

**Involvement of NGOs in Solid Waste Management:  
A Case Study of Satdobato Area in Lalitpur City**

by  
**Sangam Maharjan**  
**Reg. No: 5-1-37-427-97**

A thesis submitted in partial fulfillment of the requirements for the degree of  
Master of Arts

**Central Department of Rural Development  
Faculty of Humanities and Social Sciences  
Tribhuvan University, Kirtipur  
Kathmandu, Nepal**

**December 2006**

## **Recommendation Letter**

This thesis titled Involvement of NGOs in Solid Waste Management: A Case Study of Satdobato Area in Lalitpur City has been prepared by Sangam Maharjan, under my supervision, in partial fulfillment of the requirements for the degree of Master of Arts in rural development. Therefore, I recommend for its evaluation and approval by the Thesis Evaluation Committee.

---

Dr. Ek Raj Ojha  
Research Supervisor

## **Approval Letter**

This thesis titled Involvement of NGOs in Solid Waste Management: A Case Study of Satdobato Area in Lalitpur City prepared by Sangam Maharjan in the prescribed format of the Faculty of Humanities and Social Sciences has been accepted in partial fulfillment of the requirements for the degree of Master of Arts in rural development.

### Evaluation Committee

---

Prof. Dr. Pradeep Kumar Khadka  
Head of Department

---

Dr. Ek Raj Ojha  
Research Supervisor

---

Associate Prof. Dr. Chandra Lal Shrestha  
External Examiner

## **Acknowledgements**

I wish to express my sincere appreciation and deepest gratitude to my advisor, Dr. Ek Raj Ojha, for his enthusiastic guidance, valuable suggestion and continued encouragement for the study. I am grateful to Dr. Pradeep Kumar Khadka for his support and inspiration to conduct the research in this subject.

I also wish to express sincere thanks to Mr. Ram Saran Thapa and Mr. Gyan Kumar Chippi Shrestha, ICIMOD for their valuable help and suggestions during this study. My special thanks go to my colleagues Navin Nakarmi, Sudeep Karki, Sunita Maharjan, Samita Shrestha and Jaya Rai for their constant support in the study.

I am also indebted to Pradeep Amatya from Environment and Sanitation Section, Ram Gopal Shrestha from Ward Office, Bhim Rai of Janchetana and Surendra Kumar Acharya of NEPCO for providing necessary data. Special thanks go to the Library staff of ICIMOD, IUCN and Tribhuvan University, Kirtipur.

Finally, I deeply appreciate my father, mother and all my family members for their valuable encouragement and support.

## **Abstract**

Solid Waste Management is an obligatory function of urban local bodies. At present, the SWM of Lalitpur Sub Metropolitan City has become a major problem in reference to the rapidly growing population, industrialization and urbanization. In order to improve SWM in Lalitpur, LSMC has introduced the Integrated Solid Waste Management Strategy which is efficient, cost effective and environment sound with maximum involvement of local community as well as private sector bodies or NGOs.

The main objective of this study is to examine the effectiveness of NGOs involved in SWM. Satdobato area of Lalitpur Sub-metropolitan City was chosen as the study area for the reason that solid wastes in the area are effectively managed by NGOs but none has yet focused on them. It is the first research made on them. NEPCO and Janachetana are two NGO's working with SWM in Satdobato area and are playing very critical role in the management of solid waste.

It has been found that the NGO's are working effectively and the member beneficiary households are satisfied with their services. The streets are cleaner than before. Most of the households are getting daily waste collection service. But there are still some weakness which will have to be removed in the future.

Regarding financial analysis, both NEPCO and Janchetana are running effectively and making profit. But they differ in the amounts of money collected for the same type of service. From the selling of recyclable goods only, NEPCO earns Rs.193850/month.

For better SWM, both LSMC and the NGOs must follow the agreements made between them and the NGOs must follow the participatory approach forwarded by the LSMC.

# Table of Contents

	<b>Page</b>
Recommendation Letter	i
Approval Letter	ii
Abstract	iii
Acknowledgements	iv
List of Figures	viii
List of Photographs	viii
List of Tables	ix
Abbreviations and Acronyms	xi
<b>1. INTRODUCTION</b>	<b>1</b>
Background of the Study	1
Statement of the Problem	5
Objectives of the Study	7
Rationale for the Study	7
Limitation of the Study	8
1.6 Organization of the Study	9
<b>2. LITERATURE REVIEW</b>	<b>10</b>
Research on SWM	10
2.1.1 International Perspective	10
2.1.2 National Perspective	12
2.2 Legislation and Policies Relevant to Municipal SWM in Nepal	15
<b>3. RESEARCH METHODOLOGY</b>	<b>19</b>
3.1 Selection of the Study Area	19
3.2 Sampling Procedure	19
3.3 Nature and Sources of Data Collection	20
3.4 Data Collection Tools and Techniques	20
3.4.1 Questionnaire Survey	20
3.4.2 Key informant Interview	20
3.4.3 Field visit and Observation	21
3.5 Data Processing and Analysis	22
<b>4. SOLID WASTE MANAGEMENT SITUATION IN SATDOBATO AREA</b>	<b>22</b>
4.1 Introduction	22
4.2 NGO	24
4.2.1 Involvement of NGOs in SWM	24
4.2.2.1 NGOs Involved in SWM in Satdobato Area	25
4.3 Sweeper	28
4.4 Vehicle from Municipality	29
4.5 Solid Waste Situation in Satdobato	29
4.5.1 Education Status of Respondents	30
4.5.2 Person Responsible to Throw Waste	31
4.5.3 Method of Waste Collection	31

4.5.4	Type of Waste Produced	32
4.5.5	Quantity of Waste Generated	33
4.5.6	Tools used to Collect Solid Waste	34
4.5.7	Information About Bio-degradable and Non- biodegradable wastes	34
4.5.8	Possibility to do Sorting at Household Level	35
4.5.9	Collection of All Wastes	36
4.5.10	Alternate Service to Separate the Wastes	36
4.5.11	Waste Collection System	37
4.5.12	Time to Collect Waste	38
4.5.13	Way to Collect the Service Charge	38
4.5.14	Behaviour of Staffs	39
4.5.15	Information about Involvement of NGOs in SWM	40
4.5.16	Willing to Participate	40
4.5.17	Dispose of Waste before the Involvement of NGOs	41
4.5.18	Cleanliness of the Area	41
4.6	Comparative Analysis of Membered and Non-Membered Respondents	42
4.6.1	Tools used to Collect the Wastes	42
4.6.2	Information about Biodegradable and Non-biodegradable Wastes	43
4.6.3	Alternate Service to Separate the Wastes	44
4.6.4	Time to Collect the Waste	45
4.6.5	Way to Collect the Service Charge	46
4.6.6	Waste Collection System	47
4.6.7	Person Responsible to Throw the Waste	48
<b>5.</b>	<b>IMPACT PROSPECTS AND PROBLEMS OF SOLID WASTE MANAGEMENT IN THE STUDY AREA</b>	<b>50</b>
5.1	Impact of SWM in the Study Area	50
5.2	Prospects of SWM in the Study Area	52
5.2.1	Willing to Participate	52
5.2.2	Financial Analysis of Janchetana	52
5.2.3	Financial Analysis of NEPCO	53
5.3	Problem of SWM in the Study Area	55
5.3.1	Waste Disposal	55
5.3.2	Views of NGO's towards their Members	56
5.3.3	Views of Members towards NGO's involving SWM	57
5.4	Suggestions of Locals for Improvement in SWM by NGOs	58
<b>6.</b>	<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS</b>	<b>60</b>
6.1	Summary	60
6.2	Conclusion	61
6.3	Recommendations	63
6.3.1	Recommendations for NGO's involving SWM	63
6.3.2	Recommendations for Public	66
6.3.3	Recommendations for Future Study	67

<b>REFERENCES</b>	<b>68</b>
<b>ANNEXES</b>	<b>70</b>
Annex A: Questionnaires	70
Annex B: Photographs	76
Annex C: Agreement Paper	79



## List of Figures

Figure 1	Location of the Study Area	23
Figure 2	Tools Used to Collect Waste	43
Figure 3	Providing Alternate Service to Separate Waste	45
Figure 4	Time to Collect Waste	46
Figure 5	Waste Collection System	48
Figure 6	Person Responsible to Throw Waste	49

## **List of Photographs**

Photo 1	Waste Collected at TTS, infront of Swimming Complex	76
Photo 2	Rickshaw for the collection and transfer of the wastes	76
Photo 3	Waste collected at TTS, opposite to Dhalaut Karkhana	77
Photo 4	Women Group preparing for various materials from the milk pouches plastic.	77
Photo 5	Cushion made from straw, chocolate cover and packet of noodles	78
Photo 6	Basket made from the thrown milk packets	78

## List of Tables

Table 1	Waste Production in tone/day in Three Municipalities for the Period 1999-95	6
Table 2	Frequency of Samples	19
Table 3	Location of Beneficiary Households	27
Table 4	Location of Beneficiary Households	28
Table 5	Educational Status of House Owners	30
Table 6	Person Responsible to Throw Waste	31
Table 7	Method of Waste Collection	32
Table 8	Nature of Waste Generated	33
Table 9	Quantity of Waste Generated	33
Table 10	Tools Used to Collect Solid Waste	34
Table 11	Information About Biodegradable and Non biodegradable Wastes	35
Table 12	Possibility to Do Sorting at Household Level	35
Table 13	Collection of All Wastes	36
Table 14	Alternate Service to Separate Waste	37
Table 15	Waste Collection System	37
Table 16	Time to Collect Waste	38
Table 17	Way to Collect the Service Charge	39
Table 18	Behaviour of Staffs	39
Table 19	Information about Involvement of NGOs in SWM	40
Table 20	Willingness to Participate	41
Table 21	Dispose of Waste before the Involvement of NGO's	41
Table 22	Cleanliness of the Area	42
Table 23	Tools used to Collect Waste	43
Table 24	Information on Biodegradable and Non biodegrade waste	44
Table 25	Alternate Service to Separate Waste	44
Table 26	Time to Collect Waste	45
Table 27	Way to Collect the Service Charge	47
Table 28	Waste Collection System	47
Table 29	Person Responsible to Throw the Waste	49
Table 30	Willing to Participate.	52
Table 31	The Rate List of Janachetana	53
Table 32	Annual Income of Janachetana	53
Table 33	Annual Expenditure of Janachetana	53
Table 34	The Rate List of NEPCO	54
Table 35	Monthly Income(in Rs.) of NEPCO	54
Table 36	Monthly Expenditure of NEPCO	54
Table 37	Rate List of Recyclable Materials made by NEPCO	55
Table 38	Place of Waste Thrown	56

## Abbreviations and Acronyms

%	Percentage
IES	Indian Environmental Society
ICIMOD	International Centre for Integrated Mountain Development
IUCN	The World Conservation Union
KMC	Kathmandu Metropolitan City
LSMC	Lalitpur Sub Metropolitan City
NEPCO	National Environmental Pollution Control
RUDO	Regional Urban Development Office
SWM	Solid Waste Management
SWMRMC	Solid Waste Management and Resource Mobilization Centre
USAID	United States Agency for International Development