

# Solid Waste Management in **Lekhnath 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 Lekhnath 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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<sup>1</sup> This report was prepared by Bhushan Tuladhar and Gopal Raj Joshi based on field investigations conducted by Amrita Sharma.

## 1 Introduction

Lekhnath Municipality is located in the south-eastern part of Pokhara valley in Kaski district of Gandaki zone of Western Development Region. It is 10 km from Pokhara, the district headquarters and 181 Km from the capital city Kathmandu. The city has sub-tropical climate with temperature ranging from 1.8° C to 37.4° C and average annual rainfall 3045 mm. The municipality is surrounded by Majhathana and Kalika VDC in the north, Hansapur, Rupakot and Deurali VDC in the east, Bharat Pokhari and Dulegaunda VDC in the south and Pokhara municipality in the west. The City is also known as Garden City of Seven lakes namely Begnas, Rupa, Maldi, Dipang, Khaste, Neureni and Gunde.

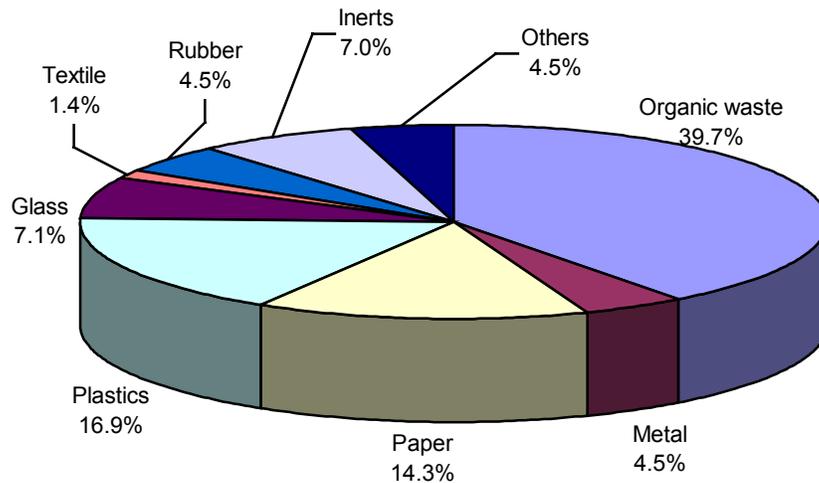
**Table 1: Background Information**

NAME	LEKHNATH MUNICIPALITY
District	Kaski
Year of Establishment	2053 B.S.
No. of Wards	15
No. of Urban Wards	11
No. of Rural and semi urban Wards	4
Total Area	77.45 sq. km
Built-up Area	547 ha
Major Rivers and Ponds	River and Streams: Seti river, Bijaypur, Khudi, Kotre, Gaduwa, Bagadi, Talbesi Lakes: Begas, Rupa, Kaste, Deepang, Gunde, Neureni, Maisi
Total Road length	Black topped:20 Km Gravelled:46.77 Km Earthen :68.10 Km
Population (2001)	41,369
No. of Households (2001)	9,362
No. Shops	NA
No. of Restaurants, hotels and shops	43
Annual Population Growth Rate (1991-2001)	3.2 percent
Estimated Population for 2003	44,059
Population Density	534.14per sq. km

## 2 Waste Generation and Composition

According to a field survey done in 2003, the average per capita household waste generation rate in Lekhnath was 0.37 kg/person/day. This is slightly higher than the average waste generation rate in urban areas of Nepal, which is 0.25 tons per day. Considering the total population of Lekhnath in 2003, which is estimated to be 44,084, the total amount of household waste generated in the municipality comes out to be 16.3 tons per day. If we assume that 75 percent of the total municipal waste is generated by household, then the total amount of waste generated in the municipality comes out to be 21.7 tons per day.

**Figure 1 Waste Composition**



The composition of waste shows that although organic waste is the largest portion of the waste stream, the percentage of organic waste is relatively low compared to other municipalities. On average 65 percent of the total waste in Nepalese municipalities is organic waste. Similarly, the portion of plastics and paper found in Lekhnath Municipality's waste is quite high. The national average for paper and plastics in household waste is 8.9 and 8 percent respectively. This may be because a significantly large portion of the organic waste is composted at source and therefore never enters the waste stream.

The loose density of household waste in Lekhnath was calculated to be 45.07 kg per m<sup>3</sup>. This is a very low figure compared to most other municipalities. The reason for this is not known.

Information on Lekhnath's waste generation and composition is based on waste collected from 80 households that had waste from 395 people.

### **3 Waste Collection**

Field survey of Lekhnath municipality indicated that the city does not have any provision to collect and dispose of solid waste generated within the city. Lekhnath Municipality does not have any separate section for solid waste management practices. Similarly the municipality lacks sweepers, collection equipment, and vehicles to carry out sweeping of the streets and roads. The municipality also does not have bulk containers or door-to-door collection system.

The local people in the urban area of city throw their waste in the irrigation canal, which sweeps the waste away and deposits on farmland. Most of the households are composting their organic waste on their private land. But inorganic waste such as plastics is thrown haphazardly.

Local youth clubs, CBOs, and local community occasionally sweep the streets and roads of the city.

## **4 Final Disposal**

As the municipality does not have any waste collection system there is no fixed dumping site. The local people are disposing the waste in their own private land.

The municipality has plans to construct a landfill site at Baharako Chautari and Anphu Khola in Ward 15. A temporary landfill site at Bagadi gorge is also proposed for short period. But the municipality requires financial and technical assistance for this purpose. The proposed site is located at a distance of 11 km from the city and has an area of about 55-60 ropani. The municipality feels that this site, if developed, can be used for about 50 years.

## **5 Composting and Recycling**

Although Lekhnath Municipality does not have any programs to promoting recycling and composting at the household level, it is estimated that more than 75 percent of the households are involved in household composting. Individual scavengers and scrap dealers involved in recycling business do the recycling.

## **6 Special Waste Management**

As Lekhnath Municipality does not have any system for collecting any types of waste, it does not have any system for collecting medical waste or other special waste. Every generator of medical waste (22 clinics and 2 laboratories) is simply disposing the waste or burning it openly without any precaution. There are 126 small-scale industries and they burn and dump the waste in open pit. Dead animals are not managed properly and simply dumped in the open areas.

## **7 Community Mobilization**

Lekhnath Municipality does not have any concrete programs to work with local communities and NGOs in conducting activities to raise awareness on waste management and promote recycling and composting. But some local CBOs, NGOs, clubs, and communities are involved in solid waste management practices. They regularly organise community clean up campaigns, awareness programs, and training.

World Vision International has been working on research, training, and awareness activities for last few years. The major activities conducted are paper recycling training for mother groups, vermi-composting training, cleaning campaign and seminar on solid waste management. It has also published pamphlets and brochures.

## **8 Organizational and Financial Aspects**

The Municipality lacks the separate section responsible for solid waste management and it does not have any manpower and resources for waste collection and disposal.

## **9 Major Problems and Issues**

The main problem associated with waste management in Lekhnath is the lack of any formal waste management system. It is strange that a municipality, which has a population of over 40,000 and is a major tourist destination, does not have

anyone responsible for waste management. Because of the absence of any system, even the basic facilities and infrastructure required for waste management are missing.

## **10 Conclusion & Recommendations**

Although Lekhnath is a relatively new municipality, it needs to develop a waste management system immediately. Some of the settlements are quite dense and waste management problems are starting to become visible. On the positive side, many households are already composting their waste and there are several local groups who are doing some work on waste management. Therefore, it will not be too difficult for the municipality to initiate work in this area. However, the municipality's waste management system should be properly planned so that the system is effective and does not become a burden on the municipality. Furthermore, local efforts should be supported and promoted.

### **Recommendations:**

1. SWMRC should assist Lekhnath Municipality in properly designing and implementing a waste management system. As currently there is no system at all, it will be a good opportunity to develop a model system for relatively small municipalities. This process should involve a thorough study of the existing situation, extensive consultation with local people and design of appropriate systems for waste collection, transportation, recycling and final disposal.
2. The municipality should set up a small Environment Section with trained manpower to manage the city's waste. But the waste management system should be designed so that local communities and private sector is involved in waste management.
3. The municipality, with support of a private party if possible, should start a door-to-door waste collection system in major market centres. The people should not be allowed to dump waste on the streets. Efforts should be made to collect organic and inorganic waste separately.
4. The municipality should promote household composting and should also set up a composting facility of its own.
5. SWMRC should assist the municipality in developing a landfill site. The proposed landfill site should be assessed and if it seems feasible, it could be developed.

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**Annex 1: Photographs**



**Oil Drum Used as a Container**



**A container donated by an International Organization but Not in Use**



**Haphazard Disposal of Waste**



**Industrial Waste from Sujal Foods Burned on Private Compound**



**Proposed Landfill Site**



**Proposed Landfill Site**