

## Solid Waste Management in **Kapilbastu 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 Kapilbastu 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 and Bhumika Vaidya based on field investigations conducted by Maneesha Rajbhandari.

## 1 Introduction

Kapilbastu is a relatively small municipality established in 2039 B.S. It lies in the Terai region in Kapilbastu district of Lumbini zone. In this municipality, only 9.73% (300 ha) out of total area (3083.1ha) is covered by residential area. The majority of the land 64.7% is agricultural land. This is followed by market area (4.8%) and forest plan area (4%).

**Table 1: Background Information**

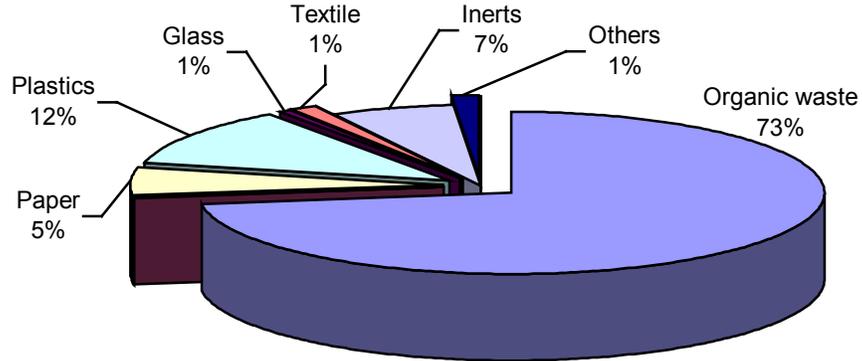
NAME	KAPILBASTU MUNICIPALITY
District	Kapilbastu
Year of Establishment	2039 B.S
No. of Wards	14
No. of Urban Wards	6
No. of Rural Wards	8
Total Area	37.2 sq. km (CBS data)
Built-up Area	NA
Major Rivers and Ponds	Band Ganga Nadi, Jimuwar Khola, Sagar Taal
Total Road length	83 km
Population (2001)	27170 (CBS data)
No. of Households (2001)	4338 (CBS data)
No. of Shops	529
No. of Restaurants, hotels and lodges	35
Annual Population Growth Rate (1991-2001)	4.7 percent
Estimated Population for 2003	29,784
Population Density	730.38 per sq. km (CBS data)

## 2 Waste Generation and Composition

According to the field survey done in 2003, the average per capita household waste generation rate in Kapilbastu was 0.13 kg/person/day. This is slightly less than the average waste generation rate in urban areas of Nepal, which is 0.25 kg/person/day. But this is not very surprising considering the rural nature of the municipality. Considering the total population of Kapilbastu in 2003, which is estimated to be 29,797, the total amount of household waste generated in the municipality comes out to be 3.9 tons per day. If we assume that about 75 percent of the total municipal waste is generated by households, then the total municipal waste generated in Kapilbastu municipality comes out to be about 5.2 tons per day.

The field survey also indicated that about 73 percent of the waste is organic in nature, which is reasonable. The amount of plastics in the waste stream at 12 per cent, however seems to be a bit high compared to other similar municipalities in Nepal.

**Figure 1 Waste Composition**



The loose density of household waste in Kapilbastu was calculated to be 231.5 kg per m<sup>3</sup>.

Information on Kapilbastu waste generation and composition is based on waste sample collected from 80 households in Chowk Bazaar area of ward no. 1, 2, and 3, that had waste from 578 people.

### **3 Waste Collection**

The Municipality estimates that it collects approximately about 4.67 m<sup>3</sup> of waste per day. Assuming that the density of waste is 231 kg per m<sup>3</sup> then the total amount of waste collected is approximately 1.1 ton per day. Assuming that the total amount of waste generated is 5.2 tons per day, the municipality is collecting approximately 21 percent of the waste generated. Most of the waste that is not being collected is probably waste from rural areas of the municipality.

Kapilbastu Municipality has 1 supervisor, 11 permanent and 5 temporary sweepers, who sweep only in urban areas daily.

The Municipality has 1 tractor trailer, 1 power tiller, a tipper, 3 wheelbarrows and 2 carts for waste collection. Municipality has roadside pickup service daily. There are no other services like container service and door-to-door collection service.

### **4 Final Disposal**

The collected waste is disposed crudely in an open area called Chapper Talla. The site is 1 km far from the city and its estimated life span is 10 years. Previously, Jimmuwar, a site near the river, was used for dumping the waste. Municipality does not have any plans to construct landfill site.

### **5 Composting and Recycling**

The municipality does not have any composting or recycling programmes. The municipality allows scavenging in collection and dumping site and 2 scrap dealers are directly in contact with the municipality to deal with scrap materials.

## **6 Special Waste Management**

Kapilbastu Municipality does not have any programmes to collect special waste such as medical waste and industrial waste separately. The municipality has a hospital and 8 clinics. The hospital waste is burnt or dumped along with ordinary municipal waste. Dead animals are also dumped. The construction and demolition waste are used to fill the depressed lands.

## **7 Community Mobilization**

Kapilbastu Municipality does not have any programmes to mobilize local communities in waste management. Some time ago, a CBO in Ward 4 at Mal tole used to collect plastics. But now no community or private sector involvement in solid waste management is seen in the municipality.

## **8 Organizational and Financial Aspects**

Currently the Environmental Protection and Street Cleaning Unit, under the Administration Section of the municipality is responsible for solid waste management. The unit has 1 supervisor, 11 permanent and 5 temporary sweepers. The unit also has 1 tractor trailer, 1 power tiller, a tipper, 3 wheelbarrows and 2 carts for waste collection and transportation.

According to the Municipality, the annual budget for solid waste management is Rs. 586,528.80, which is about 18 percent of the total budget of the municipality.

Although Kapilbastu is a relatively small municipality it seems to have more human and financial resources, as well as vehicles and equipment, for waste management, compared to many other municipalities of similar size and nature.

## **9 Major Problems and Issues**

The problems associated with waste management in Kapilbastu are the lack of proper landfill site, proper waste collection system, skilled manpower, community involvement and proper system for special waste management.

## **10 Conclusion & Recommendations**

Being a small, relatively rural, municipality, waste management is not a critical issue in Kapilbastu. However, with increasing urbanization, the problem could increase in the future. Kapilbastu has done a relatively good job in setting up a unit with some staff as well as equipment and vehicles. The staff however, need proper training and motivation.

Recommendations:

1. The current dump site should be converted in to a controlled dump or a different landfill should be developed.
2. The municipality should also promote household and community composting. Waste reuse and recycling programmes should also be promoted.

3. The waste collection system should be improved so that waste is collected door-to-door to the extent possible and discourage open piles on the streets.
4. Community and school-based programmes should be launched to increase awareness.
5. The medical waste should be burned in a controlled manner.
6. The staff in the Environment Protection and Street Cleaning Unit should receive proper training.

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**Annex 1: Photographs**



**Waste Collection Using a Power Tiller**



**A Hand Cart Used for Waste Collection**



**Waste Dumping Along the Road at Chapper Talla**



**Waste Dumping Site at Chapper Talla**

