

MAKANA MUNICIPALITY
LOCAL ENVIRONMENTAL ACTION
PLAN

WASTE MANAGEMENT

IMPLEMENTATION PLAN

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For Makana Municipality

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Executive Summary

Waste management has many aspects. As part of the LEAP, waste management has been investigated to determine the environmental impacts resulting from waste in the municipality. The results show that there are many problems relating to waste management in Makana Municipality, primarily pollution of water and land resources resulting from litter and illegal dumping. Following various public participation exercises, many members of the public raised the issue of illegal dumping and littering as being a significant environmental issue in Makana.

The implementation plan is thus primarily aimed at addressing illegal dumping and preventing waste materials from entering rivers and streams. This can only be achieved through a wide variety of interventions including public participation, by-laws, changes to collection systems and awareness campaigns. This implementation plan also focuses on recycling, due to the potential to reduce the refuse load the municipality transports and to lengthen the lifespan of the landfill sites.

Implementation plans:

The first plan aims at engaging and educating the public in issues surrounding waste collection and is proposed be done according to DEAT guidelines as well as any other materials obtainable from EEU and DBSA. The second plan aims to revive the community collection pilot project that was proposed by the Built Environment Support Group (BESG). The third plan is to develop and implement a public-private partnership approach to the recycling business in a way that ensures sustainability of recycling in Makana.

The implementation of any of these proposed plans must be coupled with rigorous monitoring to determine the success rate of these projects. It is proposed that a waste monitoring group be set up from various sectors of the community.

Introduction

Waste management has many aspects and as part of the LEAP waste management has been investigated to determine the environmental impacts which result from all waste related issues in the municipality. In compiling this implementation plan it has been important to consider that the Municipality is currently undertaking a technical investigation into waste management, funded by the Municipal Infrastructure Investment Unit (MIIU). At this stage, therefore, it would be unproductive to propose plans that will involve technical changes to the municipal collection system. However, the aim of this report is to drive at initiatives that could reduce waste's environmental 'footprint' in Makana. Some of these initiatives may also come out of the technical report especially considering that technical and environmental objectives may have commonality.

Though there are many other problems relating to waste management in Makana Municipality, there is no denying that currently significant pollution of water and land resources result from litter and illegal dumping. These issues are not limited to Makana Municipality but occur in many municipalities in South Africa. Lack of resources and infrastructure is potentially the biggest cause of collection difficulties, which results in illegal dumping on street corners, open spaces and commonage.

As much as the Municipality may need to provide more resources to municipal collection, the community also needs to take responsibility for their immediate environments and assist the Municipality in waste collection. There is also a need for the promotion of resource recovery initiatives, such as recycling and composting. These initiatives address both environmental needs and social upliftment requirements through job creation.

Following various public participation exercises, many members of the public raised the issue of illegal dumping and littering as being the significant waste issue in Makana. This issues has been investigated as part of the Environmental Issues Audit of the LEAP process, and results include the following:

“Illegal dumping and littering has been identified as an issue throughout Makana Municipality urban areas (Grahamstown, Alicedale, Riebeek East). The occurrence of illegal dumping is especially prominent in the Grahamstown areas of Sun City, Hoogenoeg, Scott’s Farm and eDakeni as well as in Bloukrans tributaries and eDakeni tributary. All of these areas are characterised by high poverty levels as well as being characterised by minimal refuse collection. Many garden skips in these areas were being used for general waste. In addition, in Grahamstown many garden skips are in a poor state, rusted and with large holes, adding to litter problems. At least two skips are poorly positioned very close to streams aggravating the problem of litter in streams and threatening river health. Illegal dumping was observed on most Commonage areas. This decreases the value of the land for grazing and recreational uses as well as the surrounding properties as it has a negative visual impact on the area.”

“The Bloukrans River and its tributaries and storm drains in Grahamstown are choked with rubbish, which poses a high risk to the human, animal and river health and biodiversity. This also causes infrastructural problems such as clogging of drains and subsequent flooding, as well as impacting on the efficiency of sewage treatment works. The health of water users may then be affected by poorer water quality as a result. Downstream water users are impacted upon by decreased water quality not suitable for their needs such as crop farming and other problems such as clogging of pipes with litter or algal growth.”

From these observations it is clear that an implementation plan for this solid waste aspect of the LEAP must aim at dealing with illegal dumping and littering. Broadly, this issue can only be dealt with by co-operation between the municipality and the public. This implementation plan is proposing interventions on numerous levels, these include directly approaching the public to address the issue, but ultimately sustainable waste collection may require changing the service provision models to make municipal services more efficient and reduce loads in the municipality through recycling and resource recovery. Thus this implementation plan deals in some way with all three interventions, namely:

- Public awareness

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- Service delivery models
- Resource recovery and recycling for sustainable waste management

Issues identified by the LEAP Process
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Specific issues relating to waste management were recorded by the LEAP process can be divided into three main areas:

1. Illegal Dumping and littering

This issue is normally associated with a breakdown of the waste collection system. In Makana this issue seems to arise from two main sources:

Lack of public awareness

- Especially with regard to the receiving environment regarding illegal dumping and littering
- Scavenging in skips by people and animals for recoverables and food

Lack of resources and infrastructure

- Condition and lack of skips
- Low levels of service in some areas
- Too little equipment for illegal and ‘legal’ dumping (legal dumping sites without skips)
- Lack of public dustbins

No prosecution of offenders

- Lack of resources for prosecution

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- Acceptance of ‘polluted environment’ as norm

Use of storm water drains for rubbish disposal

- Use of storm water drains by members of the public for litter and rubbish disposal, resulting in blockages and ultimately the ‘polluted’ state of the Bloukrantz River.

Damaged skips

- Damaged skips resulting in contents entering river environments as well as generally creating a nuisance

Unsustainable practices employed for cleanup campaigns

- The paying of members of the public to participate in cleanup campaigns has reportedly resulted in ‘littering’ being regarded as a job creation opportunity.

II. Financial feasibility of recycling businesses in Grahamstown

Grahamstown has had a successful recycling company for the past 3 years; however, this company has been unable to stay profitable and is currently preparing for closure. The council has reportedly been aware of this issue. The view point of most waste management professionals is that recycling businesses are only feasible through public-private partnerships.

<h3>Objectives for general waste management in Makana</h3>

I. Long-term Objectives

- To comply with the process for waste management as laid down by the National Waste Management Strategy

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- To create a sustainable waste management and collection system that ensures that: firstly, the environment is protected; and secondly, it empowers this community by ensuring pleasant aesthetics that attract tourism and creates opportunities and employment through resource recovery.
- Eliminate the possibility of waste materials entering riparian environments
- Lengthen the life span current landfill site by minimising landfilling
- Eliminate illegal dumping and littering
- Create and maintain opportunities and jobs in waste management sector
- Reduce costs of waste collection on the municipality through resource recovery
- Create awareness by the public and communities about the benefits of appropriate waste collection and disposal methods

II. Short-term targets

- Engage the public on service delivery models
- Investigate options to increase recycling or to create partnerships with the municipality, public and community which would make recycling a viable business throughout Makana Municipality.
- Eradicate counter productive waste collection methods, such as skips in certain informal areas such as Scott' Farm.
- Create a system for identification and prosecution of **repeat** offenders of illegal dumping
- Upgrade storm water drainage systems to enable filtering of storm water, to minimise the amounts of waste being washed downstream.

Stakeholders

The stakeholders for these potential implementation plans include the municipality, community, funding organisations, municipal employees, business and industry and environmental groups.

Proposed Projects

The following three projects are being proposed as a means to deal with the main issues identified. The first phase is to engage the public on waste management issues including, illegal dumping and littering, waste collection models, willingness to pay, waste minimisation, resource recovery and recycling. It is proposed that this be done according to the Department of Environmental Affairs and Tourism guidelines for waste collection in rural communities, adapted for the Makana region with additional materials that the EEU or DBSA may be able to provide. The second and third project involve more definite interventions aimed at changing service delivery models and creating sustainability through resource recovery and recycling.

I. Public awareness and education on waste

To fully engage the public in waste collection and to determine the most suitable system for waste collection, a programme could be undertaken in accordance with the guideline published by the Department of Environmental Affairs and Tourism called Working with Waste – Guideline on Waste Collection in High Density and Unserved Areas. The aim of this project would be to determine the willingness to pay for waste collection services and to engage the public on waste collection. This exercise could be combined into a public awareness project, which would aim to inform the public of appropriate waste disposal practices, whilst creating a forum for problem solving.

This project could be linked to other environmental education projects being as part of other LEAP implementation plans. This project may also benefit from additional

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materials from the EEU or DBSA (Gert Dewaal stated on a meeting on 17th November that he had materials for this purpose).

Actions to be implemented:

Action	By whom	Duration
Appoint team to undertake education	Municipality, LEAP	2 Months
Compile materials, videos etc.	Appointed team, Municipality	1 Month
Plan out programme and dates for workshops, in consultation with municipality and ward councillors etc.	Appointed team	2 months
Waste awareness and education in selected wards	Appointed team	3 months

The potential outcomes of this exercise could include:

1. An understanding of the waste collection system between municipality and communities.
2. Public awareness of environmental and social problems associated with illegal dumping.
3. Understanding of public's willingness to pay for waste collection services.
4. Knowledge of public perception of external delivery mechanisms, such as community collection systems.
5. Enhanced municipal capability for enforcement of illegal dumping and littering legislation.

6. Framework for creation of by-laws for enforcement of waste collection systems.

II. Pilot of Community Based Waste Collection

Business plan by Urban Services Group attached.

In the beginning of 2004, an NGO called Built Environment Support Group, was interested in undertaking a pilot project on community waste collection. This project reportedly could be funded by the Dutch embassy and as such, the municipality would encounter minimal financial risk in undertaking the pilot study. This project may benefit greatly if there was pressure from the DBSA for implementation or potentially even co-funding. Similar projects have been undertaken in other municipalities in other parts of the country and the experiences of these can be useful insights into getting the system to work in Makana.

The Urban Services Group from Port Elisabeth have sourced R300 000 for the implementation of this project, a total of R 700 000 (see business plan) is needed to fully implement the project.

This project if undertaken could be linked to the other projects as part of this plan. The Urban Services Group has stated that environmental education is an intricate part of their proposal.

This project poses great potential to ultimately develop a sustainable service delivery model if closely linked to recycling. It also allows for an assessment of willingness of people to pay for services. The project also could reveal a new strategy to deal with illegal dumping and littering. The results of this project could be used to adapt the current service delivery models to suite the income levels of Makana residents.

III. Recycling by public, private partnership

This project aims at implementing a business plan for recycling which would take on a public-private partnership approach. The draft business plan is attached to this

implementation plan. This plan is in line with the current closure of Grahamstown Recycling. The project would aim to restart a recycling company in Grahamstown but on condition that a number of interventions are implemented by the municipality which will assist the company in becoming sustainable.

These interventions may include:

Recycling on the Grahamstown Landfill site

The owner of Grahamstown recycling has pointed out that his businesses will only be viable if recycling on the dump was possible. Though this is not the ultimate sustainable solution due to the fact that waste are transported to the landfill site, only to be removed, this may be a medium term solution to create jobs in the recycling sector. This would involve creating a sorting area on the dump where all types of waste could be extracted from the general refuse. This would make it possible for up to 75% of the refuse to be recycled. This would boost the recycling business by increasing volumes and reducing the transportation costs required to collect paper and plastic. Due to the reduction of costs and increase in volumes other items also become economically viable to recycle. The recycling company would be able to extract paper, plastic, tins, glass and scrap.

At source separation drive

The difficulties encountered by recycling companies in Makana are largely due to the costs involved in separating and collecting waste. In order to make recycling more financially sustainable, the community, the municipality and businesses must assist. The drive that is proposed will attempt to initially encourage businesses to undertake more waste separation. The project would look to the business community in urban centres of Makana to promote the separation of waste into the forms useable by recycling companies.

Transfer / recycling stations in certain areas

During the LEAP investigation, it has become apparent that some of the smaller vehicles in the Grahamstown East area do trips all the way to the landfill site in North West of Grahamstown. Subject to the outcome of the technical investigation, this could be one of the reasons for service delivery difficulties in Grahamstown East. If a transfer station were to be set up, there are possibilities of greater service coverage as well as operational cost savings.

The transfer station, to serve Grahamstown East, should be a walled off area where skips could be contained. The smaller vehicles would deliver loads to this destination, which would in turn be serviced by larger vehicles. This would allow the smaller vehicles such as the tractors to undertake more trips in the local area, whilst larger more fuel efficient and faster vehicles such as trucks, would transport loads to the dump. This arrangement would increase the amount of refuse that can be transported daily.

Another potential benefit of such a site is that the public can bring their garden refuse or extra waste to this destination instead of to the skips. Although this would only work for the immediate area in which the transfer station is sited, this could create an inclination for responsible waste disposal. This venue could potentially also be used as a recycling centre and thus job creation opportunities could result from the creation of such a facility.

The implementation of this project should coincide with any technical changes which may emerge from the current technical investigation.

Recycling incentive scheme

To truly implement integrated waste management and to encourage recycling, it is suggested that the Municipality review its waste by-laws. The emphasis here would be on by-laws which will create incentives for business and rate payers to send waste for recycling. The proposed incentive system could be a longer term intervention which would pay off in the long term via lengthening the life span of current landfill sites. The system would be based on the quantities sent for recycling, rather than a reduction in

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general refuse as this would simply encourage illegal dumping. Business could earn credits for recycling waste as these credits could then be redeemed by the municipality as a landfill space saving.

There are two possible ways this could occur:

Recycling company redeems credits per volume of recycled waste

This would help recycling companies to become sustainable. Essentially recycling companies would redeem the equivalent proportion of the utilities paid for waste collection by rate payers for the recycled waste. This method would require least administration as the recycling company keeps records of all sales and thus the credit could be calculated according to official purchaser figures. The disadvantage is that recycling companies may have to purchase waste in some cases to incentivise private business to separate waste. This system may work better where by-laws on recycling and waste separation are enforced.

Rate payers earn credits for sending waste to recycling

Larger rate payers could earn credits for the quantity of waste sent to recycling companies. This would encourage recycling companies to form partnerships with larger business to recycle as much waste as possible. This would create an incentive for private individuals to support recycling companies and thus the recycling company would be supported indirectly. The disadvantage is that recycling companies are still subject to price fluctuations and must be sustainable regardless.

Establishment of recycling or re-use manufacturing industry in Makana

Ultimately the best means of getting recycling to be sustainable is to have the actual processing re-use of the materials done locally. Though it is not practical to establish a paper recycling factory in Makana, it may be possible to set up smaller industries for the recycling of plastic, tins and glass in Makana. Especially plastic industries and not as capital intensive and many plastics industries occur in smaller towns such as George and

Mosselbay. The ultimate benefit of this will be the reduction in transport costs for the recycled plastic as well as the job creation potential.

Monitoring of effectiveness

To bring meaning to the potential projects described above, a monitoring programme must be enforced. This should be put in place whether or not any of the above projects are implemented. A monitoring programme should be used to test effectiveness of projects that are implemented, and thus the Municipality would gain insight into those projects that work and thus resources could be allocated accordingly.

The best practical way of undertaking monitoring is the formation of a waste and illegal dumping monitoring groups comprised of various members of the public.

Potential monitoring could include monitoring of:

I. Occurrences of illegal dumping and litter

A system could be put in place where municipal employees involved in waste collection could record sightings of illegal dumping. This information could be collated into a database, which would inform on which areas are most affected and whether programmes implemented in such areas are effective.

II. Change in aesthetics of commonage, streets and Water borne litter carried downstream

Simply by using photography, the visual impact of wind blown litter on the commonage and water borne litter in rivers and streams could be monitored. Photos taken over a period could be compared to determine whether any changes are evident.

III. Quantities recycled vs. potential recyclable (continuous assessment)

A system could be set up to monitor how much of the municipal refuse is recycled. This could be done by requesting records from recycling companies and estimating the total amounts disposed into the municipal landfill sites. This information could be used to monitor participation by the public in recycling as well as to assess the viability of recycling initiatives.

IV. Monitor expenditure on illegal dumping cleanups

It would be helpful to monitor the money spent on illegal dumping cleanups. This could be done by keeping records of time and resources spent on sending machinery and personnel to undertake cleanups. This information could be used to justify longer terms measures to deal with illegal dumping. This information could also be used to educate the public on the real monetary costs of illegal dumping and the direct effect this has by tying up budgets which could otherwise have been used for improving infrastructure and service delivery.

BUDGET (Estimates)

The budget for these projects cannot be proposed with any accuracy at this stage. The budget proposed below is only for the first phase of the implementation plan and is only to be used as a guideline for funding applications and not for project planning.

I. Budget - Public awareness and education on waste

Item	Budget
Project Management Consultant	R 40 000
Preparation of materials	R 10 000
Education and awareness exercise	R 20 000

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Trainers fees	R 30 000
Total	R 100 000

II. Budget - Pilot of Community Based Waste Collection

See business plan attached (appendix 1). Note that the Urban Services Group have managed to raise R 300 000 so far towards this project, there still remains R 400 000 to be raised.

III. Budget - Recycling by public, private partnership

See attached business plan (appendix 2). The total funding required for this project would be in the order of R 400 000. These funds should be sourced from a funder such as the DTI or the ECDC in the form of a loan as set out in the business plan. The municipality may need to source funds for the initial planning stages as well as the implementation of interventions that are not linked to the business requirements. The table below has set out the possible funding that could be sought for these activities:

Activity	Funds needed for:	Budget
Engagement of public on recycling and source separation drive	Facilitators	R 40 000
Revision of by-laws to create framework for sustainability of recycling	Review of alternatives and for appointment of lawyer	R 50 000
Training of municipal workers on recycling	Facilitators	R 20 000

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Investigation for beneficiation of recycled waste in Makana	Consultants fees, travel to other municipalities	R 5 000
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