

## Solid Waste Management in **Tribhuwan Nagar 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 Tribhuwan Nagar 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 Bhumika Vaidya based on field investigations conducted by Shova Kumari Yadav.

## 1 Introduction

Tribhuwan Nagar Municipality is the oldest municipality of Rapti zone. It was established in the year 2035 BS by combining Bangaun, Ghorahi, Raut and Haridwar VDCs. The municipality is bordered by Sisne Khola to the East, Gurje Khola in the West, Saigha VDC in the north and Damodar Road coming from Kuirepani in the south. The municipality has 11 wards, out of which a few are located in Inner Terai region and a few in the Hill region.

**Table 1: Background Information**

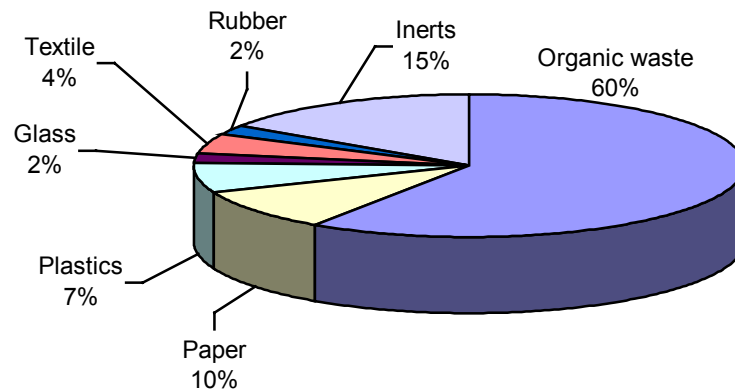
NAME	TRIBHUWAN NAGAR MUNICIPALITY
District	Dang
Year of Establishment	2053 B.S
No. of Wards	11
No. of Urban Wards	NA
No. of Rural Wards	NA
Total Area	74.45 sq. km (CBS data)
Built-up Area	1.91 sq km
Major Rivers and Ponds	NA
Total Road length	357.14 km
Population (2001)	43126
No. of Households (2001)	8945
No. of Shops	NA
No. of Restaurants, hotels and lodges	NA
Annual Population Growth Rate (1991-2001)	4.0
Estimated Population for 2003	46,645
Population Density	579.26 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 Tribhuwan Nagar was 0.25 kg/person/day. This is same as the average waste generation rate in urban areas of Nepal. Considering the estimated total population of Tribhuwan Nagar in 2003, which is 46,672, the total amount of household waste generated in the municipality is 11.7 tons per day. If we assume that 75 percent of the total municipal waste is generated by households, then the total amount of municipal waste generated in the municipality comes out to be 15.5 tons per day.

The composition of waste shows that organic waste is the largest portion of the waste stream, however the percentage of organic waste is lower than the national average of 65 percent.

**Figure 1 Waste Composition**



The loose density of household waste in Tribhuwan Nagar was calculated to be 97.76 kg per m<sup>3</sup>. This is fairly low value.

Information on Tribhuwan Nagar's waste generation and composition is based on waste samples collected from 32 households that had waste from 149 people.

### **3 Waste Collection**

The Municipality estimates that the city generates approximately 7 tons of waste per day. Information on the total waste collected by the municipality is not available. If we assume that the municipality collects 7 tons of waste per day and that the generation rate is 15.5 tons per day, then the total collection rate is 45 percent.

Tribhuwan Nagar Municipality has 20 permanent sweepers for waste management. For waste collection municipality has 1 tractor trailer and 1 dump truck.

### **4 Final Disposal**

The waste is disposed in a crude manner in a designated dumping site near the Municipality. The site is protected by a barbed wire fence.

### **5 Composting and Recycling**

The municipality does not have any recycling or composting programmes.

### **6 Special Waste Management**

The Municipality does not have any programmes for managing special waste from health care facilities, industries or construction sites.

### **7 Community Mobilization**

The Municipality has established 197 local Tole development organizations, with the support of the UNDP funded Rural Urban Partnership Programme. Some of these organizations are involved in clean up programmes. For example, Ganesh

Tol Development Organizations in ward 10 distributed bins to households to keep their area clean.

## **8 Organizational and Financial Aspects**

The Environment and Sanitation Sub-section, within the Environment and Community Development Section of the municipality is responsible for solid waste management. The section has 20 sweepers.

No information is available on the expenditure on solid waste management.

## **9 Major Problems and Issues**

The problems associated with waste management cannot be identified properly as required information is not available.

## **10 Conclusion & Recommendations**

The field survey provided very limited information on the solid waste management in Tribhuwan Nagar Municipality. However, it seems that the Municipality suffers from similar problems as most other municipalities in Nepal. These include the lack of adequate resource, crude dumping of waste at the disposal site, lack of programmes to promote recycling, ineffective collection system and lack of a system to manage special waste such as medical waste. The Municipality does, however, have many Tole development organizations at the community level, which can be mobilized for effective waste management.

### **Recommendations**

1. The Municipality has done a good job by designating a waste disposal site and having a fence around it. In order to make the disposal practice more safe, it should cover the waste after disposal.
2. The waste collection system should be improved so that waste is collected door-to-door to the extent possible and open piles on the streets should be discouraged.
3. The Municipality should promote composting and recycling, as effective waste collection, treatment, and disposal can be expensive.
4. The Municipality has developed a good network of Tole Development Organizations. These community-based organizations should be mobilized for effective waste management. For this to happen, these groups should be trained in waste management and composting and they should be provided with adequate support.
5. Hazardous waste, such as medical waste should be collected separately and buried or burned.

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**Annex 1: Photographs**



**Haphazard Waste Disposal**



**Waste Disposal in Drains**



**Municipality's Waste Disposal Site**



**Fencing and Sign at the Waste Disposal Site**