	33.38%
39 Temporary	0	20.00%	20.00%	0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	5.56%
Building Ages (in years),										
40 above 10 years	55.55%	60.00%	0.00%	72.72%	80.00%	50.00%	90.00%	70.00%	80.00%	62.03%
41 5 to 10 years	11.20%	30.00%	70.00%	18.18%	10.00%	40.00%	10.00%	10.00%	20.00%	24.38%
42 below 5 years	33.25%	10.00%	30.00%	9.09%	10.00%	10.00%	0.00%	20.00%	0.00%	13.59%
Environmental Quality (% of area)										
43 Good Condition	43.24%	20.00%	60.00%	72.72%	20.00%	10.00%	10.00%	70.00%	50.00%	39.55%
44 Fairly Enough	11.45%	50.00%	20.00%	27.28%	80.00%	90.00%	90.00%	30.00%	50.00%	49.86%
45 Poor/Slums	45.31%	30.00%	20.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.59%

FIGURE 3.5

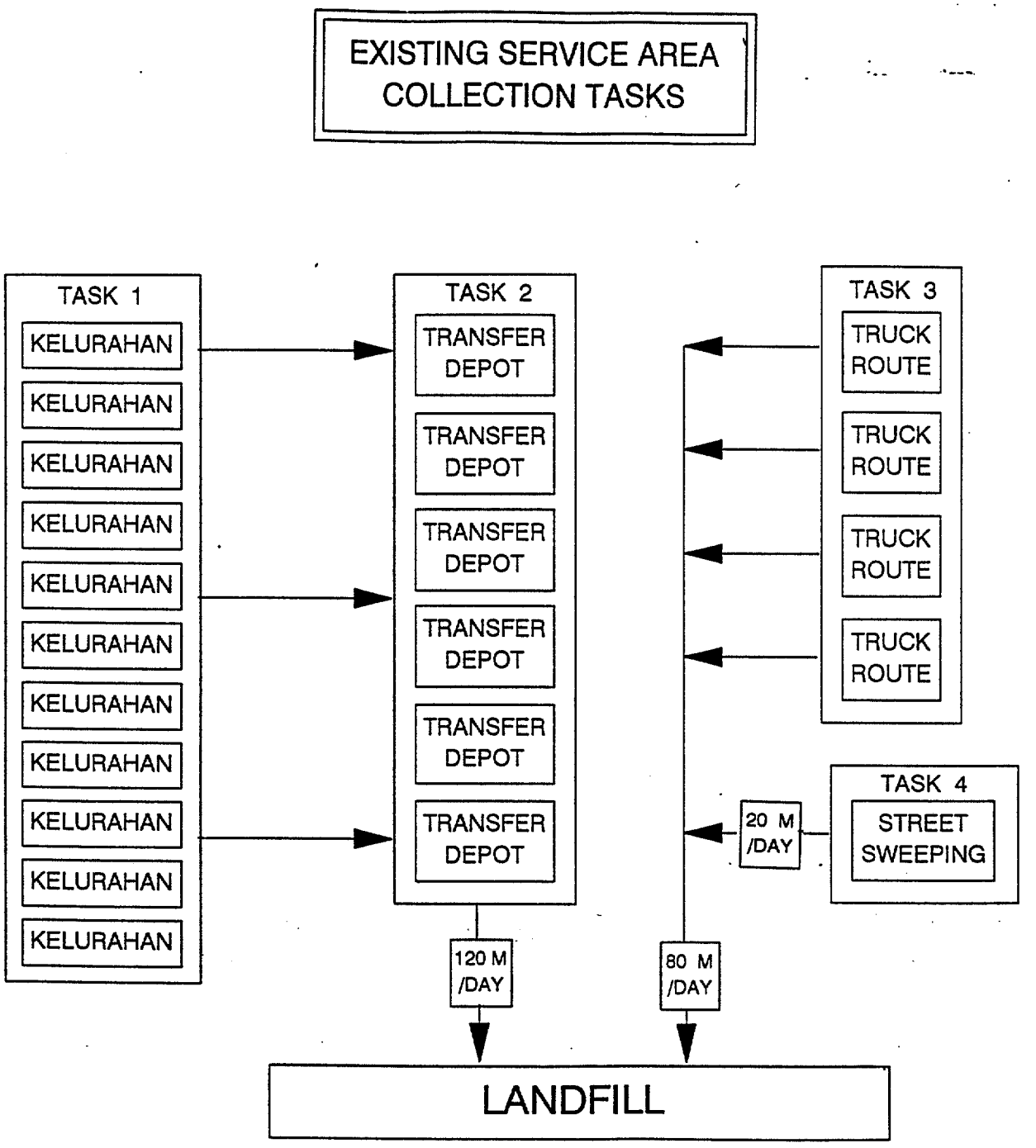
EXISTING SERVICE AREA COLLECTION TASKS
TASK 1
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
TASK 2
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TASK 3
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TASK 4
STREET SWEEPING
20 M /DAY
120 M /DAY
80 M /DAY
LANDFILL

FIGURE 3.6

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Task 1 includes the primary collection from the households in the Kelurahans, using hand carts. DKK officials indicated that each handcart operator covers approximately 1,000 residents or 200 households, assuming each household consists of 5 members. This will vary according to densities and living conditions. The collection methods within the Kelurahans, including frequency of collection, street sweeping and use of storage containers, are described as "traditional methods". Although time did not permit a definition of these methods, several Kelurahans were inspected within the service area and found to be relatively free of accumulated waste and street debris. Refuse dumped along streets, in vacant lots and in drainage ways was more common in Kelurahans outside the current service area and reinforces the need for the City to expand its collection services into those areas.

Task 2 consists of operation of the six transfer depots and transportation of waste to the landfill located 20 kilometers south of the city center. All transfer depots had structures for loading dump trucks, including ramps for handcarts and tipping areas. However, of the three depots inspected, the loading ramps did not appear to be used and waste was simply dumped from the handcarts in an open area, where sorting, recycling and animal feeding occurred. Trucks were then loaded manually from ground level, using wicker baskets. Although direct loading of the hand carts into the trucks would be more efficient, this would restrict access to the waste for recycling and sorting.

According to DKK officials, each of the six transfer depots is serviced between two and three times per day by either an 8-M^3 dump truck or 8-M^3 conventional truck, which average 20 M^3 per day. Assuming this schedule is maintained, the waste transferred from each depot is estimated at 20 M^3 per day, or 43,800 M^3 per year (7 day work week).

Task 3 consists of four truck routes in the central business area and adjacent residential development, where the volume of waste, street patterns and traffic are not conducive to the use of handcarts. Four 8 M^3 trucks service the central business area twice to three times per day and transfer the collected waste directly to the landfill. The truck routes also service the handcarts of the DKK street sweepers. It is estimated that the four trucks each make two to three trips to the landfill per day, averaging 80 M^3 per day or 29,200 M^3 per year.

Although the handcart operators in the Kelurahans also collect waste and sweep the streets, this is not performed in the central business district. Under *Task 4,* the DKK employs approximately 150 street sweepers who clean all arterial and collector roads in the service area. DKK officials estimate that the service area includes 10.09 km of main roads, 21.1 km of collector roads and 95.4 km of local roads. The work performed in Task 4 includes sweeping of the main and collector roads totalling 31.19 km. This work is also described as following "traditional" methods. Waste that is collected by the street sweepers is brought to junctions where they are picked up by the collection route trucks. Waste collected from street sweeping in the service area was estimated by DKK officials at 20 M^3 per day or 7,300 M^3 per year.

3.6 Collection Outside of the Service Area

As stated earlier much of the city growth is due to the influx of low-income people into the unplanned kampung areas of the outlying Kelurahans which are not within the DKK service

area. Although the DKK provides hand carts to these Kelurahans, they do not provide transfer services. Therefore disposal in these areas is informal and consists of open burning, or filling of low-lying areas. As the City continues to grow, this informal disposal will be an increasing environmental and aesthetic problem.

3.7 Collection Equipment

Waste collection equipment operated by the DKK is very basic and is not specialized for waste collection services. Conventional 8 M^3 construction trucks and dump trucks are utilized which can also be used for other publics works type projects. Although the DKK maintains a central depot in Ampenan, there are no formal maintenance or repair procedures. Routine maintenance is performed by each truck driver and all repair work is performed under contracts with the truck dealer, where the truck was purchased.

3.8 Disposal

Waste is transferred to a disposal site located approximately 20 kilometers south of the City. The existing site consists of an open dumping area which is burned regularly. The site is also the location of a new lined landfill nearing completion. Once completed, the new landfill will employ leachate collection and treatment systems. The landfill site is quite remote and the final several kilometers of access is by very narrow local roads in poor condition. As the collection service increases, this access road may require upgrading to handle the increased truck traffic.

3.9 User Fee Collections

The City has the legal authority to assess a tariff for solid waste collection and disposal services. Although the original intent was to set the tariffs at levels that would totally cover the costs of providing the service, the 1985 tariffs are too low and difficulties in collection result in very low revenues.

The primary problem is that the majority of the fees are collected at the Kelurahan level and not paid to the City as initially intended. Due to the low tariff rates, the Lurahs in each Kelurahans retain all of the tariffs to cover local collection and street sweeping costs. Therefore transfer and disposal costs are subsidized by the central government.

In the areas serviced by the four DKK truck routes, the City utilizes 20 fee collectors, but only a small proportion of those fees are returned to the DKK to cover their costs.

3.10 Recycling

An informal recycling network exists within the City. At the present time this network recycles metals, paper and some plastics. These are primarily separated from the waste by the handcart operators at the Kelurahan level and brought to intermediate processors who consolidate and ship the materials to end-users primarily in Surabaya. Scavengers were also evident at the transfer depots and the landfill.

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3.11 Special Wastes

3.11.1 Rubble and Garden Waste

Rubble, consisting mainly of construction and demolition wastes, is not a significant part of the existing waste. These materials are usually reused and do not become part of the waste system.

Due to the tropical climate in Mataram, garden waste is a significant problem and is a large component of the waste generated throughout the city. Leaves and tree trimmings are a large component of the waste stream, especially the waste collected by the 150 street sweepers in the central business district. DKK workers are very conscientious about waste left in the streets and sidewalk areas and they collect garden waste that is put out by city residents.

3.11.2 Medical Wastes

The DKK reported that the central city hospital separates its infectious medical waste and burns it on-site in a 2 M^3 incinerator. Non-infectious material is disposed of with normal waste and is collected by the DKK.

Although the Ministry of Health has enacted regulations regarding the special packaging and labeling of infectious medical waste, they are not being enforced. Public and private clinics, doctor's offices and dentists dispose of their waste without special handling or labelling.

3.12 Regulation and Enforcement

Several local regulations exist regarding the generation and disposal of solid waste but they are not enforced due to a lack of City resources. Local regulations controlling the charging of tariffs to cover the full cost of waste collection and disposal were enacted in 1985 and are obviously outdated. A new set of tariffs has been proposed but have not been approved as of the date of this report.

3.13 Cost Estimate

The DKK budget for 1994/1995 is Rp 358,753,000. This figure is an operating budget only and does not include the cost of equipment which is obtained through the central government. Additional information regarding numbers of workers, disposition of equipment and other cost accounting information was provided during interviews with DKK officials. This information was used to prepare the existing cost evaluation found in Figure 3.7.

This evaluation assumes that the DKK budget covers the costs of performing Tasks 2, 3 and 4. Fees collected in the Kelurahans and not turned over to the City are assumed to cover the costs of Task 1, collection and street sweeping within the Kelurahans. Costs were apportioned to each collection task by percentages of either personnel or equipment and several assumptions. Unit costs are based on assumptions of the amount of waste collected and disposed of. Since the DKK does not maintain a detailed cost accounting system, this

evaluation should be considered only for planning purposes. Actual costs may vary widely from those shown on the evaluation table. For comparison purposes, the unsolicited private proposal by Yayasan Bina Gora is also shown on the cost evaluation table. This proposal will be discussed in greater detail in Section 4.

The DKK is currently evaluating operating costs using a detailed computer accounting program known as POMMS. Although this is only in a preliminary stage, the POMMS program was reviewed and a listing of unit costs was prepared for comparisons. The POMMS data is included as Appendix 3.

The cost evaluation indicates that total DKK costs for the operation of collection tasks 2, 3 and 4 is 4,914 Rp per cubic meter. For comparison to English units and reference data this equates to $7.45 per tonne.

3.14 Efficiencies of Collection

Due to the many unknowns and assumptions used to prepare the previous cost evaluations, it is not appropriate to use this data to discuss efficiencies of collection based on cost or performance levels. The fact that the evaluation does not include capital costs, makes it difficult to compare costs with similar reference figures. A heavy reliance on manual labor versus more specialized waste collection equipment also makes comparisons difficult.

Based on visual observations made during this study, the DKK is doing a good job at collecting waste and sweeping streets in the existing service area. In fact, the City of Mataram won the 1994 Adipura award for being one of Indonesia's cleanest cities.

Although there are improvements that could be achieved through upgrading of equipment, especially at the transfer depots, such changes should be considered only after thorough evaluation. Use of large containers and arm roll trucks, similar to those used in Surabaya, would certainly improve efficiencies over the existing manual loading methods. However, the impacts on the City's high unemployment and the difficulty of mechanical repairs must be considered. Lombok is a remote area and getting repair parts for containers and specialized trucks may be difficult and certainly time consuming. In considering privatization, the decision to upgrade equipment should be left to the private contractor. The City should specify performance and not methodology. Also, with the one year limit on contracts, it is not likely that the private sector will invest in specialized equipment which cannot easily be sold or converted to other uses

EXISTING COST EVALUATION

PARAMETER	TASK 1 11 KELURAHANS COLLECTION & SWEEPING (HANDCARTS)	TASK 2 TRANSFER DEPOTS (6)	TASK 3 TRUCK ROUTES (4)	TASK 4 STREET SWEEPING	CITY COSTS TASKS 2, 3 & 4	TOTAL COLLECTION & DISPOSAL COSTS	YAYASAN PROPOSAL(*) TASKS 1, 2 & 3
ESTIMATED CAPACITY (CU.M PER YR)	44,928	43,800	29,200	7,300	73,000	73,000	73,000
EQUIPMENT							
Dump Trucks	0	6	2	0	8		3
Conventional Trucks	0	1	2	1	4		15
Hand Carts	180	0	0	150	330		100
ESTIMATED COSTS	0	0	0	0	0		24,996,000
LABOR							
Common Labor	180	35	20	150	205		150
Drivers	0	6	4	1	11		20
Administration	11	2	2	11	15		8
Field Supervisors	0	6	2	7	15		13
TOTAL LABOR	191	49	28	169	246		191
ESTIMATED COSTS (Rp)	203,678,962	52,252,724	29,858,699	180,218,577	262,330,000	466,008,962	225,600,000
O & M (INCL. ADMIN) ESTIMATED COSTS (Rp)	0	40,458,000	32,366,400	8,091,600	80,916,000	80,916,000	165,840,000
UTILITIES & OTHER COSTS ESTIMATED COSTS (Rp)	0	7,000,000	5,507,000	3,000,000	15,507,000	15,507,000	(INCLUDED ABOVE)
PROFIT & TAXES	0	0	0	0	0	0	87,444,000
TOTAL COSTS (Rp)	203,678,962	99,710,724	67,732,099	191,310,177	358,753,000	562,431,962	503,880,000
COST PER CUBIC METER (Rp)	4,533	2,277	2,320	26,207	4,914	7,705	6,902
COST PER TONNE (Rp)	15,112	7,588	7,732	87,356	16,381	25,682	23,008
COST PER TONNE ($)	$6.87	$3.45	$3.51	$39.71	$7.45	$11.67	$10.46

(*) YAYASAN PROPOSAL,INCLUDES ONLY 9 KELURAHANS BUT AN INCREASED POPULATION SERVED AND DOES NOT INCLUDE TASK 4 OR ANY STREET SWEEPING IN TASK 1.

FIGURE 3.7

4.0 PROPOSED PRIVATE OPERATION

4.1 General

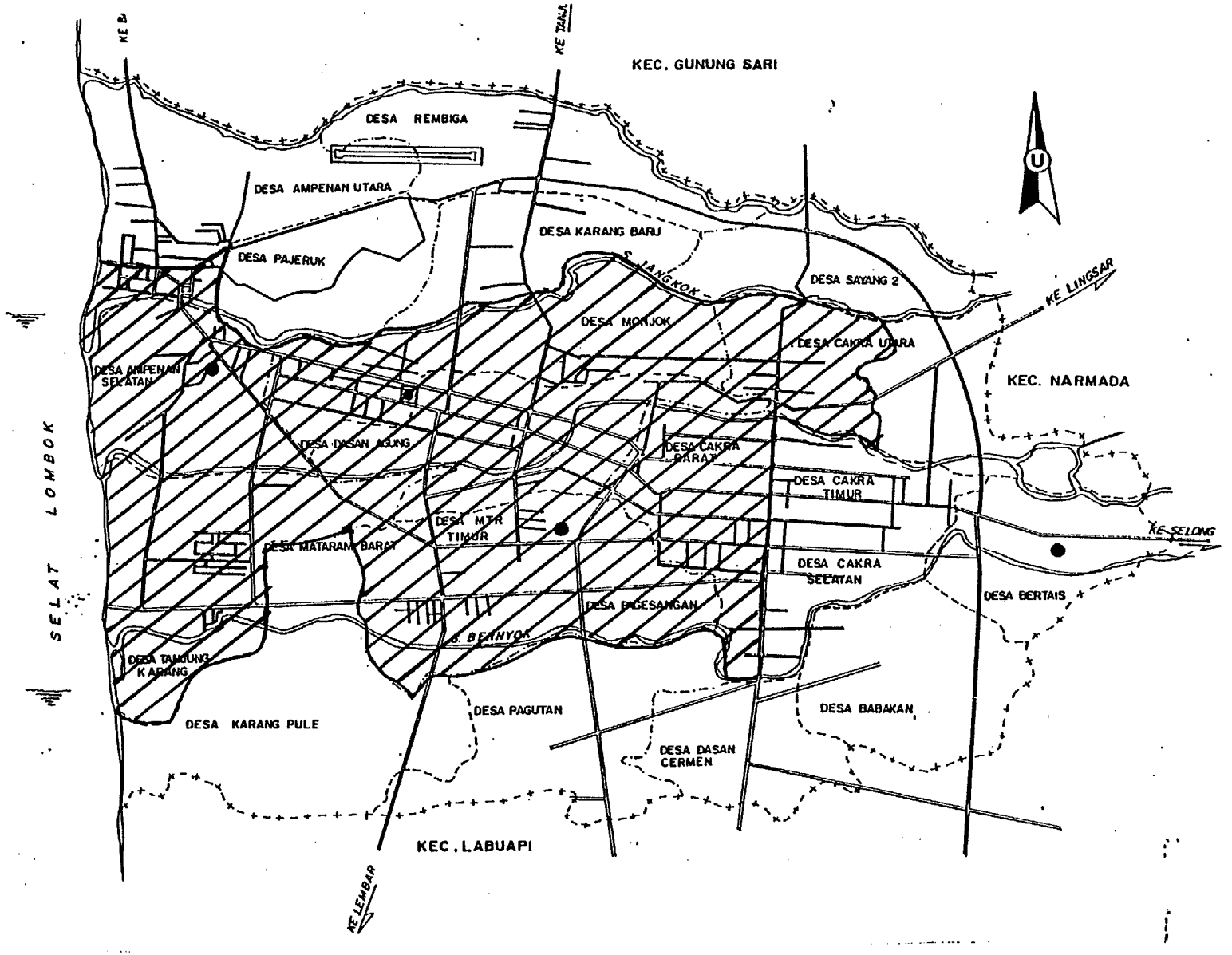
The previous discussions and evaluations included in Sections 3 and 4 have documented the intent of the City to privatize a portion of the existing service area. This pilot area, defined in general terms in the BAPPEDA pre-feasibility study would serve the central business district and adjoining built-up residential areas, consisting of approximately 50% of the City's population. The City's objectives in the privatization project is to consolidate the collection activities under one entity and to make this entity self-supporting from both a financial and technical basis. The current DKK trucks and manpower can then be transferred to extend collection and waste transfer services to outlying areas, where informal waste disposal is now being practiced.

4.2 Pilot Area Description

The Pilot Area has been described in general terms in the BAPPEDA pre-feasibility report as the built-up portions of 9 Kelurahans containing a population of 135,842. However, the unsolicited proposal from Yayasan Bina Gora includes the same 9 Kelurahans but assumes that the population served is 154,196, an increase of 13.5 percent over the DKK pre-feasibility report. In an effort to clarify the Pilot Area definition, the administrative boundaries of the 9 Kelurahans have been shown on Figure 4.1. A comparison of this figure to Figure 3.4, showing the existing service area as defined by the DKK, shows several built-up areas in Kelurahans adjoining the 9 Kelurahans, which are included in the existing service area, but are technically not included in the administrative boundaries of the 9 Kelurahans defined in the BAPPEDA pre-feasibility study. It is probable that the Yayasan Bina Gora assumed that these areas would be included in the Pilot Area. These areas include built up areas in Pegesangan, Ampenan Utara, and Karang Pule. The 9 Pilot Area Kelurahans also do not include the built-up areas along Jalan Udayana and Sutong in Karang Baru. These significant differences between the administrative boundaries of the Kelurahans and the functional boundaries of the existing service area indicate a need for the DKK to provide a more definite description of the service area.

Without an adequate service area definition it will not be possible to prepare a contractual agreement for private provision of the services. This is also important since the DKK will be providing expanded collection and transfer services in areas adjoining the Pilot Area.

In defining the service area, the DKK should evaluate the areas it will be servicing after the Pilot Area is privatized. Service area boundaries should follow administrative boundaries where possible, rivers or streams or other established geographic features. If the DKK is to achieve its goal of a self sufficient private contractor, then the service boundaries are an absolute requirement.



PILOT AREA BOUNDARIES

FIGURE 4.1

4.3 Proposed Services

The evaluation of the existing services and descriptions shown graphically in Figure 3.6, define four separate tasks as follows:

Task 1. Door to door collection of waste and street sweeping within residential Kelurahans using handcarts. Service frequency is once per day, seven days per week.

Task 2. Operation of transfer depots which receive, load and transport to the landfill, all waste delivered by the handcarts.

Task 3. Door to door collection of waste in the central commercial zones and some major roadways using 8 M^3 trucks. Existing service consisting of four truck routes are serviced twice per day. Service responsibility includes all commercial establishments, markets and residents on the roads traveled by the trucks.

Task 4. Street sweeping of all arterial and collector roadways within the City. Waste which is collected by the sweepers is picked up by the route trucks under Task 3.

Although these tasks are separate and distinct, there are several relationships between tasks which must be maintained. If any of these tasks are separated and not privatized, special arrangements will be required. For instance if Task 2, (operation of the transfer depots) is privatized but Task 1 is not, then a tariff will be required to be paid by the handcarts at the depots, to cover the cost of operating the depots. In a similar fashion, if Task 3, (truck routes) is privatized but not Task 4, (street sweeping) then some arrangement will be required to empty the street sweeping handcarts.

The decision to consider privatization is always a good time for the municipality to review the existing services and make changes if required. Expanded commercial areas may indicate an extension of the truck routes or street sweeping services.

At the present time neither the geographic boundaries of the Pilot Area or performance requirements are sufficiently defined to support privatization of the Pilot Area.

4.4 Yayasan Proposal

4.4.1 General

The City has received a proposal from Yayasan Bina Gora to provide waste collection services in the Pilot Area as a self supporting project. Yayasan Bina Gora is a new Yayasan, whose only previous experience has been in the collection of tariffs from TV subscribers. Although the proposal was unsolicited, it followed the general program outlined in the BAPPEDA pre-feasibility study. The Yayasan's proposal includes the same 9 Kelurahans that are included in the BAPPEDA study, but the populations to be served differ significantly. As mentioned in Section 4.2, it is assumed that the Yayasan proposal includes the built-up areas adjacent to several of the 9 Kelurahans which make up the Pilot Area.

Another very significant difference in the proposal is that the Yayasan did not propose to perform street sweeping and provided few details regarding the performance of the collection services. This proposal has been the only expression of interest in performing the private collection of waste within the City of Mataram.

A brief interview was held with representatives from Yayasan Bina Gora during a field trip to Mataram in February, 1995.

4.4.2 Manpower

Six categories of personnel were listed in the proposal with a total staff of 191. Although the breakdown of staff into workers, supervisors and technical personnel was well balanced, it was not clear whether indirect labor costs had been included. If the listed rates included indirect costs then the proposed salaries were well below what is being paid to the current City workers.

4.4.3 Equipment

The Yayasan proposal includes the provision of 18 trucks (3 dump trucks and 15 conventional trucks) but their detailed cost breakdown included unit costs that suggest only 10 trucks would actually be used. There was no explanation as to the need for the trucks or their assignments to the various collection tasks.

Although during the interview the Yayasan representative indicated that they could obtain bank financing to purchase the trucks, it is clear from the cost and income proposal breakdown that capitalization of the trucks was not included.

Existing collection and sweeping within the Kelurahans is performed based on traditional methods, including house to house waste collection and street sweeping using handcarts. The Yayasan proposal includes the use of 300 bins to be distributed in the Kelurahans which would be sized to stored the waste generated by 10 to 15 households. No other information was presented regarding the bins, their locations or frequency of servicing.

4.4.4 Cost

The Yayasan cost proposal is shown on Figure 3.7 for comparison to the existing DKK costs and summarized in the following highlight table. It should be noted at the beginning of this discussion that the Yayasan proposal as submitted does not include street sweeping, either in the Kelurahans or the central business district.

The Yayasan's total cost proposal is Rp. 503,880,000 per year for the collection and transfer of waste to the landfill. Assuming the same 73,000 M^3 per year that was used to evaluate the DKK operations, this equates to Rp. 6,902 per M^3 for waste collection only.

Due to the differences in the defined service areas it is difficult to make a direct comparison between the costs in the existing service area containing 11 Kelurahans with the Yayasan's

proposal which includes only 9 Kelurahans. However, in defining its service area, the Yayasan included a population of 154,196 within the 9 Kelurahans while the BAPPEDA study estimates only 135,842 people served by the existing service area covering 11 Kelurahans. Although there is an obvious need to clarify this difference, for the purposes of this comparison we will assume that the service areas are equal and generate an estimated 73,000 M^3 of waste per year for transfer and disposal.

The total existing cost of Rp. 562,431,962 for performimg Tasks 1 through 4 in the existing area of is obtained by adding the 1994/95 DKK budget for Tasks 2 through 4 to the estimated costs of providing Task 1, collection and street sweeping in the Kelurahans. On a unit cost basis this equates to Rp. 7,705 per M^3 for both waste collection and street sweeping. Although the Yayasan's cost is less that the estimating existing cost, we cannot make a direct comparison because the Yayasan's proposal does not include street sweeping.

For comparison purposes we can increase the Yayasan's proposal to include street sweeping by adding the cost of Task 4 and 50% of Task 1 to the Yayasan's proposal. This increases the Yayasan's proposal to Rp. 797,030,000 or Rp. 10,918 which is significantly higher than the current estimated cost of Rp. 7,705 for providing the same service through the DKK and Kelurahans.

Although the above calculation seems to indicate that the Yayasan's proposal is significantly higher than the existing DKK cost, the comparison is based on many assumptions and variables to should be used only for planning purposes.

COST EVALUATION SUMMARY

	STREET SWEEPING	TOTAL COSTS	COST PER CUBIC METER (73,000 M/yr)
CITY DKK COSTS (TASKS 2,3 & 4)	50%	358,753,000	4,914
TOTAL EXISTING COSTS (TASKS 1,2,3 & 4)	100%	562,431,962	7,705
YAYASAN PROPOSAL (TASK 1 WITHOUT SWEEPING) (TASKS 2 & 3)	0%	503,880,000	6,902
YAYASAN ADJUSTED (TASK 1 WITH SWEEPING) (TASKS 2,3 & 4)	100%	797,030,000	10,918

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4.4.5 User Fees

The Yayasan's proposal assumes that all costs for providing the waste collection service would come from user fees collected by the Yayasan or in combination with a utility tariff such as electricity or water.

The Yayasan proposal includes a detailed listing of all waste generators within the pilot area and applied the user fees as established in 1985. This calculation estimated an annual income of Rp.479,448,000. This amount will obviously increase when the new proposed tariffs are adopted. It was stated that the user fees are only applicable to waste collection. The proposal also assumes that a portion of the user fees would be returned to the City at some point in the future.

4.5 Separate Street Sweeping

If the Yayasan's proposal were accepted, it would mean that the DKK would continue to perform Task 4, street sweeping in the commercial areas, and the 9 Lurahs would have to arrange for street sweeping in their respective Kelurahans. At least one DKK truck would also be required to transport the estimated 20 M^3 of street sweeping waste to the landfill. This separate provision of street sweeping and transfer services in the pilot area will not be as efficient as one entity performing both waste collection and street sweeping.

4.6 Summary

Although the proposal represents a sincere expression of interest by the Yayasan Bina Gora to provide waste collection services, its undefined scope of services and general nature limits it's value as a valid and justifiable alternative to the current public operation. The City needs to prepare a more formal process for receiving private proposals, which provides a thorough definition of services, responsibilities, costs and income. Chapter 5 of this report presents several alternatives for accomplishing this task.

5.0 RECOMMENDATIONS

5.1 General

Although the City is very anxious to privatize waste collection services in the Pilot Area, the services are not sufficiently defined, and to proceed at this time will most likely lead to higher costs of service, significant monitoring problems, overlap of services and possibly intervention to maintain the current level of services. The City should first review their options, define the desired services, determine which services will be covered by user fees, establish those fees, determine who will be responsible for collecting the fees and solicit new proposals accordingly.

5.2 Service Area Definition

As stated earlier, the service area is not adequately defined to proceed with the privatization project. The DKK should perform a technical review of the entire city and determine the precise functional boundaries between the pilot project and those areas to be serviced by the DKK or to remain as informal areas.

This review should assess future growth as well as existing conditions, paying particular attention to the locations for the transfer depots. In general, transfer depots should be:

1. Convenient to built-up residential areas.
2. Have minimal visual impacts.
3. Not located near water resources.
4. Accessible by transfer trucks.
5. Be large enough to allow material sorting and recycling.

5.3 Contracting Format

There are two basic types of contract formats that would apply to Mataram's current situation, and their goals and objectives for privatization.

5.3.1 Franchise Agreement

Governments in Indonesia are charged with the responsibility of managing solid waste within their boundaries. They also have the authority to transfer that responsibility to the private sector by granting them a franchise, giving them both the right and responsibility to provide service to all customers within the area defined in the franchise agreement. The franchise also gives the private sector the authority to charge a fee for providing the service. The fees may be set by the private operator, to reflect his costs and a reasonable profit, or they can be set by the governing body. In return for granting the exclusive franchise, a fee is normally paid to the governing body by the private operator.

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Use of the private service can be mandatory or voluntary in a franchise, depending on local regulations and other variables. Under the voluntary system, the users have the option of transporting their own waste to the disposal facility or using the franchise operator. Under a mandatory system, all waste generators in the area must use the collection service and pay the appropriate fee. To be successful, the user fee system must be fair and equitable, and within the user's ability to pay. If fees are set above the user's ability to pay, or below the actual cost of the service then the franchise system will not work. Cross subsidies can be used to subsidize the fees for low income families who may not be able to afford the higher fees.

Since the governing body will not be paying the operator for performing the service, they have minimal monitoring responsibility but also little control over contractor performance. Typically, the governing body must establish a complaint review system to process user complaints for non-performance. A short franchise term and revocation of the franchise for non-performance would be the ultimate enforcement tool against the franchise operator.

Franchise agreements are more common in voluntary situations such as utilities, telephone and cable TV where acceptable performance is relatively easy to determine. In most cases with a utility, it either works or it doesn't. This determination of performance is not as easy to evaluate for solid waste services, street sweeping in particular. Franchised solid waste collection is common in metropolitan industrial and commercial areas and in some rural residential areas with voluntary participation. Franchising of street sweeping is very rare since there is no direct beneficiary of the service who pays for the service, and accountability for performance is difficult to maintain. Street sweeping is almost always done on a service contract basis.

The key issues for Mataram in establishing a franchise area would be setting of user fees, control of future fees and what services those fees would cover. Existing fees cover only waste collection and not street sweeping and previous discussions have highlighted the inefficiencies associated with splitting responsibilities for the two services.

5.3.2 Service Contract

Under the service contract format, the governing body also transfers the responsibility for waste collection to the private sector. In return for performing the service, the private operator is paid by the governing body according to prices established in the service contract. The governing body then has the responsibility of recovering the cost of the service through taxes or user fees. The contractor is held accountable for performance since payment can be withheld or reduced for substandard performance. The governing body must monitor performance to insure compliance with the service definition.

Service contracts are normally the result of competitive price proposals based on a precise set of specifications.

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5.3.3 Historical Development

The historical development of solid waste collection and street cleaning services has evolved in Mataram, and in most Indonesian Cities, along traditional paths at the local village or Kelurahan level. In reality, each Kelurahan is already a franchise area with the Lurah of each Kelurahan controlling the delivery of service and the collection of user fees within the administrative boundaries of the Kelurahan. Any future privatization must include the recognition of this historical development of waste services and the administrative authority of the Lurah within each Kelurahan.

The exception to the above is when a city grows and the demand for services exceeds the ability of the local Kelurahan to provide those services. Major roadways, commercial zones and transfer depots all require resources which are beyond the ability of the Lurah to provide and the central government must step in to provide the services. As the city continues to grow and develop economically, the demand for centralized services will increase while the services provided at the Kelurahan level will remain constant or decrease. The problem occurs when the user fee system is not adjusted to accommodate these changes to recover the costs of expanded centralized services. This is the current situation in Mataram.

5.3.4 User Fees

In terms of user fees, services provided at the Kelurahan level are mostly exclusive where the individual user is the primary beneficiary of the service. The centralized services such as cleansing of commercial areas, operation of transfer depots and street cleaning are primarily non-exclusive where all residents of the city will benefit from the services. This could be applied in Mataram's case by proposing a user fee which includes two components, one to cover exclusive local Kelurahan collection costs which would be retained by the Lurahs and a second component for centralized services including collection and street cleaning along commercial areas and major roadways, and operation of the transfer depots. This second user fee component would be turned over to the City or the private contractor who is providing the commercial collection and street sweeping services. The two-component user fee will be easier to administer since both the Lurah and the City will know precisely how much of the user fee should be forwarded to the City or private contractor.

5.3.5 Contract Format Options

Option No. 1:

This option is basically the same as that proposed by the Yayasan Bina Gora, with Task 4, Street sweeping of main roads, to remain under the DKK. It would grant a Franchise to the Yayasan or other private contractor to perform waste collection and transfer of all waste generated within the defined service area. We do not feel that street sweeping in the Kelurahans can be separated from waste collection and the definition of services should include Kelurahan street sweeping. This option relies on the cooperation between the Lurahs and the private contractor in the performance of the service and collection of fees, a task which may prove difficult.

Option No. 2:

Option No. 2 is the same as Option No. 1 with the addition of Task 4, street sweeping of major roads to the private contractor as a service contract, separate from the franchise agreement.

Option No. 3:

Option No. 3 grants a franchise for performing all waste collection and street cleaning services within the service area. This will require a significant increase in the user fee to cover the street sweeping portion of the services. It will also require a tight set of performance specifications to insure performance since the accountability for performance under a franchise agreement is more difficult to maintain.

Option No. 4:

The existing unofficial franchise of collection and street sweeping in the Kelurahans would be formalized under this option. A dual user fee system, as described above, would be defined in the Franchise Agreement with the second user fee component to be turned over to the City. Task 2, operation of the transfer depots, Task 3, commercial truck collection routes, and Task 4, street sweeping of major roads would be combined into a single private service contract administered by the DKK and paid for by the second component of the user fee, with any shortfall made up by the DKK operating budget.

5.3.6 Contract Format Recommendations

The first overall contract recommendation is to maintain street sweeping as an integrated component of waste collection and make appropriate changes to the user fee system to pay for these services. The separation of these services does not make good sense and will lead to inefficient operation and duplicated efforts.

We recommend that the City proceed with either Option No. 2 or Option No. 4. Option 2 is preferred over Options 1 and 3 because it retains the combined nature of the waste collection and street sweeping tasks and administers the street sweeping on a service contract basis by the same contractor, which gives the DKK more flexibility in monitoring the performance of the work while holding the contractor accountable for performance through payment provisions.

Option 4 formalizes the existing franchise nature of the Kelurahan operation while avoiding potential conflicts between the Lurahs and the private contractor over service performance and collection of fees. The advantages of performing more work under a service contract assures greater accountability for performance. Obviously, the implementation of this option will require the cooperation of the Kelurahan Lurahs in operating an integrated waste management system. This option also has some interesting options for user fee collection. For instance fees to cover the operation of transfer depots and street sweeping could be paid in the form of a tipping fee at the transfer depots.

5.4 Equipment Leasing

The subject of equipment was not specifically addressed in the unsolicited Yaysan's proposal, but it was clear from several sections of the proposal that the Yayasan assumed that equipment would be provided by the DKK through a formal or informal lease agreement.

Since the City is limited to issuing contracts of one year or less, it is not likely that the private sector will invest capital in the purchase of major equipment to perform the defined waste collection and street sweeping services. Therefore it should be assumed that the private contractor will lease trucks from the City to perform the work.

The revised RFP includes provisions for including fixed lease prices for trucks of varying age. The City should evaluate all of its vehicles before issuing the RFP and decide which trucks it will offer for lease and what the annual lease cost will be. Other lease provisions such as maintenance and repairs should be determined and included in a draft lease agreement to be included as Appendix H to the RFP.

5.5 Draft Proposal Document

As stated earlier, the unsolicited Yayasan proposal did not include an adequate definition of services and specifically excluded all street sweeping. In addition, the cost evaluation performed in Section 4 indicates that acceptance of the Yayasan proposal would result in a significant total cost increase, if the current level of services is maintained, including street sweeping. Therefore, in addition to other recommendations we are recommending that the City issue a new request for proposals (RFP) to the Yayasan Bina Gora and other interested companies.

The new RFP, found in Appendix 4, includes a more defined level of services and groups the proposal by the four work tasks defined in Section 3. Provisions for including separate costs for street sweeping and user fee collections will give the City better information on which to base its decisions regarding privatization of the pilot area. With separate proposal costs for each task, the City can decide how to group tasks into either franchise agreements or service contracts. Potential options for contract formats have been presented for consideration by the City in Section 5.2.5.

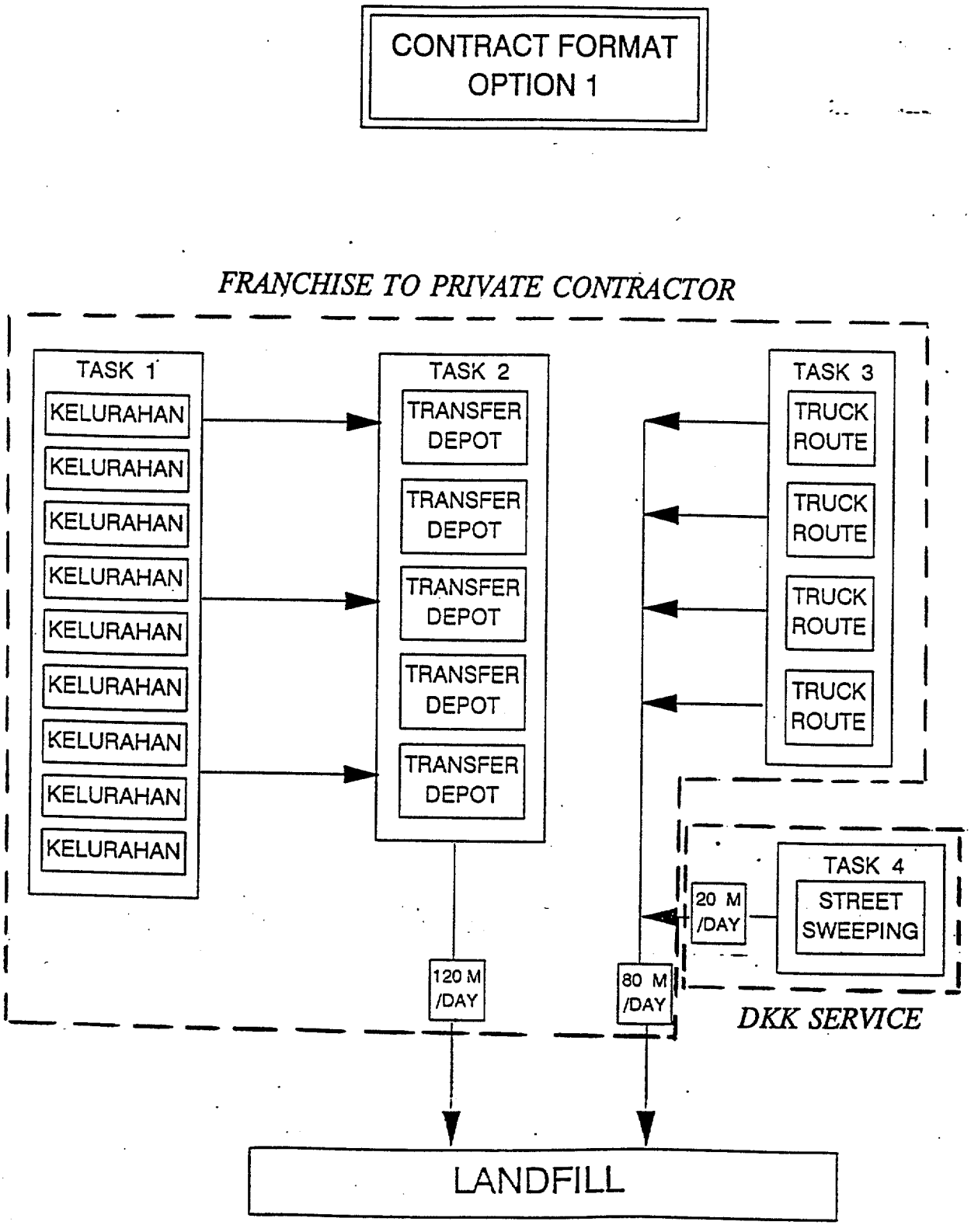
CONTRACT FORMAT
OPTION 1
FRANCHISE TO PRIVATE CONTRACTOR
TASK 1
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
TASK 2
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TASK 3
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TASK 4
STREET SWEEPING
20 M /DAY
120 M /DAY
80 M /DAY
DKK SERVICE
LANDFILL

FIGURE 5.1

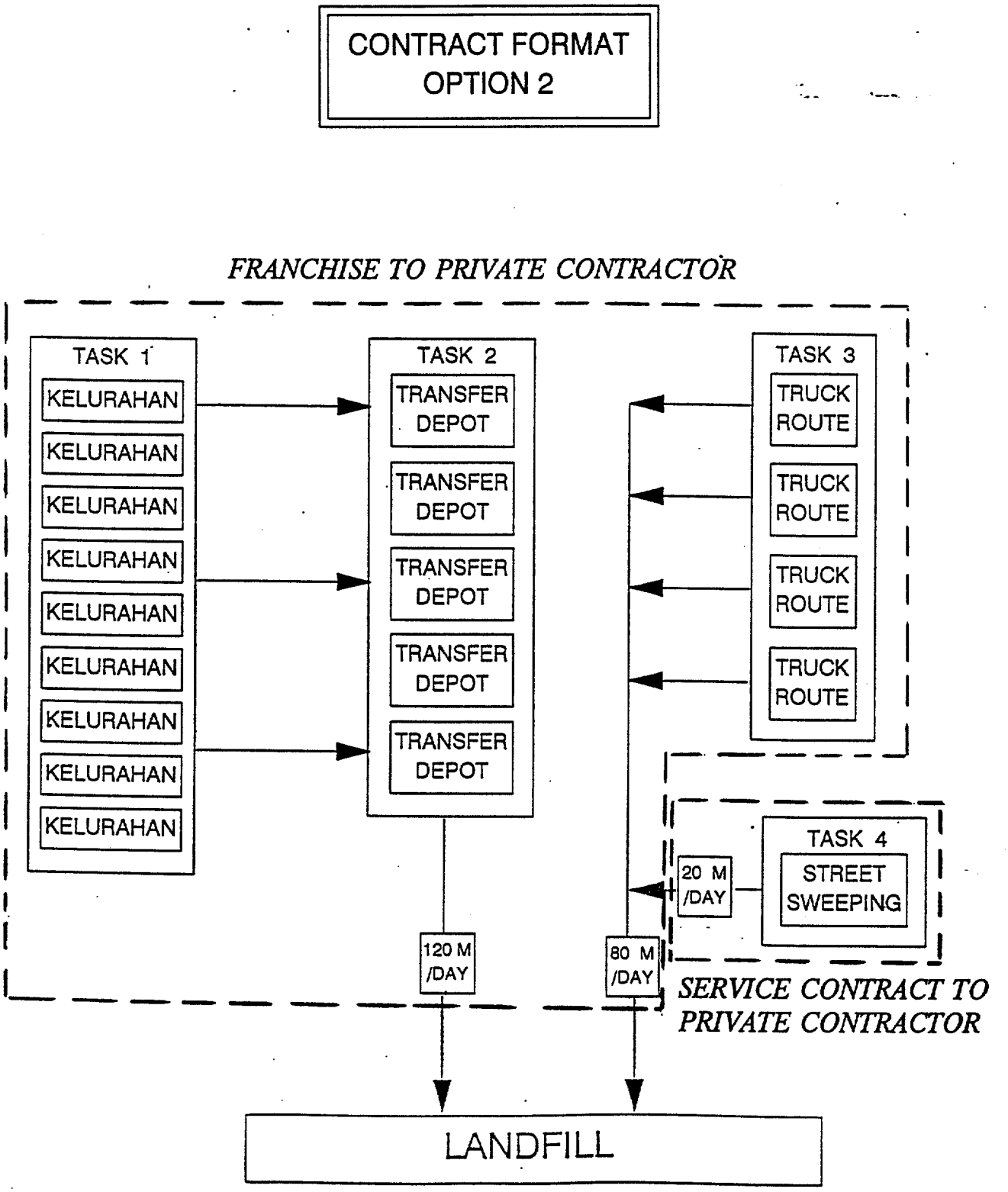
CONTRACT FORMAT
OPTION 2
FRANCHISE TO PRIVATE CONTRACTOR
TASK 1
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
TASK 2
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TASK 3
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TASK 4
STREET SWEEPING
20 M /DAY
120 M /DAY
80 M /DAY
SERVICE CONTRACT TO PRIVATE CONTRACTOR
LANDFILL

FIGURE 5.2

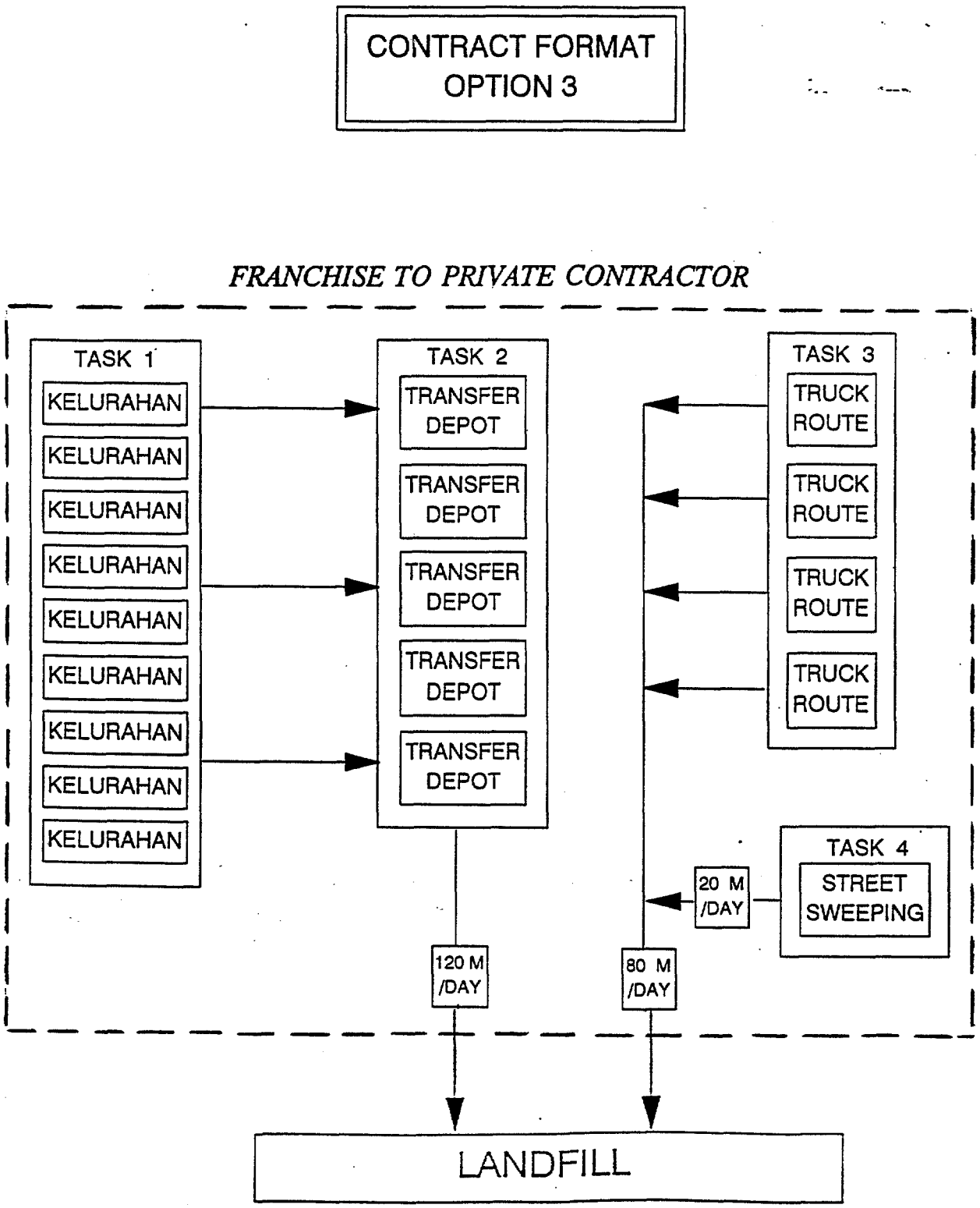
CONTRACT FORMAT
OPTION 3
FRANCHISE TO PRIVATE CONTRACTOR
TASK 1
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
TASK 2
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TASK 3
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TASK 4
STREET SWEEPING
20 M /DAY
120 M /DAY
80 M /DAY
LANDFILL

FIGURE 5.3

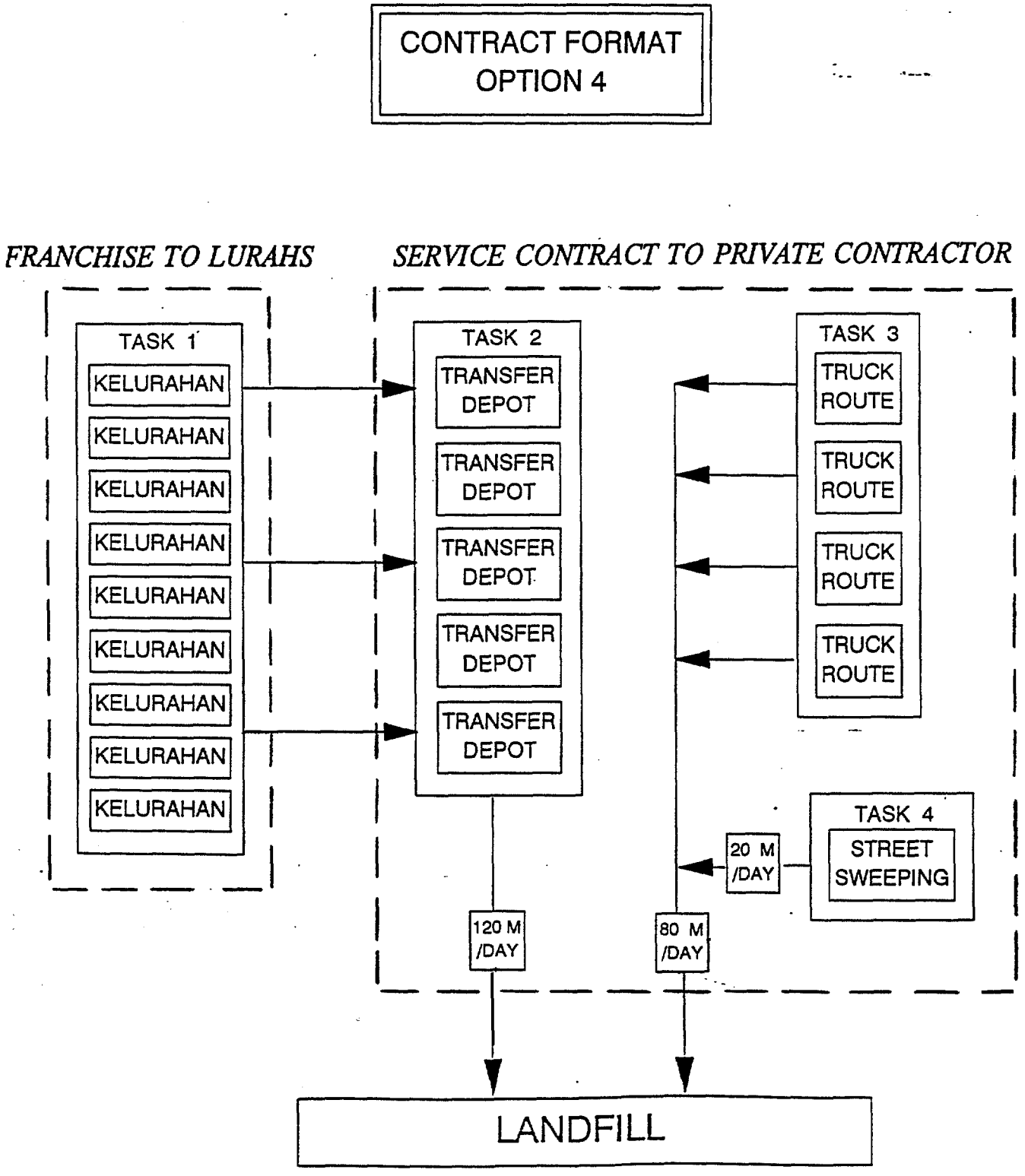
CONTRACT FORMAT
OPTION 4
FRANCHISE TO LURAHS
SERVICE CONTRACT TO PRIVATE CONTRACTOR
TASK 1
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
KELURAHAN
TASK 2
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TRANSFER DEPOT
TASK 3
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TRUCK ROUTE
TASK 4
STREET SWEEPING
20 M /DAY
120 M /DAY
80 M /DAY
LANDFILL

FIGURE 5.4

APPENDIX A

CITY OF MATARAM

WASTE COLLECTION SERVICES

FORM OF PROPOSAL

(Note: Appendices A to G form part of the Form of Proposal)

Office of the Mayor
City of Mataram
City Hall
Mataram, Indonesia

Having examined the written Scope of Services, the Appendices and the locations of the Waste Collection Services to be performed under the Collection Proposal, we offer to perform the Waste Collection Services in conformity with the Scope of Work and Appendices for the following Costs:

Proposer shall enter Proposal Costs for all of the following Items:

TASK 1 - KELURAHAN COLLECTION

For the provision of all labor, materials and equipment for the collection of waste and cleaning of all streets within each Kelurahan of the service area in accordance with the Scope of Work, Section 4.2.1 and the service area map, for an annual lump sum price of:

_____(Rp_____)
(Rupiah in words)

TASK 2 - OPERATION OF TRANSFER DEPOTS

For the provision of all labor, materials and equipment for the operation of five (5) transfer depots including all costs of transferring waste from the depots to the city landfill, for an annual lump sum price of:

_____(Rp_____)
(Rupiah in words)

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TASK 3 - OPERATION OF TRUCK ROUTE COLLECTIONS

For the provision of all labor, materials and equipment for the operation of four (4) truck route collections as defined in the Contract Documents, including equipment operation and maintenance, for an annual lump sum price of:

_____(Rp_____)

TASK 4 - STREET SWEEPING

For the provision of all labor and materials for the sweeping of City streets as defined in the Contract Documents for an annual lump sum price of:

_____(Rp_____)

TOTAL PROPOSAL PRICE (Sum of Tasks 1 through 4)

_____(Rp_____)

OPTIONAL TASK 5 - COLLECTION OF USER FEES

For the provision of all labor and materials for performing user fee collections and bookkeeping as defined in the Contract Documents, for an annual lump sum price of:

_____(Rp_____)

TRUCK LEASING

The proposer has based his prices for the above tasks on leasing the following vehicles from the City.

1. Dump Trucks (8 cubic meter capacity):

Age:	Number:	Fixed Lease Price:	Total:
New:	_____	Rp_____	Rp_____
1 to 3 years:	_____	Rp_____	Rp_____
3 to 5 year:	_____	Rp_____	RP_____

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2. Conventional Truck (8 cubic meter capacity):

Age:	Number:	Fixed Lease Price:	Total:
New:	_____	Rp_____	Rp_____
1 to 3 years:	_____	Rp_____	Rp_____
3 to 5 years:	_____	Rp_____	Rp_____

TOTAL COST OF LEASED VEHICLES **Rp**_____

2. We acknowledge that Appendices A to H to the Form of Proposal form part of this Proposal.

3. We undertake if our Proposal is accepted, to commence work in accordance with the Scope of Work and the Implementation Schedule.

4. If our Proposal is accepted, we will within thirty (30) days, execute the formal Contract Agreement and obtain the guarantee of a Bank or acceptable insurance company (subject to your approval) to be jointly and severally bound to the City of Mataram in the sum of 10% of the Base Proposal Cost and as stipulated Appendices D and E hereto, for due performance of the Contract under the terms of a Performance Security in the form appended hereto.

5. We agree to abide by this Proposal for the period of ninety (90) days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period, or such other extended period that may be agreed between ourselves and the City of Mataram.

6. Unless and until a formal Agreement is prepared and executed, this Proposal with our written acceptance shall constitute a binding Contract between us, and shall be deemed for all purposes to be the Contract Agreement.

7. We understand that you are not bound to accept the lowest or any Proposal you may receive and that you will not defray any expenses incurred by us in proposing.

DATED this_____day

of_____19_____

SIGNATURE:_____

(Name of Signatory Printed): _____

In the Capacity of:_____

Duly authorized to sign Proposals for and on behalf

of:_____

ADDRESS:_____

_____

(N.B.): Board Resolution authorizing signatory must be attached

SIGNATURE OF
WITNESS:_____

ADDRESS:_____

NAME OF WITNESS

(Printed):_____

OCCUPATION:_____

DATE:_____

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APPENDIX B

SUB-CONTRACTOR DECLARATION

If the Proposer wishes to sub-contract any portion of the work described in the Scope of Work under any heading, he shall be free to do so but must give full details of the Sub-Contractors he intends to employ for each portion of the Work.

Failure to declare subcontractor information may invalidate the Proposal.

1. Portion of the Work: _____

   i Sub-contractor: _____

   Address: _____

   _____

   ii Experience in _____

   similar work: _____

2. Portion of the Work: _____

   i Sub-contractor: _____

   Address: _____

   _____

   ii Experience in _____

   Similar Work: _____

Signature: _____ Date: _____

Name of Signatory: _____

In the Capacity of: _____

Duly Authorized on behalf of: _____

APPENDIX C

FORM OF INSURANCE

The selected Proposer shall be required to obtain general liability insurance as a condition of Contract signing within thirty (30) of notice of award. The selected Proposer shall provide an Insurance Certificate at Contract Signing as proof of insurance coverage for the following amounts:

For liability for bodily injury, including accidental death, Rp 1,100,000,000 on account of any one occurrence, and Rp 2,200,000,000 aggregate limit.

For liability for property damage, Rp 440,000,000 on account of any one occurrence and Rp 1,100,000,000 aggregate limit.

An umbrella policy in the amount of Rp 1,100,000,000 covering underlying policies.

The contractor shall also be required to secure the following insurance:

1. Motor vehicle on equipment and vehicles, owned or leased.

2. Workmen's Compensation Insurance.

APPENDIX D

FORM OF INTENT FOR PERFORMANCE BOND

It is hereby agreed that a Performance Bond as defined in the Proposal Documents and Appendix E, will be provided by the sureties, Insurance Company or Bank named hereunder.

NAME OF PROPOSER:_____
(Printed)

SIGNATURE OF PROPOSER OR AUTHORIZED REPRESENTATIVE:

_____

NAME OF ABOVE SIGNATORY:_____
(Printed)

NAME OF BOND GUARANTOR:_____
(Printed)

SIGNATURE OF GUARANTOR OR AUTHORIZED REPRESENTATIVE:

_____

NAME AND POSITION OF ABOVE SIGNATORY:_____
(Printed)

DATED_____DAY OF_____19_____

APPENDIX E

FORM OF PERFORMANCE BOND

We the undersigned _____

of _____

and _____

of _____

do hereby bind ourselves as sureties in solidum and co-principal debtors for the due performance of the Contract by the Contractor named therein, and for all losses, damages and expenses that may be suffered or incurred by the City of Mataram as a result of non-performance of the Contract by the Contractor, renouncing all benefits from the legal exceptions ordinis seu excussionis et divisionis "No value received" and all other exceptions which might or could be pleaded against the validity of this guarantee, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted; provided that the liability of the undersigned under this guarantee is limited to and shall not exceed:

_____(Rp)
(Rupiah in words)

and will lapse thirty days after the conclusion of the Contract Term, unless the Sureties are advised in writing by the City of Mataram before the expiration of said thirty days of their intention to institute claims and particulars thereof, in which event this guarantee shall remain in force until all such claims are paid or settled.

FOR AND ON BEHALF OF THE SURETIES:

AT_____on this_____Day of_____19_____

AS WITNESS:

1._____ 2._____

ADDRESS:

_____ _____

_____ _____

_____ _____

APPENDIX F

ARTICLE OF AGREEMENT

MADE AND ENTERED INTO BY AND BETWEEN:

THE CITY OF MATARAM
(hereinafter called the Employer)

of the one part and _____
(hereinafter called the Contractor)

WHEREAS the Employer is desirous to provide Waste Collection and Street Sweeping Services in the defined Service Area, including residential, commercial, and hotel areas;

AND has caused documents describing the Waste Collection Services to be prepared;

AND WHEREAS the said documents entitled, PROPOSAL FOR WASTE COLLECTION SERVICES PILOT AREA, and consisting of SCOPE OF CONTRACT, Section 1.0 through 6.0 and Appendices A through H;

AND WHEREAS the Contractor has executed by signature the Proposal Documents and entered Proposal costs to perform the described services on the Form of Proposal;

NOW IT IS HEREBY AGREED AS FOLLOWS:

1. For the consideration as stipulated by the Contractor on the Form of Proposal, the Contractor will upon and subject to the Conditions annexed hereto, execute and perform the Services in accordance with the above referenced documents.

2. The Employer will pay the Contractor the sum of payments as stipulated in the Form of Proposal, in accordance with the payment provisions included in the Proposal Documents, hereinafter referred to as the Contract Sum.

3. The Term of this Agreement shall be for a period of one (1) year, with adjustment and escalation of the Contract Sum as stipulated in the Proposal Documents.

4. This Agreement may be extended beyond the initial one (1) year term, up to an additional four (4) years at the Employer's sole option subject to negotiation of the Contract Sum.

5. This Agreement and its performance shall be construed and governed in accordance with the Laws, Acts and Regulations of the Country of Indonisia. This Agreement represents the entire Agreement of the parties hereto and supersedes all prior negotiations, representations or agreements either written or oral. This Agreement may be amended only in writing signed by both the Employer and the Contractor. This agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

SIGNED BY THE CONTRACTOR:_____

ADDRESS: _____

_____

on this the_____day of_____19_____

at_____in the presence of the undersigned witnesses

AS WITNESS:

1._____ADDRESS:_____

_____

2._____ADDRESS:_____

_____

SIGNED BY THE EMPLOYER:_____
(City Secretary General)

on this the_____day of_____19_____

at_____in the presence of the undersigned witnesses

AS WITNESS:

1._____ADDRESS:_____

_____

2._____ADDRESS:_____

_____