

## Solid Waste Management in **Nepalgunj 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 Nepalgunj 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.

Bhushan Tuladhar  
Executive Director  
Clean Energy Nepal

Dr. Roshan Raj Shrestha  
Executive Chairman  
Environment and Public Health Organization

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<sup>1</sup> This report was prepared by Bhushan Tuladhar and Nisha Manandhar based on field investigations conducted by Birendra Bahadur Rawal.

## 1 Introduction

Located as one of the four municipalities of the Mid-western Development Region of Nepal, Nepalgunj is the commercial hub of the region and has direct commercial linkage with at least nine districts of the region. It is situated close to Nepal-India border and was established as a Nagar Panchayat in the year 1960 A.D (2017 B.S).

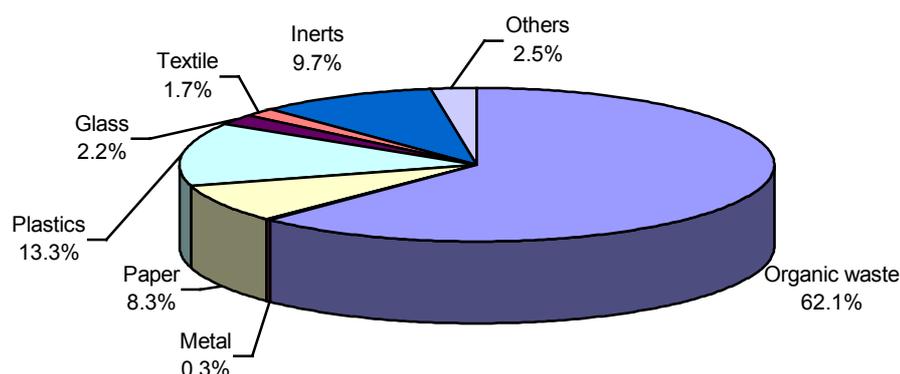
Table 1: Background Information

NAME	NEPALGUNJ MUNICIPALITY
District	Banke
Year of Establishment	2017 B.S.
No. of Wards	17
No. of Urban Wards	8
No. of Rural and semi urban Wards	9
Total Area	12.51 sq. m (CBS)
Built-up Area	480.625 ha
Major Rivers and Ponds	Rani Talau
Total Road length	Black-topped: 18.65km Graveled: 26.45km Earthen: 30km
Population (2001)	57,535 (CBS)
No. of Households (2001)	10,592
No. Shops	1226
No. of Restaurants, hotels and shops	506
Annual Population Growth Rate (1991-2001)	1.9 percent
Estimated Population for 2003	59,742
Population Density	4599.12per sq. km

## 2 Waste Generation and Composition

According to the field survey done in 2003, the average per capita household waste generation rate in Nepalgunj was 0.18 kg/person/day. This is less than the average waste generation rate in Nepalese municipalities, which is 0.25 kg/person/day. Considering the total population of Nepalgunj in 2003, which is estimated to be 59,703, the total amount of household waste generated in the municipality comes out to be 10.7 tons per day. As Nepalgunj is a major commercial centre, it probably generates a relatively large amount of commercial waste as well. If we assume that households contribute 75 percent of the total municipal waste, then the total amount of municipal waste generated in Nepalgunj comes out to be 14.3 tons per day. The municipality estimates that the total amount of waste generated in Nepalgunj is approximately 16 tons per day.

The field survey also indicated that 62 percent of the household waste is organic in nature. The waste composition is similar to findings from other municipalities in Nepal.

**Figure 1 Waste Composition**

The loose density of household waste in Nepalgunj was calculated to be 160 kg per m<sup>3</sup>. This is a fairly low value.

Information on Nepalgunj's waste generation and composition is based on waste samples collected from 100 households in Gharbani and Bhrikutinagar areas of ward 2 and 13, that had waste from 610 people.

### 3 Waste Collection

According to the municipality, it is collecting approximately 10 tons of waste per day. The municipality has two tractor-trailers, each having average capacity of 3 m<sup>3</sup> which makes two trips per day. Assuming these vehicles are filled to capacity in each trip, they will carry a total of 12 m<sup>3</sup> of waste per day. A truck with average capacity of 6m<sup>3</sup> collects waste as well. Assuming that the total amount of waste generated in Nepalgunj is 14.3 tons per day, the city is collecting about 70 percent of the total waste generated. Most of the waste that is not being collected is probably waste from rural areas within the municipality.

Nepalgunj Municipality has 45 permanent and 55 temporary sweepers. According to the municipality these sweepers sweep approximately 80 kms of city streets on a daily basis. Sweeping is done using ordinary brooms with long handles and the waste is collected in handcarts. The municipality has about 100 picks and shovels, 50 baskets, 17 handcarts and four rickshaws with average capacities of 0.68 m<sup>3</sup> each. Once the carts are filled, the waste is loaded on to a tractor-trailer or truck.

The municipality does not have door-to-door collection system. Therefore, the main modes of collection are the container and roadside pick-up service. The containers are emptied weekly and the waste placed on the roadside is picked up by the municipal employees daily.

### 4 Final Disposal

The collected waste is disposed in a crude dump site about 2 km from the city. The life-span of the site with an area of about 12.8 ha is estimated to be about 20 years. A site near Rani Talaw was used for dumping waste before but it is no longer used because people want to conserve the lake.

The Municipality has no plans to construct a landfill in the near future due to lack of financial and technical resources.

## **5 Composting and Recycling**

Nepalgunj Municipality does not have any composting or recycling programmes of its own. There are no community or central level composting facilities. However, according to the municipality, 18 households are practicing home composting and there are about 25 scrap dealers in town. The Municipality, however, wants to start composting and recycling programmes and wants the support of Solid Waste Management and Resource Mobilization Centre for this purpose.

## **6 Special Waste Management**

Nepalgunj Municipality has no special system for collecting and managing special waste such as medical waste, dead animals and industrial waste. These waste are either managed by the waste generator or dumped with the rest of the municipal waste.

Nepalgunj has 2 hospitals, 19 clinics and 3 laboratories, which generate medical waste. This needs to be managed separately. Similarly, the city has several industries that generate various types of industrial waste.

## **7 Community Mobilization**

Nepalgunj has few community groups or NGOs active in waste management. The Leo Club and a few other groups have done some programmes to raise awareness on waste management.

Nepalgunj Municipality has received some support from the Urban Development Through Local Efforts (UDLE) of GTZ, to mobilize local communities and schools for waste management. With the support of UDLE, the municipality has organized several workshops for municipal employees as well as students, teachers, and community groups. UDLE has also supported in the promotion of school-level recycling and household composting.

## **8 Organizational and Financial Aspects**

The main responsibility for solid waste management lies with the Environment & Sanitation Section of Nepalgunj Municipality. The section has 100 sweepers and five other staff.

The municipality spends approximately Rs. 6.2 million per year on waste management. This is about 20 percent of the total municipal budget. The municipality does not collect any revenue from waste management services.

## **9 Major Problems and Issues**

According to the municipality, the main problems associated with solid waste management in Nepalgunj are as follows:

- Lack of skilled manpower
- Lack of landfill site
- Lack of transfer site
- No separation of special waste and municipal waste
- Lack of awareness among the general public
- Inadequate financial resources and equipment for waste management

## **10 Conclusion & Recommendations**

Nepalgunj Municipality is suffering from ineffective waste management just as most other municipalities in Nepal. As Nepalgunj is the major city and the commercial hub of western Nepal, the waste management problems is bound to increase in the future if it is not addressed immediately. The Municipality is doing a fairly good job of collecting the waste, but it is being dumped in a crude manner. Similarly, very little effort has been put towards composting and recycling the waste.

Recommendations:

1. In order to improve the waste collection system, door-to door collection should be initiated.
2. The Municipality should develop facilities for composting and recycling the collected waste. For this, SWMRMC should provide necessary assistance.
3. The Municipality should develop a separate system for collecting and managing medical waste.
4. The crude dump site used by the municipality should be converted to a controlled dump by making arrangements to bury the waste and covert it with soil. The municipality should also initiate the process for developing a landfill site.
5. The capacity of the Environment and Sanitation Section, which carries the main responsibility of solid-waste management, needs to be strengthened. One more environmental officer is necessary in the section and the staff should receive proper training.
6. Community mobilization efforts needs to be increased to raise awareness and involve local communities in waste management.

For more information please contact:

Mr. Ram Kumar Kalwar

Environment and Sanitation Section

Phone: 081-20338 / 22016

Fax: 081-20316

**Annex 1: Photographs**



**Waste Collection Using a Rickshaw**



**Waste Disposal by the Side of the Road**



**Tractor Taking Waste to the Disposal Site**



**Waste Disposal Site**