

## Solid Waste Management in **Itahari 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 Itahari 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 Vaiday based on field investigations conducted by Santosh Khatiwada.

## 1 Introduction

Itahari is a mid-sized municipality located in Sunsari District in eastern Nepal along the East-West Highway. Because of its strategic location between Dharan and Biratnagar, the city is growing rapidly. The Municipality was established in 2053 B.S and it has 9 wards, of which only 3 are urban areas.

**Table 1: Background Information**

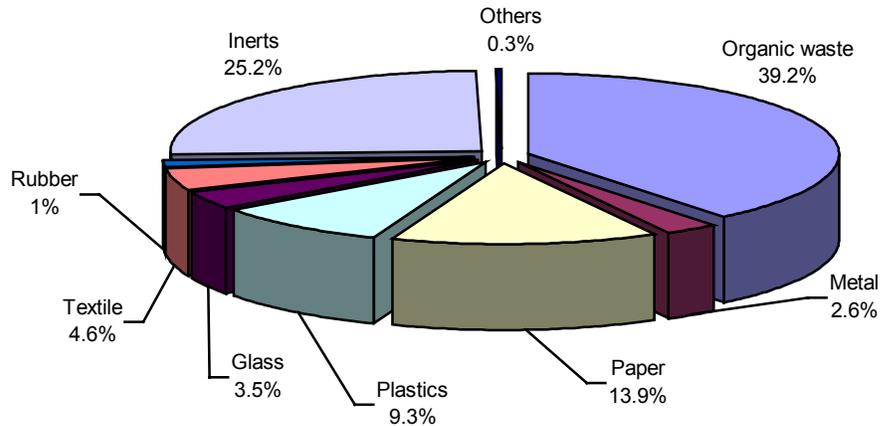
NAME	ITAHARI MUNICIPALITY
District	Sunsari
Year of Establishment	2053 B.S
No. of Wards	9
No. of Urban Wards	3
No. of Rural and semi urban Wards	6
Total Area	42.37 sq. km (CBS data)
Built-up Area	30 ha
Major Rivers and Ponds	Tangra, Budhi, Mechikali Pokhari
Total Road length	Black-topped: 20 km Graveled: 131.57km Others: 125 km Total: 276.57
Population (2001)	41210 (CBS)
No. of Households (2001)	8624 (CBS)
No. Shops	1898
No. of Restaurants, hotels and lodges	350
Annual Population Growth Rate (1991-2001)	4.4
Estimated Population for 2003	44,916
Population Density	972.62 per sq. km (CBS)

## 2 Waste Generation and Composition

According to the field survey done in 2003, the average per capita household waste generation rate in Itahari was 0.41 kg/person/day. This is higher than average waste generation rate in urban areas of Nepal, which is 0.25 kg/person/day. Considering the total population of Itahari in 2003, which is estimated to be 44,905, the total amount of household waste generated in the municipality comes out to be 18.4 tons per day. If we assume that 75 percent of the total municipal waste is generated by households, then the total municipal waste generated in Itahari becomes 24.5 tons per day.

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 some other municipalities. The national average for organic content in municipal waste is 65 percent. The low value for organic waste may be due to the composting practices in some wards. Similarly, the portion of inert material, plastics and paper is relatively very high.

**Figure 1 Waste Composition**



The loose density of household waste in Itahari was calculated to be 283.6 kg per m<sup>3</sup>.

Information on Itahari 's waste generation and composition is based on waste collected from 85 households of Aitabare area of ward 1 and 4, that had waste from 423 people.

### **3 Waste Collection**

According to the municipality, it is collecting approximately 9 tons of waste per day. Assuming that the total waste generation rate is 24.5 tons per day, the municipality is collecting about 37 percent of the waste generated. Most of the waste this is not collected is probably waste from rural areas.

For waste collection, the municipality has two-tractor trailer with capacity of 2.6 m<sup>3</sup> and 3 carts with capacity of 0.41 m<sup>3</sup>. Municipality provides roadside pick up service daily. But it does not have container service or door-to-door service.

Itahari Municipality has 2 supervisors, 19 permanent and 5 temporary sweepers for waste management. The sweepers sweep 6 km of road daily, 2 km twice a week and 2.5 km once a week. The household waste is either placed in container or on roadside in front of own house, which is then collected by the municipality.

### **4 Final Disposal**

The collected waste is a disposed in a crude dumping at Ward No 6, which is about 1 km from the city. The site with an area of 1.2 ha has been used for the past two years. The estimated life span of the current dump site is 8 years. Previously, the municipality used to dump waste in Budhi Khola. Though the landfill site is crude, municipality has no plans to construct a proper landfill site in future.

However, there are some plans for exploring the feasibility of developing a combined landfill and compost plant for the three neighbouring municipalities of

Biratnagar, Itahari and Dharan. As Itahari is located in the middle of Dharan and Biratnagar, such an arrangement will be beneficial for Itahari.

## **5 Composting and Recycling**

According to the municipality about 15 percent of the households are practicing composting. The Municipality is also planning to build a compost plant in Ward 6 and 8 by 2004. It is approximately 1.5 km from the city and will have output capacity of 2.5-ton/ day. But they lack budget for its construction.

Municipality allows scavenging in collection as well as disposal site. There are 5 kawadis dealing with the scrap materials within the municipality.

## **6 Special Waste Management**

The Municipality does not have any system for collecting and managing medical waste or any other type of special waste separately. The municipality has 5 hospitals, 23 clinics and 11 laboratories. Medical waste from these facilities is dumped along with regular waste. Dead animals are buried and construction and demolition waste is reused. Industrial waste is either dumped or drained.

## **7 Community Mobilization**

The municipality has initiated a few activities to mobilize local communities. People in “Bagaicha tol” in Ward 4 have tried to ban the use of plastic bags.

Similarly, “Children clubs” have been established in 5 community schools, to initiate school-based environmental activities. Some efforts have also been made to promote home composting.

## **8 Organizational and Financial Aspects**

Environment, Health and Cleaning unit in the municipality is responsible for solid waste management. There are 2 supervisor and 24 sweepers assigned for solid waste management in the municipality.

The municipality spends approximately Rs. 4,65,000 per year in solid waste management. This is about five percent of the total municipal budget. Itahari Municipality is also planning to charge a fee for solid waste management services.

## **9 Major Problems and Issues**

The problems associated with waste management in Itahari are the lack of proper landfill site, insufficient involvement of community and private organizations, lack of skilled manpower, lack of public awareness and less priority given to waste management. Furthermore, separate treatment for the special waste and proper waste collection service is required.

## **10 Conclusion & Recommendations**

Although some good programmes have been initiated in Itahari for solid waste management, it still requires financial and technical support to improve its waste management system. The waste collection system needs to be more effective

and the dumping site needs to be improved. Additional effort is also required for maximizing public participation in waste management.

Recommendations:

1. The Municipality should initiate activities to involve local communities in waste management. Communities can help by reducing the amount of waste they generate, separating their waste at home, composting their organic waste and giving their waste directly to waste collectors instead of dumping it on the streets.
2. According to the field survey, proportion of plastic and paper is very high so recycling programs should be encouraged.
3. Haphazard disposal of waste should be stopped and a simple landfill should be constructed.
4. Municipality plans to construct landfill site but needs technical support and a proper location to build a landfill site. SWMRMC should provide technical and financial support for exploring the possibility of having a combined compost plant and landfill site for Itahari, Dharan and Biratnagar.
5. Along with the construction of landfill site municipality should also promote composting.
6. Medical waste should be managed separately.
7. Proper waste collection system should be developed so that open piles on the streets are discouraged.

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**Annex 1: Photographs**



**Hand Cart Used for Waste Collection**



**Tractor Used for Waste Collection**



**Compost Bin Made By Municipality**



**Statue of Buddha Made from Waste Plastics**



Sign Promoting Home Composting



Waste Dumping Site