

Solid Waste Management in **Bhimeshwor 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 Bhimeshwor Municipality¹ 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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¹ This report was prepared by Bhushan Tuladhar and Gopal Raj Joshi based on field investigations done by Dipak Neupane.

1 Introduction

Bhimeshwor is a small municipality located in the Dolkha district of the Central Development Region. The municipality is bordered by Nandu VDC in the east, Bonch VDC in the west, Suspa Kshemawoti VDC in the North and Phasku VDC in the south. It is a pleasant tourist destination with some historical, cultural, religious and natural sites. It is famous for view of Mt. Gaurishankar range and Bhimeshwor temple after which the municipality is named.

Table 1: Background Information

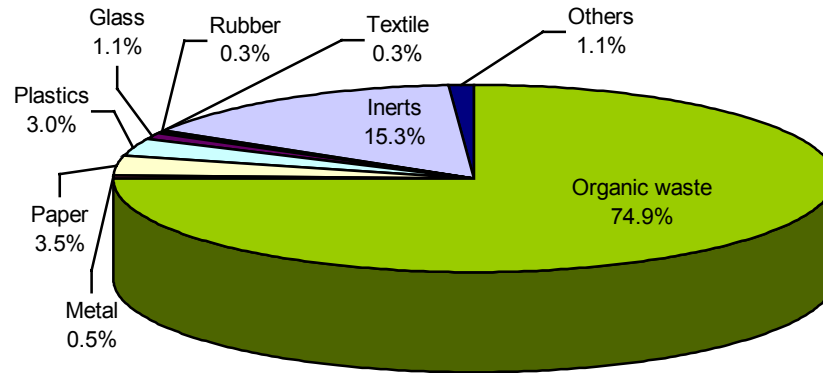
NAME	BHIMESHWOR MUNICIPALITY
District	Dolkha
Year of Establishment	2052 B.S.(1996 AD)
No. of Wards	13
No. of Urban Wards	5
No. of Rural and semi urban Wards	8
Total Area	65.04sq. km
Built-up Area	520ha
Major Rivers and Ponds	River: Tamakoshi, Charnabati, Dolti, Bahune Pond: Ranipokhari, Pokhati, Sim Pokhari
Total Road length	Black-topped: 32 km Graveled: 2 km Trail: 8km
Population (2001)	21,916
No. of Households (2001)	4,909
No. Shops	282
No. of Restaurants, hotels and shops	24
Annual Population Growth Rate (1991-2001)	1.3 percent
Estimated Population for 2003	22,490
Population Density	336.96 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 Bhimeshwor was 0.34 kg/person/day. This seems a little high for a relatively small and rural town like Bhimeshwor. The average waste generation rate in Nepalese municipalities is 0.25 kg/person/day. Considering the total population of Bhimeshwor in 2003, which is estimated to be 22,489, the total amount of household waste generated in the municipality comes out to be 7.6 tons per day. If we assume that household waste consists of 75 percent of the total municipal waste, then the total amount of waste generated in Bhimeshwor municipality becomes 10.2 tons per day. The actual amount of household waste generated is probably lower because about half of Bhimeshwor's population live in relatively rural areas and their waste generation rate is probably lower.

The survey also found that 75 percent of the waste is organic in nature and 15 percent consists of inert materials. The amount of other materials such as paper, plastic, glass and metal are fairly low.

Figure 1 Waste Composition



The loose density of household waste in Bhimeshwor was calculated to be 188.21 kg per m³.

Information on Bhimeshwor's waste generation and composition is based on waste collected from 60 households that had waste from 269 people.

3 Waste Collection

According to Bhimeshwor municipality the city collects approximately 4 tons of waste per day. Assuming that the total amount of waste generated in Bhimeshwor is 10.2 tons per day, the city is collecting about 39 percent of the total waste generated. Most of the waste that is not being collected is probably waste from rural areas within the municipality.

The municipality has one tractor with a 1.25 m³ trailer and 4 wheelbarrows for the collection and transportation of waste.

Bhimeshwor municipality has 4 sweepers, all of who are temporary employees, who sweep approximately 3 km of city streets on a daily basis.

Sweeping is done using ordinary brooms with long handles and the waste is collected wheelbarrows using shovels. Thus collected waste is kept in containers or waste bins made from old drums. The municipality has a total of 60 waste bins within the city. Local people also directly throw their waste in such bins. Once the bins are filled, the waste is loaded on to a tractor-trailer.

The municipality does not have any transfer station. So the tractor transports the waste to dumping site for the disposal.

4 Final Disposal

The collected waste is disposed in a crude-dumping site at Satdobato, Charikot near by the Core City. The site with an area of 240 m² has been used for the past one and half years. It is estimated that present site could be used further for 4 months. Due to the lack of proper site the municipality used to dump waste on any available open place or Tamakoshi river.

The municipality has a plan to construct a landfill site at Ward 6, but requires financial and technical assistance for this purpose. The proposed site is located at a distance of 14 km from the city and has an area of about 25 ropani. The municipality feels that this site, if developed, can be used for about 30 years.

5 Composting and Recycling

Bhimeshwar Municipality does not have any special programs for promoting recycling and composting at the household level. But as about half of the population live in rural area and agriculture is their main occupation, they are practicing household composting. The town has 5 scrap dealers involved in recycling.

6 Special Waste Management

Bhimeshwar municipality does not have any system for managing special waste. There are 7 health-care institutions including one hospital, 4 clinics and 2 laboratories. They are managing their waste by burning or burying it. Other types of special waste such as construction/demolition debris, industrial waste, and dead animals is collected and disposed along with general waste.

7 Community Mobilization

Bhimeshwar Municipality has started to work with local communities and NGOs in conducting activities to raise awareness on women empowerment, sanitation, social equity, and health. For this purpose the municipality provides some economic support. But the municipality has not initiated activities to raise awareness on waste management and promote recycling and composting. One local group, called Jagriti Women's Group tried to impose ban on the use polyethylene bags last year. But it was not successful because of lack of awareness among the people as well as insufficient coordination and support from the municipality.

8 Organizational and Financial Aspects

The Health & Sanitation Section is responsible for solid waste management in Bhimeshwar municipality. For this purpose the section have 5 staff including one tractor driver and 4 sweepers.

The municipality spends approximately Rs. 2,57,629 in waste management each year. This includes staff salary, fuel, and vehicle maintenance. The total budget of the municipality was Rs. 42,04,428 in the fiscal year 2059/060. So approximately 6 percent of the total budget of the municipality is spent for solid waste management.

9 Major Problems and Issues

The main problem associated with waste management in Bhimeshwar is the lack appropriate waste treatment and disposal site. At present, the area below the Satdobato is being used as a dumping site. This has created unhygienic condition. Some of the waste generated inside the municipality is thrown in the near by Kholsas or vacant land. Even though the amount of waste disposed is relatively small, this may cause problems in the future. The municipality has selected a site for a landfill but it requires necessary financial and technical assistance to develop the site.

The municipality also requires additional trained manpower, vehicles, and collection equipment. The lack of necessary resources for effective solid waste management is another crucial problem.

10 Conclusion & Recommendations

As Bhimeshwor is a small and new municipality, solid waste does not seem to be a major problem. But the problem will increase in the future and the municipality should be capable to deal with this issue. Waste dumping is already a problem that needs to be tackled.

Recommendations:

1. The municipality should develop appropriate institutional structures and systems for waste management.
2. The dumping site should be located at suitable place away from the core city, and the waste should at least be covered after it is disposed.
3. SWMRMC should assess the proposed landfill site at ward no.6 and provide technical and financial assistance in developing the site for composting and landfilling.
4. The waste collection system should be improved so that waste is collected door-to-door to the extent possible.
5. The municipality should encourage waste minimization by recycling and composting at household level. Especially in urban areas, the municipality should promote composting through public awareness and training.

For more information please contact:

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Annex 1: Photographs



Ineffectively Used Waste Collecting Bins



Overfilled Waste Collection Bins



Waste Collection Vehicle



Waste Dumped in a Landslide Area



Dumping Site of Bhimeshowor Municipality



Waste Burning at Dumping Site