

## Solid Waste Management in **Malangwa Municipality**



His Majesty's Government  
**Ministry of Local Development**  
Solid Waste Management and Resource Mobilisation Center



Clean Energy Nepal



Environment and Public Health Organisation

## Preface

**Solid Waste Management in Malangwa Municipality<sup>1</sup>** is one among a series of 58 reports, which briefly describes the current situation of solid waste management in each of the 58 municipalities in Nepal. The information presented in this report was obtained from a review of relevant literature, interviews with key municipal staff as well as other stakeholders, and a waste generation and composition survey. As the report is based on information collected over a short period, including a one-week field visit conducted in September 2003, this is not a comprehensive study, but it provides a brief overview of the solid waste management situation in the municipality.

This study was commissioned by Solid Waste Management and Resource Mobilisation Centre (SWMRMC) of the Ministry of Local Development. A team of four experts, Dr. Nawa Raj Khatiwada, Bhushan Tuladhar, Ashok Tuladhar and Dinesh Raj Manandhar, coordinated the study. The field investigations in each of the 58 municipalities were conducted by a team of environmental officers under the guidance of the coordination team.

This series of reports will be valuable for researchers as well as planners and managers of solid waste management systems. An analysis of the key findings from all the 58 municipalities is presented in a separate report published by SWMRMC.

Clean Energy Nepal (CEN) and Environment and Public Health Organization (ENPHO) wishes to thank Mr. Surya Man Shakya, General Manager of SWMRMC, for taking this bold and innovative initiative of gathering information on the solid waste management situation in all the 58 municipalities of Nepal for the first time. We also wish to thank the coordination team, as well as Mr. Murali Ranjit and Mr. Nirmal Acharya of SWMRMC, for their valuable input. Finally, we are very grateful to all the environmental officers who visited the municipalities to collect the required information and the municipal staff and the local people who have provided us with this information.

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July 2004

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<sup>1</sup> This report was prepared by Bhushan Tuladhar and Bhumika Vaidya based on field investigations conducted by Nabin Aryal.

## 1 Introduction

Malangawa is a small municipality situated in southern part of the Sarlahi District of Janakpur zone. It was established in 2043 B.S. It covers total area of 997.73 ha. The eastern and southern border of the municipality is joined with India. Besides being the administrative centre for the district, Malangwa is also a commercial centre as it is located next to the India border. However, much of the municipality consists of rural areas. The Municipality has several ponds, where fish farming is done.

**Table 1: Background Information**

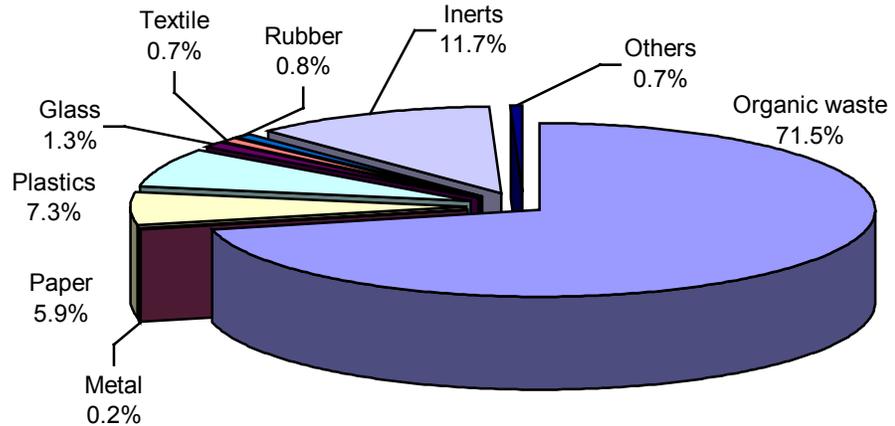
| NAME                                      | MALANGAWA MUNICIPALITY         |
|---|--------------------------------|
| District                                  | Sarlahi                        |
| Year of Establishment                     | 2043 B.S.                      |
| No. of Wards                              | 10                             |
| No. of Urban Wards                        | 4                              |
| No. of Rural and semi urban Wards         | 6                              |
| Total Area                                | 9.39 sq. km                    |
| Built-up Area                             | 174.37 ha                      |
| Major Rivers and Ponds                    | Thim and Janasagar mal pokhari |
| Total Road length                         | 38 km                          |
| Population (2001)                         | 18484                          |
| No. of Households (2001)                  | 3141                           |
| No. Shops                                 | 265                            |
| No. of Restaurants, hotels and shops      | 2 / 62 / 4                     |
| Annual Population Growth Rate (1991-2001) | 2.7 percent                    |
| Estimated Population for 2003             | 19,496                         |
| Population Density                        | 1968.48 per sq. km             |

## 2 Waste Generation and Composition

According to the field survey done in 2003, the average per capita household waste generation rate in Malangawa was 0.09 kg per person per day. This is lower than the average waste generation rate in urban areas of Nepal, which is estimated to be 0.25 kg/person/day. Considering the total population of Malangawa in 2003, which is estimated to be 19,501 the total amount of household waste generated in the Municipality comes out to be only 1.76 tons per day. If we assume that that 75 percent of the total municipal waste is generated by households, then the total amount of waste generated in Malangwa comes out to be 2.3 tons per day.

The survey also indicated that more than 70 percent of the waste is organic in nature, while plastics and paper constituted 7.3 and 5.9 percent respectively. This is similar to the national average, which is 65 percent organic waste, 8.9 percent paper and 8 percent plastics.

**Figure 1 Waste Composition**



Information on Malangawa's waste generation and composition is based on waste collected from 100 households with 509 people, in wards 8 (high income), 7 (middle income) and 6 (low income).

### **3 Waste Collection**

According to the Municipality estimates, the city generates about 4 tons of waste per day and it collects 1 to 2 tons per day, which is 40 percent of the total waste.

Malangawa Municipality has 1 supervisor, 1 permanent and 13 temporary sweepers. The sweepers sweep about 5-8 km of road on daily and 2-5 km once a month using ordinary brooms.

The Municipality has 1 tipper, 1 rickshaw and 40 handcarts for waste collection. But only rickshaw is used for waste collection while police uses tipper for patrolling.

The mode of waste collection is roadside pickup service. waste generate by the household is dumped on the street side and other open places in the morning and the sweepers collect the waste every morning. The municipality does not have containers or door-to-door collection system.

### **4 Final Disposal**

As Malangwa does not have a fixed disposal site, waste is disposed in available low lying areas and the area is covered with a layer of soil after it is filled. The site in current use is within the city and its area is 9 m<sup>2</sup>. It has been in use since past six months and its estimated life span is 1 year. Many other depressed areas had been used for the waste disposal in the past.

The municipality is planning to construct a landfill site if they get technical and financial support.

### **5 Composting and Recycling**

Malangwa does not have any activities to promote composting or recycling, but the municipality wants to build a compost plant if they get financial support. There are 12 scrap dealers who are registered by the municipality and several others that are unregistered, who collect recyclable material from the waste.

## **6 Special Waste Management**

Malangwa Municipality has one district hospital, three clinics and five laboratories. The medical waste from the hospital is burned and buried but medical waste from other sources is dumped with the normal municipal waste. Dead animals are buried. Construction and demolition wastes are used to construct roads and fill depressed lands.

There are no big industries in Malangwa and the waste generated by the plywood and furniture industry is used as fuel for cooking.

## **7 Community Mobilization**

Malangwa Municipality has no programmes to involve local groups in waste management or raise awareness of local people. At present, there are no private organizations and community groups involved in waste management related activities in the municipality.

## **8 Organizational and Financial Aspects**

There is no solid waste management unit or section in the municipality. The sweepers in the municipality do the solid waste management. Altogether there are 14 sweepers involved in solid waste management.

The total annual budget of the municipality about is Rs 10 million and the annual expense for solid waste management is about Rs 0.5 million including salary of the staffs. Thus the municipality is using about 5 percent of its total budget on SWM.

## **9 Major Problems and Issues**

The main problem associated with waste management in Malangawa is the lack of a landfill, compost plant and an appropriate unit within the organizational structure. The municipality has selected a site for a central compost plant and landfill but it does not have the necessary resources to develop the site. The municipality also requires additional vehicles and collection equipment.

## **10 Conclusion & Recommendations**

As Malangwa is a small and relatively rural municipality, waste management does not seem to be a major issue. However, with increasing population and urbanization it may be a problem if not managed properly. Therefore, Malangawa Municipality needs to start developing structures and system for effective waste management.

Recommendations:

1. Solid waste management unit should be established in the municipality with trained staff.

2. Haphazard disposal of waste in the depressed land should be replaced by disposal in a simple landfill where the waste is at least covered.
3. Along with the construction of landfill site municipality should also promote composting and recycling.
4. There is no involvement of community and private organization for solid waste management in the municipality. For effective solid waste management, the Municipality should involve local community as well as private organizations.
5. The municipality should ask the clinics and laboratories to burn or bury their hazardous waste in a controlled manner.
6. Municipality only has roadside pick up service, which is not very efficient and environment-friendly. The waste should be collected door-to-door to the extent possible so that open piles on the streets are discouraged.
7. Municipality needs waste collection vehicle, equipments and skilled manpower for waste management.

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**Annex 1: Photographs**



**Vandalized Waste Bin**



**Medical Waste from Clinics Piled By the Side of the Road Next to Open Drain**



**Burnt Medical Waste at Disposal Site**



**Waste Pile and Open Toilet Near a Mosque**



**Waste Sorting for Analysis**



**An Incinerator for Burning Medical Waste**