



**Integrated Solid Waste  
Management Plan - ISWMP  
for the  
City of Maseru/Lesotho**

**Financial Strategy**

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## Introduction

This document presents a draft of the Financial Strategy that forms a key part of the three-phase project to develop and implement an Integrated Solid Waste Management Plan (ISWMP) for the City of Maseru, Lesotho.

### *Components of the Financial Strategy*

The Financial Strategy presented in this document is presented in three parts.

Firstly, the financial implications of implementing the ISWMP are considered from a traditional finance model point of view, being in terms of:

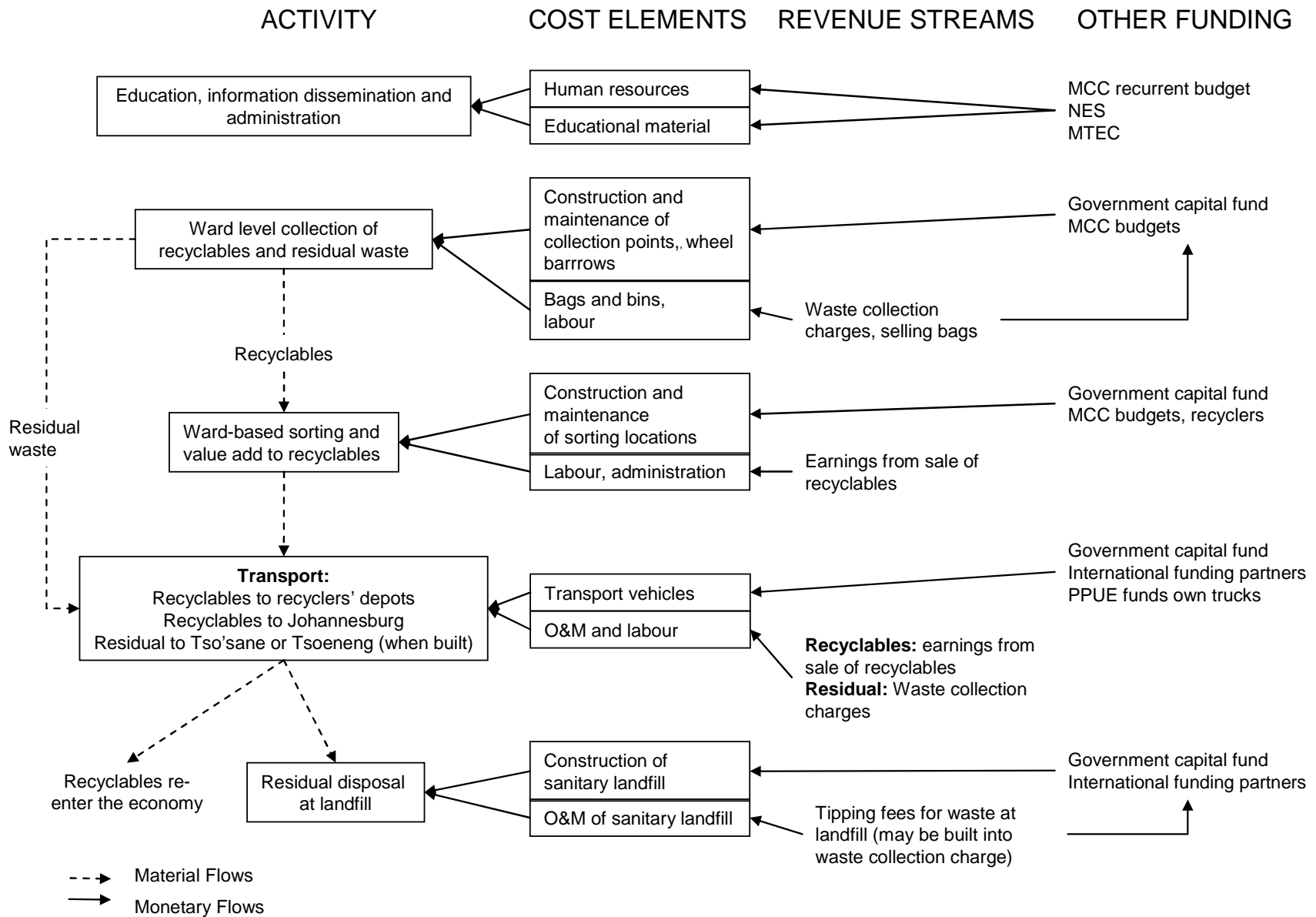
- Initial establishment and potential future **capital investment**
- Ongoing **operating expenditure**
- Potential **revenue** or **income** generation for various parties

Then a list of likely **funding sources** for implementing each of the **actions** outlined in the ISWMP is presented. The funding sources were identified by stakeholders during the stakeholder workshops conducted in Maseru.

Finally, consideration is given to the indirect financial implications of implementing the ISWMP.

### *Overview*

An overview of activities, cost elements, revenue sources and other funding considerations is shown in the Figure below. A more detailed discussion follows in the remainder of the document.



## Capital Investment Components

Capital investment refers to the provision for items of a physical nature which do not need to be supplied on a regular basis.

### ***Collection of Recyclables and Residual Waste***

Different models for collection of wastes and recyclables are proposed for different areas of Maseru in the ISWMP, with the choice between centralised drop-off locations and curbside collection being determined by housing density, income level and road access in the case of domestic generators. Different requirements are identified for commercial and industrial areas.

The Table below extracted from the ISWMP highlights where capital investments are required.

Ward	Properties	Example	Waste Type	Collection System	Container(s)	Transport Vehicle(s)	Transfer Station(s)
A	HD, good accessibility, M&H Inc	Maseru West	Recycleable	School Based	Cloth bag	Pupils	Schools
				Curbside	Clear bag (in Bin)	Open/Compactor truck	-
			Organic	Bring System	open	Householder	-
				-	-	-	-
			Residual	Curbside	Bin	Open/Compactor truck	-
B	HD, poor accessibility, L&M Inc	Seapoint-Tibela	Recycleable	Fetch System	Clear bag	Runner (Trolley, Cart)	Mobile Transfer Station (incl. Sorting)
				Bring System	Clear bag	Householder	Mobile Transfer Station (incl. Sorting)
			Organic	-	-	-	-
			Residual	Fetch System	Black bag/Shopping Bag	Runner + Open Truck	-
				Bring System	Black bag/Shopping Bag	Householder + Open Truck	-
C	LD, good accessibility, M&H Inc	Makoanya ne	Recycleable	Curbside	Clear bag (in Bin)	Open truck	yes
			Organic	-	-	-	-
			Residual	curbside	Bin	Open truck	yes

## ISWMP Financial Strategy

D	LD, poor accessibility, L&M Inc	Lithoteng	Recycleable	School based	Cloth bag	Pupils	Schools
				Bring System	Clear bag	private + open truck	Collection Points
			Organic	-	-	-	-
			Residual	Bring System	Black bag/Shopping Bags	private + open truck	Collection Points
E	Commercial Area	Maseru CBD	Recycleable	Curbside	Skips/Bins/Bags	open truck	-
			Organic	Curbside	Skips/Bins/Bags	open truck	-
			Residual	curbside	Skips/Bins/Bags	open/compactor truck	-
F	Industrial Area	Thetsane Industrial	Recycleable	curbside	Skips/Bins/Bags	open truck	-
			Residual	curbside	Skips/Bins/Bags	Compactor Truck	-
			Hazardous	curbside	Special Container	Special Vehicle	-

Key to capital investment requirements are thus:

	Bins and skips
	Open and compactor trucks
	Collection points
	Mobile transfer stations
	Facilities at schools

In addition, auxiliary collection and management equipment may be required in certain areas. Each of these investments is considered as follows:

### 1. Bins and Skips

The ISWMP identifies a requirement for bins for collection of recyclables and residual wastes in wards with good accessibility (A and C), as well as in commercial and industrial areas.

In these residential areas, one bin will be needed for each household, alternatively a model could be considered where a larger bin is shared by a few households. Two different ways of recovering the costs of bins could be considered. Either the householders could be required to purchase the bins outright, or the costs could be built in to monthly waste charges.

In the latter case the initial capital outlay to the MCC would be given as follows:

$$\text{Total cost for residential bins} = (\text{number of households in ward type A and C} * \text{cost per bin})$$

An indicative price for bins for residential areas is approximately M300 each, depending on whether they need to be automatically picked up by compactor trucks or not.

In commercial areas, the Table above identifies two requirements. Firstly, along the streets and in shopping centres bins should be available with compartments for recyclables and residual wastes. Such bins should be built locally out of metal and quotes for their manufacture and installation should be obtained from local suppliers. The MCC will need to source funding for installation of these bins, although by designing the bins with advertising space which could be rented out to businesses some of the costs could be recovered.

$\text{Total cost for shopping centre bins} = \text{number of bins} * \text{cost per bin}$
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If moveable bins are used rather than permanently installed ones these will be similar in cost to those for residential areas (M300 each).

In both commercial and industrial areas skips will be required for large waste generators. Skips will need to be purchased either by the MCC or by waste contractors who recover costs by hiring them to the waste generators. The hire fee can either be an explicit rental fee or can be included in the costs of emptying the skips. The cost of skips is to the order of M 15,000 each.

## **2. Collection trucks, vehicles for removal of skips and mobile transfer stations**

The ISWMP identifies that trucks will be required in all areas for removal of the waste. Although this will still need to be finalised, the plan makes allowance for compactor trucks to be used in Ward Type “A” (being high density, good accessibility, with middle and high incomes) and in commercial areas. In all other areas open trucks will be required.

Typical costs of trucks are as follows:

- Light Commercial Trucks: M 700,000
- Pickup trucks (Bakkies) M 150,000 upwards
- Compactor Trucks: M 800,000 upwards
- Container Trucks M 900,000 upwards
- Tractor+Trailer System (Container)

The cost of collection trucks is thus clearly significant, and hence is unlikely to be funded out of MCC budgets. Given the recent establishment of the consortium for waste collection, a requirement for the purchase of collection trucks at this stage in Maseru is unlikely. Under this consortium, within the City Centre, the MCC is likely to make use of existing vehicles for waste collection, while the waste consortium is required to provide their own trucks for collection. In terms of recyclables, the recyclers will be responsible for provision of their own collection equipment if this is not recovered at the same time as residual waste. An assessment will need to be made as to whether special trucks for emptying of skips and recycling igloos are merited or whether this will be done by hand.

It is noted that in Sea Point, the community organises their own transport to the tipping site using privately owned pick up trucks. This model could be replicated elsewhere, thus potentially reducing the requirement for purchase of further vehicles.

In the future should a requirement for any new vehicles arise, sources of funding which could be explored include the central government's capital budget which the MCC can access through the Ministry of Finance, as well as donor funding.

Mobile transfer stations are flat bed trucks which move around from area to area for collection of recyclables. Some sorting of wastes will also occur on these trucks prior to delivery to recyclers.

One of two options exists for funding of the purchase and management of these Transfer Stations if required. Either the MCC could built and manage these, or they could be directly funded by the recyclers. It is proposed that the former model would be preferred as it would prevent monopolies from forming in areas and thus ensure that the best price for recyclables is received by communities. More likely, given budgetary constraints experienced in Maseru, the latter model will emerge, with recyclers providing the platforms for collection of recyclables. The costing of such facilities will need to be done on an as needs basis by the individuals concerned.

### **3. Collection Points/Schools Facilities**

Collection points for recyclables and residual wastes are likely to be caged off areas such as that currently in place in Sea Point. The costs of building such collection points include that of laying a concrete slab and fencing to keep out animals. Quotes will need to be obtained from local contractors for the building of these, and funding sources could be through the MCC recurrent budget or the government's capital budget.

The implementation of recycling programs through the schools is being explored through the pilot study. Assuming this proves to be successful, the ISWMP makes suggestion for such programs be rolled out to other schools in Maseru. Igloos for separate collection of different fractions of the waste stream need to be purchased for each individual school. Possible funding sources include donor funding, the recyclers themselves and the MCC.

The estimated cost of each igloo should be borne by the recyclers, potentially with subsidy from either the MCC or LNDC. Once again revenue could be generated by selling advertising space on the igloos if they are located in prominent view of passing traffic.

$\text{Maximum cost of igloos} = \text{number of schools in ward types A and D} * \text{cost per igloo} * 4$
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Assuming one igloo for paper, one for glass, one for tins and one for plastic. It is noted that, depending on the land availability, security, and rain and wind protection, alternatives to igloos such as skips and garages could be used.

The installation of igloos in prominent locations such as shopping centres could also be considered.

### **4. Auxiliary Collection Equipment Requirements**

Various auxiliary items are required to facilitate collection, with exact needs to be assessed on a case by case basis. One example is the purchase of wheelbarrows which are used to bring the recyclables and residual waste to central collection points in areas with poor road access.

Wheelbarrows can cost to the order of M 700 each.



### ***Improvements to Road Access for Collection***

In order to better facilitate waste collection, improved road access to certain areas is recommended, depending on the collection vehicles to be used. Given that widening of the roads in most areas is impossible due to the density of housing, the key opportunity here is to improve the quality of road surfaces to facilitate access by larger trucks. This is, however, not considered as part of this financial strategy and should be budgeted for in the overall MCC road maintenance budget.

### ***Waste Processing Equipment and Establishment of a Waste Recycling Centre***

The ISWMP proposes the establishment of a waste recycling centre or industrial park, where recyclers could be co-located to allow for specialisation in specific materials, and increased value add to materials. Based on discussions with LNDC it has been identified that the LNDC does not have any budget or mandate to assist with the construction of such a waste recycling centre. Having said this, however, land is available for rental by recyclers in existing industrial parks should recyclers wish to form a collaboration of their own accord. Individuals involved in such collaborations would be required to cover their own costs of rental and installation of any specialised equipment.

Consideration should also be given to funding opportunities for individual pieces of equipment which could be used to increase the value of products, such as ultrasound cleaners for plastics and pelletization equipment. Such equipment would need to be costed based on needs basis. The LNDC identified that they do not currently purchase or support the purchase of capital equipment, although they would potentially look to doing this in the future, and recyclers should be encouraged to monitor such opportunities. Another potential funding source could be donor funding.

### ***Development of Educational Materials***

Development of educational materials is considered here as a capital expenditure. It was noted during the stakeholder workshop that NES has a budget for carrying out environmental awareness campaigns in schools and with the general public and community forums, and it is proposed that this budget will be accessed for development of educational materials. Other potential sources of funding include the Ministry of Education and UNICEF.

### ***Summary of Capital Investment Requirements***

The Table below provides a summary of the capital investment requirements for the ISWMP and potential funding sources.

Relevant Action	Item	Summary	Funding Opportunities and Structures
1.3, 2.1, 2.3	Bins and skips	One bin per home in certain areas, bins for recyclables and residual waste in shopping centres, skips for industrial and commercial waste	MCC to supply household bins, cost to be recovered through waste removal charges. MCC to install bins in commercial areas and shopping centres, some revenue generation through advertising. Skips to be rented out by MCC and private contractors.
1.3, 2.1, 2.3	Open and compactor trucks, possibly vehicles for skip/igloo collection and mobile transfer stations	Compactor trucks for ward type "A" and commercial areas, open trucks for rest. Mobile transfer stations for ward type "B"	Given the waste consortium, purchase of new trucks is unlikely at this stage. Future funding of trucks could be considered through donor funding and government capital budget. Recyclers may fund mobile transfer stations.
2.3	Collection points	Collection points for recyclables and residual waste from communities	MCC recurrent budget and government capital budget
2.3	Facilities at schools	Separate igloos for different materials.	To be supported through donor funding, recyclers and the MCC
2.2	Improvements to road access for collection	Relates to road levelling and resurfacing	Should be included in MCC infrastructure budget
3.1, 3.2, 3.3	Establishment of a waste recycling centre and purchase of waste processing equipment	Recycling centre for collaboration and value add in a single geographical location. Equipment for value add to materials.	LNDC loans, donor funding
5.1, 5.2, 5.4	Development of educational material	Material which describes reduction, at source usage, requirements for recycling etc. as well as relevant information for commercial and industrial generators	NES budget for environmental awareness campaigns. Also Ministry of Education and UNICEF.

## Operating Expenditure

Likely operating expenditures in running of the ISWMP are shown in the following table. It is noted that some of the charges will be recovered from waste producers – this is discussed in detail below.

- Provision of bags for source separated recyclables and residual waste
- Labour and vehicles for collection of recyclables
- Labour and vehicles for collection of wastes
- Labour for sorting of recyclables
- Administration costs and labour for collection of waste charges and payment of the contractors
- Ongoing education
- Transport and landfill disposal costs at Tsoeneng landfill, once this has been established

## ***Provision of bags for source separated recyclables and residual waste***

The ISWMP makes allowance for provision of black bags for collection of residual waste in most residential and commercial and industrial areas. The use of shopping bags in poor accessibility areas which have brought systems is also likely. Where black bags are used, the cost of these should be recovered through the waste collection charge (discussed further below). Here a provision for two bags per household either weekly or biweekly is required. While these could be brought in from South Africa, the feasibility of local manufacture from recycled material should be explored, both to reduce costs and encourage local value add of recyclables.

Clear bags are used for collection of recyclables. In areas with school collection schemes, reusable cloth bags are also proposed. The latter could be funded through donor funding or by selling advertising space on the bags to local businesses.

It is noted that the choice of whether to have weekly or biweekly removal from peoples houses (the latter as is currently being done in Sea Point) has a significant financial implication if black/clear bags are to be used rather than shopping bags. Such bags typically cost upwards of 60 cents each in a supermarket (although the MCC may be able to purchase these cheaper in bulk). If there are about 50,000 households in Maseru, providing each with an additional bag 52 weeks of the year will cost an additional M 1,560,000 a year.

## ***Vehicle Running Costs and Labour for Collection of Recyclables***

The collection and sorting of recyclables incurs an additional cost over and above that of waste collection, and the parties incurring this expenses vary depending on the collection model for a particular area.

- In areas where curbside collection of both recyclables and residual waste takes place, experience has shown that recyclables should be collected at the same time as residuals, rather than making extra trips. Here no additional labour or vehicle costs are required. The recycler will, however, need to collect materials at a centralised location and cover the costs of labour and vehicles for transporting materials to their own facility.
- In areas with “bring” systems, either to schools or centralised locations, no additional labour and vehicle costs will be incurred. Should a community based organisation choose to do door-to-door collection, this labour cost will have to be funded on a case by case basis. Once again recyclers will be responsible for transport from the centralised location to their own facility.

## ***Vehicle Running Costs, Labour and PPE for Residual Waste Collection***

The ISWMP identifies a need for waste collection in all areas, some from individual dwellings and some from centralised locations. Once route planning (Action 2.2) has been finalised, the optimum number of trucks, along with likely travel distances which are required for servicing the city can be ascertained.

In terms of running costs for existing and new vehicles, allowance needs to be made for fuel, maintenance and depreciation. It is noted that typically the service life of collection vehicles in developing countries is significantly greater than for those in developed countries for which many vehicles are designed. Regular maintenance will ensure the ongoing reliability of vehicles.

Each truck will likely require 3 to 4 employees, depending on the area being serviced – one driver and the remainder to collect the waste. The waste management consortium will be responsible for employment of labour in the areas which they service. In the city centre, serviced by the MCC, the total labour cost will be given by:

$\text{Labour cost} = \text{no employees per truck} * \text{number of trucks} * \text{average salary}$
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It has been identified that, at present, employees collecting from individual homes (runners) in low access areas get paid to the order of M35/day.

In addition to the cost of labour, provision needs to be made for the supply of personal protective equipment to people responsible for collection of the residual. This may include overalls, gloves and masks, depending on the type of waste being managed and approach to collection.

### ***Administration costs***

Implementation of the ISWMP will require significant additional administration human resources for factors such as collection of the waste charges, payment of the contractors, management of take-back charges on selected elements of the waste stream and other administrative considerations. These will be at both the municipal level (the MCC) and in individual wards. In addition to the human resources cost, additional printing, paperwork, computer systems etc will be incurred.

### ***Ongoing education***

The ISWMP makes allowance for ongoing education of waste generators with respect to reduction, reuse and recycling of wastes. Costs associated with such education programs include printing of brochures, personnel costs for ongoing public engagement, open workshops, and radio and TV advertisements and talk shows. Specific costs will have to be confirmed with relevant consultants.

Funding for these elements will include the NES budget for environmental awareness campaigns, the Ministry of Education, the MCC, Local Government, the recyclers and potentially donor funding such as UNICEF.

### ***Cost of Waste Disposal at Tsoeneng Landfill***

At present, much of the waste is consigned to the formal dumping site at Tso'sane, where there are no charged disposal costs, and the transport to the site is factored into the waste collection cost.

However, once the sanitary landfill at Tsoeneng is finalised, the cost of disposal will increase considerably due to both transport costs and a gate fee which will need to be factored in to account

for the cost of landfill management. Although at this stage there are no actual estimates of these costs, it is noted that in South Africa the real cost of disposal at landfill is to the order of R50 per tonne<sup>1</sup>. Similar orders of magnitude of costs would be expected in Maseru. It is identified that the distance of the site proposed at the time of writing of this document (~60 km) could result in a significant transport contribution to this amount.

The costs associated with disposal at Tsoeneng will have to be recovered from the residential, commercial and industrial generators of the waste, and as such the current charge will have to be reviewed. At this stage it becomes even more important that waste generators get charged on the basis of the volume of waste which they generate, and so avoid large generators from subsidising small generators.

### **Summary of Operating Expenditure**

A summary of the operating expenditure and parties who are likely to be liable for funding this expenditure is presented in the Table below.

<b>Relevant Action</b>	<b>Item</b>	<b>Liability</b>
1.3, 2.1, 2.3	Provision of bags for source separated recyclables and residual waste	MCC to administer, costs to be recovered from waste generators
2.1, 2.3	Labour and vehicles for collection of wastes	MCC in the City Centre, and waste consortium contractors in the remaining areas
2.1, 2.3	Labour and vehicles for collection of recyclables	Recyclers or, depending on the area, this may be coupled with waste collection
2.1, 2.3	Labour for sorting of recyclables	Recyclers or community based organisations (depending on the area)
2.1, 2.3	Administration costs and labour for collection of waste charges and payment of the contractors	MCC
5.1, 5.2, 5.3, 5.4, 5.5	Ongoing education	NES, Ministry of Education
4.1, 4.2	Transport and landfill disposal costs at Tsoeneng landfill, once this has been established	MCC

### **Revenue Streams in the ISWMP**

Revenue streams in the ISWMP include:

- Payments by householders and commercial and industrial generators collection of their wastes
- Sale of recyclables to local recyclers

<sup>1</sup> Dr Shehnaaz Moosa, Palmer Development Group, Personal Communication, 2007.

- Sale of recyclables by local recyclers in Johannesburg
- Sale of value added products manufactured from recyclables in Maseru.

### ***Waste Generator's Collection Charge***

UNEP<sup>2</sup> identifies that a solid waste service organisation should ideally be accountable for all costs, and the tax or fee paid by waste generators should reflect the actual costs for the service. User charges are a preferred way of collecting such taxes, as they raise public awareness about the costs associated with providing the service. Furthermore, if the charge is related to the quantity of waste discarded, the charge may serve as an incentive for waste prevention.

It is identified by UNEP that one of the main problems associated with the implementation of user charges is that not everyone is willing or able to pay a user charge for solid waste service. Surveys to determine both the willingness and capacity to pay should be carried out prior to the establishment of tariffs. Experience has shown that the collection of user charges for waste services is extremely low. Some cities have tried to solve the problem of willingness to pay by attaching the user charge to the billing for a service for which residents are more willing to pay. For example, in the past in Lima, Peru, the user charge for solid waste was included with the electricity bill. In other developing countries, residents receive a single bill for water, wastewater, solid waste, and other services such as television and security, if applicable. Combined billing of services allows for reduced costs associated with the billing process, and leads to a high collection rate of the user charges. Furthermore, the addition of solid waste service charges has not led to a discernible reduction in the collection of user charges for electricity or water.

In setting the tariff, consideration should be given to making allowances for cross subsidies. Large commercial establishments and high-income residential areas (which typically demand a high quality of service) would be charged a higher tariff than low-income areas. In a large number of municipalities, the revenues that are collected for waste services generally are deposited into a general account. Once in that account, the funds are often utilised for a number of purposes other than waste management.

It is typically assumed that the residents of marginal areas are not willing to pay for solid waste services. However, the results of research work indicate that this may not necessarily be the case. In some countries in Latin America, the waste generated in low-income areas is collected by individuals outside of the formal collection system. The fees charged by these individuals are comparable to those charged by the formal sector. The level of user charge that has emerged throughout the urban poor areas in Latin America is on the order of US\$3 (R21) to US\$7(R49)/dwelling/month.

At this stage it is understood that a charge of M40/household/month has already been decided on for the city of Maseru. According to the MCC this amount has been reached as an average of the quotes given by the various contractors in the consortium and is broken down as follows:

- Labour: R15.63 = 39%
- Materials: R9.08 = 23%

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<sup>2</sup> [http://www.unep.or.jp/Ietc/Publications/spc/Solid\\_Waste\\_Management/Vol\\_I/24-Chapter16.pdf](http://www.unep.or.jp/Ietc/Publications/spc/Solid_Waste_Management/Vol_I/24-Chapter16.pdf)

- Vehicle: R2.98 = 7%
- Fuel: R6.34 = 16%
- Overheads: R2.78 = 7%
- Profit: R3.20 = 8%

While these charges are not out of line with this imposed elsewhere in the world as identified above, it is recommended that consideration be given to review these charges to reflect the following:

- Amount of waste generated by individual households. The baseline study has identified that poorer households generate less waste than more affluent households, a trend that is consistent with observations around the world. It is inappropriate that the poor subsidise waste removal for those who can easier afford it. The distinction could be made on the size of bin supplied to different households, number of bags removed or supplied each week or by geographical location if possible
- Whether the households in a particular area are required to bring their wastes to a central location or whether it is collected from their individual houses. Areas with shared waste deposits should benefit from reduced costs associated with collection and labour.

The waste fee could thus be reflected as follows:

$$\text{Monthly charge} = \text{basic service charge} + \text{premium for home collection} + x * \text{waste volume generated}$$

In addition to the above, the following should also be taken into account:

- Any revenue or value generated for the council or waste consortium through at source reduction or separate collection of recyclables should be accounted for in the waste charges. This could either be as a direct revenue stream or through reduced costs associated with collection of residual wastes.
- Once the new landfill site at Tsoeneng is opened waste charges will rise steeply. Consideration should be given to how this step change will be passed on to waste generators, and whether a transition period will be implemented to allow time for generators to adapt to new costs.
- The revenue associated with Action 1.1 (taxes and charges on certain materials) could be used to help subsidize elements of the ISWMP, particularly surrounding materials recovery, and so reduce the costs to waste generators.
- Incentives could be considered for commercial and industrial generators to reduce their waste generation.

### ***Sale of recyclables to local recyclers***

Depending on the collection model for recyclables in a particular ward, recyclables may be sold to the recyclers by individuals, schools or community based organisations. In the latter two cases the revenue generated will go towards maintaining the recycling initiatives through payment of salaries and facility costs. Any additional revenue generated by the schools will contribute towards the schools expenses.

### ***Sale of recyclables by local recyclers in Johannesburg***

Once they have purchased materials from the waste generators, the value of the recyclables enter Recyclers will be responsible for the transport and sale of the recyclables in Johannesburg. At this stage any value which is gained belongs to the private recyclers.

### ***Sale of value added products manufactured from recyclables***

The plan suggests a strong need for value add to materials within Maseru, rather than shipping all materials outside of the country. This could include improved sorting and separation of materials to obtain higher prices (such as cleaning, separating bottle collars, pelletization etc), or manufacture of goods for the local market (such as plastic bags). The extent of this value add will determine the value stream, and the beneficiaries will either be private enterprises or there could be some return to government depending on their involvement and contribution to setting up of such activities.

### ***Summary of Revenue Streams***

A summary of the potential revenue streams and their beneficiaries is presented below.

<b>Revenue Stream</b>	<b>Brief Description</b>	<b>Beneficiary</b>
Household and commercial waste collection charge	Payment by waste generators for removal of their waste stream	MCC collects money and pays the waste consortium
Sale of recyclables to local recyclers	Depending on the area, materials will be sold to recyclers either by individuals, community based organisations or schools. A value add step may or may not have been undertaken between collection and sale	Individuals, community based organisations or schools
Sale of recyclables by local recyclers in Johannesburg	Materials transported to Johannesburg for sale	Private recyclers
Sale of value added products manufactured from recyclables	Part processing of recyclables prior to export or manufacture of goods from recyclables for the local market	Private enterprises or government depending on their investment

### **Funding Strategy for the ISWMP Action Plan**

During stakeholder workshops held in Maseru on 25 and 26 July 2007, stakeholders were asked to review the actions presented in the ISWMP and identify likely financing mechanisms for the solid waste management in general, and then to match each action to a suitable financing opportunity. The following general funding and other resourcing opportunities were identified by the stakeholders at this workshop:

- The central government has a capital budget which the MCC can access through the Ministry of Finance,
- An industrialization budget for capital projects which is allocated to trade and industry for large scale industrial project,



- A fund for consultants and studies which is available through the Ministry for Finance,
- The MCC can access grants through local government,
- The Global Environment Facility (which was noted to only fund projects with a global focus such as global warming)
- Development partners, including the UN, Ireland, US Aid, Germany, each of whom have a different focus,
- Bedco (Basotho Enterprises Corporation), particularly around training and business development,
- The MCC's recurrent budget,
- UNICEF to support education projects,
- The World Bank, and
- The Chamber of Commerce.

The stakeholders were then asked to match financing opportunities to individual actions of the ISWMP. The following table summarises the stakeholders' response to this activity.

<b>Action</b>	<b>Financing Opportunities</b>
1.1	No financing required
1.2	NES and development agencies can facilitate awareness and training but industries have to pay for implementation themselves. LNDC may play some role as most buildings in industrial and commercial areas belong to the LNDC. LNDC has funding for establishment and rental subsidies for SMEs – contact person is Mrs Khaka.
1.3	Waste generators must implement this themselves. For households bags are required –the MCC should build the costs of these into the costs of collection charged to households. Recyclers must fund some of the bags to help them get access to cleaner material
1.4	Awareness campaigns should be funded by NES, the MCC, recyclers and councilors
2.1	MCC, the recycling industry, ?with financing through the capital fund
2.2	Capital fund for infrastructure, MCC recurrent budget for operation
2.3	MCC and the recyclers
3.1	Trade and industry, fund for consultancies or the recurrent budget. Capital project funds and the LNDC
3.2	Fund for consultancies and the recurrent budgets
3.3	No financing required
3.4	No financing required
3.5	No financing required
4.1	MCC has already budgeted for this action
4.2	MCC has already budgeted for this action
5.1	NES has a budget for carrying out environmental awareness campaigns in schools and with the general public. Also Ministry of Education and UNICEF
5.2	NES could contribute to facilitation of this action
5.3	NES, MCC, MoLG&C
5.4	Recurrent budgets of NES, MCC and local government who already pay for radio slots. Recyclers could also contribute to this cost.

## Implications of Implementing or Not Implementing the ISWMP

This plan has presented the potential cost and revenue streams associated with implementation of the ISWMP. There is merit in exploring further some of the considerations in evaluating the costs of following a Business as Usual (BAU) scenario, where none of the recommendations in this plan are implemented, against one in which unsustainable management measures will be stopped one by one over the next few years. In the latter scenario, wild dumping and home burning will be completely eradicated. Approximately 100,000 t/a of secondary resources, will be either reused, composted or fed to animals, recycled or used as substitute fuel in combustion processes. In 2010, a sanitary landfill site will come online in Tšoeneng, deviating the wastes from being formally dumped at Ha Tšosane, amounting to approx. 50,000 t/a in 2020. Furthermore, industrial waste will no longer be dumped informally at Ha Tikoe, but transported to an appropriate treatment facility in South Africa.

The following implications of the latter scenario over the former are identified:

### 1. Job Creation

Implementation of the ISWMP has the potential to result in creation of a number of jobs in Maseru. These will include:

- Personnel for recyclables and waste collection in the individual wards
- Employment in community based processing of recyclables towards value add to material
- Jobs with formal recyclers as the recycling market grows
- Administrative positions within the MCC
- Trainers and educators for information dissemination

These positions will be funded either through the waste charges collected from the waste generators (in the case of residual waste collection costs, administrative costs and those for trainers and educators), or alternatively through the revenue generated from the sale of the recyclables.

### 2. Environmental Hygiene

Informal disposal of waste around Maseru has potential negative environmental implications which will be reduced and avoided through implementation of the ISWMP. These include:

- Impact on humans through exposure to air and water borne pollutants generated through informal dumping and burning in dongas, at Tšoeneng and at Ha Tikoe
- Impact on animals which include the same effects as for humans, as well as health implications of eating wastes off the ground
- Impacts on plant and river systems through pollutants being released into the environment.

While the direct costs of these results of inaction on waste management may not directly be accounted for in the ISWMP itself, the costs to broader society include increased medical care costs (to be borne by individuals or the state), loss of productivity and income through illness and death, death of animals, lower crop yields and loss of utility of water systems. These knock on effects can be significant.

### **3. Operating Costs of the Waste Management System**

It has been identified here that the cost of residual waste management will likely double with the introduction of the new landfill site due to increased transport costs to the site and the tipping fees (to the order of R50/ton in 2007 figures). This additional cost needs to be accounted for in long term planning for waste management charges.

Although in the year the landfill opens the impact of increased waste management charges on both scenarios is similar, if none of the waste reduction and recycling interventions identified in this plan are implemented, the amount of waste disposed of to landfill continues to rise, as does the cost of disposal relative to the BAU scenario. However if reduction and recycling rates continue to increase the increased cost of residual management relative to the BAU scenario is slowed.

### **4. Landfill Service Life**

The service life of the sanitary landfill, once it is built, will be directly proportional to the amount of waste being sent to that landfill. If none of the reduction, reuse and recycling interventions proposed in this document are implemented, the service life of the landfill will be significantly shorter than that with all the interventions. The cost of designing and constructing a new landfill is significant and if this can be postponed through interventions this will represent a significant savings to society.