COMMUNITY BASED WASTE COLLECTION AND SMALL SCALE ENTERPRISE DEVELOPMENT IN WASTE RECYCLING IN DAR ES SALAAM

Technical advisory mission

Final Report

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# TABLE OF CONTENTS

TABLE OF CONTENTS.................................................................................................................. 1

EXECUTIVE SUMMARY.............................................................................................................. 4

ACKNOWLEDGEMENTS................................................................................................................ 7

CHAPTER 1  BACKGROUND OF THE PROJECT............................................................... 8
  1.1  The Solid Waste Management Programme ........................................................... 8
  1.2  Institutional context ................................................................................................. 8
  1.3  Current private initiatives...................................................................................... 9
  1.4  Objectives ................................................................................................................ 10

CHAPTER 2  DAR ES SALAAM: FEATURES INFLUENCING SWM....................... 11
  2.1  Population density, geographical dispersion ....................................................... 11
  2.2  Road conditions ...................................................................................................... 11
  2.3  Institutional system ................................................................................................. 11
  2.4  Urban infrastructure policy .................................................................................. 12
  2.5  Financial sources and revenue collection ............................................................. 12
  2.6  Socio-economics and waste service ....................................................................... 13
  2.7  Waste stream .......................................................................................................... 13

CHAPTER 3  APPROACH OF THE MISSION ............................................................. 15
  3.1  Urban services and employment........................................................................... 15
  3.2  ILO's support programme objectives and the waste sector ......................... 16
  3.3  The WASTE point of view ..................................................................................... 16
      3.3.1  The mission's approach to Dar es Salaam assignment................................. 17
      3.3.2  Mission's limitations .................................................................................... 18

CHAPTER 4  COMMUNITY-BASED WASTE COLLECTION................................. 19
  4.1  Waste Collection by CBOs .................................................................................... 19
      4.1.1  Introduction.................................................................................................. 19
      4.1.2  Role of CBOs in the Provision of Urban Services....................................... 19
      4.1.3  Organisational structure: a broad, community level group or smaller, enterprise-type groups................................................................. 21
      4.1.4  CIP, PLAN, and CREPA ............................................................................. 22
      4.1.5  The role of CBOs in the DCC/ILO project.................................................. 22
4.1.6 Selection of two CBOs ...................................................... 23
4.1.7 Transformation into sustainable organizations ................. 24
4.1.8 Some project elements .................................................. 24

4.2 Income and expenditure budget and cost recovery of two CBOs 25
4.2.1 Method of calculation of income and expenditure ............... 25
4.2.2 MABIBO Women Environmental Management Society ....... 26
4.2.3 Kinondoni Moscow Women Development Association (KIMWODA) ...... 28
4.2.4 Discussion ................................................................... 29

4.3 Empowerment of CBOs ..................................................... 32

4.4 Marketing ........................................................................ 33

4.5 Linking into city services: secondary collection .................... 34

4.6 Combination of waste collection and recycling ...................... 37

4.7 Gender in community-based waste collection ...................... 38

CHAPTER 5 SMALL-SCALE-ENTERPRISE DEVELOPMENT IN WASTE RECYCLING IN DAR ES SALAAM .................. 39

5.1 Recycling MSEs and the local enterprise context .................. 39
5.1.1 MSE in the industrial environment .................................. 39

5.2 Selection of enterprises for guideline development ............... 42

5.3 Paper ................................................................................ 44
5.3.1 Generalities on paper and paper recycling ......................... 44
5.3.2 Analysis of the waste paper flow in Dar es Salaam .............. 45
5.3.3 Waste paper sector: mission's observations ....................... 46
5.3.4 Recommended strategy for employment generation in the paper sector .... 47

5.4 Metal ............................................................................... 49
5.4.1 Metal generalities ......................................................... 49
5.4.2 Analysis of the metal waste stream in Dar es Salaam ........... 49
5.4.3 Metal waste: mission's observations .................................. 50
5.4.4 Recommended strategy for employment generation in the metal sector .... 51

5.5 Plastic ............................................................................ 53
5.5.1 Plastic generalities .......................................................... 53
5.5.2 Analysis of the plastic waste stream in Dar es Salaam ........... 54
5.5.3 Plastic waste: mission's observations .................................. 54
5.5.4 Recommended strategy for employment generation in the plastic sector ... 55

5.6 Compost .......................................................................... 57
5.6.1 Compost generalities ....................................................... 57
5.6.2 Analysis of the compost waste stream in Dar es Salaam ....... 58
5.6.3 Compost waste: mission's observations .............................. 59
5.6.4 Recommended strategy for employment generation in the compost sector 60

5.7 Transportation .................................................................. 62
5.7.1 Generalities ................................................................. 62
5.7.2 The transportation sector: mission's observations: .................. 62
5.7.3 Recommended strategy for employment generation in the transportation sector ................................................................. 64

5.8 Training: some observations ........................................................................ 66
5.9 New modules ................................................................................................. 67
5.10 Other issues to be addressed ....................................................................... 68

LIST OF ANNEXES ......................................................................................... 71

ANNEX 1 GUIDE TO MAKING A WORK PLAN ............................................. 72
Mabibo Women Environmental Society (MABIBO) ........................................... 72
Kinondoni Moscow Women Development Association (KIMWODA) .................. 73

ANNEX 2 PRACTICAL GUIDELINES FOR SETTING UP CBO-BASED AND MANAGED WASTE COLLECTION SERVICES IN DAR ES SALAAM ................................................................. 75

ANNEX 3 DRAFT TRAINING CURRICULUM FOR MANAGING CBO-BASED WASTE SERVICES ........................................................................ 78

ANNEX 4 SUGGESTIONS FOR EXTENSION OF COMMUNITY-BASED WASTE COLLECTION TO OTHER NEIGHBOURHOODS AND CBOS ................................................................................ 82

ANNEX 5 BUSINESS PLAN FOR CBOS ........................................................... 84

ANNEX 6 SUMMARY INTERVIEWS HELD WITH CBOS ............................... 89

ANNEX 7 PRIORITIZING OPTIONS MSE-DEVELOPMENT ................................ 92

ANNEX 8 TERMS OF REFERENCE ................................................................. 95

ANNEX 9 MISSION'S ITINERARY ..................................................................... 99

ANNEX 10 REFERENCE LIST AND USEFUL DOCUMENTATION ..................... 103

ANNEX 11 SET OF BROCHURES OF SUPPORT ORGANIZATIONS .............. 105

ANNEX 12 PLASTIC WASTE FLOW IN DAR ES SALAAM ............................... 106
EXECUTIVE SUMMARY

The role of the Dar es Salaam City Commission/Council is changing: the administration is decentralized to smaller units such as districts and wards, and more and more of the services such as waste collection, managing the water system and the public transport are being privatized. Small and large contractors carry now out the services previously provided for by the municipal departments.

Community Based Organizations (CBOs) and Micro and Small Enterprises (MSEs) play gradually a more important role in the provision of different types of urban services in their own neighbourhood: the construction of roads (Tabata, Kijitonyama), the management of water taps (Vingunguti), the execution of sanitation projects and also in waste collection (Hananasif). The UNHabitat has asked the ILO to carry out a three year programme that will support CBOs and MSEs who are active or who want to become active in the collection of waste or the recycling of waste materials with the aim to increase employment in existing CBOs and MSEs. The ILO has asked two consultants from the Netherlands to develop a plan (workplans and practical guidelines) for the first year, and to plan how CBOs and MSEs could be strengthened and equipped for their new role.

In many cities in the world, both in the North and in the South, CBOs are becoming increasingly important. Their contribution to the society is recognised. The Mission reviewed international experience and gave examples of CBOs engaged in waste collection in India, Pakistan, Burkina Faso, Mali, and Senegal. The Mission then advised that a CBO is an appropriate organisation for becoming a strong partner in municipal waste management because it has roots in the community and is a recognised legal body. However, these "social" CBOs need to acquire a business orientation, in order to continue in an economically sustainable way with their waste collection services.

The Mission has selected two CBOs (out of seven known to ILO) which will receive some assistance from ILO with their waste collection project: Kinondoni Moscow Women Development Association (KIMWODA) and Mabibo Women Environmental Management Society. The other CBOs will share in the experiences through exchanges and meetings. It is envisaged that a Monitoring and Support Group will be formed with CBOs, government and non-government organisations, and the private sector. This Group will meet every four months.

The CBOs need strengthening in several respects in order to become strong partners. They should become empowered to gain access to funds and resources of urban government regarding waste services. They should also get marketing and business training to equip them to run the waste collection better. Their financial management practices should be improved, so that they know whether the revenue of the waste service is high enough to cover the costs. Improved management practices will enhance transparency and accountability to the members and thus strengthen their commitment to the CBO itself.

The Integration of the waste collection on ward level into the city-wide services centres around:
- the scheduling of appropriate secondary collection routes;
- a regular and reliable time schedule;
- the establishment of a network of secondary collection points; - availability of vehicles to carry out secondary collection.
- a clear division of responsibilities and tasks between CBOs and DCC;

Decentralization and privatisation provide opportunities to CBOs to acquire work contracts, but it is as yet uncertain what will be the overall effect of the new administrative structure on waste management.

The combination of waste collection and recycling by CBOs and small enterprises is then discussed, pointing out the actions to be undertaken to make this combination economically interesting.

Finally, some gender issues in waste management in Dar es Salaam are pointed out.

The Mission also focussed on the role MSEs play in the waste management system in Dar es Salaam at the moment. Based on various reports which were made for the DCC and other organizations the Mission tried to get a picture of the flow of four waste fractions: paper, plastic, metal and organic waste. Furthermore, ILO asked the Mission to look into the transportation problems faced by many MSEs and CBOs when they want to transport their collected waste and/or sorted products for recycling to the factories.

The situation in each of the sectors proved to be different: in the paper sector not much activity was going on. The formerly state-owned paper mills were in the process of privatisation and had not been in operation the last few months. This had its effect also on the MSEs recycling papers. Few people could be traced: they claim to have a lot of demand for their products but they found it very difficult to get waste paper. Still there is a lot of waste paper at some sources: households, institutions and commercial places like shops. The Mission therefore has made some options to collect more paper and suggested also to try to start a small waste paper recycling enterprise.

In the plastic sector there is no recycling taking place in MSEs. Plastic is collected and sold to be reused (containers and bottles) and some is taken to the few plastic factories to be recycled. The demand for plastic is high. The factories would like to receive clean, sorted and shredded plastic. It is therefore that the Mission also proposed to start a plastic recycling MSE and to link this MSB to the CBOs which are collecting waste (plastics, paper etc.) in their neighbourhood.

The sheet metal sector is a well developed sector in which thousands of people work. The problems here are different: too many similar products are being made and a large part of the products cannot compete with imported 'modern' goods of better quality. In one of the options product innovation and specialized marketing will be introduced to help the sector to change. Technical training could play a role in it.

Making organic waste into compost is not taking place in an enterprise environment. In some neighbourhoods people re-use the organic waste for their cows, some people use it for growing some seedlings and food crops. Experiments in Dar es Salaam on composting proved not to be viable: none of them continued after the pilot project phase. The MSE consultant therefore proposed a simple start: the waste collected by the CBOs will be separately collected, the organic
part made into compost for the use in a shamba in the area, the recyclables could be sold after linking with a dealer. When the waste collection system grows more compost could be produced for sale to other neighbourhoods and an affluent part of society.

High transportation costs appear to be a bottleneck for many MSE, CBO and recycling activities. The options proposed by the mission try to reduce the cost of transportation by establishing cooperation between the waste collecting CBOs and the MSEs collecting recyclables. Transportation routes could be shortened, prices reduced by hiring transport on a long(er) term contract basis, the cost per ton could be reduced by baling and shredding the materials and by filling the lorry to its maximum capacity.

For each sector several options had been briefly proposed. ILO will select those options which offer the best opportunity to create employment and ILQ can manage to assist. The selected options will than be discussed with interested MSE entrepreneurs who could receive assistance for the full three year project period.

All MSE activities should also be closely monitored by the group of CBOs and MSEs participating in the ILO programme. This monitoring will allow the participants to learn from each others' experience seen both from the point of view (MSEs) entrepreneurs and from the CBOs (and clients). New groups can also learn from those who have gained experience in their projects. It is advised that representatives of related municipal departments or private enterprises are part of this monitoring group.

Finally the Mission presents a strategy as to how the Support Programme could grow to include a growing number of CBOs. The strategy builds on the two selected CBOs and on CBOs which did gain experience in other type of urban infrastructure projects. They also could become the centre of growth in their neighbourhood.
ACKNOWLEDGEMENTS

Missions are usually short periods in which lots of data and information should be shaped into new prospects. Therefore missions depend on the cooperation of many people who are willing to share their ideas and knowledge with the mission's team members. During this mission we encountered several people who spent their valuable time to help us to develop the best possible prospects. We would like to thank them: Godfrey Lewis (SSMECA) who drove Arnold around to trace dealers and middlemen and who translated during the interviews of the several entrepreneurs, Alodia Ishengoma, who enthusiastically taught Maria how CBOs can be reached by bus and helped her also in the translation during interviews and from reports. Besides these two persons we would like to thank Abel Busalama (consultant), Pius Wenga (SIDO) and mrs Zita Nyirenda (MABIBO) and mrs Leocadia Rugambwa (KIMWODA) who contributed to the creation of the workplans and guidelines laid down in this report. Last but not least we would like to thank mrs Saskia Bakker (ILO) who offered us her knowledge at the right moments to bridge gaps in the data we collected.
CHAPTER 1  BACKGROUND OF THE PROJECT

1.1 The Solid Waste Management Programme

The UNDP is funding a three year project 'Promoting Environmentally Sustainable Urban Development in Tanzania'. One of the components of this project is support to the implementation of the solid waste management programme by the Dar es Salaam City Commission (DCC).

The project is nationally executed by the DCC. UNCHS is the associated agency for the overall project and ILO is associated agency for the support to the implementation of the solid waste management programme. A copy of the agreement between DCC and ILO is available at the WASTE office.

The solid waste management action plan of the DCC was developed by a multi-disciplinary team in March/April, 1997, and is based on an integrated approach. It consists of three main elements: privatization of services community based waste collection minimization of waste through recycling and composting. The responsibilities of ILO focus mainly on the last two elements, whilst UNCHS has agreed to assist with the issue of privatization, in particular with regard to the cost recovery mechanism, the by-laws and contracting procedures. ILO's support will focus on promoting employment opportunities and income generating activities within the solid waste sector, in particular through support to small scale enterprises. ILO will also assist in the organization of training and exchange visits.

1.2 Institutional context

Dar es Salaam City Commission
In order to enhance its efficiency in waste management, the Dar es Salaam City Commission (DCC) has made a high priority of establishing a Solid Waste Management Department (SWMD). This Department will have more clearly defined responsibilities and more independence than the Cleansing Services Unit of the City's Health Department, which was, until shortly, entrusted with the responsibility for waste management. Mr. Kirango has recently been appointed Head of the SWMD. Plans for the responsibilities, staffing, accommodation and equipment of the SWMD have been developed by the Health Department and are in an advanced stage. As the institution responsible for the implementation and monitoring of the city's day to day waste collection services, the SWMD will be a main partner for ILO to work with. Besides, it will be the responsible for other support projects regarding waste, such as funded by JICA.
1.3 Current private initiatives.

*Waste collection by Community Based Organisations (CBOs)*

The City Authorities of Dar es Salaam aim at improving the waste collection services in the city, by establishing a system in which the services are provided by a combination of the DCC itself, private contractors and Community Based Organisations.

Already a number of CBOs are involved in waste collection and street sweeping, and a number of others have shown serious interest in getting involved. They see an opportunity to generate income with these activities. They do, however, experience problems in starting and enhancing waste collection activities, such as lack of capital, inappropriate tools (handcarts, etc.) and limited business know how (in daily management, cost recovery, marketing, saving for future investments, etc.).

Though many communities have expressed their concern about the waste problem, this does not necessarily mean that the general public is aware of sound waste management practices and is willing to pay for it. Community based waste collection in the poorer communities will need active support from the City Commission, for example through cross-subsidization and the provision of secondary collection from the community to the landfill. The DCC is aware of this, but no system has been established yet.

*Recycling*

In many cities in developing countries, recycling activities provide income generating opportunities for the urban poor. In Dar es Salaam, an estimated 17,000 people are involved in recycling activities *(Busalama, 1997)*. However, the employment potential of recycling seems to be under-utilised. A recently completed study on the marketing potential for recycling in Dar es Salaam indicates a large gap between supply and demand, pointing to a possible expansion of the former. Aluminium scraps, paper, iron sheets, iron and steel scraps and plastic scraps are the most economically viable items for recycling, in that order of profitability. The main constraints of the collectors, dealers and small scale manufacturers are: inadequate capital, lack of market information and business education, lack of equipment and tools, inadequate business premises, transport problems and poor working conditions.

*Composting*

From the viewpoint of waste minimization, composting seems to have very interesting potential, as 60 to 70 % of the waste generated in Dar es Salaam consists of organic materials. Several experiments have shown that it is possible to produce good quality compost with limited investment. Marketing of the compost, however, is a serious problem. The labour and transport costs involved make compost more expensive than the chicken and cow manure which many urban agriculturists are using and which is readily available at low prices. Home based composting (without the aim of income generation), or a combination with other activities (such as horticulture and selling of vegetables or seedlings) seem the most likely options, unless cost reduction and/or intensive marketing can convince consumers to buy compost.
1.4 Objectives

Within the ILO/Tanzania Country Objectives, employment creation is one of the main priorities, with special emphasis on the most vulnerable groups, such as unemployed youth and women. Recycling involves labour intensive techniques requiring limited investment. It contributes to poverty alleviation not only because of the potential for job creation, but also because the products are usually cheaper than those produced from raw materials. In Dar es Salaam, many of those who are already involved in community based waste collection and recycling, or show interest in its income generating possibilities, are unemployed youth and women.

ILO wants to enhance the employment opportunities of waste collection by supporting CBO's and small scale recycling enterprises. A number of recent studies (e.g. by ILO 1997, JICA 1996 and SDP/DCC 1996 and 1997, see Annex 1, list of references) provide data on the composition and quantity of waste generated in Dar es Salaam, current practices of waste collection and recycling, past and future policies, major constraints and the kind of support needed to overcome those constraints.

A technical advisory mission was therefore requested to shed their lights on the issues listed in the detailed Terms of Reference mentioned in Annex 8.
CHAPTER 2   DAR ES SALAAM: FEATURES INFLUENCING SWM

To illustrate the present situation in waste management below some features of the present situation in Dar es Salaam are stipulated with regard to the waste stream and population. It will act as a framework for the approach and the direction of ideas developed in this report. More details on the situation in Dar es Salaam could be derived from the JICA study report of July 1997 prepared by Kokusai Kogyo Co. Ltd. The data should be considered as rough guidelines, since the consultant's surveys cannot present the detail one may wish to read. This is perhaps most striking at the paragraphs dealing with informal recycling issues. A thorough survey of this sector would have consumed a considerable amount of time to trace the whereabouts of the informal waste streams and their collectors and recyclers.

2.1 Population density, geographical dispersion

Dar es Salaam has according to a JICA study an estimated population of 2,030,231 people. This population is divided over an area of 439.9 km2, leading to an average population density of 4,615 per km2. Divided over four distinct group of wards: 9,641 (urban area), 8,411 (semi-urban planned developed), 10,169 (semi-urban unplanned developed) and 947 (rural area).

2.2 Road conditions

The present poor condition of the roads hinders the collection of solid (and liquid) waste considerably:
- it reduces the speed of the vans and thus the number of people who could be serviced under 'normal' road conditions
- it causes damage to the garbage vans which are only available in a small number and thus under constant pressure to perform an impossible task
- and a major part of the city is not serviceable since roads are too small, winding or steep for mechanized transport

2.3 Institutional system

The city consists of three districts (later to be named zones or municipalities): Kinondoni in the North, Ilala in the middle and west and Temeke in the south/south-east corner of the city. In total they contain 52 wards. The city is normally run by a City Council headed by an elected Mayor and a City Director managing the various municipal departments. By the end of July 1996 these were replaced by a City Commission (also referred to as DCC) and a Commission Chairman (mr Keenja).
In Dar es Salaam SWM comes under the Health and Social Welfare department, but its operation is also strongly affected by other branches of local government:

- the Works Department is responsible for the maintenance of vehicles, equipment and for the non-trunk road system, including roads leading to the disposal sites and to the workshops
- the Urban Planning Department is responsible for medium and long term planning, such as setting aside land for refuse treatment and disposal facilities. Presently the Sustainable Dar es Salaam Project (SDP) is also having a major influence on the city's SWM. Its various multi-institutional workgroups have worked out strategies for the improvement for SWM.

2.4 Urban infrastructure policy

A new policy with regards to the institutional and policy arrangements in the city is under development. It is most likely to follow the road to decentralization of urban institutions, authority and finances, privatization of most of the urban services, the slimming down of the central municipal departments. As a result the waste management services will also be decentralized to zone and ward level: three (one central) workshops and three landfills will be established in the three newly created administrative areas. In the new policy it is expected that the decentralization and privatization will also confirm the involvement of community-based organizations (CBOs) and other (in)formal micro and small enterprise (MSEs) initiatives. Such a policy should however be followed by the necessary institutional changes (contact officer for CBOs and MSEs), financial reforms (open contract tendering by (in)formal organizations).

2.5 Financial sources and revenue collection

In the JICA study report a calculation has been made on the unit costs as incurred by the DCC waste service and the service provided by the (then) sole private SWM contractor Multinet. In a comparison the unit cost respectively is: US $ 24.85 (DCC) and US $ 13.14 (Multinet). In the comparison both parties were compared under equal conditions. Multinet cost price therefore does not include any Government Levy nor a (10%) profit. One may wonder if the latter is correct since it is not to be expected that any private contractor will operate without any profit margin.

In the same study also the revenue collection has been studied. DCC does not charge any revenue from beneficiaries except from dumping fees from private contractors, from markets on a contract basis and from ad hoc collections from hotels, shops, institutions etc. Based on a calculation made in 1995 it is estimated that the DCC collected in one year Tshs 15,000,000.- which is only 2/3 of the FUEL/OIL costs. The private contractor Multinet appears to be slightly more successful: it appears to know 60% of its customers while approximately 20% paid their bills. Multinet's charges are based on an area specific and source specific rating system.
2.6 Socio-economics and waste service

Financial and human resources in Dar es Salaam are extremely limited (QIC A 5/9), which lead in turn to inadequate urban (waste) services which has effects on the urban environment. It is estimated that 10-20% of the population are having some kind of waste collection services, much lower than the 80-90% of the households which have access to urban water supply. The density of Dar es Salaam and the related living conditions however do not allow for such low percentage. The majority of the people are forced to practice self-disposal. The inadequacy and inability of the DCC are experienced daily by the population. The JICA study found the following distribution of income groups in the 39 wards of their study:

Table 2.1 Income distribution in Dar es Salaam

<table>
<thead>
<tr>
<th>type of areas</th>
<th>income categories (1)</th>
<th>number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>urban area</td>
<td>mainly high income (97%)</td>
<td>56,880</td>
</tr>
<tr>
<td>semi-urban planned areas</td>
<td>30%</td>
<td>776,356</td>
</tr>
<tr>
<td>semi-urban unplanned areas</td>
<td>9%</td>
<td>963,016</td>
</tr>
<tr>
<td>rural areas</td>
<td>22%</td>
<td>233,978</td>
</tr>
<tr>
<td>total city (2)</td>
<td>20%</td>
<td>2,030,230</td>
</tr>
</tbody>
</table>

(1) Income categories are defined by JICA as:
- high-income: > Tshs 95,000./household/month
- middle-income: between Tshs 50,000.- and Tshs 95,000./household/month
- low-income: < Tshs 50,000./household/month

(2) Total city defined in the JICA report as the area in which its study took place in 1997 i.e. in 39 wards.

2.7 Waste stream

The quantity of waste generated depends mainly on three parameters: the income of the clients, the characteristic of the area and the type of generator. A total of 1559 ton/day (ILO 1996) or 1,772.2 ton/day (JICA 1997) is estimated to be generated by households, commercial entities (shops, restaurants, hotel etc.), institutions, markets, street sweeping and informal sector activities. Summarized as follows:

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Daily generation ton/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household waste</td>
<td>975</td>
</tr>
<tr>
<td>Commercial waste</td>
<td>53</td>
</tr>
<tr>
<td>Institutional waste</td>
<td>101</td>
</tr>
<tr>
<td>Market waste</td>
<td>200</td>
</tr>
<tr>
<td>Others incl. industrial waste</td>
<td>230</td>
</tr>
<tr>
<td>Total daily waste generation</td>
<td>1559</td>
</tr>
</tbody>
</table>

Source: ILO: Support programme proposal 1996
2.8 Informal sector employment in Dar es Salaam

In Dar es Salaam a considerably large informal sector exists, since the 'normal' employment opportunities are limited due to the low economic development in Tanzania as a whole and Dar es Salaam in particular. An SIDO/GTZ study on the state of the art of Self-help organizations in Dar es Salaam cites data from the ministry of Labour (1991): 210,000 businesses with an average of 1.5 job per enterprise. The study further states that "this means that every other household in Dar es Salaam receives at least part of its income from the informal sector [and] these figures are probably gross underestimates of the real situation. [...] Nonetheless they indicate the sector's relative size and importance. The ILO has classified the vast majority (95%) of these informal sector businesses as survival activities with limited growth potential. Combined however they produce a value added that is equal to 32% of the officially recorded Gross Domestic Product (GDP). Individually they provide average earnings per worker that are 2.6 times higher than the minimum wages in the urban formal sector and realize an average return on investment of 330%, indicating the minimal level of investment, rather than a general profitability".
CHAPTER 3  APPROACH OF THE MISSION

3.1 Urban services and employment

Major cities in the South are confronted with a growing population, which requires a higher input of urban services such as water, sanitation and waste collection to maintain a certain standard of environmental hygiene. On the other hand the cities' income through taxation or other fee systems decreases and their is pressure for privatisation and decentralization. Besides there is the reality of unemployment in the formal sector and underemployment in the informal sector. New approaches are mentioned and tried out to solve this dilemma: enabling strategies, application of local resources and new (social oriented) public-private partnerships.

There is a growing acknowledgement that the only feasible way for resource-poor countries and overburdened public sectors to meet the urban challenge is to build on local initiatives and co-operative partnerships. At the same time leaving all urban development to self-help efforts would be unrealistic and assume that the governments abdicate their own major responsibility. Small and medium scale private sector enterprises do however possess an under-utilised potential for implementing infrastructure works and for providing services beyond the level of community effort, while simultaneously generating local employment.

Both actors however (the local municipal authorities as well as the -small scale- entrepreneurs and community organizations) should adapt themselves to such new situation: their knowledge should grow and perceptions about each others roles and responsibilities should change, the legislation and contracting procedures should be open for participation of neighbourhood groups and small enterprises, checks on performance and a close monitoring should be established. The local authorities should adapt their role to create conditions, to facilitate and to support initiatives of these new actors, rather than being directive and implementing. That will pose new demands on planning management and policy formulation tasks both at central and municipal level.

In Dar es Salaam earlier attempts showed that top-down approaches did not bring the expected municipal activities and that the residents had to develop their own myriad of 'solutions' to the variety of problems they faced in their neighbourhood. It would therefore appear that:
- upgrading based on community initiative may be the only way to make something happen
- the community contribution would reduce costs to the municipal government
- community based maintenance of minor works could be organized.

Community based up-grading and provision of services may involve an unpaid contribution often in the form of labour, and as such does not provide employment. However more and more community based activities tend to include paid labour based on either contracts with the municipality or on a 'commercial' relationship with clients. Therefore a clear distinction between CBO 'voluntary activities' and 'enterprise based activities' cannot easily be made. Furthermore not all residents are willing to contribute in kind (labour) but rather pay in cash their contribution to a

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1 This chapter is based on the paper 'Employment generation in urban works programmes through the efficient use of local resources by Erik Lyby, chief technical advisor ILO, April 1992.
common cause. After all in Dar es Salaam in some of the urban areas (planned and unplanned) a reasonable share of the population is of the higher income group.

An approach to municipal services as described above could provide a basic service -such as waste collection- to many residents which can least afford it, but who may need it the most. A drive for full cost recovery could therefore backfire and should be avoided through pricing systems for urban services that keep in mind the common cause: the urban environment and public hygiene.

3.2 ILO's support programme objectives and the waste sector

ILO wants to enhance the employment opportunities in the solid waste sector by supporting waste handling CBOs and recycling MSEs. The mission was asked to develop workplans for two CBOs and practical guidelines for ten recycling enterprises [.. to enable them to successfully participate in the waste system and to increase their employment] and to make a one-year workplan as a first step [.. to finally reach the objectives of the Support Programme after three years].

Small enterprising (in MSEs as well as in CBOs) in the waste sector differs in some aspects from running an 'ordinary' small enterprise in that:
- it is concerned with public health: an overall institution (the government) controls its performance for public safety reasons
- it is rendering a much needed service (environmental hygiene) which is however considered not attractive and not rewarding and respected: it is a business usually carried out by low-income groups and minorities in a society and they are treated accordingly by local authorities (harassment)
- it is dealing with a cheap or costless raw material, but the small enterprises often heavily depend on economic performance of large industries being often the source of that raw material
- its investment level is low: this allows for a great influx of people, a stiff competition and thus a small margin.

These distinctive features of the 'waste sector' have their influence on the way the mission approaches its assignment.

3.3 The WASTE point of view

WASTE has been involved in activities focusing on the roles and integration of CBOs and MSEs in municipal waste management as a contribution to a solution of the waste management problems in cities of the South. WASTE bases its approach on the so-called Integrated Sustainable Waste Management system (ISWM) which it developed some years ago, an approach in which:
- all stakeholders will be integrated in the planning and execution of the waste management system
all elements of waste management should be integrally considered from generation and minimization to disposal, rather than focusing on collection and disposal only
- all aspects of waste management should be integrally considered: not only technical and financial aspects but also taking into account social, cultural and environmental aspects

ISWM will be the framework for the approach of the mission of this ILO assignment.

3.3.1 The mission's approach to Dar es Salaam assignment

The mission is therefore of the opinion that CBOs and MSEs, as two of the great variety of stakeholders in the waste management system, can not be considered in isolation. They are both part of a complex political, economic and social network of relations and streams of products and raw materials. An approach that only focuses on CBOs and MSEs as single entities with their own activities can not be successful to the opinion of the mission. Both stakeholders also do operate in the local context. The mission is of the opinion that as much as possible use should be made of this context with regards to the input of local support institutions, personnel and knowledge, thus avoiding too many external inputs which cannot offer locally sustainable solutions. Efforts should therefore also be geared to the building of better relationships amongst the various stakeholders including the municipal departments and private contractors.

It is therefore that the mission has spent time not only to discuss employment and business related issues with the CBOs and MSEs concerned but also with other stakeholders:
- other private organizations dealing with community development projects and thus having experience in Dar es Salaam (CIP, Plan International, UNICEF)
- governmental office(r)s which play a role in the management of waste (collection, transportation and disposal), in supporting the development of the community, (SWM Department, Health Department, Community Development Department.)
- organizations that provide adequate and appropriate technical and business training at the required level and geared towards the specialties of the sector (SIDO, SSMECA, VETA)
- institutions which are involved in the innovation of the local industries (TIRDO, IPI)
- organizations that are able to offer credit services (UNDP-Life, MEDA, SIDO, SSMECA)

This has resulted in guidelines and workplans that indicate activities that should be undertaken for and by the CBOs and MSEs in relation with various other stakeholders, supported by local organizations (expert input) and facilitated by the responsible project holder ILO. These facilities should include: organization of training and exchange visits and arranging at regular intervals joint meetings with all stakeholders to discuss the progress and process that should lead to sustainable activities. ILO has a stake but not a role in the project execution. The responsibility should rest with the group of stakeholders: only their joint effort will make the 'Support Programme' successful.

As a consequence the mission considers it of outmost importance that as much as possible the planning of the future project activities is done in a participatory way with the stakeholders concerned. The mission believes that workplans and guidelines made by outside consultants are not very likely to sustain. It is therefore that the mission has chosen to develop frameworks for workplans and guidelines rather than detailed workplans and guidelines itself. These frameworks are based on consultations with the identified and selected CBOs and MSEs, support
organizations and on the consultants' expertise and experience. Therefore as a first step of the 'workplans' and 'guidelines' thorough discussions with the respective CBOs and MSEs are planned to fill in the details of the workplans and guidelines as the CBOs and MSEs want them to be.

3.3.2 Mission's limitations

It cannot be expected from this mission that in a short period of time reliable data can be collected and cost calculations and full cost recovery plans can be made. The observations of the mission and the subsequently made plans are based on the mixture of previous research, short interviews and windscreen observation (urban rapid appraisal). The recommendations of the mission are indicative for the direction solutions can be developed. They need however further in-depth and detailed study, which can be executed by local partners and the involved stakeholders. Such practically oriented studies are needed per sector to reduce the chance of failure as much as possible and to protect the already vulnerable target group from (more) disappointments. Promises can easily be made, bright futures easily sketched, but often not realized.
CHAPTER 4    COMMUNITY-BASED WASTE COLLECTION

4.1    Waste Collection by CBOs

4.1.1    Introduction

Before starting on this chapter it is useful to define some of the terms used. In the first place, waste collection refers to the action of taking away the garbage produced by households and commercial establishments located in a residential area, such as shops, restaurants, small workshops and markets. The garbage is taken from the households to the transfer collection point in or near the neighbourhood or Ward. This is primary collection. From this collection point the municipality or its private agent takes the garbage to the municipal dump for final disposal. This is secondary collection. The chapter focuses on waste collection, although it is recognised that other waste activities are closely connected to it, such as re-use and recycling of waste materials. Further, the subject of this chapter is the community-based organisation which provides the waste collection service. The essence of such a community-based organisation (CBO) is, that it is responsible (often on its own initiative) for managing waste collection in its own neighbourhood community. The CBO can do this either through its own members, or employing community residents, or hiring a CBO or a small enterprise from another part of the city.

This chapter first briefly reviews international experience with community-based waste collection and then states the Mission's point of view regarding an organisational structure that is likely to be successful in Dar es Salaam. Then follows the selection process of two community based organisations (CBO) which will be at the core of the DCC/ILO Waste Project. Section 2 discusses several aspects of a strategy to transform CBOs into partners in waste management. Section 3 discusses two aspects of integration of CBOs into the municipal waste management system, i.e. linking them into city services, and their activities in both collection and recycling of waste. Section 4, finally, mentions several gender aspects observed in Dar es Salaam.

This chapter has the following Annexes (see chapter 7):
- Guide to Making a Work Plan
- Practical Guidelines for Setting up Community-Based and -Managed Waste Collection Services in Dar es Salaam
- Draft Training Curriculum for Managing Community-Based Waste Collection Services
- Suggestions for Extension of Community-Based Waste Collection to other Neighbourhoods and CBOs
- Summary of Interviews with CBOs
- Business Plan for CBOs

4.1.2    Role of CBOs in the Provision of Urban Services

The urban population in most developing countries is growing rapidly. Conventional approaches have proved inadequate to meet the demand for shelter and services created by this rapid growth. This has led to the growth of informal, unplanned and unimproved settlements. Though the majority of the people in these settlements is poor and unemployed or
Community Based Waste Collection and Small Scale Enterprise Development in Waste Recycling in Dar Es Salaam

A Community-Based Organisation (CBO) is any form of organisation that draws its members from the same neighbourhood, that is, a geographical area which is also a socio-administrative unit. It can be a women's group, youth group, credit organisation, neighbourhood management committee etc., in short any organisation that has a certain degree of formality, structure and regularity in its functioning, and applies certain membership criteria (e.g. entrance fee). In many countries, local governments will only consider community groups as partners in service provision, if they are formerly registered as a CBO.

The involvement of CBOs in urban services can take several forms, ranging from consultation and planning to construction, management and operation of small infrastructure projects; from activities undertaken with a minimum of consultation with the local authorities to projects where the CBO enters into formal contracts with a Municipality or, as subcontractor, with a private company who is the municipality's main contractor.

It is not always easy to distinguish between CBOs and micro/small enterprises (MSE). MSEs are cooperative-type enterprises whose members share responsibilities and income and who operate together a waste collection scheme, street sweeping, etc. Sometimes members of a micro-enterprise live in the neighbourhood where they operate a service, but this is not always the case. An example of small enterprises which could also be termed a CBO provide the Groupes d'intérêt économique (GIE) in West Africa. The GIE Faso Kami in Bamako (Mali) was started by a group of young unemployed school leavers. During their start-up period they asked the Elders of the Quarter to form a Committee of Wise Old Men and Women, who would promote and supervise their waste collection service. The GIE has, through this Committee, firmly rooted itself in the community (UWEP case study in Bamako). The GIE in other Quarters in Bamako have similar committees to link them to the Elders of the community. This enhances their trustworthiness in the eyes of residents.

CBOs engage in different types of waste collection, i.e.:
- waste collection in their own community
- waste collection in an other community, where they are employed by another CBO, e.g. a committee of residents (usually middle class)
- waste collection and cleaning activities in other parts of the city as a contract with local government or private contractor.
- waste collection together with separation and sorting of waste to pick out the recyclables for further recycling.

A Civic EXNORA in India is an example of a CBO employing people from outside the community for garbage collection. A Management Committee is formed from among the residents, and agreement reached with the waste pickers who usually pick out the valuable materials from the garbage of that community. Households are motivated to store their garbage for one day within their houses, instead of dumping it on the street. The Management Committee raises monthly contributions from its members for employing the waste collectors on
a regular salary to collect garbage from house to house (E-mail Conference on Community-Based Primary Collection in Low Income Developing Countries, WEDC, December 1997).

A CBO can be engaged in several types of waste collection at the same time. In Abidjan (Ivory Coast) for example, a micro enterprise collected garbage in its own community in the morning and in a middle income community in the afternoon. The valuable materials found in the garbage of the middle income residents subsidised the collection in the poorer neighbourhood (Pfammatter and Schertenleib).

Community based waste management may encounter social and management problems which can be divided in five categories (Anschiitz, WASTE/UWEP)
- low participation of households (e.g. low willingness to participate in collection systems, and low willingness to pay)
- management problems (e.g. lack of accountability to the community)
- social problems influencing operation (e.g. low status of the collectors, low motivation linked to low salaries)
- financial problems (e.g. cost recovery problems, inadequate fee collection, low ability to pay)
- failing cooperation with municipalities (e.g. bad coordination of primary and secondary collection, and a general lack of assistance from the municipality)

CBOs and their supporting organisations have attempted various solutions to these problems, in response to the local situation. For example:
- consultation of the community on the desired service; and arrangements for taking care of public places and streets
- procedures for performance control; and training of staff
- provision of identity cards to waste collectors; different payment or waste collection arrangements
- changes in the way of payment, incentives and sanctions for non-payment; tighter financial control
- mobilising the community to lobby the municipality, and involving the local authorities from the beginning of a project.

4.1.3 Organisational structure: a broad, community level group or smaller, enterprise-type groups

The Mission is of the opinion that a CBO (or Society or Association) is a type of organisation that is likely to be successful in undertaking community-based waste collection activities. Important features of such an organisation are that its members live in the same area, have multiple social ties, share economic and other interests, and have strong ties with their community. They usually undertake a combination of activities, based upon social concerns as well as business interests. Such a CBO is neither a broad, community level group nor an enterprise, though the distinctions are not always clear. One CBO in Hana Nasif, for example, has a street cleaning contract with the DCC, and also runs a nursery school. While another CBO has sub-committees on road construction, and family health care.
As mentioned above, the Groupes d'interet economique (GIE) in Bamako (Mali), are engaged in waste collection in their own community. They are motivated by social and environmental concerns as well as by the need to earn income for themselves. Similarly, the members of the CBOs selected for the DCC/ILO project see themselves in the first place as concerned citizens who want to provide a service to the community. However, realizing the costs involved (equipment) and financial stress (need to earn family income), these citizens are looking for economic ways to keep their service going. As such they are interested in adopting a business orientation.

Any business training or performance assessment, however, will have to take account of this multiple motivation of the CBOs members. This is especially important regarding the role these CBOs perform in motivating and mobilizing the community to pay for waste collection (see Annex 3: Draft Training Curriculum).

4.1.4 CIP, PLAN, and CREPA

The Mission has had discussions with two organisations in Dar es Salaam which rely on community participation in developing the social and physical infrastructure of wards. One organisation is the Community Infrastructure Programme (CIP) that is established within the City Commission structure. Through this set-up several staff members of the Community Development Department are seconded to the CIP. The programme has selected two wards, Kabata and Kijitonyama (both in Ilala District), for improvement in infrastructure, such as roads and drainage. The other organisation is PLAN International, which is engaged in the socio-economic development of Vingunguti and Buguruni Wards (Ilala District). Characteristic of both organisations is that they encourage the development of a representative social structure for consultation and decision making from the smallest unit upwards. The smallest unit is the street or block of 9-15 houses. Through this social structure priorities for services are set, decisions are taken on contributions from the community, and business development supported.

The relevance of this approach to the DCC/ILO Waste Project is the recognition of the close link between a CBO with limited membership and specialist objectives, and a broader community-based organisation that represents all sectors of the population, and oversees and coordinates major developments.

Finally, the Mission wants to draw attention to an institute in Burkina Faso, that is engaged in community-based waste management. This is the Centre Regional pour l'Eau Potable et l'Assainissement (CREPA). This institute (french speaking) has advised several CBOs in Ouagadougou wanting to engage in waste collection in a business like manner. It has developed a methodology for supporting such CBOs.

4.1.5 The role of CBOs in the DCC/ILO project

ILO support to community-based waste collection will in the first instance focus on two CBOs
who are already involved in waste collection or have shown concrete interest. At the same time DCC and ILO need to develop plans and activities to integrate other areas in the waste collection system (Terms of Reference). The ILO project officer had suggested to select two CBOs for concrete support. Thereafter the Mission and the ILO project officer agreed that the selected CBOs will form the core group of the project who will directly be supported to improve their operation in waste collection. Arrangements will be made so that others will indirectly benefit from this support as well.

It is envisaged, for example, that progress meetings are held once in three to six months in which all CBOs in waste collection will participate. At these meetings the selected CBOs will report on their experiences with waste collection, both positive and negative, and discuss with the others what they have learned and practised. Exchange of information, and the development of forms of coordination between them are the expected results of this approach.

4.1.6 Selection of two CBOs

ILO had invited seven CBOs for a meeting with the Mission. Three of them attended the meeting. While efforts were made to contact the others, the initial contact was with four CBOs.

The Mission and the ILO project officer made a list of selection criteria. This was in fact a checklist for asking information from the CBOs which is relevant for improving the operation of their waste collection. During the meeting of 25th of February, the CBOs told their story following the listed questions (for an example of another set of selection criteria, see: Community Infrastructure Programme, April 1997).

After reviewing the presentations of the four CBOs, two characteristics made a critical distinction between the CBOs:

- the members of the CBO are living in the community itself
- the CBO provides waste collection service to its own community.
- Based on these last criteria, two CBOs dropped out. One of them was registered as a NGO with members all over the city, while the other was a CBO with a contract for cleaning the city centre. Selected to participate in the DCC/ILO/Project were:
  - Kinondoni Moscow Women Development Association (KIMWODA), located in Hana Nasif Ward, Kinondoni, and
  - Mabibo Women Environmental Management Society (MABIBO), located in Mabibo Ward, Kinondoni.

Box: 4.1. Characteristics of CBOs used for Selection

1. Name of the CBO
2. When started as group, and when registered as CBO
3. Ward/District of operation
4. Number of members at the start and at present
5. Ward of residence of members
6. Number of households in the Ward
The population of these Wards is mixed in a socio-economic sense. There are poor residents, not so poor, and middle class residents, there are house owners and tenants.

A series of meetings was planned with each of them. A summary of the meetings is found in the Annexes.

4.1.7 Transformation into sustainable organizations

The selected CBOs, KIMWODA and MABIBO, have been able to survive as an enterprise in waste activities. This confirms the existence of a good organisational base for further development.

The Mission, however, agrees with comments from both CBOs that they need capacity building and advice in order to make waste collection a viable business. This capacity building concerns internal management, such as business management, knowledge on waste management, and strengthening the organisation itself. Capacity building also concerns external relations, such as social support and marketing, coordination and empowerment, linking with city services, increasing income through waste, and gender issues.

4.1.8 Some project elements

The Mission wishes to emphasize a few elements of the community-based component of the Waste Project.

1. The Project will focus its advice and support on two CBOs. In order to keep up the momentum and interest of stakeholders, it is suggested to involve the other CBOs at the same time and let them benefit from ILO's assistance. Regular exchange of information and experience will be a suitable medium for spreading ideas on waste management. The
Mission heard that such exchanges had already taken place when e.g. KIMWODA explained its manner of operation to another CBO which wished to start waste collection.

2. It is suggested that within each CBO a team of at least two members will be responsible for contacting and mobilizing the population for waste collection. When community members are trained, some will show more aptitude than others in communicating with households. It is suggested to confirm these participants in that specialist task. Options are that 1) CBO members who always have been active in this type of marketing continue with it, but now with improved capacity. Or 2) supervisors of the waste collection teams could form a mobilization team. Or 3) two other CBO members or community members. They should not only educate, but also listen to complaints and suggestions from the public for a service that better responds to their expectations.

3. The CBOs have to acquire technical knowledge on waste activities. Knowledge on the technicalities of waste collection (collection routes, equipment, safe handling and disposal); conditions and requirements for recycling of materials; separation of waste by the households; finding out what quality and quantity of waste materials dealers and end-users will accept; methods of calculating the garbage fees for different types of customers in the community, etc.

4. The Mission suggests to set up a monitoring structure. The organisations and their representatives who were present at the meetings of the 25th of February and 11th of March will form a suitable group for the exchange of experiences by CBOs. This monitoring and support group, intended to represent stakeholders, can expand in the course of the project with other stakeholders. Two major sources of information on CBO experiences are envisaged. One of them is self-monitoring by CBOs on their own progress (at least once a month). The Participatory Impact Monitoring (PIM) or a similar method is suggested. There will also be systematic monitoring by the project coordinator. Through these sources, the monitoring and support group will be informed about events, opportunities and problems and will, when necessary, suggest ways of solving emerging problems.

5. The Mission supports the action of the ILO office to make arrangements with funding agencies to provide small loans or grants for the start-up period of the CBOs, if they need that. The basis for alliances with organisations like UNDP/LIFE, UNICEF, NIGP, SERO, and MEDA (Mennonite Economic Development Association (MEDA) (see Annex 10) can be laid now.

4.2 Income and expenditure budget and cost recovery of two CBOs

4.2.1 Method of calculation of income and expenditure

Interviews were held with the two CBOs in order to know the costs and revenue associated with community-based waste collection, and to see whether cost recovery is sufficient. MABIBO is only occupied with waste collection. While KIMWODA is engaged in waste collection and cleaning of drains.
in its own community as well as being intermittently contracted by the DCC to clean the major roads in Kinondoni District.

The calculation is based on interviews with both CBOs, who read the information from their administrative records or counted available equipment. Where no recorded information was available, an estimate has been made. Data have been collected on direct costs (equipment and labour) and indirect costs in order to understand the income and expenditure budget and the extent of cost recovery.

The direct costs of equipment currently in use has been calculated (number of a particular tool in use, its present purchase price, and its estimated useful life); the salaries per month of different categories of workers; and the indirect cost of service operation. Prices of equipment are based on recent invoices. The calculations are presented on an annual basis.

Revenue was distinguished into collection charges paid by the houses/customers served, and entrance fees and subscriptions of CBO members.

The CBOs only provide primary collection service and are paid for that by their customers. The DCC is responsible for secondary collection, disposal and treatment of waste, for which they do not charge the CBOs. The DCC expects to continue this policy of providing and paying for secondary collection in the areas served by CBOs.

### 4.2.2 MABIBO Women Environmental Management Society

**Table 4.2. Income and Expenditure of MABIBO, March 1998**

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>Price/Piece</th>
<th>Estimated Useful Life</th>
<th>Cost per year in TShs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 waste bags</td>
<td>200/-</td>
<td>4 months</td>
<td>72,000/-</td>
</tr>
<tr>
<td>3 rakes</td>
<td>2,200/-</td>
<td>12 months</td>
<td>6,600/-</td>
</tr>
<tr>
<td>4 local brooms</td>
<td>400/-</td>
<td>1 month</td>
<td>19,200/-</td>
</tr>
<tr>
<td>3 spades</td>
<td>2,000/-</td>
<td>12 months</td>
<td>6,000/-</td>
</tr>
<tr>
<td>1 wheel cart</td>
<td>45,000/-</td>
<td>6 months</td>
<td>90,000/-</td>
</tr>
<tr>
<td>Maintenance/repair</td>
<td>5% of equipment cost</td>
<td></td>
<td>10,000/-</td>
</tr>
<tr>
<td>SUB-TOTAL EQUIPMENT</td>
<td></td>
<td></td>
<td>203,800/-</td>
</tr>
<tr>
<td>LABOUR (waste collectors)</td>
<td>total per week: 7,000/-</td>
<td></td>
<td>364,000/-</td>
</tr>
<tr>
<td>INDIRECT COSTS</td>
<td>Costs</td>
<td>3 months</td>
<td>Cost per year</td>
</tr>
<tr>
<td>Office rent</td>
<td>70,000/-</td>
<td></td>
<td>280,000/-</td>
</tr>
<tr>
<td>* stationery</td>
<td>estimate</td>
<td></td>
<td>100,000/-</td>
</tr>
<tr>
<td>typing work</td>
<td>estimate</td>
<td></td>
<td>60,000/-</td>
</tr>
<tr>
<td>transport (by bus to town)</td>
<td>estimate</td>
<td></td>
<td>60,000/-</td>
</tr>
<tr>
<td>furniture</td>
<td>estimate</td>
<td></td>
<td>36,000/-</td>
</tr>
<tr>
<td>SUB-TOTAL INDIRECT COSTS</td>
<td></td>
<td></td>
<td>536,000/-</td>
</tr>
<tr>
<td>TOTAL COSTS</td>
<td></td>
<td></td>
<td>1,103,800/-</td>
</tr>
<tr>
<td>TOTAL REVENUE</td>
<td>120 houses x 52 x 200/-</td>
<td></td>
<td>1,248,000/-</td>
</tr>
</tbody>
</table>
Conclusion

Table 4.3. Cost, Revenue, and Gross Profit (MABIBO)

<table>
<thead>
<tr>
<th>Cost per Year</th>
<th>Revenue per Year</th>
<th>Gross Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,103,800/-</td>
<td>1,248,000/-</td>
<td>1,44,200/-</td>
</tr>
</tbody>
</table>

If MABIBO continues with 120 paying houses/customers, and with the present costs, it appears to be a feasible enterprise. It uses simple equipment and pays minimal labour costs (TShs. 500/- for a half day).

The break even point is calculated as follows:

\[
\frac{\text{total costs of waste collection}}{\text{weeks per year} \times \text{garbage fee}} = \text{number of customers}
\]

\[
\frac{1,103,800}{52 \times 200} = 106
\]

This means that MABIBO needs to have 106 customers to reach the break even point. The CBO has already a larger number of customers, and consequently makes a small profit on a yearly basis.

Crisis with secondary collection

From March 1998 onwards, the dump site in the area is closed. This makes it necessary to hire a pick-up truck to transport the garbage to another collection point at 10,000/- per trip/per week. This is TShs.520,000/- on an annual basis. The CBOs revenue is insufficient to cover this amount. It can be expected that the CBO will soon not be able to pay this amount, as it has no financial reserves what so ever.

Negotiations with the DCC, who is responsible for secondary collection and whose policy it is to do this free of charge, should resolve this extremely difficult situation as soon as possible.

Notes

- The garbage fee per house is TShs.200/- per waste bag containing up to 50 kg. of garbage.
- A house may accommodate up to six households who all use the one waste bag. The garbage fee per house is shared among the households.
- The present number of 120 customers (houses) has only recently been reached. The assumption is that this number remains at least stable.
- All local brooms have been brought by the members as part of their entrance fee.
- The exact number of labourers is not known. The chairlady pays the team's supervisor a certain amount each week, who in turn pays her team members.
- Office rent for the first quarter of 1998 has been paid privately by the chairlady since the CBO itself did not have the necessary funds.
- Transport to town is paid out of their own pocket.
- The CBO has 34 members. The entrance fee of Tshs.10,000/- is paid in irregular instalments, just as the annual subscription fee of 5000/-. Since July 1997 (registration as CBO) a total of Tshs. 131,600/- has been received. This amount is considered as working capital of the CBO.

4.2.3 Kinondoni Moscow Women Development Association (KIMWODA)

Table 4.4. Income and Expenditure of KIMWODA, March 1998

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>Price/Piece</th>
<th>Estimated Useful Life</th>
<th>Costs per Year in TSHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 wheel barrows</td>
<td>50,000/-</td>
<td>6 months</td>
<td>500,000/-</td>
</tr>
<tr>
<td>5 pull carts</td>
<td>100,000/-</td>
<td>6 months</td>
<td>1,000,000/-</td>
</tr>
<tr>
<td>10 gumboots</td>
<td>10,000/-</td>
<td>6 months</td>
<td>200,000/-</td>
</tr>
<tr>
<td>20 spades</td>
<td>2,000/-</td>
<td>6 months</td>
<td>80,000/-</td>
</tr>
<tr>
<td>5 forks</td>
<td>3,200/-</td>
<td>3 months</td>
<td>64,000/-</td>
</tr>
<tr>
<td>1 panga</td>
<td>1,500/-</td>
<td>2 months</td>
<td>9,000/-</td>
</tr>
<tr>
<td>3 hoes</td>
<td>2,500/-</td>
<td>3 months</td>
<td>30,000/-</td>
</tr>
<tr>
<td>10 brooms</td>
<td>500/-</td>
<td>2 months</td>
<td>30,000/-</td>
</tr>
<tr>
<td>10 brooms</td>
<td>3,000/-</td>
<td>1 month</td>
<td>360,000/-</td>
</tr>
<tr>
<td>10 gloves</td>
<td>3,000/-</td>
<td>2 months</td>
<td>180,000/-</td>
</tr>
<tr>
<td>Maintenance and repair</td>
<td>5% of cost of equipment</td>
<td>123,000/-</td>
<td></td>
</tr>
<tr>
<td>SUB-TOTAL EQUIPMENT</td>
<td></td>
<td></td>
<td>2,576,000/-</td>
</tr>
<tr>
<td>TOTAL LABOUR (waste collectors)</td>
<td></td>
<td></td>
<td>600,000/-</td>
</tr>
<tr>
<td>INDIRECT COSTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Rent</td>
<td>30,000/-</td>
<td>per month</td>
<td>360,000/-</td>
</tr>
<tr>
<td>Electricity</td>
<td>10,000/-</td>
<td>per month</td>
<td>120,000/-</td>
</tr>
<tr>
<td>Water</td>
<td>5,000/-</td>
<td>per month</td>
<td>60,000/-</td>
</tr>
<tr>
<td>Typewriter</td>
<td>hire 5,000/-</td>
<td>per month</td>
<td>60,000/-</td>
</tr>
<tr>
<td>Stationery</td>
<td>10,000/-</td>
<td>per month</td>
<td>120,000/-</td>
</tr>
<tr>
<td>Transport</td>
<td>20,000/-</td>
<td>per month</td>
<td>240,000/-</td>
</tr>
<tr>
<td>Furniture</td>
<td>nil</td>
<td></td>
<td>nil</td>
</tr>
<tr>
<td>SUB-TOTAL INDIRECT COSTS</td>
<td></td>
<td></td>
<td>960,000/-</td>
</tr>
<tr>
<td>TOTAL COSTS</td>
<td></td>
<td></td>
<td>4,136,000</td>
</tr>
</tbody>
</table>

The costs and revenue associated with the street cleaning contract has been explicitly excluded from the calculations. This was, unfortunately, not possible with the costs and revenue related to the cleaning of drains. It appears that the equipment used for drain cleaning has been mistakenly included in the list of waste collection equipment. This inflates the total costs in the above table. Similarly, the revenue quoted by the CBO cannot be related to the number of houses served. Apparently other sources of revenue are mixed up with the revenue from waste collection.

For these reasons it is not realistic to calculate a profit/loss statement, nor is it feasible to
calculate the break even point.

Nevertheless, it is clear that the cleaning of drains is KIMWODA’s major activity, in terms of equipment and labour input. Yet this activity earns no revenue at all. It is waste collection from a small number of houses and much volunteer time that supports the drain cleaning.

Notes
- KIMWODA provides garbage collection to 55 houses, at TShs. 200/- per trip. Shops pay 500/- per trip. This is on average once a week per house.
- The costs made to carry out the separate activities (drain cleaning and waste collection) could not be distinguished. Neither was it possible to obtain clarity about separate labour cost.
  A comparison with MABIBO gives an indication of the relative size of the activities of waste collection and drains cleaning respectively.
- It is probable that the Community Development Association (CDA), which is in charge of the roads and drains project, has made most of the cleaning equipment available.
- The Committee of the CBO itself reckons that waste collection is subsidising the cleaning of drains and that the revenue does not cover costs.
- The cost of office rent seems rather high, considering the location and the space provided.

4.2.4 Discussion

Financial situation of the CBOs

MABIBO appears to be, theoretically at least, in a better financial position than KIMWODA. If MABIBO is able to maintain, or better still to expand, its present number of houses (customers) it will be able to cover its costs. This also assumes that no major new cost items will come up.

The operations of KIMWODA appear to be lopsided, with revenue from one activity (waste collection) being spent on another activity (cleaning drains). The CBO thus risks to have no funds available to replace worn out equipment for waste collection.

Not included in this calculation is the free time given for management tasks by each of the CBOs. This is estimated at four hours a day, and refers to office management, work planning and coordination, and supervision of the teams. For a correct calculation of business perspectives, this time should be expressed in the budget. Assuming a half-time manager/coordinator at an official minimum salary (30,000/- divided by two) of 15,000/- per month, this amounts on an annual basis to 180,000/-. 

Setting the garbage fee

The method of calculating the garbage fee by the two CBOs needs clarification and confirmation. The CBO consultant received different statements from both CBOs on how garbage fees were calculated due to problems with language and understanding. MABIBO calculates the TShs. 200/- per house and per waste bag emptied, irrespective of the number of people in the house. It
is not clear, however, whether a house empties, and thus pays, regularly once every week, or less often. KIMWODA states that TShs. 200/- is paid per house per trip (by wheel barrow?), and that this is usually once - or twice! - a week. However, the tables for both CBOs assume that houses pay TShs. 200/- once per week only.

The fee is paid on the spot to the garbage collector. This immediate payment is most appropriate for a CBO which wants to recover its costs. For the customer, however, the price of collection may become rather high, if he/she pays two or three times the standard rate of 200/-.

Exact information about the garbage fee is required for analysing and planning an appropriate fee structure. This concerns the total revenue collected from garbage fees as well as how this revenue is composed: the actual amount collected per house per week, differentiated by type of customer, and by frequency of collection.

Since the administrative records of the CBOs do not yield sufficient information, it is advisable to walk with a collection team in the field during a week and to discuss on the spot one's observations and questions with the team members.

Setting the right price is an important issue in making waste collection a sustainable service. The price must cover the costs and it must be attractive to customers as well. It is fair that households (e.g. of a higher income level), businesses and restaurants which produce more than an average amount of garbage, pay a higher than average price. A differentiated price like the one used by KIMWODA takes account of such differences between customers. Potential competition, however, must also be considered if the price becomes too high. The private company MULTINET, for example, offers a collection service for 150/- (JICA Report). And young, unemployed men and women may take the initiative to go from house to house to collect garbage at a lower rate of payment.

The use of capital

The source of capital of the CBOs is their membership fees and annual subscriptions. It is from this capital that lump sums of money are used to buy equipment and tools. The use of equipment, its wear and tear, has to be recovered from the charges paid by customers, so that new capital is formed. As this new capital is also used for investment in tools and equipment, the availability of capital will ensure the continuity and expansion of the business. As outside capital is difficult to obtain for CBOs, it is important that they use their capital for investment only. (Refer to Work from Waste). The Mission therefore advises that the CBOs use their membership entrance fees as working capital and general reserve, and only use the annual subscription fees of members to support the operational costs of waste collection.

Cost recovery

Several cost recovery strategies are possible:
- Obtaining many more customers who are each paying a lower fee than at present, but collectively make up the necessary revenue. This option assumes that the total revenue covers a larger part of the indirect costs, and thus makes a reduction of the garbage fee possible. This will attract customers.
- Find out whether improved planning and rationalisation of collection routes is possible and necessary.
- Find out whether substantial benefits are to be obtained from separation of waste materials, sorting, cleaning and selling them. Find out in particular how the cost of transport of these materials can be reduced (e.g. through joining another CBO or MSE for this purpose, or making a special arrangement with another CBO).
- Being paid for the extra work performed on a volunteer basis for the community (e.g. cleaning of drains by KIMWODA, and transporting garbage from the community dump to the transfer collection point by MABIBO).

The best way of determining the garbage fee in relation to the service offered is through decision making in the community. One method in use is the bidding game whereby community members state how much they are prepared to pay for a particular service level. They make a bid. The real costs of providing a particular service level (direct and indirect costs) must be calculated first in order to offer a service at a realistic price. When the CBO makes several service offers with their appropriate prices, community members can decide what service they are prepared to pay for. Variations in service offers are listed in Annex 5 (Business Plan).

Financial records
Record keeping is practised, by the one more than the other. It appears, however, that the financial records are not used to draw management conclusions regarding, for example, the balance of profit and loss of waste collection, or the need to improve cost recovery. Or if they are, the CBOs are not able to put their conclusions into effect. A clear picture of the number of labourers employed and the equipment used for garbage collection is also necessary if the CBOs aim at improving their business operations. Clear records are required.

Monitoring one's own organisation
This report has mentioned several times that a CBO and the community leaders have to take decisions regarding the operation of waste collection services. And that reliable information is required for these decisions. The issues concerned are, for example, the amount of the garbage fee and the method of fee collection, the expansion of the garbage collection to a greater number of customers, the choice of equipment, or the rationalisation of collection routes and timing. Although lessons can be learned from experiences with garbage collection elsewhere or even from social surveys, the most appropriate information comes from the CBO itself and its own community. The Mission advises therefore that the CBOs and the project office use monitoring procedures for obtaining the information needed. This requires an experimental attitude.

When a question arises, for example, on the most suitable equipment to be used, the experience of the garbage collectors, customers, and the CBO treasurer will give all the information required. Important information concerns the quality of the equipment (can it contain e.g. wet and heavy garbage), its purchase price and cost of repair, and the time it lasts before renewal is necessary. The CBO will obtain useful information by recording the date and price of purchase of the equipment, the dates and prices of repair, the date it had to be renewed, and observations about its strength, ease of handling, etc. By comparing information once a month, the CBO will acquire the necessary knowledge for reaching a management decision. Or, when aiming at a higher
collection of garbage fees, the CBO members will discuss once a month whether its target has been reached or not, what constraints and positive effects have been experienced, and what actions they plan to undertake in the next month to achieve the target. In this way self-monitoring is a management tool for the CBO.

4.3 Empowerment of CBOs

This Mission considers empowerment of CBOs as getting access to funds and resources of urban government regarding waste services (Cotton, Sohail, and Tayler. CBOs can achieve empowerment in various ways:

First, CBOs will require full information and understanding about their own business operations. This entails getting the skills for analyzing their own financial situation and business operations. And they will strengthen their position in the community as a business oriented social service organisation. The information on their capacities and requirements as CBOs in waste services, gives these CBOs the basis for negotiating and demanding specified responses from stakeholders.

Secondly, the CBOs will deepen their knowledge of governmental policies, resources, funds, and relevant personnel available for community-based waste collection, both at the central city level and the District and Ward levels. It means finding out how urban government "works". Policy in Dar es Salaam is at present favourable to CBO involvement, and the stakeholders in waste management will have to see to it that these policies are implemented by the urban administrative units. For the CBOs it is a matter of knowing their rights as legally recognised partners in waste management. It is also a matter of increased skills in lobbying government officials and negotiating for urban government services, for example, regarding secondary waste collection to back up primary collection carried out by CBOs and small enterprises.

Thirdly, the Dar es Salaam City Commission can facilitate the empowerment of CBOs, by increasing transparency in local government decision making and accountability in the spending of public money. This concerns clarity in the procedures which lead to the award of contracts; a clear distinction of responsibilities and tasks between and within government departments; and general availability of information on the conditions of the contract between government and other organisations.

The DCC contracts for street cleaning may stand as example of limited transparency in government procedures. The contracts are for three months only, and can be renewed or revoked by the DCC. The Solid Waste Management Organisation of the DCC has a list of organisations which are eligible for such a contract. It is a list of about 20 organisations, both private companies (e.g. Red Cross, and Multinet) and CBOs/NGOs (e.g. KIMWODA, MABIBO, and TECA, and Hana Nasif Women's Development Association) all mixed together. When a contract for the cleaning of a particular street section becomes available, an invitation to tender is sometimes published. Sometimes it is not published, and the government officers rely on their previous experience with particular organisations. Neither is it clear to outsiders whether the Health Department issues the contract, or the Works Department, or the Solid Waste Management Organisation, or in combination. In such cases decision making procedures become
rather vague and obscure, and difficult to follow. In a recent case, a CBO's contract was not renewed without any explanation, nor was it clear to which officer at which Department the CBO had to address itself. The loss is great to the CBO which has had to make investments in street cleaning equipment, which was a condition of the earlier contract.

In this case there is a general policy regarding the involvement of CBOs in waste management, but it is not elaborated and confirmed in rules and regulations nor in a departmental budget. Further, it seems that the conditions of the street sweeping contract are not fixed, which is to the advantage of strong companies, but not so for less experienced CBOs. Conditions such as responsibility for supervision and for providing equipment and tools (the DCC or the CBO/NGO) make a great difference in the income earned by a small organisation. Overhead is not included in the wages earned by the labourers, which are well below the official minimum wage (TShs.1000/- instead of TShs. 1400/- per day).

Finally, networking between organisations is a way of empowering CBOs. One strand of networking goes between the CBOs/NGOs and agencies, which have funding and expertise programmes. The agencies recommend certain organisations to each other. The CBOs try their luck at various offices. Another strand of information exchange has existed for several years between the stakeholders in the Working Groups of the Sustainable Dar es Salaam Project (SDP). At present these Working Groups do not function any more. A final channel for networking is between CBOs/NGOs among each other and between them and ward level government officers. Although contacts do exist, and the Community Development Department does arrange exchange visits, they appear to be incidental, not structural. The position of CBOs would be strengthened if there was a regular exchange of information about common problems in getting secondary waste services; and if there was greater coordination between these organisations in their approach to urban government, the private sector and funding organisations; and if the CBOs/NGOs and small enterprises could form alliances with those having similar problems.

In Ouagadougou (Burkina Faso), for example, the CBOs engaged in waste collection have established an association after many months of preparation, and approached the municipal government jointly to demand a waste disposal site at a reasonable distance from the city. In Bamako (Mali) CBOs have formed a coordinating committee in one large neighbourhood (100,000 people) which encompassed all waste collecting small enterprises and government and non-government organisations active in the public health sector. This committee regulated the boundaries of service areas, thus reducing the competition and conflicts between the CBOs. This committee has also approached the urban government on behalf of its members/ CBOs to request that they be allocated part of the tax revenue earmarked for public services (WASTE/UWEP case study on Bamako).

The Mission expects that the monitoring and support group around the DCC/ ILO Project will perform a networking function.

4.4 Marketing

When one is looking for customers for goods and services, one has to think about how to
approach and persuade customers. This requires the collection of basic information about the area and the potential customers. The general marketing principles for micro-enterprises described in manuals (e.g. Grassroots Management Training; Empowerment through Enterprise) also apply to establishing a waste collection service. It requires thinking about households in terms of customers who have to be satisfied with the service before they are willing to pay for it. Satisfaction with the service is also a precondition for its continuity in future.

An assessment of needs and priorities of potential customers is essential. Their motivation centres not only on environmental concerns and public health, but also on convenience and aesthetics. Promotion of waste collection in the community will therefore focus on such reasons (Pfammatter and Schertenleib). Marketing will include persuasive techniques, like allowing the customer to pay tomorrow while his/her garbage is collected today. Or pointing out to the customer that there is garbage lying around in the compound, which should be taken out (KIMWODA).

Secondly, ability and willingness to pay for waste collection are limiting factors to be analyzed prior to establishing a new project. Even during its operation they have to be analyzed when customer behaviour appears to change and a revision in the type of service or its price seem necessary. An example provides the MAPET project in Dar es Salaam (WASTE, the Netherlands) in which the emptiers of pit latrines negotiated their price with their customers, which resulted in an automatic adjustment of the price to the real demands of the customers. In 1998 the unit price for pit emptying had remained the same as six years before, reflecting the general reduction of income of the population.

And thirdly, a viable collection service also depends on the choice of area to be covered by the waste collection service. Geographical and socio-economic characteristics are important factors. A service may not be viable if it only covers poor areas. Inclusion of a wealthier area may make the service operation more sustainable through cross-subsidisation: wealthier households produce more garbage so can be charged accordingly, and their garbage contains more recyclables to be sold. The example of Abidjan has already been mentioned.

4.5 Linking into city services: secondary collection

A policy has been adopted whereby the primary garbage collection in most residential areas is the responsibility of CBOs, while secondary collection remains the responsibility of the city government. Although the scale of operation of the two selected CBOs is small (covering 120 and 55 houses respectively), their experience already points to the crucial issue of linking into city services. Having collected garbage inside their area, it must be taken out for final disposal. The temporary dumping site, or secondary collection points in their area have already been closed or will soon be. This forces the CBOs to hire a truck at great expense to dispose of their garbage somewhere else, where it will be picked up by the DCC.

In line with official policy, the DCC and the Districts are obliged to make secondary collection available to match primary waste collection. This requires:
- The scheduling of collection routes so that they pass by places that can be reached by
residents and CBOs.
- A regular and reliable time schedule of secondary collection.
- The establishment of a network of secondary collection points.
- Making vehicles available to carry out secondary collection.
- Firm agreements with the community, CBO, and collectors' teams about proper use of the collection point.

Secondary collection points

The Solid Waste Management Organisation of the DCC has already proposed two secondary collection points on the main roads passing the Hana Nasif and Mabibo Wards. This decision has been taken in response to the selection of the two CBOs (located in these Wards) by the DCC/ILO project. The proposal has been submitted to the Lands Department for approval.

Policy issues that the DCC should address are:
- Land availability for collection points
- Allocation of responsibilities and duties regarding construction, operation and maintenance of these collection points in terms of finance, labour, and regular servicing.
- Justification for allocating resources to secondary collection from areas where CBOs are operating.

After decentralization of the city administrative structure has taken place (in the course of 1998) each District will determine collection routes, the time schedule, and the location of collection points, subject to planning approval.

Considering limitations in accessibility for large trucks, it may be necessary to establish several collection points in a Ward, area, both inside the interior (temporary dumping sites) as well as at the borders (secondary collection points) where large trucks can pass. The collection points should be properly constructed, be accessible for particular types of vehicles which transport the garbage, and be well maintained. The importance of temporary collection points inside the Wards is underscored by a concept paper prepared by UMU Temeke Ward 14 (May 1997). This paper states that the identification of sites for temporary disposal inside the area itself is an essential task in the early phase of a community-based collection scheme.

Collection points will be shared by several Wards and CBOs. This requires joint consultation, selection of suitable locations, and local planning. The allocation of responsibilities and duties must be made clearly (see Cotton, Sohail and Tayler, for guidelines for making contract and agreements between CBOs and local governments). As far as local communities are responsible for operation and maintenance, there is already experience in Dar es Salaam with the operation of infrastructure facilities: the Community Development Association (CDA) constructs and maintains roads and drains in Hana Nasif, and several Wards undertake infrastructure projects through CIP and PLAN. Leaders and CBOs require community management skills and knowledge on waste management, while municipal staff requires the ability to recognise and appreciate the capacities of CBOs.
Transport to the site of final disposal

According to policy documents, the DCC will be responsible for transport of collected waste to the final disposal site. This refers in the first place to making financial resources available. It is quite possible that private companies, NGOs or CBOs will be offered contracts to carry out the actual transport.

The coordination of the primary and secondary collection system, managed by different parties, will be crucial for the success of the decentralized and privatized waste management system. A review of waste collection schemes in cities in Indonesia, Latin America, and West Africa showed that the interface between primary and secondary collection often experiences difficulties (Pfammatter and Schertenleib):

"The primary collected waste is often not picked up at the collection or transfer points by the secondary collection system which is usually operated by the municipality. Where the collectors are supposed to dump the waste directly into provided containers or trucks, insufficient timing as regards container collection or lack of truck journeys often results in full containers or queuing. This forces the collectors either to waste their time in waiting for the truck or to dump the collected refuse elsewhere."

Pfammatter and Schertenleib suggest that transport to a landfill should therefore be included in the contractual duties of the enterprise or CBO that operates a primary collection service. The CBOs selected for the DCC/ILO project do not at present have the capacity to operate secondary transport, but they may be able to reach an agreement with a transport CBO, as proposed later (chapter on transport) in the present Mission Report.

In Dakar (Senegal) a model of linking the actors in primary and secondary collection is fairly effective. A private company obtains a contract for waste transport to the landfill. One of the conditions of the contract is that the company engages on sub-contract a CBO or small enterprise for primary collection in the neighbourhood. The company may engage several small enterprises and CBOs to serve different areas. Operation and maintenance of the collection point is the company's duty. From the point of view of waste management, the system seems to work and fairly regular secondary collection is carried out from certain collection points.

From the point of view of CBOs, these sub-contracts are a mixed blessing. Stable and regular employment and income (paid by the company) is an advantage, but the working conditions are tough. No protective clothing is provided, no medical treatment, no paid sick days or holidays, inappropriately designed collection containers, and no support for mobilising the community to cooperate and to pay the CBO. These conditions are similar to those experienced by the CBOs in Dar es Salaam. In addition the small enterprises in Dakar have no room for negotiation, as the terms of the contract are determined by the municipal authorities and the company, excluding the small enterprise (WASTE/UWEP case study in Dakar).

Byelaws on neighbourhood cleanliness

The Mission heard frequent remarks about the necessity of byelaws that prohibit careless waste
disposal in public places like streets. Such byelaws provide support to the garbage collection activities of the CBOs. The question is, at which level should such bye-laws be made? If the byelaws are to be effective in the communities in the Wards, then they should be made by the Ward authorities and community leaders, as it is in the communities that enforcement through social pressure will take place. Byelaws prepared by the District will provide the necessary back up to those made by the Wards.

In fact, the members of one of the CBOs had already worked out a scenario: The CBO would raise the awareness of the community leaders about environmental cleanliness, and ask the leaders to call a public meeting. The participants of the meeting would then come to the conclusion that byelaws were necessary, and that the leaders would be asked to maintain them by rebuking or otherwise sanctioning those people contravening the rules. In principle the Mission agrees with these ideas.

4.6 Combination of waste collection and recycling

The CBOs aim at increasing income from their waste activities. In particular they want to collect and sell valuable materials, so as to subsidize garbage collection. Both CBOs have tried their luck in recycling, but have given up after a few months, having experienced the high cost of transport and the low price paid by the plastic and glass industries. It just was not worth their effort.

A general principle in recycling is that the price paid for the material increases when some initial processing is carried out, such as sorting, cleaning, crushing, shredding etc. This may make the recycling activity financially more interesting. If the CBOs would try again to combine waste collection with recycling, they should consider the following steps:

- Find out from dealers and purchasing factories which materials fetch a good price, and how the materials should be delivered (both in quantity and quality) to get the best price possible.
- Find out about cheap means of transport.
- Find out whether the required materials are available at a reasonable distance. Find out what investment is needed e.g. for adaptations to the usual means of transport (maybe separate compartments), equipment for additional cleaning, or rent of a storage facility.
- Ask cooperation from leaders and households for separation of waste at source.
- If the available working capital allows it, provide households with two waste bags, one for wet waste and the other for dry waste.
- Provide an incentive to participating households, e.g. by collecting their waste for a lower fee than usual.
- Arrange for a place where storage, additional sorting and cleaning, and baling of materials can take place.
- Arrange for transport to pick up the materials.
- For marketing there are basically two options: to put in a lot of marketing efforts by the CBO or MSE itself, or leave it to the market. A store full of recyclables may soon be known and attract buyers.
- In any case keep records of materials collected, handled, and sold. They will provide an instrument for deciding whether or not to continue with recycling activities.
4.7 Gender in community-based waste collection

It is striking that almost all the CBOs known to be in waste collection are women's organisations. Only two of them are run by youths or young men. Women manage these organisations, and provide work and income to some of their women members by giving them jobs on cleaning teams.

This situation is contrary to observations made in a workshop on community management of waste and sanitation infrastructure (Proceedings of Workshop, January 1997). It was said that tradition and religion "preclude women from decision making roles in community efforts to manage waste". That the heavy workload of women (household and family care) effects their role in community management of waste; and that "women see no obvious benefit in waste management schemes and are principally concerned with initiatives that make their work easier".

Despite these observations, women are apparently very active in waste activities. What then is the reason that women dominate in garbage collection, cleaning streets and drains, both as labourers and as managers? Both KIMWODA and MABIBO women (as well as those of Hana Nasif Women Development Association) said that they were fed up with the dirty environment around them which was a danger to the health of their children; that they were proud to render good service to the community; and that many women need to earn income for their families. However, waste activities have a very low status, and men and women working in it are mocked, and considered rather "crazy". Possibly it is the low status jobs that are left for women.

This is also the experience of a CBO engaged in waste collection in Ouagadougou (Burkina Faso). At first the CBO employed men as garbage collectors, refusing women. The men stayed only a few months, and then left for better jobs. After some time the CBO employed women collectors. They stayed much longer, making great efforts to keep the job despite their family duties. (Le projet pilote a Wogodogo, CREPA).

Yet another gender issue is involved in the free service rendered by KIMWODA and MABIBO to the community. There is much volunteer physical labour provided by the CBO members and they make long hours on management and supervisory tasks. Work organisation and supervision is carried out unpaid, although in one case allowances are paid. Apparently this seems to be accepted as part of the traditional family care role of women. Questions must be raised, however, on how long this volunteer work can continue. Women from both CBOs express the wish to be paid for their management activities as soon as the situation allows it.

A gender dimension also influences contacts between CBOs and the Health Department of DCC, as 90% of the senior staff are men, and 100% of the sweepers are women. It is recognised by both the Health Department staff (male) and CBOs (female) that it would be easier to deal with persons from the same sex. Consequently, when the DCC Waste Department appoints a liaison officer for CBOs (as is foreseen in the staffing plan), then preference should be given to a woman. This will facilitate contacts.
CHAPTER 5   SMALL-SCALE-ENTERPRISE DEVELOPMENT IN WASTE RECYCLING IN DAR ES SALAAM

5.1 Recycling MSEs and the local enterprise context

5.1.1 MSE in the industrial environment

It is a common feature in East Africa: there is a rather monopolistic large-industry in various sectors, there is a large group of very small (and micro-) enterprises and the small and medium scale sector is lacking. From the discussions with organizations involved in the business support of MSEs it is also clear that a major part of the MSEs in Dar es Salaam is involved in trading (vegetables, clothes, household utensils) rather than in producing and manufacturing. The performance of the large industry therefore has a direct effect on the MSEs: in the supply of raw materials to the re-manufacturers and in the demand for the dealers and collectors (and hence the prices of the commodity and the final product). There is a great dependency of single large industrial entities.

5.1.2 Enterprise support

There is hardly an industry manufacturing machinery for the MSE sector and there is limited technical educational tradition to train people for the manufacturing enterprises. It is hard to find a small industry where basic manufacturing machinery is in use such as one can often see in Asia.

Informal sector banking

In the formal banking sector there is no possibility for MSE to obtain loans although some of the names of the banks look promising: 'Cooperative Bank', 'Bank for Small Scale Investment'. As has happened in many countries in the South most such banks have drifted away from their original target groups. Mention is however made of some 400 funds which support MSEs, Self-help groups and Associations, amongst them SIDO with its hire-purchase scheme and SSMECA with a micro-finance scheme. A guide on the numerous funds will be made available by Mr Godfrey Lewis of SSMECA, after the mission's departure. Worth mentioning is the Mennonite Economic Development Association (MEDA). They operate particularly in the field of credit provision under the National Income Generating Project (NIGP). The Tanzanian Government and foreign donors channel their funds to NGOs etc. via this funding coordinating body. The NIGP has various approved themes for funding of which credit is one. MEDA therefore can only fund approved NGOs which have to fulfil certain criteria.

Technical education

The technical education system in the past was hardly geared towards the manufacturing and business society. The system is however under transformation: a former Governmental vocational training organization is under educational and organizational reform. The newly created organization Vocational Education & Training Authority (VETA), formerly known as the National Vocational Training Institute, has adapted its curriculum after discussion with the private sector and educationalists to a more enterprise and demand oriented vocational training.
The curriculum is flexible and adjusted to their specifically defined target groups: the formal and INFORMAL sector. Courses can be short, given in the evening, in the VETA workshops but also on the spot, in the enterprise itself. The organization is further capable of making an educational assessment of the felt needs of the potential trainees by visiting the enterprises concerned. It is obvious that this new approach is also more 'market oriented' i.e. there is a price to pay. A one day course may cost as much as Tshs 90,000.- but the more trainees the lower the costs per trainee. The topics of the courses can be virtually every topic which falls under vocational 'technical' training. SSMECA (Mr Joe Chidabwa) is involved in the development of the curriculum at VETA for MSE trainees. SSMECA's experience with business training to MSEs is of great help to the development of the technical training to this special group of potential trainees.

Enterprise innovation

With regards to product innovation the situation appears less fortunate. There are two institutes catering for product innovation in the industry: the Tanzanian Industrial Research & Development Organization (TIRDO) and the Institute for Product Innovation (IPI) at the University of Dar es Salaam. Both institutes are not very familiar with the situation in the MSE sector, but are eager to be involved as soon as funds can be made available. New developments can only take place when funding from the industry or from foreign funding sources is available: a serious stumbling stone in the industrial development in Tanzania. Outside funding is needed since the government is withdrawing or about to withdraw (within three year in TIRDO's case) from this sector. Eight institutions (a.o SIDO, TIRDO, CAMARTEC) have joined hands and formed the Industrial Support Organization (ISO) to cope with the future 'privatized' situation. Both organizations can provide help in the assessment of innovation needs and in the development of a fundable proposal.

Business training and development

With regard to support for business development two well established organizations have gained their spurs: SIDO and SSMECA, the latter being supported by both the ILO and SIDO. Both organizations have developed several training modules that train the participants in various aspects of running an MSE as part of an association. Both organizations have chosen for this approach for practical reasons (concentration of training resources) and for policy reasons (MSEs are stronger when joined in a legal recognized form such as a Self-Help Organization (SHO) or a Cooperative.

SIDO has developed the following three appropriate training modules:

- a one-weeks course for 'Entrepreneurship skills development and business planning skills' for individuals and MSEs: appropriate for illiterate people, expandable to two weeks, based on two trainers Tshs 10,000.- per day
- a 2-3 days training on 'Joint learning opportunities for Representatives from Self-Help Organizations in Dar es Salaam', classroom teaching, video's, Tshs 7000.- per person
- a 2-3 hrs training on Collective Commercial Planning (CCP), specially for members of Savings & Credit schemes, training on the spot, Tshs 20,000.- per group

On all training a short scheme of work is attached in Annex 11. All training emphasizes a 'business attitude', potential to grow, business planning. All training is open and appropriate for
male and female entrepreneurs. In two months time a manual on the training will be readily available. A period of monitoring the performance of the MSE is part and parcel of the training.

SIDO has two financial support schemes:
- financial assistance to Savings & Credit schemes of SHO, after the S&C scheme has been financially established by the SHOs themselves
- a hire purchase scheme (since 1997) based on a Grameen bank type of group lending: each member of a group of five people is responsible for the repayment of a maximum share of Tshs 60,000.-.

No training is as yet available or geared towards the strengthening of capabilities to deal and to negotiate with the local government, an issue which needs more attention since the role of the local government is changing from provider to facilitator and creator of conditions. The MSEs and CBO should be equipped for this new role. In that respect SIDO presented to the ministry of Labour and Youth Development a 'Plan for the Developing of MSE people in Dar es Salaam' in May 1996, in which it underlined the positive role of MSEs in the national economy and proposed several ideas for the establishment of MSE sites, ways of legalizing the MSE according to some approved standards with regard to social and health conditions.

SSMECA is a project executing organization supported by the ILO in collaboration with SIDO which supports MSEs in the increment of their income, the improvement of working conditions to strengthen their self-reliance. It is preferably focusing on groups of MSEs, either formal or informal associations and cooperatives. There are basically five main activities:
- training: the Grass root Management Training: pricing, costing, marketing, record keeping, awareness of business environment, the Rapid Marketing Appraisal (no copy of the latter training material as yet has been made available to the mission), skills upgrading courses (tailor made technical training)
- micro finance: training for Savings & Credit schemes, support to SIDO's Tetuweza credit fund (equipment and working capital to manufacturers)
- business advisory service: business diagnostic surveys, organizations of exchange visits between entrepreneurs
- network activities: promotion of local networks in which participate entrepreneurs, local authorities, NGOs and organizations interested in improving business environment
- association counselling: assist in registration of associations and promotion of associations networks, group management.

A new phenomena is the intention of developing a special course on waste management and recycling by the Arnautoglu Folk Development Centre in Dar es Salaam, an organization which offers vocational courses t Centre inCommunity development (organizations) workers. The institute has no experience in the field of waste management but noticed the felt need for such course. A draft curriculum has been handed in, which would need considerable adjustments before it could be applied. Support could in this field be sought from the National Environment Management Council, which also gives training.

One can conclude that in the field of business training quite some expertise and experience is available to the recycling MSEs to profit from. The impression prevails that very few or none
of the trainers has any entrepreneurship background and give their support from a theoretical point of view.

5.1.3 Recognition

MSEs and particularly the street vendor, petty trader type of businesses and waste pickers and collectors have always been considered a nuisance to local authorities and some citizens. Their performance does not fit in their image of a 'modern' city life. Over the years however recognition has started to grow of the employment potential and the economic value these MSE certainly have. Amongst MSEs growing interest can be seen to unite them on some of the issues threatening their existence and to become a recognizable stakeholder for the local authorities. Several of the business support organizations therefore assist the MSEs in forming 'associations' and/or 'cooperatives' to give them a legal status and to make their case known. In the selection of the MSE with which the ILO Support Programme will work the next three years the issue of being an association of several entrepreneurs has therefore been a criterion.

In that respect it is worth mentioning: the Vibindo group 'Viwanda na Biashara Dogo' (Small-scale Workshops and Businesses), an association of 73 street vendors and petty traders who originally had joined forces to resist to the constant harassment from the side of the DCC to remove them from certain areas in the city. The entrepreneurs went into a process to become an 'association' with legal rights and duties. Members pay a fee to the association, the office is managed by rotation on a voluntary basis by group members. It is an example of empowerment of the informal sector entrepreneurs. Vibindo now also assists other street vendors and petty traders in forming associations and has made the street trade legally present. They are often invited to meetings where informal sector issues are being discussed such as to the Standing Committee of the Confederation of Tanzanian Industries (CTI).

5.2 Selection of enterprises for guideline development

The MSE consultant had the task to select ten 'recycling' MSEs which, through the improvement of their product quality, through a better marketing and through product diversification could increase the employment opportunities in the waste sector. Different from the assignment on CBO involvement in MSWM no selection of MSEs had been made before the arrival of the mission. The report on 'Market potential of recycling activities in Dar es Salaam' by mr. Busalama was available, but did not offer much help in this respect. The extensive annexes show the names and particulars of a selection of over one thousand collectors, dealers, remanufacturers and retailers interviewed for this field research. The section on dealers and remanufacturers however did not specify the branch they are active in, while their place of work had been indicated by 'ward' only and so they were not readily identifiable and traceable.

At the start of the mission ILO therefore proposed to identify potential MSEs for ILO's Support Programme by scrutinizing lists of MSEs which had been part of ILO's and other MSE support programmes. From SIDO/GTZ a list became available with groups (associations) of MSEs which received support from the SIDO/GTZ project. Listed were 250 Self-help Organizations (SHOs) which had received business management training and which were followed up on their present
performance after the training. On this list the majority of the SHOs proved to be vegetable traders. Yet one group of metal workers could be identified, the MhirahatMetaloxks (an association of 26 metal workers in the Mburahati ward south of the Morogoro Road, southwest of Magomeni.

Another cooperative formerly supported by ILO/SIDO is the Dar es Salaam Small Industries Cooperative Society Ltd (DASICO) in Kariokoo (Nyerere/Msimbazi street). One paper reuse entrepreneurs of DASICO were interviewed. Because of the slow economic activities in the paper (recycling) industry and the subsequent problems in finding other dealers and/or remanufacturers, these two were finally the only two people interviewed in this branch. For similar reasons as mentioned above also two remanufacturers (remanufacturers) were selected from the metal branch by the chairman of the DASICO cooperative (Mr Adamu A. Hemedi).

In the plastic recycling branch no recycling (in this sector re-use only) enterprise had ever received support from any of the MSE support organizations. Given the already mentioned difficulties to trace the plastic recyclers from other project related records, the MSE consultant spent considerable time to meet and interview two plastic recycling entrepreneurs: one group at the Mtoni dump site and one group behind the Mnazi Mmoja dispensary near the bus station at Bibi Titi Road.

The re-use of organic waste through composting was not part of the MSE consultants' original assignment since it was meant not to be a commercial (MSE) activity. Experience has learned however that small scale composting activities -when established on a commercial basis by CBOs- could prove to be feasible. For that reason it is considered part of the MSE consultants assignment. No enterprise activity could be traced and was heard of by any of the people interviewed. One of the CBOs (HananasifWomeji's Group), which was not selected as one of the two pilot organizations of the ILO's Support Programme, but which intended to engage in buying, was therefore taken as cooperating organization.

One other group (Koshika Women Group /Lindi street) has been selected since from an earlier interview it had become clear that this group is in the possession of two (compacting) trucks, which could perhaps, when properly managed, solve part of the transportation problem of some of the other CBOs and probably 'recycling' MSEs.

In total nine recycling related activities have been selected for the development of a framework of practical guidelines for the increase of their employment opportunities. None of the MSE has officially been invited to become part of the ILO's Support Programme. To the MSE consultant's opinion, the selection of entrepreneurs for ILO's Support Programme should be based on the overall outcome of this report. The potential MSE candidates should be checked against any of the options identified in this report. Selection of the MSEs can only take place after thorough interviews with the entrepreneurs concerned to identify their suitability to run any of the options under ILO's Support Programme. Besides it should be clear on the side of the ILO if the options presented to the entrepreneurs are feasible and what type and level of support ILO could offer. The following criteria could be guiding the selection. The MSE should:
- be in operation for at least 3-5 years
- be an association of at least five entrepreneurs to be able to acquire e.g. a SIDO hire
purchase loan (in case the purchase of machinery is involved)
- have received some business training and having been through a period of follow up on
  business improvement and the application of knowledge
- show initiatives in product innovation and marketing (business attitude)
- keep some administrative records and/or can formulate (verbally or written) some sort of
  business plan to be able to formulate some prospective beyond survival only.

'Recycling enterprises' in this assignment should be understood to be enterprises which are
either collecting waste fractions, dealing in waste fractions, re-manufacturing the waste
fraction into a useful semi-final and/or final product. When reference is made to employment
generation in recycling enterprises it is meant to create employment in either one of these
elements of the waste chain. After all, ILO is in the first instance concerned with employment
generation in waste related businesses and in secondary instance in contributing to the
reduction of urban waste.

5.3 Paper

5.3.1 Generalities on paper and paper recycling

Types of waste paper
To engage in paper recycling it is important to understand what different types of paper are made
and for what specific purposes. This will also determine where to find what kind of waste paper,
how it could be re-used and who would be interested in it. Extensive literature exists on this
topic. For example computer paper is considered a highly valuable type of waste paper, the
lowest value will have newspaper and mixed waste paper. The different types of paper also
determine where the sources are: some are at special offices (computer paper) some can be found
at industries where a lot of packaging takes place or at industries which produce paper as a side
product (textile printing), households sometimes separate waste paper for re-use, but also on
landfills sometimes good quality paper can be found though often is it wet and dirty. It is
therefore important to get a clear picture of the streams of waste paper from their sources to their
final destination and to collect it as early as possible in the waste chain. The waste paper quality
and the working conditions will improve considerably.

Waste paper collection
Paper is rather heavy: it weighs about 100 kg per 1 m3 (a heap of 1x1x1 metre). A light weight but
sturdy hand cart is the simplest and cheapest way of transporting. It is obvious that all sorts of
motorized means of transportation (pick-ups and vans) will increase the price of the
transportation considerably, but there may be the advantage of the economy of scale: one can
collect more paper in one trip. And receiving factories do prefer to receive waste paper in bulk.
This however involves capabilities in coordination, planning and pre-financing.

Transportation and storage cost can be reduced by baling the waste paper. Also it reduces fire
risks, which is a not unimportant feature. Baling presses are available in different hand and
industrial made types and can be easily constructed locally.
Markets

In virtually every country a paper making industry exists. This industry is usually also the one which buys in larger quantities waste paper from what ever source. Some paper mills do not accept small quantities of waste paper (too much administration and quality control) and thus an intermediay operates in between: the middle man and dealer. They buy from 'small' clients and sell huge quantities to the paper mill. Sometimes the middle men and dealers operate their own collection service by leasing hand carts to interested collectors. Waste paper can be used in different ways: reuse of the paper (cutting bigger sizes into smaller bags and/or envelopes, shredding it for animal bedding, cutting card board boxes into all sorts of new boxes, trays or door fillings, insulating material, asphalt roofing sheets, as fuel when compressed to a brick or making paper pulp to make new paper products in various types of moulds such as egg trays etc.

5.3.2 Analysis of the waste paper flow in Dar es Salaam

Busalama's report makes no specific waste paper sector analysis, but rather mixes the sectors (metal, paper, plastics) and refers to them under headings such as the recycling process, technology, equipment, labour, end products, restraints, working conditions. In the chapter on marketing the three sectors have been mentioned per sector with regards to the demand for recyclables, but are mixed again when mentioning is made of prices, future demands, marketing strategies. A thorough analysis per sector is however needed to identify the spot(s) in the waste paper stream where the most quantity of waste paper could be recovered. Such statement is obviously valid for all sectors scrutinized in this mission report.

The MSE consultant has made the following calculation with regard to the paper waste stream. According to the JICA report a considerable amount of waste is being recycled: 130 ton per day from various sources. Direct from the source (households, commercial, markets, institutional, street etc) 115 tons per day, 3 tons from discharge, 10 tons is recovered from illegal dumping places and 2 ton from the final disposal sites. From the JICA surveys one can further conclude that:

- in the household waste a low percentage consist of paper 3.1% (table 11: analysis waste composition) or 43.9 ton per day (table 10: total 1416.3 ton household waste daily generation), of which 1.1% is recycled = 1.3 ton/day (table 14: recycled household waste)
- there is 10.7 ton/day institutional waste (table 10) of which 71.5% is paper = 7.6 ton/day (table 12: analysis of waste composition of other type of sources). From table 15 it shows that no institutional waste is being recycled. See also page 31, c.
- from the commercial waste (table 10: 27.3 ton/day) of which 12 ton/day is 'other' or non-restaurant or hotel waste 71.6% consists of paper = 8.5 ton/day (table 12). According to table 15 only 0.2 ton/day of the 'other' waste is being recycled. See also page 31, b3.

Table 5.1: Paper generated and recycled in Dar es Salaam

<table>
<thead>
<tr>
<th>Type</th>
<th>generated</th>
<th>recycled</th>
</tr>
</thead>
<tbody>
<tr>
<td>household waste</td>
<td>43.9 ton/day</td>
<td>1.3 ton/day</td>
</tr>
<tr>
<td>institutional waste</td>
<td>7.6</td>
<td>0.0</td>
</tr>
<tr>
<td>other waste</td>
<td>8.5</td>
<td>0.2</td>
</tr>
<tr>
<td>total</td>
<td>60.0 ton/day</td>
<td>1.5 ton/day</td>
</tr>
</tbody>
</table>

Source: JICA report 1997
As an indication for the market of waste paper Busalama has also estimated the demand and the supply of waste paper. The supply is estimated to be as follows:

- generated: 72.1 ton/day
- recycled: 9.43 ton/day

He further estimates the demand for waste paper from the large industrial sector and the MSE sector to be:

- large industries: 648.0 ton/day
- MSEs: 100.1 ton/day (unit not indicated)

One may conclude that there appears to be a high demand for waste paper, the percentage waste paper being recycled is minimal and the supply of waste paper cannot fulfil the demand.

Busalama indicates two other important features in this sector:

- a reasonable percentage of waste paper is transported to Kenya for recycling where the demand is high (however there are transportation problems: baling by foot!)
- the sector is in array: two government paper mills (KIBO) are in transition to become privatized and the Dar es Salaam mill was at the moment of Busalama's study (and during the MSE consultant's field trip) still not in operation. It was expected to take at least two more months before operation could start
- the paper production has also been affected by serious water and electricity shortages.

5.3.3 Waste paper sector: mission's observations

The paper MSE sector

In the small scale waste paper sector one can find collectors, dealers and paper re-users (remanufacturers). As mentioned before no small or micro paper producing factories appear to be in operation. Paper recycling MSEs either re-use the paper (see below) or collect various sorts of paper take it to a dealer who sells the paper finally to the paper mill. Only one waste paper dealer (south of Nyerere Road in Kiwalani, a low-income area) could be traced who deals in white paper off-cuts. The 'boss' of the enterprise could not be traced during a field visit.

Paper recycling MSEs

From the DASICO cooperative a group of two (the only two available) paper 'recyclers' were selected who employ between 20-30 people depending on the demand. Twice intensive talks were held with Mr Hamisi Mohamed and Mr H. Tumbo. Both enterprises re-use waste paper to produce envelopes of different sizes, shapes and (depending on the colour of the supplied 'waste' paper) of different colours and designs. They experience no problem with their own marketing, they could sell much more than they do now and sell even outside Dar es Salaam. Their problem is the supply side: it is hard to get larger sheets of paper to fold the envelopes from. It appears that their problems are at the larger paper mills which either do not want to 'sell' their paper to these

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2 A difference appears between the data collected by Busalama and the MSE-consultant; the difference could not be explained yet
'competitors' or prefer to sell it (through their own network) to other paper users. Different from the other two sectors at DASICO (metal and carpentry) no paper is offered to them from the market. This proves that a limited supply is available, that there is stiff competition to acquire waste paper from bulk sources and that the prices are very 'flexible'.

The two entrepreneurs are neither interested nor do they have ideas on diversifying their range of products, nor do they want to buy for example machines to engage in paper (pulp)making as to avoid the supply problems. They could then produce envelopes from any waste paper sheets of the size they need. When suggested to use waste paper collected from households to make envelopes they argued that the quality of that paper (written and printed on) could not produce the quality envelopes the market expects from them.

They could buy in bulk (limited storage capacity) if capital would be available to them. A problem often mentioned by the recycling MSEs: the lack of seed money to be able to store raw materials. They need a quick turn over to be able to 'survive' on the meagre cash they receive. They claim to be afraid to go to a 'normal' bank and especially fear the bureaucracy.

It appears that the cooperative did not offer any help in e.g. convincing (marketing) the paper mill to sell to their members nor in promoting the marketing of the paper products. In the past it was compulsory to buy goods from 'cooperatives', but since the new open economy policy this has been abandoned. All members however pay 7% of their sales to the head office of DASICO and 3% to their branch office for which some service in this respect could be expected. One claims it can hardly cover the costs of employing cooperative staff (secretary, doctor), the water and electricity bills and the taxation. The cooperative pays the taxes, not the individual members. This is one good reason for being a member. Another reason is the protection against harassment from the local authorities, which the legal status of the cooperative offers.

5.3.4 Recommended strategy for employment generation in the paper sector

From the data it appears that there is a high demand for waste paper from all remanufacturers, large and small, reusers and recyclers. It also appears that there is a relatively large quantity of paper not being collected: strikingly is the case of institutional and (commercial) shop waste. Little to no waste paper is being collected from both sources. One of the major reasons is that especially the government institutions from the point of secrecy do not like to have their paper recycled or re-used. Since it is however a substantial source, modern measures (shredding) should be taken to ensure secrecy is kept and the waste paper is recycled rather than burned.

Option 1: Organize a group of collectors and make them aware of the quantity and different qualities of waste paper at these sources and the demand at the large industry, develop a business plan how to operate successfully and feasibly in this market segment, develop a logistical planning to limit transportation (amongst the collectors) to a minimum (hire or buy a lorry or make arrangements -see 8.8), train them in communication and negotiating skills, draft contract conditions, back them with
introductory letters to the suppliers and/or purchasing factories (needless to say that before starting such a venture one should find out why institutional and commercial waste are not being collected). The obstacle of secrecy could be overcome by making a special contract between the collector's association and the government department concerned with regard to the shredding of paper either by the collectors or by the department itself.

Inputs are concentrated on a group of collectors, investment in time and training, sensitizing and mobilizing them (market potential: forward and backward linkage), investment in the shredder for the collectors to enable them to shred 'secret' papers (loan basis), promotional campaign to these institutions to recycle their paper, promote environmental policy on recycling in government offices, separating at source: secret and nonsecret papers, annual contracts for associations of MSEs.

Option 2: Data show that PER household there is not much paper that could be recycled. However the number of households is large: a substantial quantity therefore could be collected. Obstacle is the vast area to collect waste from as many households as possible. In areas where CBOs are involved in the collection of household and commercial waste (shops and offices) waste paper could -after an awareness campaign- be kept separate and be sold to collectors. It is only feasible when not much extra efforts (= time = labour costs) need to be made in collecting the waste paper from the households, clients are willing to give their separated waste for free (in return for a reduced fee?), a reasonable storage capacity is available to make the secondary collection as efficient and as feasible as possible and transportation cost could be kept low (see also 8.8 and CBO Linkages with secondary collection and recycling, chapter 4).

Inputs are concentrated on associating a growing number of collectors as the number of waste collecting CBOs grows, requires careful planning and negotiating efforts, develop draft business plan (of approach) investment in establishment of storage capacity and small -loan- seed money for storage space and shelter and baling equipment, monitoring them in their process and progress, awareness raising of residents to keep waste separate.

Option 3: A more far reaching option which needs a careful feasibility study and a sound business plan: the establishment of a small waste paper mill able to produce sheets of paper for shopping bags, corrugated card board and luxury sets of 'hand-made' writing paper, greeting cards and menus. Such a small mill should be established at a strategic point to ease the supply of large quantities mixed waste paper (households). The MSE consultant had hoped to find an entrepreneur who would be interested in this option, but very limited activity in this sector was noticed. An abundance of experience is available from India and Pakistan, where whole chains of such small enterprises exist. The enterprise needs to fill in a niche in the market where the large paper mill would not feel the direct competition.

Inputs: detailing market needs and/or making a niche in the market, positioning the MSE logistically and in the market, tracing a capable and interested entrepreneur, funding exchange visit to Pakistan and training, the purchase
and/or locally rebuilding and adaptation of machinery, trial runs to master machinery and paper quality, extensive monitoring by paper/mechanical expert.

Note: in both the paper and plastic waste MSE development options mention is made of separation at source at household level. This could help to generate more and clean waste plastic and waste paper at the source for sale (recycling) by the waste collecting CBOs (income generation and fee reduction). If residents have noticed already the value of the waste materials they probably do keep these valuable waste materials and products separate and sell them to itinerant waste buyers. It is to be seen whether the waste collecting CBOs should put in efforts to convince the clients and the itinerant waste buyers to include both the valuable and non-valuable waste in the CBOs collection scheme since the CBO collects both types of waste.

5.4 Metal

5.4.1 Metal generalities

The 'metalwork' sector should be distinguished in several different sections:
- recycling iron and steel scrap (foundry work and forging):
  new products are being constructed by re-using the waste material (watering cans, chicken feeding pans, oil lamps etc.). The scrap metal can also be melted in a small iron foundry. In such a way totally new products can be casted in various types of moulds. Further opportunity is the use of a forge to heat and shape solid pieces of steel (gates, window burglar proof bars etc.)
- recycling of non steel/iron scrap:
  This section deals with materials such as: copper (recovered e.g. from electric conduit and plumbing works), brass, aluminium (cans, household utensils, medicine tubes, door and window frames), zinc (household batteries, parts of all sorts of machinery), silver (x-ray photographs, negatives, fixer solution), bronze etc
- recycling (tin/aluminium) cans:
  Tin and aluminium cans are used to contain soft drinks, beers, fruit and vegetables. For the tin cans steel is used which is covered with a thin layer of tin. Since the tin is rather valuable in some countries the tin is being removed by e.g. electrolysis process. The remaining steel tin is sent to the steel mill. The tin cans are also re-used by cutting and soldering them into different shapes.
  Aluminium cans (cannot be removed from mixed scrap by means of a magnet) are valuable products to recycle. The production of aluminium consumes quite an amount of energy as compared to the melting of existing cans for re-use of the aluminium.

5.4.2 Analysis of the metal waste stream in Dar es Salaam

Of the total quantity of waste 2% (=4.2 ton/day) metal is generated at household level. Hardly a difference between various income groups. Other sources are: restaurants (0.5%), shops (5.3%), industry (4.1%), market (0.1%) and streets (2.5%). In total approximately 30 ton of metal is generated per day (JICA/Annex p 10-14).
Along the roads quite a number of car wrecks are left rusting by both the steel industry itself (too costly to collect the scattered wrecks) and the small scale collectors. For what reason is not yet known by the MSE consultant.

5.4.3 Metal waste: mission's observations

The metalwork branch seems -as everywhere- a well established business. There are hundreds of MSEs dealing in and manufacturing waste metal into all kinds of useful products. Thousands of people find some kind of employment in this branch, particularly in the most visible and noisiest part of the branch: the sheet metal workers. Numerous people contribute in various ways to the construction and production of a large variety of products: it will be hard and no easy task to add more products to the present variety. This would need an indepth study of the market. Busalama's study states a lot of generalities with regard to marketing (at least they are not substantiated in the report) based on interviews with the MSE entrepreneurs, but without a survey of the actual (in)formal market. Neither does he include a comparison of products nor of pricing in this sector.

Major issue in this sector is the quality of the products. A survey in Kenya (by Kabecha & Thomas and by Hoekstra/WASTE) shows that a large share of the products has some irregularities such as leaking (buckets and watering cans) or loose handles, easily breaking tool fittings etc. It is assumed that the situation in this branch in Dar es Salaam will not be considerably different. As Kabecha & Thomas state: 'quality for the poor proves in the metal sector to be poor quality'.

In Dar es Salaam a steel mill is in operation as well as medium sized factories using steel products and thus producing metal waste. An aluminium plant produces ingots and slabs and finally circles and sheets. During the mission attention was only paid to the sheet metalworkers branch, since it is the most common branch whereby the competition is stiff and the markets seems to have reached their limits: here the need for product diversification and quality improvement is most distinct.

At DASICO interviews were held with two of the many (over 600 it is claimed) metalworkers: mr Hamisi Mohammed and mr Shaibu Mohammed in the presence of the general secretary and the chairman. They were selected by the chairman of the cooperative mr. Adamu A. Hemdi. Both are also members of a 'sleeping' association of 15 metalworkers within the metal work branch of DASICO: the 'Vijana Metal Works'. The association was established some years back when support was provided by SIDO/SSMECA (a.o. the provision of machinery). The machinery proved wrong and as a result SSMECA donated the machinery to a school. The association went asleep. Mr Shaibu Mohammed is still the treasurer to guard the first membership fees of the group.

As a reply to a positive and optimistic question about their business prospects their answer was rather negative: problems with the market, their products seem 'out of date'. They have tried to produce new products, to imitate more modern products, but failed to produce the level of quality required. Mentioning was made of producing car body parts: they are stronger when made here in the workshop than when bought new from the official dealers. That makes them attractive to customers. Other products tried out: casting moulds for concrete blocks. The present general
secretary of DASICO (former marketing officer) mentioned two other products: a copy of a Chinese kerosene stove with a multitude of burners, a signal lamp with different changeable colours for the railway men and a saw dust stove.

They would need better equipment and machinery to produce more advanced and modern products. Mentioning was made of a 'rolling machine' (bending and corners in sheet metal) and a flexible bending machine. The MSE consultant was wondering what is being produced with the machines that are in one of the 'central workshops' at DASICO, since they appear to be the type of machines the two metal workers would require? The two metal workers indicated the differences between the present, shared, machines and the ones they would need for the 'modern' products.

Both men participated in the GMT training of SSMECA and learned about investments 'for the future'. The agreed they could have saved some money to be able to invest now in some new machinery or for the first down payment of a loan to acquire the new machinery. The sleeping association could be revived to acquire a new set of machinery on a loan basis. When new specifications are made the facilitators should 'listen to what we want' to avoid buying the wrong machine next time'.

Another (metal & carpentry) group was interviewed by mr Joe Chidabwa of SSMECA, the Mburahati Metal Works & Co. From a discussion with him the following issues were revealed from the group's present state of performance:

The reason of the visit to the group was to discuss again with the group about the importance of the establishment of a Mutual Health Insurance Scheme in the group (an issue promoted by and advised for by SSMECA). Between 1994 and 1998 a lot of interventions had taken place by SIDO and SSMECA. The group received training in business management and all leaders got a leadership training. The group is now a registered cooperative (harassment problems and tax reduction) with 18 members (5 carpenters, 2 key makers, 11 metal workers) operating opposite the Mburahati Primary School. The waste metal they obtain from Alu Africa (rejects, covers), from Tazara/Mandela Road scrap dealers, sometimes from DASICO (which acts as a scrap market too) or from the Manzese, Mangomeni and Kariokoo areas.

The group is facing some problems in their business:
- quality: all products are made by hand (even less advanced than DASICO, where some basic machinery is available from a cooperative workshop)
- their own waste, off cuts what to do with it?
- technical knowledge: felt need for improvement

5.4.4 Recommended strategy for employment generation in the metal sector

The problems the interviewed entrepreneurs face are typical MSE problems: long working hours and thus little time to spent on marketing and innovation, little financial margin to invest in new tools and equipment. As association or cooperative they could overcome some of the problems: sharing the more expensive equipment, sharing the responsibility of loan repayment (SIDO's hire purchase scheme). They should however as a group invest in the marketing efforts and innovation
As part of the loan they probably could obtain some budgetary room should be allowed for time to be spent on pilot production and on marketing innovated or new products. MSEs in the Netherlands get such support through taxation reduction and so-called Innovation Centres. Such support (budgetary and innovation) should be part and parcel of the packages offered by the MSE support/funding organizations.

Option 1 A: Develop together with a group of metal workers in one association (Vijana Metal workers) a plan to improve the quality of their products (test product quality, ask opinions from other people and potential clients). Ask VETA to do a branch assessment plus a plan for the product improvement through training: what training should be given to whom, what changes are needed in the process, new type of tools or machinery. The assessment should be followed by a short but repeated training, which should be closely monitored to notice the quality improvement. Tests should be done on the new quality: physical properties and opinions of clients.

Option IB: Develop strategy for a marketing and innovation effort for this branch at DASICO (or a group of interested and associated participants). They should agree on intensive training in practical marketing (try to change several products) and make marketing surveys in town (making a deal with retailer on type and quantity of new product to try out). They should scrutinize 'modern' magazines for new products etc., investigate which section of the market they will aim at → affluent strata → produce higher quality and modern products, select creative and innovative person from the metal work branch or an association, assist him in developing new ideas, sketches, 1:1 models, produce some examples, arrange for interview with newspaper or place an advertisement for promotion. As a result one of the participants should become a (part-time) marketing manager to support the cooperative's efforts to promote its products. Based on the market survey and the developed new pilot products (potentially succesful) some additional machinery and equipment should be bought through credit facility.

It is not clear if the Rapid Marketing Appraisal Method developed by FIT/TOOL will be appropriate for the marketing level needed in this case. It is expected that a 'rapid' appraisal will contribute little to what is already known in this sector.

Option 2: This option would basically repeat the option mentioned under 'paper' and 'plastic': the formation and equipping of group(s) of collectors to create a more efficient collection system. There is an apparent difference between the quantity of waste metal generated and collected. Since waste metal is an attractive source of material for the metal sector it will be a valuable contribution to the feasiblity of the collection group (and an incentive to its formation). One group should specialize in the dismantling of car wrecks along the road.
5.5 Plastic

5.5.1 Plastic generalities

Sources and collection

The quantity of plastic being used for various 'modern' purposes is steadily growing and so is the quantity of waste plastic. Waste plastic is generated by various sources: at household level, in commercial outlets (shops, restaurants), institutions and factories. The waste plastic in the latter places is usually re-processed in these factories itself since it is a clean and sorted type of plastic 'waste', the so-called 'primary' waste. Waste plastic from shops and commercial outlets is usually packaging material, used to wrap larger quantities of goods. This waste plastic can be reasonably well traced since shops and commercial outlet often are concentrated in certain streets or neighbourhoods. More difficult to collect is waste plastic from households: these sources are manyfold and sometimes scattered and the plastic waste is often dirtied by other types of waste mixed in the household waste.

Types and processing

There are many different types of plastic. There are two major categories: the thermoplastics and thermosets, the latter of which cannot be remelted again for re-use (e.g. electronics and automotive products). The most well known types are poly-ethylene (PE), poly-propylene (PP), poly-styrene (PS) and poly-vinyl chloride (PVC). When recycling of waste plastic is considered it is necessary to be able to differentiate between the two major categories and to distinguish the different types of thermoplastics. Through experience, collectors of plastic waste appear to know the different types of plastic which they recognize by the names and logos printed on the plastic sheets and bags. It is however wise to identify the plastics correctly. Several relatively simple tricks are known to identify the plastic types: some may melt and drip, some plastics may produce smoke when lit and a typical smell may escape, some may float on the water surface, while others sink. Each property helps to identify the correct type. Sometimes plastics bear a mark (a triangle with arrows enclosing a number) indicating the type of plastic.

Basically the processing of waste plastic consists of the following steps: collecting, cleaning, sorting, size reduction, extrusion, pelletizing. The pellets can be used for injection moulding (e.g. shoe soles, bottle caps), blow moulding (bottles), film moulding (bags, sheets) or direct extrusion. Cleaning of the waste plastic direct after collection ensures better working conditions for the sorters and less wear and tear of the various machines used.

Market

The type and number of products which can be made from (waste) plastics are numerous and so are the types of techniques and (small) machines which can be applied. Waste plastic is cheap or is freely available. The production of new products can take place at different levels of scale: from the production of e.g. buttons, bottle caps, combs or plugs (manual extruder on the kitchen table), to moulding of shoe soles (small workshop), to blow moulding of bottles and bags (medium workshop). Products made from waste plastic can so easily replace metal or wooden products and can compete with imported products (depending on e.g. the import levies on virgin...
plastics).

The use of waste plastic to produce semi-final products (clean, sorted and shredded) for the large industries or to produce final products for direct sale seems a viable business. The more steps one takes in the process, the greater the increase in market value. In Asia numerous small workshops produce such 'waste' plastic products, which proves the profitability of small scale waste plastic enterprises.

### 5.5.2 Analysis of the plastic waste stream in Dar es Salaam

From Busalama's report no clear picture could be obtained of how the waste plastic flow in Dar es Salaam is composed: its sources, its trading between dealers, middle men, collectors and finally the re-manufacturers. Such picture needed to be composed from the various reports available (see Annex 12).

### 5.5.3 Plastic waste: mission's observations

Plastic recycling in the real sense of the word does not take place: all MSEs (= dealers and collectors) collect, store and trade in plastic containers for re-use or for processing in the few large plastic factories. It appears from the data that there is a reasonable quantity of plastic in the waste market. Still there is a huge quantity of plastic in the streets and along the roads. Not worth picking or no idea of its value? It is true: the plastic is scattered over large areas so a considerable effort is needed to collect a reasonable quantity of plastic bags (a 'nuisance to all citizens', see newspaper clipping) or plastic water bottles. SIMBA plastics, the producer of the large quantity of (waste) plastic 'mineral' water bottles (PVC) is not capable of recycling the bottles. Its neighbour (PATEL) however does recycle them to produce the typical grey plastic water pipes. It depends however on the magnitude of the demand whether PATEL accepts flattened and dirty bottles (difficult to clean), which are the ones found along the roads. Both factories do accept shredded, clean and sorted plastics and pay a higher price and (important!) SIMBA plastics (result from interview with mr. Jude E. Femandes) would be willing to collect waste plastics when stored at some central places in economic quantities. Obviously the price of the transport would influence the price of the collected waste plastic.

After some 'chai' and some hours waiting, interviews were held with two plastic dealers: one (mr Kitwana Bakary Mketto, mr Bakari Juma, mr Hussein Mrisho, mr Omari Jongo and Igo Athumani) at the Mtoni dump (temporary 'seafill') and one (mr Rajala Rashid, mr Shabani) in town at Mnazi Mmoja. They are small dealers, storing and trading in re-usable bottles either made from glass or from plastic. The Mtoni dealers buy at the price of Tshs 5-7.- from the dump waste pickers at the dump, store the bottles in a makeshift shed for which they pay some rent to a landlord or the tenant of the neighbouring house. Bottles are full shaped packed in large bags holding approximately 100 mineral water bottles, then transported by either the dealer himself or on a hired pick up to PATEL in the industrial area south of the Nyerere Road. They fetch Tshs 20.- per bottle at the factory (which includes transportation costs, as he explained). A pick up can carry as much as 12 bags = 1200 mineral water bottles = Tshs 24,000.- per trip. They face competition from dealers who come 'from town' and try to dodge their established relationship...
with the dump waste pickers. It is 'unknown' where these dealers have their businesses. The dealers do not live near the dump and will move their business (as they did before) when the dump is transferred to another place.

At Mnazi Mmoja (between the dispensary and the kiosks of 'Sigara Baridi') another group of town dealers run their business. They buy from collectors at a price of Tshs 5-6.- and sell to (?) either the 'unknown' dealers mentioned above or arrange transportation to the factory themselves. They are both not capable of storing larger quantities of items (efficiency of transportation, economics) since they need a quick cash income for their daily survival.

5.5.4 Recommended strategy for employment generation in the plastic sector

From the interviews with two plastic dealers, with the assistant manager-planning of the SIMBA plastic factory, based on the findings of the 'market study' by Busalama and windscreen field visits it is reasonably clear that there is a gap between demand (126.3 ton/month) and supply (38.2 or 61.5 ? ton/month). There is also a large quantity of plastic waste in the streets and on the roads. As mentioned before, their collection, storing and any other processing to be done would be labour intensive and is therefore perhaps not of economic interest to the big factories. An opportunity to ILO's Support Programme's target groups?

Option 1: Establish a collectors association -as mentioned before for the waste paper sector-which will collect the waste plastic (bags and water bottles per designated area. It would be the most viable option to establish (a) collectors group(s) which collect different kinds of waste materials to avoid logistical problems, to reduce kilometres to be covered (see also 8.8: Transportation). They could be equipped with small carts with compartments or containers (keluran-model in Jakarta, or neighbourhood-model in Bangkok) whereby the collected quantity of waste materials:
- will be deposited at reception points in the area to be sorted, shredded and sold (Jakarta-model)
- will be sold to specialized 'junk shops' (the Manila model: Linis Canda). In principle it appears to be a simple job to create an association of collectors, but the complexity is:
  - in the logistical planning and the economics of the venture (the quantity of valuable waste materials that could be collected per period of time, the establishment of a storage facility and the link with the demand side
  - in the 'public relations' between the collectors and the clients (waste generators) to convince them to give the 'waste' for free.
  - and in the social aspect: will individual collectors be willing to cooperate to form an association and to cooperate in their business venture (e.g. shared 'junk shop' with baling technology).

For that reason it is necessary to identify the areas to be covered (supply of valuable materials), to trace the interested collectors, to estimate quantities to be collected within a reasonable amount of time, to identify the optimal transfer point for the establishment of a junk shop.

Also the junkshops could be organized in an association and their trade and place of
work could be made known (cf. the Manila directory of junkshops made by CAPS).

\[\Rightarrow\text{Input: survey under the potential 'associable' collectors to value their interest in operating unitedly, similarly under several CBOs involved in waste collection and separation at source to value their willingness and ability to join the scheme, mobilizing these stakeholders, exchange visit to Manila, hiring a Philippines consultant for local introduction (strengths and weaknesses of the system) and participation in monitoring of the process, feasibility probe of the waste flow thus created (number of people who need to earn an income from this venture, quantity collected to be sold for recycling), pilot scheme to test logistics of the system, trial period with extensive monitoring by group of stakeholders guided by expert.}\]

Option 2: This is an option as far reaching as the one proposed in the waste paper chapter: the establishment of a small waste plastics enterprise. As a first step in a potentially expandable business an enterprise could be developed which washes, sorts and shreds the waste plastic and which will deliver this semi-final product to the existing large industry. Such enterprise should be established where the largest flow of waste plastic can be expected (route to dump site, to dealers, to plastic factory), a place which is logistically efficient to keep transportation costs low.

\[\Rightarrow\text{Input: agreement with one or more large plastic factories on the delivery of shredded, sorted and clean plastics, exchange visit to Bangkok's or Cairo's plastic MSEs, hiring a Thai or Egyptian consultant, construction of wash basin with electric stirring wheel, water for washing, caustic soda, place to dry the cleaned plastic (field, centrifuge, clothes lines), sorting place for several people, training in recognizing plastic, machinery for shredding or agglomerating the waste plastic, training on maintenance of the machinery, marketing of the semi-final product, logistic links with the (CBO) collectors and/or junkshops as mentioned under Option 1.}\]

Option 3: Basically an extension of Option 2: instead of producing semi-final products, the MSE could produce certain types of plastic final products. A market study should be done to find out if there is a market for several small plastic articles (e.g. caps for small quantities of bottles, funny coloured fashionable buttons etc.), which are of no interest to the larger factories to supply. Be aware of competition of these large industries: they will temporary lower their prices to get your initiative out of the market if it hinders them in their own expansion. Advantage of the MSE: its flexibility to perform even for small but exclusive demands.

\[\Rightarrow\text{Input: (imported) extruder to process the cleaned, sorted plastics, moulds for different types of products (may be expensive) sorted and shredded waste plastic of Option 2, permanent electricity, water, colouring, technical know how for processing and maintenance, creative minds for the development of small attractive products.}\]
5.6 Compost

5.6.1 Compost generalities

Collection

Household waste contains quantities (around 50% of the total volume/weight) of non biodegradable components such as plastic, paper, glass, metals and hazardous components such as paint and batteries etc. These should be KEPT separate (rather than separated) as much as possible at the source BEFORE they contaminate the organic waste and before the valuable materials (which could be recycled) get wet and dirty through contact with the organic waste. It is a simple precaution, yet it may be difficult to convince people to do so. Organic waste is a major part of the generated urban waste, and it is a valuable source of nutrients for agriculture and gardening. Since the transportation of waste is a costly issue for either public or private waste collectors, it is worth considering if the organic part cannot directly be re-used in the home garden and/or in the neighbourhood for farming purposes. If a reasonable quantity is available and a nearby market for the compost exists it may be possible to commercially market the compost.

The process

Composting is a natural process whereby organic matter such as leaves, grass, food waste etc degrade, turn into 'soil' again. It is part of the normal life cycle in nature. In its simplest form composting is done by piling up organic materials in different layers, covering the pile with soil and turning the pile regularly and leaving it to decompose until it is suitable for distribution over fields and garden. Not all materials of biological origin decompose fully: wood, bone and industrial altered organic materials such as leather and paper. Organic household waste has a relatively high moisture content so that it is advisable to add bulking material such as wood chips or already composted material. There are several methods of composting. The success however depends on a number of influencing factors: the moisture content, carbon/nitrogen ratio, the temperature, the penetration of oxygen into the pile and the acidity within the pile.

Composting systems

The organic matter can be arranged in piles or windrows, the material is sieved before or after composting to remove non-organic matter (quality improvement). The simplest form being back yard composting: the waste can be placed in a pit of 2x2 meter and 1-1.5 meter deep and left to decompose for 3-4 months (if desired turn once in a while). If ground water level is too high the pile should be built at ground level. Several systems can be used at neighbourhood level: small plots are covered with sorted organic matter in piles and the temperature is daily measured, the piles turned manually a few times a week. A simple thermometer and a moisture meter improve process control.

A different method is to use the organic matter to make briquettes (brick shaped volumes) for fuel. The usefulness depends on the composition and calorific value (how much heat it generates).
Experiments are about to start in Nairobi at the Undugu Society of Kenya under supervision of the UNEP and FIRST (Fuel Initiatives Resource Strategies and Technology/UK). The outcome may be of interest to the Dar es Salaam situation. Further experience with birquetting appears to have been gained in Arusha and Moshi were plants are in operation. In Bangalore mentioning is made of some factories producing pellets (30, 20 and 8 mm) from organic waste (50 ton organic waste produces 10 ton of pellets). Another method described is to turn organic waste by means of worms into compost (vermi-composting).

**Market**

Like all materials that are being recycled, the magnitude of the recycling depends on the market for the final product. In the case of the marketing of compost awareness amongst the potential clients needs to grow to understand the advantages of the use of compost. Though the material is basically cheap (=waste), the biggest obstacle is the transportation cost: if organic waste cannot be applied in the urban area it needs to be transported beyond the urban boundaries to farmers who are willing and able to buy this urban product. In some cases compost may be used in urban agriculture depending on the space available in the usually densely populated areas.

Compost is often considered in competition with chemical fertilizer. A simple comparison between the prices per ton however does not lead to a valuable conclusion. Both products do not have the same properties. Compost contains some of the chemical elements that can be found in chemical fertilizer, but in much smaller quantities. The nutrients of the chemical fertilizer may dissolve and easily leach away from the plant root zones.

Experience has shown that compost systems run by NGOs and municipalities fail due to poor financial management and marketing. Private initiatives based on appropriate technology and within the right institutional framework have a reasonable chance of success.

Experiments in Bangalore indicate that a viable scale for composting activities may need 200-500 households to participate, which would require about 45 m². This would mean phenomenal land requirement if done at city scale. Though high capital intensive and centralized composting often proves to be a failure, the decentralized small scale options may have difficulties too a.o. regarding feasibility. Residents may also not like organic waste in their vicinity (odour). Marketing small quantities may prove difficult as well as quality control (glass, metal, hazardous substances) of the compost produced.

Beyond the issue of marketing, it is worth mentioning however that studies have shown (PPC/1990) that in major cities the amount people spent on food may range between 30-50% of their income, which makes clear that urban farming and the application of compost (from organic waste) are important issues in the daily life of citizens.

5.6.2 **Analysis of the compost waste stream in Dar es Salaam**

See Annex 12.
5.6.3 Compost waste: mission's observations

A reasonable amount of organic waste being generated, however another reasonable amount is being used, according to the JICA report. It is said that there are 50,000 cows in Dar es Salaam (more or less zero grazing) and that urban agriculture is the second source of income and employment. The Dar es Salaam citizens are apparently used to re-use the organic fraction of solid waste and the manure of animals (chicken and cows). In large quantities also chicken manure is being sold and applied, likewise with cow dung. Both are applied in extensive urban farming which takes place in all open fields in Dar es Salaam either at private or public spaces and in the growing of plants sold from the typical roadside 'shops'. Fertile soil is also being transported from outside town to expand gardens or replenish soil. It is being collected at Boko north of Dar es Salaam where villagers get income out of the sale of red soil. Price Tshs 5000.- per lorry load excluding transportation costs.

Compost appears not to be known by people in town. After explanation it takes a while before people think of it as 'mboji'. Organic waste is applied in its raw form. The need for the production of compost and it's application is not all too obvious as long as the chicken manure and cow dung are available in large quantities at a low price: Tshs 300-500.- per bag of 35 kg. (US $ 0.47-0.77.). Compost is not made in the low-income areas, since there is lack of space to produce and to apply it. Besides little organic waste is left over. Florist and plant sellers (along the road) when asked if they use compost also do not know compost and subsequently do not apply it. They also go for chicken manure and cow dung.

However all people who worked with composting pilot schemes mention the well-known problems: marketing and transportation and suggest that awareness raising is needed to make people produce compost either for home use or for more commercial application: horticulture, flower and plant growing.

Various experiments have been done on urban composting by several organizations (Plan International and the University of Dar es Salaam). The Sustainable Dar es Salaam Project (SDP) had even a working group which advised on urban agriculture and mentioned the potential of composting. GTZ is running an Urban Vegetable Project in Dar es Salaam, whereby the use of urban organic waste in the agriculture is not a specific topic. It is mentioned, but if people do not engage on it, it is not further promoted. So far all composting projects have failed to sustain themselves.

JICA -as an experiment- bought compost from the Plan International composting project in Vigunguti and marketed it to 20 farmers in the urban-rural fringe. The Plan International project stopped (stolen pump?). In the JICA report it is said that five groups (existing since 1992) are practising composting in Vigunguti since 1995. The experience of these groups to date are not known, but worthwhile to trace before any of the CBOs might engage on composting.

A report on a pilot composting project in Hananasif (20,000 inhabitants) has been made available to the MSE consultant. The following issues were covered which are of interest for the potential of composting in this ward in Dar es Salaam:

- the quantity of organic matter in the household waste: 36% (sample) \( \rightarrow \) 4.4 ton/day
- attitude w.r.t. separation at source: leaders negative (religious belief), interviewees
positive
- involvement of the informal sector: 28% of the inhabitants pay waste collectors, 72% use the neighbourhood dump
- fee paid: Tshs 100.- per trip or Tshs 50.- per 15 kg. bag (=higher than official irregular service)
- no space for dumping waste
- composting not well known: older generations were taught composting in the colonial era, manual in kiswahili available
- market: depends on quality (odour, free from pathogens and seeds of weeds), competition with chicken manure and cow dung
- residents respond positively to composting and vegetable gardening
- pricing: chicken manure Tshs 7500.-/ton, chemical fertilizer Tshs 170,000.-/ton, compost proposed price Tshs 4500.- (free chicken manure should be added to the compost to improve its C/N ratio)
- needed input of generated waste: 250-5000 inhabitants
- fixed and variable costs: Tshs 2,505,000.-, estimated income based on 2,700 tons sale of compost, other recyclables and income of household and market waste collection: Tshs 21,878,400.-

The MSE consultant considers this project still to be too complex to be run by a community without a gradual growth of the community into a 'business community' after having been trained and proven to be capable of running a waste management service including the sale of recyclables. The sample of residents (25 out of 20,000) for the interviews is considered rather small. That leads to some optimistic data w.r.t. the quantity of organic matter which will become available and likewise the data on the sales of recyclables. Besides the consultant of the university makes the classical mistake to compare the prices of three types of 'fertilizer' by comparing their price per ton. All three types of fertilizer have a different composition, different properties and serve different sizes of areas for a different period of time (compost slowly releases NPK elements) and have different nutritent values. The yield per hectare counts. However, if the organic waste is kept separate as to avoid it being polluted, it provides a natural and 'freely' available source of valuable nutrients.

5.6.4 Recommended strategy for employment generation in the compost sector

Which way to go if the literature on composting is usually critical ('the constraints carried more weight than the benefits') and the field experiments in Dar es Salaam have not been successful?

However, the soil in Dar es Salaam is very poor: it is rather sandy. It could use the compost very well. A niche in the market could be created: the more affluent part of the residents who own large gardens and may be interested ('image') in a 'modern' and even 'natural' product and from the medium scale plant growing entrepreneurs (women).

Option 1 A: This option does not start with high expectations on profits and hugh market elsewhere. Composting should be considered as part of a community based waste collection scheme: waste is being collected in community's own neighbourhood,
the waste is being KEPT separate as wet and dry matter. The dry matter is as much as possible being recycled through the network of waste collectors (see plastic and paper options), could earn some income to reduce the waste collection service in the community. The wet part is being composted is applied in a neighbourhood garden from where vegetables could be used for private consumption.

Input: campaign to introduce waste collection service with wet and dry waste kept separate, provision of equipment to be able to do so, 'separate collection' service, piece of land for composting and farming, labour and basic equipment for controlling the process (moisture, temperature), training and on the spot guidance on quality of the compost (weed seeds, hazardous substances), trial growing of different types of vegetables in different mixtures of compost/soil ratio, advice on agricultural practices and improved production (better yielding varieties), monitoring compost performance and effects to produce data on the pricing of the compost in future options. The GTZ Urban Vegetable Project is willing to support the Hananasif Women's Group in its composting experiments.

Option IB: This option is a further development of Option 1A, whereby vegetables could be sold as well as the extra production of compost. When the quantity of waste collected in the area grows due to the growing number of clients of the CBO waste collecting service, likewise the quantity of recyclables may grow too. The production of compost grows now beyond the community's demand. Here the marketing option (expat and affluent part of society) could be tried out.

Both options are a phased break down of the proposal put forward in the study by Mr Rubindamyugi and Mr Kivaisa of the University of Dar es Salaam (1994) to avoid the too big scale of this pilot project. The two phases should grow from the original start of the CBO based waste collection service and can be taken up as the diversification of sources of income so much desired by the CBOs. Income in Option 1 can here be defined as not having to spend money on the purchase of vegetables.

Input: piece of land in or nearby the community based waste collection scheme as to avoid transportation, labour for windrowing and possible turning of the rows (depending on the method used) and for the agricultural activities. Equipment for controlling temperature and moisture, targeted promotion of compost to potential small scale consumers in the (neighbouring) community.

Option 1C: Since Hananasif is a densely populated semi-urban unplanned area and no space is left for composting or urban agriculture, the growth of seedlings could be an 'neighbourhood market' for the organic matter already turned into compost. Seedlings could be grown on various (even small) places. The type of seedlings could be chosen such as to produce much wanted but difficult obtainable species: specific (imported) fruits, spices, herbal plants. There is however the threat of theft of the seedlings.
Option 2: Makes a further step towards marketing the compost outside the area: the introduction of vermiculture, the production of compost from organic waste by the use of worms. Worms are known in the Dar es Salaam area. Not known to the MSE consultant is if these are the appropriate type of worms. Worms are introduced to work for the residents as they always do in nature. Big advantage is the reduction of volume of compost and the performance of the vermi-compost itself (improved C/N ratio). The worms and the organic waste should however be kept in concrete boxes as to avoid the 'workers' to slip away. There will be an increase in cost and in management. The marketing strategy of this -if successful process- could be directed at the affluent part of Dar es Salaam, willing to pay a little more for a 'modern' product.

This option needs a careful preparatory study (which could again be taken up by the University of Dar es Salaam, supported by the GTZ Urban Vegetable project) to find out the biotechnicalities of this process here in Dar es Salaam (types of worms, C/N ratio produced, local climate -moisture and temperature-). Information should be sought from institutions or organizations which gained experience in this field.

Æ Input: study on vermi-culture potential in Dar es Salaam, information exchanges with India (Bangalore) and other countries (e.g. Argentina) on vermi-culture, feasibility and pilot project again (see Option la-lC) at community based scale, pilot money for pit construction and labour for management of the production, funds for free hand-outs of vermicompost to promote this product, publicity, campaign in the local media, introduction to plant sellers.

5.7 Transportation

5.7.1 Generalities

Waste (recyclables), semi-final or final products need to be transported to either a retailer or another customer. Transport links the waste generator, the primary collecting MSE or CBO, the secondary collector, the DCC or the private contractor, the remanufacturer of the 'waste' materials, the retailers, the clients. Transport does add to the cost of the product at various stages of the system. Since the products produced in the recycling sector may have only small financial margins, it is important to keep the costs of transportation as low as possible.

5.7.2 The transportation sector: mission's observations:

Transportation appears to be a serious problem, mentioned by whoever spoken to during the first few days. Sources of waste materials and clients are scattered over a large area, fuel costs are relatively high (petrol for pick ups: Tshs 420 per litre = US $ 0.70, diesel for lorries Tshs 380.- per litre=US $ 0.64), hiring of a lorry is expensive (see the various rates in Busalama's report), many roads are (sometimes) in bad conditions causing regularly damage to the lorries and making repairs necessary. Example: a CBO collected glass bottles worth Tshs 8000.-, the
transportation costs turned out to be Tshs 3,500.-. After two trips they abandoned this business: the revenue was not worth it considering time and efforts to obtain transportation, loading and unloading.

The transport business is manyfold, different sizes of lorries, trucks, vans and pick ups are available. Besides, a whole network exists of privately (mostly rented out by an owner) operated 'makokoteni', a hand pulled cart mounted on two heavy car wheels, and push carts, small hand pushed carts mounted on two bicycle wheels, used for light weight loads. Both types of carts are used to collect waste and/or to transport products and materials. In the area close to Mtoni 'seafill' a boy was interviewed who collects waste door-to-door after school hours for some extra income. The rent of a small 'bike cart' was Tshs 200.- per day. Per plastic box of waste on the cart he received Tshs 100.-. Per cart load this was Tshs 200.- 'profit'. In Kariokoo (a densely populated area with a great variety of workshops) a private waste collection system exists. Shop keepers, restaurant owners and MSE pay for the collection of their waste to a 'makokoteni' collector. Small carts play an important role in transportation in the wards, as many roads are narrow, and as sometimes steep gulleys have to be transversed. There are not many different types of small collecting carts as compared to the situation in many countries in Asia and Latin America: the tricycles, the animal drawn carts, the wheeled drums, the small tractors etc. are hardly present in the Dar es Salaam 'informal waste collection' system. A small cart between the rather heavy 'makokoteni' and the 'light wheeled' bike cart is lacking. A broader wheel size (motor type) is not widely available in Dar es Salaam as was already experienced before (MAPET/WASTE).

There are limitations to solving the transportation problem: prices of motorized transport are determined by the private lorry drivers or firms. The government sets the price for petrol, the taxation on vehicles and spare parts, and is supposed to maintain the roads. Any contribution to the transportation problem should therefore aim at rationalization of the transportation, i.e. to make the transportation more efficient or to make joint efforts in the CBO/MSE waste sector. That means linking transportation modes to create a regularly operated network; filling vehicles and carts to their full capacity (baling the recyclables); routing the vehicles along agreed routes where stored waste and/or recyclables can be expected, may reduce costs considerably. It is not an easy task: sources of materials and products should be identified, routes should be planned preferably over roads in reasonable condition (computer software exists for this task, but common sense may work as well), suppliers of goods (CBOs/MSEs waste and recyclers) should be aware of the routing schedule and be ready to hand in their products when the lorry arrives. Moreover, the collectors who use the waste & recyclables storage points or the 'junk shops', they too should be aware of the collection schedule so that they bring their products in time at the storage points.

The establishment of some of the 'larger' options mentioned above at each paragraph on paper, plastic and metal at logistically efficient points may also contribute to reduce the transportation costs. After all, the route to a large recycling enterprise can be considerable reduced if in the (nearby) area a recycling MSE could be found which would process the recyclables generated in the neighbouring areas. Such MSEs could easily be reached by footing or carting recyclers. The MSE is then the solely responsible for the transportation of the (semi-)final products to the factory e.g. in the industrial area.
The MSE consultant held an interview with the Koshika Women Group in Kariokoo area (Mrs Keziah Rhobi Makoyo, executive director), a group active in community education and mobilization. The group had an offer to cooperate with Koshika Environmental Sanitation Services (among whom, Mr Nungu, a surgeon at the Muhimbili Medical Centre) which had bought two second hand compactor trucks in Sweden. They are standing idle for a year now. KESS understands the need for cooperation between a not-for-shear-profit business (KESS) for running the vehicles and a CBO rooted in an area and involved in awareness raising and community mobilization (clients of the service). A joint offer to participate in a tender for waste collection at markets was turned down by the DCC. Currently the Red Cross is paid by the DCC to clear 11-16 markets of its waste.

Could the trucks be used in a transportation pool or cooperative to collect recyclables from various CBOs and MSEs along a rationalized route? KESS (Mr Nungu) was positive about that and offered to cooperate in finding a solution. On a little more than cost recovery basis he would be willing to let the trucks collect waste and recyclables from the CBOs. Before starting such venture a careful investigation, planning and feasibility study should be done on how much should be collected (source separated, recyclables included), where (efficient routing) and at what price. Parties should enter into a contract to create clear commitments.

KESS has done trial runs with the compacting trucks they own. Koshika from its side has experienced a lack of cooperation from the side of the DCC. It was claimed that meetings with them were frustrated since officers requested a per diem to attend. DCC on paper is willing to cooperate but in practice there are a lot of obstacles.

In reply to Koshika's question, the MSE consultant advised against the change of the compacting truck into a 'closed' type of lorry; the filling of the container type of body would not be very efficient (half of it would remain empty). KESS would welcome the idea to get the trucks running as part of Koshika's activities. KESS would consider buying a second hand open truck with high wire mesh sides.

Whatever arrangement will be made in this respect good notice should be taken of the development at the DCC with regard to transportation and secondary collection. Will the (decentralized) DCC run certain secondary collection routes or will a private contractor do the job. In the latter case, the private contractor should, as a contractual requirement by the DCC, recognize the role of CBOs in primary collection.

5.7.3 Recommended strategy for employment generation in the transportation sector

Option 1: Organized groups of CBOs and/or MSE (associations) could make a contract with one transporting contractor to collect at regular intervals their sorted recyclable materials, semi-final or final products. Through such arrangement (guaranteed income for the transporting contractor) the price may be reduced.

→ Input: developing a transportation plan (taking into account routing, road conditions, number of clients=quantity of waste etc.) within a certain area, where CBOs and/or MSEs are known to operate a waste collecting and/or
waste recycling scheme, identifying the transportation problems and how to rationalize them (planning of routes and timing, combining trips) in collaboration with other groups, getting to know a transportation contractor, asking for pro forma offers of their service (comparison offers), making contracts.

Option 2: Groups of CBOs and/or MSEs could join hands and buy a second hand pick up which will serve the transportation needs of the whole group. There are however several pitfalls in this option: all users should feel responsible for the running of the vehicle and make sure to leave the car in good condition after every trip. Records should be kept as to indicate which group has used the pick up for how many kilometres, what maintenance has been done, what costs were involved etc. The MSE consultant assumes that this option requires too much of all individual organizations involved with regard to organization and trust. And a reasonable amount of seed money.

A slightly different option could be that one of the CBOs buys a pick up for this purpose and rents it out on cost basis to other parties (a.o. collecting waste and in need of transport).

Forming of an association of CBOs to run and manage a shared pickup, making contract arrangements between the members on the running of the pick up (mutual commitments and duties), developing a way to manage the running of the pick up (routing, costing, maintenance, responsibilities, insurance, conditions for hiring the pick up by other groups etc.)

Option 3: The Koshika Women's Group is in the possession of two compacting trucks. Compacting trucks are usually not suitable in the conditions which prevail in many (parts of) cities in the South (already rather compacted, moist garbage with a high percentage of organic waste and sand). The JICA report points also at this issue: they advise open tipper trucks. Koshika is advised to sell (no tax clearance needed) or lease (operation and maintenance base) the compactor truck to any of the private contractors who may wish to use it in the affluent areas of Dar es Salaam where its application could be appropriate. For the income generated Koshika could buy (bank loan) 1-2 sturdy pick-ups or one pick up and a lorry. The lorry as well as the pick up(s) could be applied in a non-commercial but cost recovery transportation unit of Koshika (covering labour, maintenance cost and depreciation, but limited overhead and no profit). Be it operated by Koshika itself or by a contractor.

Input: seeking cooperation of Koshika, feasibility study into the economics of this venture (prices of compactor, pick up and lorry), the costs of running the transportation means, motivating, mobilizing the various CBOs and MSEs to join this transportation scheme (subscription/membership), planning transportation routes, quantities of materials and products to be transported over what distances, pilot scheme, close monitoring on the performance of all participants, legal matters on the establishment of the transportation unit.
Option 4: To improve the door-to-door collection of waste a means of transportation could be developed (a local factory produces tricycles) that fills 'the gap' between the makokoteni and the bike wheel cart. It should be able to carry more and heavier loads than the bike cart, be very manoeuvrable and sturdy to withstand the road conditions. A survey could be done into the existing means of transportation in other countries (Swiss Development Cooperation and IL/Assist are involved) e.g. in Asia and Latin America where conditions are often similar and to identify which mean could prove to be suitable for Dar es Salaam and what adaptations may be needed considering the local spare part market and repair capacity. Information could be sought from Cairo, where animal drawn carts were replaced by motor driven carts as to ease their manoeuvrability in the city's traffic.

Input: collect documentation (or surf on Internet) on means of transportation and on the collection of waste by MSEs and their specific conditions, get in touch with (local) organizations which have developed local means of transportation, survey into the needs of the present doorto-door collectors, identify try out area for pilot scheme for the introduction of the innovated cart. Be sure the cart is developed such that it fits to the various primary and secondary collection modes and the need for recycling (compartments). Do not focus on the cart development as the solution to an indentified waste problem, but consider it is a tool/means for collecting waste and to ease transporation.

5.8 Training: some observations

Measuring results
Training has often been mentioned to be the panacea to the problems of the MSEs. But how effective has all training be so far? How intensive is the training? How much do the entrepreneurs absorb and actually implement? How many entrepreneurs were trained with what effect, especially its economic effect? What approach needs a 'survival enterprise' different from an ordinary enterprise? How can a survival enterprise become a 'normal' enterprise?

Trainers should therefore be able to prove that their methods work. They should operate as an enterprise themselves: how good is the product they make, rather than operating as a theoretical entity 'advising' the MSEs: "you take it or leave it". What did the trainers and their institutions learn from the training given so far: its success or its failures? What is their success rate and in what respect? Especially now that many training organizations demand substantial pay for their training, they should be able to 'prove' their success rate. Perhaps the slogan "no cure no pay" should be introduced. Training organizations should have a 'stake' in the enterprises they train.

Package deal
In the ILO Support Programme a slightly different approach should be developed: a package deal with a group of entrepreneurs, a number of training (technical as well as business) institutions and a number of funding/lending agencies over fixed period of time, as to guarantee the support.
It should also include a close monitoring to measure the progress of the development of the enterprise in relation to both the training and the financial support given. All parties (training organizations, funding organizations and the entrepreneurs) should make their commitments clear: what is the input of the entrepreneurs, what is the input of the training institution, what will be the results. The entrepreneur should be clear what he/she gets for what amount of money.

Inputs

As mentioned there are several institutes offering training in business skills (SIDO, SSMECA). Technical skills training however should be taken up as an issue as well. Some institutes offer technical training and have even come up with a flexible modular approach directly geared towards ILO's target group. VETA appears ready for this new market. The Arnautoff Folk Development Centre has drafted a plan for 'waste management training', but this training is still in its status nascendi. IPI could become important in product innovation but has as yet not been involved in the MSE sector and certainly not in the 'waste' sector.

In some of the 'Options' mentioned above the input has been listed of consultants of some other countries in the South where experience is available in the topic concerned. Besides exchange visits, it would be advisable to involve consultants from these countries both to learn from their experience and for them to build their own capacity to analyse and work in a different situation.

5.9 New modules

The MSE consultant observed that there is a need for some additional training modules which should be incorporated into the existing business and management trainings for MSEs and CBOs. Below a list of some of the topics felt missing in the existing trainings on offer.

As indicated earlier a training module should be developed to prepare the waste collecting MSEs to deal with the local government and vice versa (contracting, regulatory guidelines on arbitration, financial and payment procedures, monitoring and performance measuring, institutional reforms and management). Material ('Tool kit') for such module is under development by SKAT/WASTE for the UMP/WB/UNDP sponsored by SDC/GTZ/ILO. A try-out of the 'Tool kit' will be done in June in a workshop to be held in Turin, Italy.

Likewise a module should be developed dealing with contract arrangements. Material and experience to build on for the development of such module is available from WEDC in Loughborough, England (see Annex 10).

ACEPESA in San Jose, Costa Rica, is said to have developed a training module and method to train government officials who have been 'retrenched' and who are interested to go into urban services business. It would be of interest to the local training institutes to acquire a set of that training, though translation is needed (Spanish).

Similarly, IPES in Lima, Peru, has been involved in the monitoring of waste collecting MSE and
has extensive experience in guiding these MSEs. They have developed training and monitoring materials, which may be of interest, though translation is also needed (Spanish).

Both the training institutes and the trainees should be trained in the monitoring of their performance. Monitoring modules do exist but perhaps need to be adapted to the specific situation in this sector and in Dar es Salaam (e.g. Participatory Impact Monitoring, PIM/GTZ).

Since product innovation is definitively an issue and the appropriate institutes have not yet dealt with MSEs in the waste sector, a module should be developed for the innovation of MSEs in a joint cooperation (workshop) between SIDO, SSMECA and IPI, whereby lessons learned in other countries should be included.

Though MSEs contribute a lot to the creation of employment and (in the waste sector) to the re-use of materials which would otherwise have been rejected, they themselves have sometimes negative impacts on their environment. The training institutes should look into this matter and perhaps join hands with the NEMC to develop a module on the reduction of pollution of MSE in the urban environment: adaptations of their production processes and behaviour.

Likewise the environment inside the MSEs and the occupational health of the workers in the streets are at stake (see Annex 10). A module could be developed on occupational health improvement in MSEs and for CBOs handling waste. It should be part of a module 'understanding waste management'. NEMC and SSMECA (perhaps in relation to their promotion of health insurance schemes for MSE associations) could take the lead in the development of such a module in cooperation with an occupational health organization in Tanzania. The MSE consultant is not aware of the existence of such organization in Tanzania, but in various other countries useful information does exist (India, Malaysia) and at ILO.

Unfortunately the MSE consultant has not seen the Rapid Marketing Appraisal as developed for the FIT/TOOL project. The name of the module may suggest that there is some need for a 'Thorough Market Appraisal' in cases such as the situation in the metal work branch.

5.10 Other issues to be addressed

Cost information

In the previous paragraphs on the analysis of the five branches (paper, metal, plastic, composting and transport) options have been mentioned in an order which ranges from simple to more complex interventions. It is impossible for the MSE consultant to give a 'full information on costs': the options are plentiful, but still need a lot of local input to be able to judge their costing, pricing and thus feasibility. It is impossible for the MSE consultant to estimate what the cost of the importation and adaptation of some basic machinery from India, Pakistan and/or Egypt would be. And a rough estimate would not serve a purpose at all: the margins in the sectors are small, the options new in the local context, the MSE entrepreneurs unexperienced in some of the options.
Besides, costs would need to be calculated on training, exchange visits, the hiring of outside South consultants, the innovation of machinery, in depth marketing surveys, transportation planning and routing, the development of training modules etc. That is beyond the possibilities of the timeframe of this assignment.

**Protective gear**

Much has been said about the type and use of protective gear in the waste sector. They are meant to protect the people working in the waste collection and recycling business from various occupational health diseases. One could distinguish two types of sources of occupational health problems:

- **physical ones**: long working hours, lifting heavy loads, walking long distances, traffic accidents, working position (sitting on the floor or tables), noise produced by machinery etc.
- **chemical ones**: the influence of hazardous substances to the skin, the fumes and emissions from such substances and/or production processes, the lack of ventilation which causes inhalation of hazardous fumes, no or insufficient clean water and sanitation etc.

A desk top study (see Annex 10) on this issue shows that it is in general very hard to draw straightforward conclusions on the health effects of working with waste materials. In countries in the South people who are working with waste materials live often in a bad habitat with insufficient water and sanitation, fumes and noise from traffic. The general socioeconomic situation in certain countries and strata force a large group of people to work in bad circumstances to earn at least (part of) their daily bread. Waste is free, but often dirty to get.

Besides the poor living conditions, the owners of business can be held responsible for a great deal of the occupational health problems in the waste handling MSEs. Some of them are out for quick money, do not want to spend any money on improvement of the working conditions, do not abide with the occupational health regulations, bribe health enforcement officers. Furthermore the labour force is large and cheap: a complaining worker can easily be replaced with a new worker queuing outside. Though in some countries labour unions have made some success in this field, much is left to be desired.

The physical occupational health problems are likely to be the most 'easy' ones to solve. The workplace and equipment should be developed in such a way that heavy loads can be easily lifted and transported, fumes should escape through chimneys, hazardous materials stored outside the workplace, and when handling sharp, hot or chemical substances the workers should wear the appropriate protective gear (gloves, visors, apron, boots etc.). But who is to pay for that? The employer: he/she should include these costs in the price of the products to be sold. But what about the competitor? He or she does not hand out protective gear! A whole structural problem is behind this issue: safety regulations, enforcement and the social attitude towards workers. Often waste handling is carried out by cultural or religious minorities. The dominant group in the society does often not care much about the plight of fellow nationals.

It must be said however that in some situations protective gear has been handed out in some of the major factories for which the cost of such gear does not have much influence on the
economics of the business. In projects with MSEs, some gear has been handed out, but often, after a lot of wear and tear, the gear has not been replaced. The workers then return to the old practices. If protective gear is to be used, it should therefore be part and parcel of the expenditure of the enterprise concerned.

Still a lot can be achieved by making employers, entrepreneurs and workers aware of the situation they are often not aware of. All should understand that in the long run all will profit from improved working conditions.
LIST OF ANNEXES

Annex 1: Guide to making a work plan
Annex 2: Practical guidelines for setting up CBO-based & managed waste collection services in Dar es Salaam
Annex 3: Draft training curriculum for managing CBO-based collection services
Annex 4: Suggestions for extension of CBO-based waste collection to other neighbourhoods and CBOs
Annex 5: Business Plan
Annex 6: Summary of interviews with CBOs held during mission
Annex 7: Prioritizing options
Annex 8: Terms of Reference of the mission
Annex 9: Mission itinerary
Annex 10: Reference list
Annex 11: List of brochures on Support Organizations
Annex 12: Plastic waste and compost waste flow in Dar es Salaam
ANNEX 1 GUIDE TO MAKING A WORK PLAN

Make this work plan together with all members of your organisation, or at least with all the members of the executive committee. It is the intention that the project officer will elaborate the work plan together with the CBO members.

1. List all activities which you and the members plan to undertake to achieve the main goal (listed at the top of the page). For one year only, 1998/1999.
2. For each activity listed, indicate the following:
   a) target group: who do you want to reach with this activity?
   b) what knowledge and skills are needed? which people have this knowledge and skills? are they inside Hana Nasif or Mabibo or outside? mention where they are.
   c) what materials are needed for the activity? how will you get them?
   d) how much will it cost? how will you get the necessary funds?
   e) when will the activity take place?
   f) what do you expect are the results of the activity? what do you expect to have learned? what do you expect to be able to do?
   g) how should the activity be carried out?
   h) who is responsible in the CBO for the activity: to organize it, be contact person, and to ensure follow-up in the future?

As a first step in making the work plan, the Mission has discussed with both CBOs what their goal and specific objectives are. The interviews have been translated in official project language. The goal and specific objectives are basically the same (when translated in project language), but some details are different.

Mabibo Women Environmental Society (MABIBO)

Goal
An improved socio-economic basis for the continuation of waste collection in acceptable conditions by the end of the three year DCC/ILO Project.

Specific objectives
By the end of the first year of ILO's Support Programme:
1. The foundation will have been laid for a strong organization of MABIBO.
2. The members of MABIBO will have understood the economics of cleaning services.
3. The waste collection and cleaning services rendered by MABIBO will have been recognised and appreciated by the local leaders and the whole community in the area of service.
4. MABIBO will have reached an agreement with the DCC and District about a regularly serviced waste collection point.
5. Boots, tools, gloves and soap will have been obtained by MABIBO and properly used in its waste collection and cleaning services.
6. Progress will have been made in establishing various income generation projects.
Kinondoni Moscow Women Development Association (KIMWODA)

Goal
Improved living conditions in the community, in an economic sense and with regard to waste collection, recycling and drainage cleaning by the end of the three year DCC/ILO project.

Specific objectives
By the end of the first year of ILO's Support Programme:
1. The foundation will have been laid for a strong organisation in which the members feel united.
2. The members of the KIMWODA will have understood the economics of waste collection and cleaning of drains.
3. Community members will have increased collaboration with KIMWODA by dumping waste only in official places.
4. Double the number of community members in the area of service will be paying KIMWODA for waste collection.
5. KIMWODA will have reached an agreement with the DCC/District about a regularly serviced waste collection point.
6. Progress will have been made in establishing income generating projects to complement the waste activities of KIMWODA and its members.

GOAL: TO CONTINUE WITH WASTE COLLECTION AND START ECONOMIC ACTIVITIES

<table>
<thead>
<tr>
<th>Activities for the first year (what)</th>
<th>Target group (with whom)</th>
<th>Resources</th>
<th>Human (capacity of people)</th>
<th>Materials (equipment to be used)</th>
<th>Funds (money needed)</th>
<th>Time (when)</th>
<th>Expected results (expectations)</th>
<th>Suggested method (how)</th>
<th>Who is responsible (who)</th>
</tr>
</thead>
</table>

Community Based Waste Collection and Small Scale Enterprise Development in Waste Recycling in Dar Es Salaam
WASTE, 1998
ANNEX 2  PRACTICAL GUIDELINES FOR SETTING UP CBO-
BASED AND MANAGED WASTE COLLECTION
SERVICES IN DAR ES SALAAM

Projects in community-based waste collection have a likelihood of success if they develop in a
participatory manner with the CBOs and communities concerned. The following list of activities
is a checklist for CBOs to plan and implement a waste collection service. It is a list of
suggestions. The activities, however, address essential issues like creating a social/organisational
base in the community, linking with local level government officers, linking into the city
services, developing a business orientation to waste collection, and increasing awareness about
the implications of waste for health. The CBOs will determine which activities will take place in
each of these phases. The main resources for this project are within your own community. The
ILO project will assist, but the main ideas and effort will come from the CBO and the
community.

Identification phase
- Inform influential men and women in your community about your participation in the
  ILO project. Do this in formal meetings, as well as in personal discussions.
- Make a formal agreement with ILO on the responsibilities and duties of ILO and the
  CBO.

Planning phase
- Make a work plan according to the table given. Ask a resource person to assist. Make this
  work plan together with all the members of your CBO.
- Discuss your plan with influential men and women in the community.
- Training sessions on waste collection as a business. Why a business? Calculation of costs
  and revenue. How to reduce costs and increase revenue. Improved management
  procedures.
- Putting business training into practice.
- Make a survey of your area: types of households, types of wastes, road conditions,
  businesses/restaurants/markets/facilities for waste, environmental conditions. This
  information will help to plan collection routes, the fee structure for different customers,
  frequency of collection to different customers. Ask advice from a resource person.
- Review the collection routes and time schedules. Do you think collection routes and
  timing can be better so as to suit the wishes of customers?
- Contact DCC/District authorities and discuss with them how they can cooperate with your
  work plan. Mention the specific points which the DCC/District should do (for example,
  waste collection site; days the truck will come to pick-up the garbage; who is responsible
  for maintaining the collection site).
- Find out whether other CBOs have similar problems with secondary collection as
  yourself. If so, approach the authorities jointly.
- Contact possible resource persons, and discuss with them how they can cooperate with
  you. Make sure that women participate.
- Organise training sessions on work and waste; health and waste; why separate waste; how to reduce transport cost of recyclables like plastic, bottles; who is busy with waste; on several afternoons during 2 or 3 weeks. Participants in these sessions are the members of your CBO and interested local leaders. Make sure women can participate. The following resources can be used: talks, pictures and drawings, discussions, field visits, exchanges with other CBOs.
- Have you planned and budgeted for maintenance and repair of the equipment? If not, do it now.
- Organise training practices on motivation and mobilisation for all CBO members, both men and women. The participants make posters and think of proverbs and stories to tell and practise how to persuade people. Ask a resource person to assist.
- At the end of the training sessions, the CBO will propose a Team (women and men) who will carry out motivation and mobilisation with the population.
- Collection teams are formed. In your case (KIMWODA and Mabibo), the teams are already operating.
- Training sessions on management and administration of the Project. These sessions are for the mobilisation team, project coordinator, and other leaders of the CBO. To improve methods to control and supervise the work; and to evaluate it. Ask a resource person to assist.
- Discuss and propose the fees to be charged from the houses/customers. Should the fees be raised or reduced? What is the best way of collecting them, should the present system continue or should it be changed? What to do with customers who do not pay?

**Implementation phase**

- The CBO starts motivating and mobilising the community for participation in waste collection. Hold a public meeting to inform the people of the start of the project. Show the tools and equipment you are using for waste collection. Invite people to ask questions.
- Mobilisation team goes to households and explain the reasons for waste collection. The aim is to persuade people to become paying customers. Who should be persuaded, men of women or both, young and old? Who else?
- Ensure that waste collection is carried out properly (supervision).
- Ensure that houses/customers pay the fee for collecting waste. Discuss with the mobilisation team and with influential people in the community how to talk with people who do not pay.
- Ensure that maintenance and repair is carried out according to plan. Have you budgeted enough, or too little, or too much?
- Check whether the CBOs expenses and income are as planned. And, if necessary, take appropriate action.
- Keep checking on secondary collection by DCC.

**Monitoring and evaluation**

- Monitoring and evaluation. It is good to monitor regularly the progress of your CBO. Does the CBO carry out the activities as planned? Does the CBO achieve what the
members expect? If not, what are the obstacles, and what can you do about it? Monitoring helps you to keep a record of what you have achieved, and helps you to decide which action to take. The ILO project facilitator will assist.

- There will also be meetings with other organisations which are working in waste management: other CBOs, waste dealers and recyclers, staff from the Departments of Health, Waste Management, Community Development, DCC, and others. At these meetings, the positive experiences and problems of CBOs and small enterprises will be discussed, particularly regarding their waste activities.
- Coordinate with other CBOs and small enterprises about common issues, like overlapping collection routes, joint operation and maintenance of a dump site in the Ward.
ANNEX 3  DRAFT TRAINING CURRICULUM FOR MANAGING CBO-BASED WASTE SERVICES

Topic 1: Understanding waste management

Objective
To enable the participants to understand the advantages of waste management; to become aware of how different waste activities are connected to each other; and to recognize the importance of the various stakeholders and their roles in waste management in Dar es Salaam.

Subjects to be covered
- How to create work and income from waste
- How health is influenced by waste in the environment
- The relation between separation at source of household garbage; efficient waste collection; preparing collected waste materials for sale (sorting, cleaning etc.); marketing of waste materials; re-use and recycling.
- Learning appropriate technologies, that the community is likely to use.
- Who are the stakeholders in waste management in Dar es Salaam, and why are they important from the point of view of communities (what can they deliver to communities, and what can they prevent)?

Target groups
CBO members, community leaders, community members.

Resources
Arnautoglu Folk Development Centre; National Environmental Council; staff from the Solid Waste Department and the Health Department; technical institutes; UNCHS (Habitat), Solid Waste Management in Low-Income Housing Projects: The Scope for Community Participation.

Topic 2: Awareness raising and mobilising the community

Objective
To enable the participants to gain support from influential men and women in the community and from local government personnel; and to mobilize community members for waste activities (e.g. storing garbage till it is collected, paying for collection, participation in street cleaning campaigns, etc.).

Subjects to be covered
- Who are the men and women in the community who have an influence on waste management activities; and who are the men and women who are affected by (lack of) waste activities?
- How can they be approached so that they will support the waste activities of the CBO? Who to approach first, and who next? And when? What will be the subject of discussion? And what type of support will be asked from them?
- Gender issues in community-based waste management.
- Development of messages about waste activities; practise skills in making women, men, and children interested in waste activities, and in motivating them to participate; develop promotional materials.

**Target groups**
CBO members, community leaders, community members.

**Resources**
PLAN International; Community Development Department of the DCC; Tanzanian Gender Networking Programme (TGNP); East Africa Support Unit for NGOs.

**Topic 3: Strengthening the organization**

**Objective**
To enable the participants to strengthen their own organization so that more members become actively involved in planning and decision making; and so that more members share in the benefits of the organization.

**Subjects to be covered**
- encourage participation in setting goals and objectives
- holding effective group meetings
- increasing transparency in decision making
- improving financial accountability towards the members
- dealing with internal conflicts
- procedure and skills for monitoring the organisation's own progress
- encourage equal participation of women and men in all respects

**Target groups**
CBO members

**Resources**

**Topic 4: Improving management of waste activities**

**Objective**
To enable the participants to operate the waste activities of their organization in a business manner; and to know whether the activities are making a profit or a loss.

**Subjects to be covered**
- Understanding waste collection and other waste activities as a business.
- The importance of record keeping: which records to keep; how to keep them; and drawing conclusions from records.
- Calculating costs and revenue, and setting realistic prices for services
- Budgeting, including for maintenance and repair of equipment, and for unpaid
mobilization activities
- Increasing the efficiency of waste activities, e.g. planning waste collection routes, method of collecting garbage fees, use and maintenance of equipment, how to sell waste materials at the best price.
- How to deal with non-paying customers and with non-paying members of the organization.

Target groups
CBO members.

Resources

Topic 5: Creating Partnerships in Waste Management

Objective
To enable the participants to increase their self-determination as an organization through coordination, cooperation, and demanding their rights in the field of waste management.

Subjects to be covered
- Understanding the responsibilities and tasks of DCC, the District, private companies, CBOs, and small enterprises in waste management: what are the duties of the CBO, and what back up can be demanded from other organisations.
- Why and how to form alliances with CBOs, small enterprises and others (e.g. NGOs, schools) in order to promote community-based waste activities.
- Negotiating for necessary services.
- How to read contracts offered by the DCC or private companies.
- Develop a checklist on secondary waste collection by DCC, the District or private companies; use the checklist in meetings with stakeholders and particularly in negotiations.

Target group
CBO members and community leaders.

Resources
Senior staff of the Solid Waste Department; Tanzanian Union of Women Lawyers; SIRDO/GTZ, "Strengthening Self-Help Organisations in the Informal Sector".

Topic 6: Monitoring and Evaluation

Objective
To enable the participants to make an activity plan for their organisation, carry it out in practice, and adjust the plan if the objectives have not been reached.

Subjects to be covered
- What are the benefits of monitoring for the progress of the organisation?
- Developing a method of monitoring one's own organisation
- Ability to exchange information that matters.

**Target groups**
CBO members

**Resources**

**Methods: General comments**
- Training will take place at a location in the community, and will be a few times a week in the afternoon.
- Whenever possible, community leaders with a special interest in waste activities will participate in the training for the CBO.
- There will be special training sessions, which prepare for practice in the same community.
- Training sessions will have a regular follow-up with advice by the Project Officer.
- Talks, discussion groups, field visits, exchange visits, film shows, practices, all this is possible.
Several options are available for increasing the involvement of CBOs in the city's waste management. In each of these options several considerations are involved: social and organisational considerations (cohesion, mutual influence, support structure), advantages from a waste management point of view (integrating several activities), matters of efficiency and effectiveness (operation of secondary collection), and policy aspects.

Option 1: Strengthening the CBOs already engaged in waste collection and selected for the ILO/DCC project. Two CBOs have been selected. They will form the core of the group of CBOs who are engaged in waste management and who will participate in the Project. They are Mabibo Women Environmental Society (MABIBO) and Kinondoni Moscow Women Development Association (KIMWODA). Although the two CBOs are different in several ways, it is also clear that they need strengthening in the same major activity areas. These major activities are Awareness Raising and Mobilisation of the Community; Strengthening of the Organisation; Improving Financial Management; Creating Partners in Waste Management; and Progress Monitoring and Evaluation. The field trips, group discussions, talks, practices, and training sessions will all be geared to an improved performance of the CBOs in waste management.

Option 2: Strengthening other CBOs already involved in waste activities. Other CBOs are active in various waste activities. Three of them are already known, (Hana Nasif Women Development Association, Koshika Women's Group) and yet another group in Hana Nasif). Others will undoubtedly show up. Hana Nasif Women is at present engaged in street cleaning in the city centre, and has expressed interest in experimenting with compost making. Making a good quality compost requires that households separate waste at source, and that waste is collected separately. It is quite likely that the Hana Nasif women will become interested in these related waste activities as well. All three will need similar support activities as MABIBO and KIMWODA, the two core CBOs.

Three CBOs (all women) are located in Hana Nasif Ward, Kinondoni. Coordination and cooperation can develop between them, for example regarding allocation of collection routes in the Ward, negotiations with the authorities, operation and maintenance of a primary dump inside the Ward, etc. Being located at Morocco Road, a major road, it becomes worthwhile for the District or a private contractor to provide secondary collection. Health and Community Development Officers in Wards located at this road will stimulate other CBOs to start waste collection, making use of the secondary collection route.

Option 3: Involving CBOs who are engaged in development activities and interested in starting with waste collection.
CBOs are often engaged in several development activities, such as building schools, running a nursery, health care, water supply and road building. Some have sub-committees on environmental cleanliness. These CBOs are known to the Community Infrastructure Programme (CIP) of DCC and to PLAN International. They are located in Kijitonyama, Tabata, Vingunguti and Buguruni. These particular CBOs are part of a well-organised community structure, and only need advice and training regarding waste management in coordination with other actors. These CBOs can become a new core of CBOs engaged in the waste sector, not necessarily all engaged in waste collection, but also in recycling and manufacturing.

Option 4: Identifying other CBOs who are as yet unknown to the Project. Other Wards can be approached for identifying existing interest in waste activities. The list made by CIP of the 12 Wards to be included in the programme is helpful in this respect. Selection can be based on:

- Logistic criteria: e.g. DCC or private contractor are already operating a secondary collection route and dump (contributing to efficiency and cost reduction).
- Organisational criteria: e.g. the Health Officer, CDO and Agricultural Extension Worker are active in the Ward.
- Environmental sanitation criteria: e.g. the area has special problems in this respect.
- Political criteria: e.g. forerunner in a City Clean (Kinondoni Clean) campaign.

Involvement of partners
It is important for each of the options that all partners are involved from the beginning. This is so because of the interconnections between communities and local authorities regarding service provision, between adjacent communities sharing the same facilities, and between the actors involved in different types of waste activities. Micro/small enterprises are also partners with whom agreements can be made about e.g. transport, and the sale and purchase of waste materials. The coming together of partners and their agreement to meet on a regular basis to monitor progress and seek solutions for problems, is an important step. This can develop into a steering committee on community-based solid waste management. A similar process was initiated by the Community Infrastructure Project (CIP).

It is also envisaged that PLAN and CIP play several roles in the Project. Not only through inclusion of "their" communities in solid waste collection, but also through providing training in leadership and community mobilisation to the above mentioned CBOs.
ANNEX 5 BUSINESS PLAN FOR CBOS

In the following draft business plan for CBOs, the usual questions asked on setting up business, are now asked with a focus on waste collection. The plan is in the form of an elaborated checklist of issues to be considered.

1. What service will you provide? Only primary waste collection?

Do you ask the household to store garbage in a container? In what kind of container? Will you collect garbage from inside the house; or pick it up from the front door, where it is stored by the household; or ask the household to bring garbage in a container to the road side?

After garbage collection, will you also sweep the street?

Do you collect all household garbage; or only wet, organic waste; or only dry, valuable materials; or do you collect it only when the household has separated the wet and dry materials?

How often per week, per day? Which days?

2. What service will you provide? Also secondary waste collection?

Where will you take the collected garbage? To a temporary dump in the area; or to the official transfer collection point (where the DCC will collect it)? Or do you take it to the municipal dump for final disposal?

How often per day or per week?

How will you carry the garbage to the temporary dump or the official transfer point: wheel cart pushed by yourself; or an animal-drawn cart; or a pick up?

If you only do primary collection in your own area, who is responsible for secondary collection? Who pays for secondary collection to the transfer point and to the municipal dump?

On which days of the week is secondary collection done? And how does this affect your own schedule for primary collection?

3. Who are your customers?

In which geographical area will you look for customers? What are the boundaries of that area? Do you aim to have all households in that area as your customers? Or do you only aim at the households in the main street; or only households in a particular sub-area (e.g. only around the drains)?
Will the whole house be your customer (irrespective of the number of people in it) or will the separate households (family units within a house) be your customers? Make a distinction between households and restaurants, shops, workshops, market stalls.

Are your customers poor - not so poor - middle income - well-off?. Do they have domestic animals on the plot (cows, chicken etc.) who may eat the organic waste, and who produce manure that is included in the waste you collect?

On what days / part of the day are customers at home (so that they can put out the garbage; or pay the garbage fee)?

4. Setting the garbage fee

Do you have a fixed garbage fee for each customer regardless of variations in the quantity of garbage offered for collection? Or do you have a different fee for different types of customers (household, restaurant, market, shop). How to measure the volume of garbage offered? E.g. payment per trip by wheel cart or waste bag? Possibly a higher garbage fee for enterprises than for households per unit of garbage offered for collection.

Is the garbage fee per house? Or per household (family)? Note that there may be up to six households in one house, each having its own room.

5. Why would the customer pay you for your service. What is attractive of your service?

For example, there is no other acceptable place for dumping available in the area. Or you provide a reliable service (you always come on the same day without fail). Do you provide something extra that customers like to have done (such as cleaning the street once in a while; or )? Or do you give a discount when customers pay immediately?

Or when they hand in garbage separated in dry and wet materials? . Or do customers come to you because you enjoy public support from the leaders; or from local government officials?

6. Equipment needed

What equipment is needed for the type of work you plan to do? List it and state for what purpose this equipment is used. How many of each type of equipment are at present in use for the current number of customers? Is this sufficient; or too few or too many?

What are the prices of equipment and how long do the various pieces of equipment last (from several weeks to 6 months or more).

Are different qualities of the same equipment available in shops (e.g. local broom versus imported broom) at different prices? Which one is better for the work and lasts longer? If you do...
not know, buy one of each quality and make an experiment. Record date of purchase and price; date of first breakdown; cost of repair and maintenance; date of final breakdown. Record all this and compare later. Which one is performing better?

Where to buy equipment or have it manufactured? At what price? Does the price include transport? Take the lists of KIMWODA and Mabibo as a checklist and discuss it with them and others.

7. Efficient use of people and equipment

What is the most efficient waste collection route in your area, so that most houses are serviced within the shortest time? Which carts and equipment is most suitable for the road condition?

How many people are necessary for a team? Can a team work with less people? How many houses does a team serve per day? Could the same team serve more houses than they do now?

8. Skills needed

The following skills and knowledge are needed for operating a waste collection service
- safe handling of garbage
- handling of equipment and small repairs
- sorting, cleaning, and bundling recyclable materials
- knowing the economic and environmental advantages of recycling
- good social contact with the leaders, and local government officials
- persuading the public about the advantages of waste collection and recycling; and about the need to pay for that

Have you and your colleagues and employees have all the necessary knowledge and skills? If not, who can teach and train you?

9. Best guess at revenue, costs and profit/loss

Calculate the direct costs of equipment (including maintenance and repair); direct costs of labour; indirect costs of running the office, and of customer relations. Include the indirect costs of visiting house to house to persuade people about waste collection; or to collect garbage fees. Calculate revenue, keeping the charges paid by customers separate from entrance fees and subscriptions paid by CBO members. Make the calculations per month, per year.

Does the revenue cover the costs of the waste collection service?

10. Make a budget for one year
Take note to include provisions for marketing and customer relations; maintenance and repair; repaying loan or replenishing own working capital; replacement of written off equipment; make a reservation for the months that revenue is low while operating costs continue.

How many customers are needed to cover the total cost of waste collection? And how many are needed to cover only the indirect costs?

11. Who is going to provide the money for the first few months?

Can you get a loan, and what are the conditions of repayment? Or a grant? Or can you use your own working capital (formed by membership fees and subscription fees)?

12. How much money needed for the first three months?

You need money for salaries, to run the office, to pay maintenance and repair of equipment. Given the garbage fees paid by customers, how many customers are needed to pay the cost of the first three months?

13. Ownership of equipment

Who owns the various tools and equipment? And who is responsible for maintenance, repair and replacement? Is it the CBO itself; or the Community Management Committee, or a private contractor/DCC; or the organisation that provided the loan? Does the CBO have to pay rent for the hire/use of that equipment?

14. Collection of the garbage fee

Who collects the garbage fee? The garbage collector, or who else? When? E.g. each time at the time of collection; or once a week; or once a month?. Where? At the house of the customer; or in the office?

Do you give a receipt?

15. Day to day management

What are the responsibilities and the tasks of the office manager?

What are the responsibilities and tasks of the coordinator of the service?

Who does the planning of the day; and of the whole week?
What parts of the service need supervisory attention? How is supervision carried out? And by whom?

16. Marketing and social relations with the community

Who is going to mobilize the community for waste collection and recycling? Does the CBO do that alone? Or together with the Community Management Committee; or with other CBOs, and with local government officials? What activities will be carried out? How much time will be spent on that? Who will pay? Will mobilisation take place once only; or again after several months? What type of materials are used for mobilization and marketing? E.g. posters, word of mouth etc...

17. Book keeping

What records will you maintain? For example, expenditure; maintenance and repair; garbage fees received from customers; fees received from members; date and price of purchase of equipment; date and cost of repair. Etc.
ANNEX 6 SUMMARY INTERVIEWS HELD WITH CBOS

Description of Mabibo Women Environmental Society (MABIBO) (Mrs. Zita Nyirenda)

MABIBO was registered as a CBO in July 1997. Started operating waste collection in October 1997.

Mabibo Ward as an economically mixed community: there are teachers and doctors as well as very poor people.

They started with 34 members. Several of them, however, have not paid anything yet towards their entrance fee (10,000/-), and there is discussion about whether to continue to regard them as members. The CBO is for women only, but there are exceptions. Male students are allowed, as well as some male community leaders who are invited to be on the Board of Directors.

The CBO is an environmental organisation which requests its members to take active part in the CBOs work, by giving environmental talks, collecting garbage and cleaning streets. An extra collection day on Sunday is organised to give those who are employed a chance to do active work.

Engaged in waste collection and emptying the garbage dump inside the area. This dump is used by themselves as well as the general public, in particular by the market vendors.

They started with 5 houses in July 1997. Now they have 120 houses as customers. A house (or plot) has usually several households in it. The charge for waste collection is 200/- per house, irrespective of the number of people living there or the amount of garbage collected. At first the collection was three times a week, but since February 1997 once a week is enough, "because the amount of garbage has been greatly reduced as a result of their cleaning activities".

Their operation is as follows. They buy large bags (50 kg) for storing garbage in. They hand out the waste bags to houses free of charge, and these houses then agree to pay for the collection charge. Those households who do not receive a bag refuse to be included in the scheme. The reason behind the use of the waste bag are the physical characteristics of that area. Outside of the main streets there are only narrow, winding and rocky paths, where even pushcarts cannot come. To carry a full container was a problem. To overcome this, the waste bags were introduced, which are carried to the wheel cart by two members of the team. When the bag is emptied, they return it to the house, to be filled again during the next week. A team of seven women goes for waste collection, four of whom push a wheel cart (mkokoteni) through the street, while the other three are the sweepers. The main task of the latter is to remind the houses to bring (??) their full waste bag to the wheel cart waiting in the street, and to sweep the street.

The society expands slowly. When collection charges are paid by the houses, the money is used:
- to pay the labourers
- to buy more waste bags.

People are willing to pay for collection, if they are given a waste bag. So it is vital for the Society
to buy more waste bags, whenever possible.

The collected garbage is disposed of on the dump near the market. All the garbage is later taken to the transfer point where the Waste Department picks it up. Since the general public also uses this dump, the garbage taken to the transfer point includes that of the non-paying public. This is a free public service rendered by the CBO.

Everybody working in a cleaning team is paid a daily wage. The team works half days and has rotating members, so as "to give women a chance to look after their families in the afternoon".

*Expectations of the members for MABIBO:*
  - To reduce incidence of disease
  - When the project has grown, they like to be paid; now they work voluntary
  - To diversify and to include also other development activities, "so that they can show the community what they really can". Other activities like: embroidery, cooperative shop, dealer in kerosene, nursery school, grinding machine, water selling, tailoring. The purpose of these income activities is to subsidise and support their environmental activities.
  - They want recognition by the community; at present they are often mocked: "why bother with waste? It is not our tradition!"

**Kinondoni Moscow Women Development Association (KIMWODA) (Leocadia Rugambwa)**

KIMWODA started in 1994. Was registered in 1995 as a CBO. It started with 10 members (all women) and has now 15 members. It has 10 youth employees, who form a separate section.

Hana Nasif Ward is a mixed community of very poor to middle income people.

After having visited an upgrading project in Kampala (Uganda), Mrs. Leocadia, chairperson of KIMWODA, realised that her Ward Hana Nasif had a problem with the drains. When the drains were constructed in front of the houses, people used them for their garbage, having no other place to dispose of it. Garbage blocked the drains. Leocadia mobilized women to clean drains, and to persuade people to stop throwing their garbage. She also went to the City Health Officer "to show us the collection point for garbage". Waste collection started with houses along the drains. The fee is 200/- per house.

Present work:
  - Waste collection for 50 houses along the drains; out of 2000 to 3000 households in Hana Nasif. (NB. a house has several households).
  - cleaning drains
  - campaign to clean the roads in Kinondoni - voluntary.
  - intermittent street cleaning contracts with the DCC.

In 1997 they had a contract with DCC for the cleaning of all roads in Kinondoni. But since the end of the contract in October 1997, the DCC Health Officer has not renewed it for unknown reasons.
The fee for waste collection in Hana Nasif is 200/- per house per trip. If there is much garbage, and several trips are required, the house pays for each trip. Payment is irregular. People must pay (those along the drains) because there is no other place to throw it. Some people reluctant to pay. For some people even 100/- is too much. Some people say they do not have garbage. Yet they do have garbage, but they throw it to the neighbour's house. This leads to quarrels!

Physical features. The main road (Morocco Road) is not far from Hana Nasif. Moreover, the main street inside the Ward has been upgraded through an ILO/SIST project (1995). At present there is no secondary collection, so the garbage is thrown into an empty space "land fill". There is no collection point in Hana Nasif, but one will come nearby.

There is no open space for composting, because of population density. But it is feasible to make compost in boxes.

Meetings are held once a week by the management committee, and once in two weeks by all members. An extra meeting when necessary. The committee (Executive Director, Vice Director, Treasurer, Secretary, Assistant Secretary) do voluntary work, but do receive an allowance.

Financial records, yes, and the members can see them; as well as the receipts of what houses paid. No financial statement.

Has been invited to many meetings with government officials: Ministry of the Environment, weekly with SDP. She mentions her problems to them and they then discuss them. KIMWODA is seen as a case study to talk about.

Contacted Health Department to solve problems? Not much. Only about the problem with this street cleaning contract. Not much contact with Community Development Department. Each Ward has a Community Development Officer (CDO).

There is a Community Development Association (CDA) in this Ward, which is in charge of the road and drains projects. The CDA has several sub-committees. The CDO has regular contact with the CDA. But he has no mandate to deal with groups engaged in solid waste management.

Kimwoda is prepared to cooperate with other groups, and with women's groups on this Waste Project.

*Expectations of the members for KIMWODA:*
- To improve living conditions for their children. They have to be united to achieve this.
- To start economic enterprises, so as to increase living standards. The individual enterprises will subsidize the waste activities.
- To continue to collect garbage from houses.
## ANNEX 7  PRIORITIZING OPTIONS MSE-DEVELOPMENT

<table>
<thead>
<tr>
<th>Type</th>
<th>Option</th>
<th>Name</th>
<th>Priority reasoning</th>
<th>Final Priority³</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Paper</td>
<td>11</td>
<td>Organizing group of paper collectors</td>
<td>The creation of more employment in all sectors depends for a major part on the collection of more valuable waste. -&gt; Some form of rationalization and organization needed. Searching for collectors willing to cooperate will take considerable time, getting the 'cooperation' to function too. Earlier start required. *Input: time, commitment and lots of efforts from ILO officer and waste paper collectors over a long period of time.</td>
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<tr>
<td>1.2</td>
<td></td>
<td>CBOs collect, store and sell separated h.h.-waste</td>
<td>Option to increase the quantity of waste paper from households → Awareness, mobilization to establish separation at source (campaigns, meetings, education means to residents), funds and space for storage capacity and baling equipment, training management and planning capacity. * Input: time and efforts from the selected GBOs and preferably the other CBOs too. Follow up and monitoring by ILO officer. Both over long period of time.</td>
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<tr>
<td>2. Metal</td>
<td>1.3</td>
<td>Establishment of small paper mill</td>
<td>Meant to fill a gap in the supply of special sized waste paper, provides potential new products. → Requires feasibility study, purchase machinery (importation costs, copying sample machine, training in operation and maintenance, hiring South consultant, trial operation), link with the collectors associations for supply of waste paper and marketing of new products. *Input: specific paper processing and mechanical engineering expertise, availing credit facility</td>
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<tr>
<td>2.1 A</td>
<td></td>
<td>Improvement of present product quality</td>
<td>Builds upon the past support to the DASICO cooperative, 15 metal workers are willing and organized and see a need for the support. → Local training needs assessment and actual training, repeated follow up of the training, monitoring the improvement of the quality. * Input: metal work expert/trainer, efforts to promote the improved products by metal workers</td>
<td></td>
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<tr>
<td>2.1B</td>
<td></td>
<td>Modernization and innovation of product range</td>
<td>*Input: considerable (time) and very specific efforts and expertise input needed for expanding the market for waste metal products, discovering or making the niche, development of new product range, promotional campaigns (magazines), arrangements with retailers.</td>
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³ Priority: 
1 = immediate start recommended 
2 = start advisable but not 'urgent' 
3 = optional
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<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>2.2</td>
<td>Establishment of small scale metal or aluminium casting enterprise</td>
<td>*Input: this option has been presented in the form of a project proposal by an enterprise called 'Envitech' to produce school desks from alu-waste (frames) and waste plastic (desk tops). A serious feasibility is needed to substantiate the claims of this enterprise. As such a tempting proposal.</td>
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<tr>
<td>3. Plastic</td>
<td>3.1</td>
<td>Establishing collectors associations and junkshbp network</td>
<td>*Input: see inputs required for the establishment of a waste paper collectors association. Meant to provide semi-final products (cleaned, sorted, shredded plastic) for large(r) plastic factories. Requires feasibility study, purchase agglomerator, shredder, washing machine (importation costs, copying sample machine, training in operation and maintenance, hiring South consultant, trial operation), link with the collectors associations for supply of waste plastic and marketing of new products to larger factories.</td>
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<tr>
<td>3.2</td>
<td>Establishment small plastic plant (semifinal products)</td>
<td>*Input: specific plastic processing and mechanical engineering expertise, availing credit facility Instead of semi-final products final products will be produced for sale to retailers:</td>
<td></td>
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<tr>
<td>3.3</td>
<td>Small plastic plant produces final products</td>
<td>*Input: market survey to find or establish niche in the market for small scale (waste) plastic products, additional credit facilities to purchase extruder &amp; moulds, to increase storage, to promote products, trace &amp; contact outlets (retailers) to sell products, permanent connection to the collectors associations for supply of waste plastic and marketing of new products to larger factories.</td>
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<td>4. Compost</td>
<td>4.1A</td>
<td>CBO composites organic waste for application in farming at hh-level</td>
<td>*Input: acquiring spots of land for home gardening, awareness raising, campaigns, considering pricing as incentive (time, meetings, leaflets, selecting home gardeners. Surplus of vegetables grown and compost produced sold to neighbouring residents to find outlet for the growing amount of organic waste.</td>
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<tr>
<td>4. IB</td>
<td>CBG sells surplus vegetables</td>
<td>* Input: acquiring piece of land with some security of tenure, promoting the surplus of vegetables and compost, management of labour inputs joint marketing efforts, equipment for quality control.</td>
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<tr>
<td>4.1C</td>
<td>GBO actively markets commercially produced vegetables</td>
<td>Expansion of the production of vegetables and compost and differentiating (specializing) the vegetables grown, sale of seedlings, spices.</td>
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<tr>
<td>4.2</td>
<td>Study and development of vermi-culture</td>
<td>The production of compost by worms will be studied in the climatic and biological conditions of Dar es Salaam. *Input: tracing interested research(er) or group, funding for the research (time, worms, basins), CBO willing to participate, small scale trial vermi-composting plant in neighbourhood after first testing at university grounds.</td>
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<tr>
<td>Type</td>
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<td>Priority reasoning</td>
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<tr>
<td>5. Transport</td>
<td>5.1</td>
<td>Contracting transporter</td>
<td>*Input: effort to organize waste collecting CBOs along logistically wise routing, identifying transportation contractor, establishing the contract conditions, planning quantities to be transported, planning collection scheme in neighbourhood, arranging temporary storage facilities, pricing of the service.</td>
<td>3</td>
</tr>
<tr>
<td>5.2</td>
<td>Sharing transport facility amongst CBOs</td>
<td>Builds upon the (joint) efforts made already in the previous option. *Input: a) organized group of waste collecting CBO register as association to be able to attract credit facilities for the purchase of a pick up or b) one of the CBOs registers itself to be able obtain credit for the purchase of a pick up. Similarly -as in the previous option- considerable efforts are needed in planning of the routing etc. A contract should be made amongst the joint CBOs to guarantee for a certain period of time the use of this mean of transportation.</td>
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<tr>
<td>5.3</td>
<td>Establishment of Koshika Women's Group transport cooperative</td>
<td>Builds on the previous option in the sense that one CBO does have the opportunity to run two trucks, be it that these trucks are unsuitable for the job. *Input: a) the CBO sells one or two trucks to be able to buy one or two pick ups, or open lorries or b) leases the two trucks to a private company that can employ these trucks. In both cases the inputs as required in the previous option do apply: waste collecting CBOs make agreement with the pick up running CBO etc.</td>
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<tr>
<td>5.4</td>
<td>Needs assessment &amp; design of waste collection cart</td>
<td>Assessment of need for improved door to door waste collecting mean of transportation and potential development of model. *Input: interviews with present waste collectors (CBOs and MSes) operating at neighborhood level.</td>
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ANNEX 8         TERMS OF REFERENCE

Scope
The working area is Dar es Salaam.
- Activities with CBO's are currently limited to about 5 groups which are already involved
  or starting to get involved
- The mission will address the problems of at least 10 small scale enterprises in recycling
  and the linkages to large-scale enterprises. Among these, materials to focus on are metal,
  paper, plastic and organic material.

Inputs required
In total the mission will consist of two persons:
one expert with practical knowledge on community organization, gender and development: Maria
Muller,
one expert with practical knowledge on solid waste management and small/micro enterprises in
the field of waste recovery and re-use: Arnold van de Klundert, each for a period of three weeks.

Timing
22 February to 18 March, excluding Sunday 15, Monday 16 and Tuesday 17 march. Total 21
days, including a debriefing visit to ILO, Geneva on 18 March.

Conditions
The consultants will work under the daily supervision of the ILO Dar es Salaam Office and will
work closely together with the personnel of the DCC Waste Department, members of CBO's and
small-scale entrepreneurs.

The consultants will submit the final report, with a copy on diskette, to the ILO Office in Dar es
Salaam before 16-3-98.

Part A: Technical Advisory mission by MARIA MULLER for Community Based Waste
Collection and Recycling in Dar es Salaam

Expected outcome
Based on the conclusions and recommendations of the studies and the consultants' own
observations, the mission should provide:

On Community based waste collection
a) practical guidelines for setting up community-based and -managed waste collection services
   in Dar es Salaam:
b) a 1998 work plan for each of the two most feasible CBO's (to be selected during the mission),
   including cost recovery and linkages to the city services;
c) one draft training curriculum for managing community based collection services.
d) suggestions for extension of community-based waste collection to other neighbourhoods and CBO’s.
e) a proposal to introduce composting (at home based level, in combination with waste collection (separation at source), in combination with other activities or otherwise) for at least two neighbourhoods.

Each of the above a-d should include full information on costs and provide gender specific data and suggestions where appropriate. A detailed list of issues to be addressed is added as Annex II.

At the end of the assignment the consultant will submit an overall assignment report with a description of the work carried out and the above outputs as Appendices.

**Issues to be addressed:**

For Community Based Waste Collection:
ILO support to Community Based Waste Collection will in the first instance focus on a number of groups/communities (CBO's) who are already involved in waste collection or have shown concrete interest. At the same time DCC and ILO need to develop plans and activities to integrate other areas in the waste collection system.

- **Organizational structure:** which organizational structure is more likely to operate successfully (e.g. broad, community level groups or smaller, enterprise-type groups) and what needs to be done to transform the existing groups?

- **Community empowerment:** how can community (groups) be empowered to establish fair working relationships with the city authorities?

- **Business training:** what training do the groups need to operate community based waste collection cost effectively (the Grassroots Management Training of SSMECA can be taken as a basis),

- **Preparing a business/operational plan:** a checklist for CBO’s to guide them in starting or expanding the community waste collection services (ownership, equipment needed, day to day management, publicity, collection of fees, book keeping, etc.).

- **Cost recovery plan:** while the Habitat mission will focus on the overall city level cost recovery mechanism, this mission should look at the issue from the community level. How much can the community be reasonably expected to contribute (in money and labour) for waste collection services and which support from the DCC or other sources is needed and can be acquired to operate cost effectively? The two missions should communicate on the cost recovery mechanism.

- **Linkage with secondary collection** by DCC or contractors: Apart from the financial
aspects, the community based collection should also be linked to the city system in organizational terms. Probably DCC or the private contractors should provide the transport of waste from community collection point to the landfill.

- **Marketing training/publicity** for cooperation by the community: how can the CBO's by themselves or together with DCC motivate the community to cooperate in the waste collection services (e.g. examples of successful publicity material used elsewhere) and keep the motivation going over the course of time. These marketing and publicity issues can be integrated in the above mentioned business training.

- **Safety and health**: measures and gear needed for safe waste collection services.

- **Combination of waste collection with recycling**: separation at source and either selling the recyclables or re-manufacturing them (or producing compost) can increase the cost effectiveness of community based waste collection. CBO's can also supplement the supply of recyclables from middle or high income communities. What strategies can help CBO's to successfully combine waste collection with recycling?

- **Recycling technology**: can the support to CBO's who want to start recycling activities be integrated in the above mentioned support to existing recycling enterprises, or should the ILO support take another shape?

**Annex Part B: Technical Advisory mission by ARNOLD VAN DE KLUNDERT for Small Scale Enterprise Development in Waste Collection and Recycling in Dar es Salaam**

**Expected Outcome**
Based on the conclusions and recommendations of the studies and the consultants' own observations, the mission should provide:

**On recycling enterprises**
- a) practical guidelines to each of 10 recycling enterprises (to be selected during the mission) through better product quality and product marketing, as well as product diversification;
- b) related to e): advice to 10 enterprises on appropriate technology to improve/diversify products and services;
- c) one draft training curriculum for business management of recycling enterprises;
- d) a proposal to improve transport facilities for recyclables and final products.

Each of the above a-d should include full information on costs and provide gender specific data and suggestions where appropriate. A detailed list of issues to be addressed is added as Annex II.

At the end of the assignment the consultant will submit an overall assignment report with a description of the work carried out and the above outputs as Appendices.
Issues to be addressed:

For the recycling sector
ILO support to the recycling sector will be mainly directed to existing waste collectors and small scale entrepreneurs.

- Technology support: technology that can be improved or introduced to enhance the profitability of recycling activities, e.g. technology for sorting and grading of plastic, small scale paper recycling.

- Product diversification: how the products can be diversified or the finishing of products improved to enhance marketability, (esp. paper and metal products).

- Access to affordable transport: how transport can be improved and which type of vehicle would be most suitable (hand- and motor driven; animal traction is not much used here)

- Marketing: how can ILO support recycling enterprises to improve their marketing (information exchange, establishing contacts, training in marketing techniques)

- Composting: how composting at community level can fit into the recycling/waste collection activities, if not as an income generating activity, then at least as a means to reduce costs.

- Provision of protective gear, protective gear and/or other protective measures that are needed for a minimum standard of occupational safety and health. What the costs per operator (scavenger, recycling entrepreneur) will be. Should these be paid by the operator, subsidized or granted?

- Access to equipment: equipment that can improve productivity at affordable costs, e.g. tools to prepare materials for transport and sale (cleaning, pressing, bailing) and equipment for processing (e.g. welding). How can operators be assisted in getting access to this equipment?

- Business training: Taking the Grassroots Management Training of SSMECA as a basis, how can this be supplemented to serve the specific needs of recycling enterprises?

- Establishing groups of collectors: (possibly also of dealers and manufacturers) which can facilitate group hire/purchase of transport and equipment, negotiate prices, provide market information, facilitate training, etc.; according to experiences in other countries, which are important considerations, forms of organization that will enable the groups to be successful?

- Access to credit to buy equipment, land and improve business premises: how can ILO support the operators to improve their access to the various credit facilities available locally?
ANNEX 9  MISSION'S ITINERARY

The mission took place from Sunday February 22 - Saturday March 14, 1998 and was carried out by mrs Maria Muller and mr Arnold van de Klundert.

WEEK 1 (February 22-28):

The first three days (Sunday-Wednesday) both the MSE and CBO-consultant held introductory talks, read various documents on related topics and studies (Busalama, SIDO, JICA, WB/UMP), held discussions with the ILO programma officer mrs Saskia Bakker and made appointments with various resource persons and organizations. Together they developed the set of criteria to select two CBOs, held the first talks with the four CBOs and developed the basic framework for the workplans and practical guidelines.

The CBO-consultant had meetings with:
- the Senior Community Development Officer of DCC, Mr. K.A. Ng'ungu, and with Miss Masagasi, Community Development Officer (Women and Development and Children), at the Zonal Office of Ilala District (at Mnasi Mmoja) about community development activities in the wards. Also talked about the training given by LJNICEF during the preparatory phase of the project "loans for women's groups in 1992/93. Training included: record keeping; group management; feasibility study for projects; marketing; environmental hygiene for food vendors.
- Mrs. Muro, programme officer of gender and development (including micro-loans) of UNICEF about the training for micro-loans project, and about KIMWODA and Hana Nasif Women's Development Association.
- Mr. Brendan O'Driscoll, Chief Technical Advisor, Management Support Project, Dar es Salaam City Commission about the changes in the public administration structure,
- the Hana Nasif Women's Development Association (Mrs. Natalia Magongo) at the chairlady's home, in their office, and on the work site.

During the rest of the first week the MSE-consultant further made visits to:
- the Dar es Salaam Small Industries Cooperative (DASICO) to have the first meeting with the chairman, general secretary and two owners of a paper (re-use) enterprise mr Hamisi J. Msumi and mr H.Tumbo, to discuss their present business prospects
- the Urban Vegetable Project of GTZ, mrs Petra Jacobi and mr Jorg Amend in relation to composting experiences in Dar es Salaam in their urban vegetable project, additional visit to urban garden and pollution (household batteries) problem
- an organization called Strengthening Small and Micro-enterprises and their Cooperatives and Associations (SSMECA), an ILO/SIDO organization developing and executing training for MSEs, mrs Anna Maria van Oss and mr Godfrey Lewis (business advisor), to understand the role of this organization and to learn about its programmes and training(materials)
- mr Busalama, author of the report on a 'Study on Marketing potential of Recycling Activities in Dar es Salaam' (November 1997) to discuss the conclusions of his report, the approach the mission would follow, the way to identify and select MSEs for the ILO's Support Programme, the socio-economic classification of wards and the concentration of...
recycling MSEs, the dealers and the movements of recyclers between the wards.
- Small Industries Development Organization (SIDO) in particular mr Pius F. Wenga who is charge of strengthening self-help organizations in the Small-scale enterprise sector to discuss the SHO's programme, its training(opportunities) opportunities and financing facilities
- visit to NEMC at PAMBA road -> referred to Olympio street (not visited)
- meeting with Vibindo society, mr Gaston Gaudence and mr Saidi Ali Kawambwa, to discuss the situation of the MSEs operating in the city, the need for establishin associations of MSE to obtain recognition

WEEK 2 (March 1-8):

Introduction took place of mrs Alodia Ishengoma as team member for the next two mission weeks. Together with the CBO-consultant she held discussions with the CBOs and the development of the workplan framework.

The CBO-consultant's activities:
- had a meeting with Mrs. Hilda Super, Community Development Officer of DCC, seconded to the Community Infrastructure Project (CIP). The project's approach is to build up a development structure based on a block of 9-15 houses (Mtaa). The project constructs roads within a context of community participation in decision making. World Bank funding.
- time was spent with members of the two selected CBOs Mabibo and KIMWODA. Several sessions were held with each together with mrs Alodia Ishengoma. Topics included their aims, expectations with regard to their organisation, and problems, and the costs and revenue of the organisation related to waste collection. Goals and objectives for both CBO's workplans were worked out.
- meeting with Mr.Bartolomeo Misana, Programme Coordinator at PLAN International, engaged in community development in Vingunguti and Buguruni (Ilala District). Discussed possible input of PLAN in training on community mobilisation and leadership.

The MSE-consultant undertook the following activities:
- visits to MSEs in the waste enterprising sectors: plastic, metal and paper, meeting people in the formal industry (source and client for recycling MSEs), CBOs in composting activities and training institutes specifically focusing on product innovation and technical training
- a short presentation of the mission's findings thus far and to ILO's project officer mrs Saskia Bakker
- held meetings with mr Busalama, mr Pius Wenga, mr Godfrey Lewis to try to identify, trace, select and interview some of the recycling MSEs in the four sectors. An interview was also held with mr Joe Chidabwa who had made recently an interview with the Mburahati Metal Works group.
- the MSE consultant joined the CBO consultant in her interview of the Community Infrastructure Project (CIP).
- meetings to identify the local innovation capacity to Tanzania Industrial Research and Development Organization (TIRDO) mr Mahulu, to the Institute for Product Innovation at the University of Dar es Salaam, mr Miyeye. A visit to CAMARTEC was cancelled.
- Field visits were made on Thursday March 5 and Saturday March 7 to find paper and plastic recyclers and dealers (Industrial Area, Kiwala, Vigunguti/Buguruni, Mnazi Mmoja and Mtoni seafill). Meetings held at large industries (potential linkages with MSE activities). KIBO paper mills was not in operation but had shifted to private owner. Meeting at SIMBA plastic, mr Fernandes on opportunity for MSE to produce cleaned, sorted, shredded plastic and possible transportation of the semi-final product. Visit to SIDO paper production plant (not in operation).
- Interview with two metal workers at DASICO on their present business performance (marketing, product diversity)
- Introductory talk was held with Koshika Women's Group in Kariokoo on the establishment of a transportation cooperative
- Meeting with Hannanasif Women's Group on potential composting activities and attempts to acquire some free land in the neighbourhood for this purpose
- Meeting at the Vocational Education and Training Authority (VETA) mrs Stella Msemwa, on the new modular approach of VETA and the opportunities to train informal sector entrepreneurs (on the job and tailor made).

WEEK 3 (March 8-15):
A meeting was held mid-week (March 11) to present the missions findings, workplans and practical guidelines as requested per ILO's TOR. Present in this meeting were various stakeholders who were already present during the first introductory meeting in the first week (February 25) and representatives of organizations met by the consultants during the last two weeks of their assignment:

a. City Officials: Head SWM Dept.: mr Jasper Kirango, DCC/Health Dept: mr Kizoto Nkwabi, Head SDP: mr Richard Musingi (in the second meeting replaced by mr Kilika), Liquid Waste Dept.: mrs Onike Mrema
c. NGOs: Plan International: mr B. Misana, mr Klaas van Boekel
d. Consultants: mr Abel Busalama (study on Marketing Potentials of Recycling Activities)
e. Host organization: ILO; mrs Alodia Ishengoma, mrs Saskia Bakker (project officer)
f. Mission team: mrs Maria Muller, mr Arnold van de Klundert (WASTE/the Netherlands)
g. Support organizations: Urban Vegetable Project (GTZ/Min of Agriculture); mrs Petra Jacobi Unfortunately no members of any of the business support organizations met and invited (SSMECA, SIDO) attended the meeting,
h. MSE representatives: No MSE representatives were invited for this presentation as no MSEs had yet been selected to participate in ILO's Support Programme during the mission.

Further activities of the MSE-consultant:
- drafting MSE-options for the mission's report and for the presentations on Wednesday
March 11 to the CBOs and City Officials and on Friday March 13 to the project officer of the ILO, mrs Saskia Bakker and a representative of SSMECA, mrs Christine van Oxtel.
- discussed with mrs Alodia Ishengoma her field visits to florists and plant growers with regard to the use of compost and about her literature search for waste flow data (plastic, metal and organic waste) finally (not) presented in this report
- Saturday March 14 a further debriefing was held with mr Saksia Bakker and mrs Alodia Ishengoma to prioritize the activities as proposed in the MSE-consultant's report
- a meeting was held with mr Nungu, surgeon at the Muhimbili Hospital and shared owner of the 'Koshika Women's Group' compactor trucks, on the potential of the transportation cooperative
- talk with mr Jasper Kirango in the new offices of the SMW department (established in the former DSSD offices in Mwanayamala) on linking the CBO system and the decentralized DCC system (the planned 12 transfer stations)
- second visit to Koshika Women's Group in Kariokoo (Lindi street) which has a range of community development activities, and owns two second hand compacting trucks brought from Sweden.
- visit to Mennonite Economic Development Association (MEDA) to discuss their credit programme (under NIGP) as financing instrument for MSE development and support

The CBO consultant had meetings with:
- Mr. B., (chirlady of Mabibo)
- Mrs. Alodia Misana (PLAN International)
- Mrs. Mary Kibogoya of UNDP/LIFE (together with Saskia Bakker)
- Miss Masagasi (Community Development Department)
- Mrs. Zita Nyirenda Ishengoma about institutions providing training in capacity building for CBOs, and on waste management; also on gender and community participation in urban areas.
Case study; Latin America, presented at the workshop on mse involvement in mswm, held in Cairo, UMP/SDC/SKAT, 1996

Cities feeding people, an examination of urban agriculture in East-Africa, IDRC, 1994

Community-based solid waste management and water supply projects: problems and solutions compared; a survey of the literature, Justine Anschiitz, WASTE/UWEP, May 1996


Composting pilot project in Hannanasif Rubindamayugi & Kuvaisi/University Dar es Salaam, [datum]

Employment generation through urban works programme, Erik Lykby/ILO, April 1992

Gestion communautaire des dechets solides: etude de cas du GIE "Les Lingueres de la Gueule Tapee, Dakar, Senegal, El Housseynou Ly, WASTE/UWEP, January 1997


Income generation schemes for the urban poor, Donnacadh Hurley, Development Guidelines no4/Oxfam, 1990

Informal sector and structural adjustment - strengthening collective coping mechanisms in Tanzania, Michael Schultz, GTZ in Small Enterprise Development Vol.4, no 1

Innovative ways for solid waste management in urban centres of Tanzania, B.B.K. Majani Leprojet pilote de Wogodogo: une initiative locale de gestion des dechets solides, CREPA, Juillet 1995

Mpango wa Kuwaendeleza wafanyabishara ndogo ndogo jijini Dar es Salaam, Special Committee of Experts (SIDO?), May 1996

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Occupational health aspects of waste collection and recycling, Maartje van Eerd, WASTE/UWEP, September 1997

Organic waste, Inge Lardinois, Arnold van de Klundert, TOOL/WASTE, September 1993

Participation communautaire a la gestion des dechets solides; etude de cas dans le quartier de Djicoroni-Para, district de Bamako, Aisse Diarra, Seydou Togola, Ely Terra, WASTE/ UWEP, January 1997

Plastic waste, Inge Lardinois, Arnold van de Klundert, TOOL/WASTE, January 1995


Projet de collecte des ordures menageres de la Patte d'Oie; etude de cas du secteur 15 de Ouagadougou, Marie-Therese Arcens, WASTE/UWEP, January 1997

Quality of informal sector manufacturers in Nairobi, Kabecha & Thomas in Small Enterprise Development, Vol 6, no 4

Revised Two Year Programme Proposal, CIP and Partners, Community Infrastructure Programme, April 1997, Dar es Salaam

Self-help organizations in the informal sector of the Dar es Salaam region, Pius Wenga, Andrea Iffland, Michael Schultz/SIDO-GTZ, April 1995

Small scale paper making, Technology Series, Technical Memorandum No.8, ILO, 1985

Study on marketing potential of recycling activities in Dar es Salaam, Abel Busalama/ILO, November 1997

Study on the solid waste management for Dar es Salaam in the United Republic of Tanzania, Kokusai Kogyo Co., Ltd, July 1997

Urban agriculture, food, jobs and sustainable cities, UNDP/Publication for Habitat II, Volume one, 1996

Wasted agriculture, the use of compost in urban agriculture, Doortje ‘t Hart, Jacomijn Pluijmers, WASTE/UWEP, April 1996 Work from Waste, John Vogler, Oxfam, 1983

Workshop report: Micro and small enterprise involvement in municipal solid waste management in developing countries, UMP/SDC/SKAT, October 1996

Workshop report: Promotion of public private partnerships in municipal solid waste management in low-income countries, UMP/SDC/SKAT, February 1996
ANNEX 11 SET OF BROCHURES OF SUPPORT ORGANIZATIONS

- EASUN: East African Support Unit for NGOs: introductory letter;
- IPI: organization's brochure;
- SIDO: SIDO/TGT fund for Group Credit and Savings Programme, bridge to small and micro enterprise development in the Dar es Salaam region;
- SIDO: International Training of Trainers, a four weeks CEFE course on methodology and content of an action oriented Entrepreneurship Training concept;
- SIDO: An introduction to the Self-Help Organisation Approach, strengthening SHOs in the informal sector plus Training Calendar 1995/96
- SIDO: CCP training programme;
- SIDO: Programme for entrepreneurship skills development and business planning skills;
- SSMECA: organization's brochure;
- SSMECA: brochures on SSMECA's services: Business Advisory Services, Microfinances Services, Training Services;
- VETA: organization's brochure;
- TIRDO: organization's brochure;
- TIRDO: two brochures on research activities

--- brochures are not included ---