# Community Participation
# In
# Solid Waste Management
# Kathmandu

**Manira Gotame**
**Department of Geography**
**University of Bergen, Norway**
**2012**

# Community Participation
# In
# Solid Waste Management
# Kathmandu



## Manira Gotame

Thesis submitted in the partial fulfillment of requirements for the

Master of Philosophy in Development Geography

Department of Geography

University of Bergen, Norway

2012

# Acknowledgements

# Abstract

Solid waste management in Nepal has become one of the important and discussed topics. As the municipality is unable to handle the solid waste by itself community participation is being encouraged to manage the waste. Thus, my paper focused on community participation in solid waste management in Kathmandu. There are three study areas for my research, Buddhajyoti settlement, Chamati and Milujuli, Jagriti and Ganesh Basti (Chakrapath area). Waste management in three communities is managed through the projects, EDEN in Buddhajyoti and Chamati and NEPCEMAC in the other settlements.

Household questionnaire and interviews were used as the research tools and a total of 82 respondents were interviewed. The paper uses both qualitative and quantitative approach to analyze the information.

The project's main focus in all these settlements was to segregate waste at source as it was believed that about 70% of the total waste generated in Kathmandu was of organic type. Waste was composted. All the communities have different approaches which the people follow in segregating waste. In all the settlements bins were provided. Chakrapth area has a central collection system but the community members were asked to segregate waste. In Buddhajyoti too it was a similar case but a private company is involved (indirectly) in managing waste. In Chamati people were encouraged to manage waste in individual level in their own household.

Among the three communities, waste management in Chamati area seemed more sustainable making people independent. In the other two communities, people had other easier options to dump the waste (dump the waste in the river or mix waste). Participation of the community members in other activities such as recycling-reuse, disposal of waste, decision making was nominal.

Dedicated to:

*MY FAMILY*

# Table of content

CHAPTER SIX

DISCUSSION OF FINDINGS………………………………………………………….54

CHAPTER SEVEN

WASTE MANAGEMENT IN DIFFERENT COMMUNITIES: A COMPARISION ................ 66

CHAPTER EIGHT

References

Appendix

**List of Tables**

**List of Map**

**List of Pictures**

**List of Figures**

# Glossary of Selected Words

Brahman         The highest caste according to the caste system in Nepal

Chhetri         The second highest caste according to the caste system in Nepal

Jestha          Second month of Nepali Calendar

Kuchikars       The low caste and considered as the untouchable caste involved in
                cleaning jobs

Karesa bari     Farmyard near/around your home used for planting vegetables

Gurung          One of the Ethnic groups in Nepal

Newars          Newars are the indigenous people and are considered as the creators of the
                historical civilization of Nepal's Kathmandu Valley

Paisa           Smallest unit of Nepali currency

Rana            One of the castes in Nepal considered as high caste who ruled for about
                104 years in Nepal

# Abbreviations

| | |
|---|---|
| ALM | Advanced Locality Management |
| B.S | Bikram Sambat (Nepali Calendar) |
| CBOs | Community Based Organizations |
| CBS | Central Bureau of Statistics |
| EDEN | Entire Development for Environment and Nature |
| GTZ | Deutsche Gesellschaft für Technische Zusammenarbeit |
| KMC | Kathmandu Metropolitan City |
| MCDs | Multipurpose Community Development Service Nepal |
| MCGM | Municipal Corporation of Greater Mumbai |
| NWMC | National Waste Management Council |
| NEFEJ | Nepal Forum of Environmental Journalists |
| NEPCEMAC | Nepal Pollution Control and Environment Management Centre |
| NGO | Non-Governmental Organization |
| NWMC | National Waste Management Council |
| PPP | Public Private Partnerships |
| Rs. | Rupees (Nepali Currency) [1 US dollar= 89.72 rupees, www.xe.com/ucc/- (20 June 2012,)] |
| SWM | Solid Waste Management |
| SWRMC | Solid Waste Management and Resource Mobilization Centre |
| UML | Unified Marxist-Leninist (Communist party in Nepal) |
| UNPPPUE | United Nations Public-Private Partnership for Urban Environment |

# CHAPTER ONE

# INTRODUCTION

The first chapter of this research is to give a general introduction to my research topic, familiarize others with the research problems, the objects of the study and the limitations of my study

## 1.1 Introduction and significance

According to Pokhrel and Viraraghavan (2005) Nepal has one of the highest urban growth rates in South of Asia (6.5%). The population of Nepal is growing at an annual rate of 2.25 per cent between 1999 to 2001. It has reached 23.15 million and the population of Kathmandu alone has reached 671846 in 2001 from 106579 in 1952/54 (Sharma, 2003). However, a preliminary data has been released on September 12, 2011 about the population census conducted by Central Bureau of Statistics (CBS) Nepal, which states that the population of Nepal has reached 26,620,809 in 2011 with an increase rate of 1.4% (the population census 2011 was conducted from 17 June-27 June, 2011) (CBS, 2011). There has been a long trend of migration in Nepal. International migration started in Nepal since the first quarter of the 19th century. These were mostly the young males who went there as laborers or for the recruitment. Since then international migration has almost become a trend. Likewise, internal migration too is an important phenomenon of the country. It is a vital component of population redistribution. Kathmandu city alone received 78.6 per cent of the total rural migrants and 64.8 per cent of the urban migrants from other districts. Apart from Bhaktapur, other cities of the Kathmandu Valley such as Lalitpur (32%), Madhyapur (27.6) and Kirtipur (23.2%) have also been receiving increasing proportion of in-migrants during the last decade. Internal migration is basically the outcome of the natural disasters, search for better livelihood and educational and employment facilities. In last decades displacement due to insecurity has become one of the reasons for internal migration (KC, 2003). In a developing country like Nepal migration is the result of the pushed factors rather than the pulled factors. The urbanization process has to be managed. If it is haphazard it brings different environmental, social or economic problems. The demands for different basic services cannot be fulfilled. Thus, planned urbanization is a necessity (Basyal and Khanal, 2001).

1

There has not been a specific, systematic or comprehensive plan for urbanization till the Tenth (2002-2007) plan in Nepal. It gives the information about preparation of the town plan, establishment of infrastructures, urban services and others but there is no national policy regarding urbanization and managing of the migrants to the urban areas (Tiwari, 2008).

According to the 2001 census only 15 -16 % of the total population of Nepal lives in the urban areas. Most of the facilities like education, employment are concentrated in the urban areas so people prefer to live in the urban areas. Thus, the urbanization rate is higher because people prefer to live in urban areas than the rural ones (www.wateraid. org). The urbanization rate is less compared to other developing countries is very less but as the area and the available resources of Nepal is less this small urban population has become an enormous burden for the government in terms of environmental health, sanitation and environmental management. The urbanization in Nepal is rapid and the provision of facilities to the population is lagging behind (Pokhrel and Viraraghavan, 2005).

The increase in the population has a negative outcome on the environment. Air pollution is one of them. Outdoor air pollution is a problem for Kathmandu valley. Though air pollution is the gift of industrialization the main source of air pollution in Kathmandu is the poorly maintained vehicles. Industries like different cement factories have been closed for different reasons but the vehicles in the streets of Kathmandu have increased in threefold from 1993 to 2003. Other minor sources are domestic cooking fuels, refuse burning and re-suspended dust particles (Joshi, 2003).

Along with rapid population and urban growth rates, problems connected to municipal solid waste are increasing. Burning piles of waste can be seen along roads and river sides. Furthermore, inaccurate depositing of waste occurs along the river banks and even in the rivers, causing hazardous health and environmental problems in-situ as well as downstream (Pokhrel and Viraraghavan, 2005). Managing solid waste is one of the problems which are the result of unorganized urbanization. According to Central Bureau of Statistics (CBS, 1997) only 17 % of the urban households get their waste collected. Besides that, very little community participation is seen to managing the solid waste.

Due to rapid urbanization in Kathmandu Valley, Government is unable to cope with the increasing demand for solid waste management which resulted garbage and sanitation situation

in a chaotic state (Waste,1996). Waste is a by-product of human activity. Physically, it contains the same materials as are found in the useful materials; it only differs from useful production by its lack of value. Waste can be categorised in various ways, by physical state as solid liquid and gaseous, by material as glass, paper etc: as saftey level or its origin and so on (White, et al. 1999). Uncollected waste in Nepal can be found scattered inside communities, footpaths and along the streets. Management of solid waste is extremely poor and the treatment of sewage and industrial wastes is practically non-existent. Inadequate disposal of solid wastes poses a risk to public health (Ibid).

According to a survey by Dhakal (n.d) people's eating habits have changed to packaged fast food. Urbanization has changed the consumption pattern of people. Though, most urban residents consider solid waste management as the most important environmental problem in urban areas solid waste management has become a major challenge to the urban centers of Nepal. Insufficient solid waste disposal is one of the most serious problems of the cities of Kathmandu.

Though waste is a general issue in Nepal these days, waste in Nepal is more an urban problem than the rural one because the waste generated in the rural areas are more of biodegradable and mostly the waste is used as compost for the farms (Gautam and Herat, 2000). According to the Local Self-Governance Act, 1999, municipalities are responsible for managing solid waste. But the municipalities do not have the proper and skilled resources to manage the solid waste. Budget is allocated for this purpose but it is not used in the efficient way (Water aid, Ibid). Despite this, Anschütz (1996) put forward the idea that sometimes a municipality plays a highly positive role in stimulating community-based solid waste management. In cases where other groups are involved in the management municipalities can assist community-based solid waste systems in different ways like providing with the facilities (equipment, composting sites, etc.), establishment of legislation, financial assistance, promotion of waste management. However, there are cases where the attitude of the municipality remains till the elections and some policies get discontinued. There are examples where there is mutual distrust between elected officials and informal community leaders in managing the solid waste. Community organizations that have proved their capacity to achieve improvements, are however, often able to convince the

municipality of the need to help them. But this depends also on political circumstances. Community participation has become important in today's context because the circumstances have also developed in the same way for example the inability of the government body to handle the problems and especially in my case solid waste management. Community participation is considered important because it is believed that the involvement of the community in an activity like waste management helps them decide about their life and the issues that affect their daily life. It is also believed that community participation gives efficiency and effectiveness to the work. It helps them decide their priorities.

## 1.2 Research question

Waste management is a complex task which depends on organization and different actors responsible for it like the public and private sectors (Schübeler and Countries, 1996). This paper will focus on the community participation in solid waste management as it is one of the options to tackle with the waste and it reduces the burden to the municipalities. Thus, broadly, the paper will concentrate on the following questions and these are also the objectives of my study:

- How are solid wastes managed through community participation (the overall context of the solid waste management process)?
- How does/has the municipality contributed to solve the problems of solid waste through the community participation?
- How two different strategies of community participation work?
- Has the approaches (community participation) resulted as intended in managing waste in Katmandu?

## 1.3 Limitations

As every research has a limitation my research is not an exception as well. My research did not focus on the management of liquid waste (sewage) and other kinds of waste and only focused on the solid waste. Besides that my research concentrated on only three communities where people themselves were involved in managing their waste through different organizations or projects. The ethnic diversity and social diversity is big and this study cannot be generalized to the entire society.

Kathmandu area is a big city. According to the municipality staff community participation in Kathmandu had started in 1998 in Balaju. Balaju also comes within the Kathmandu metropolitan area. But I could not go to that place because of time constraint. It would have been better if I could have managed to go there and compare the management of solid waste now and then conducted by the Kathmandu Municipality.

Gender too matters in solid waste management. Men and women may have different roles to play in collecting, reusing, recycling and disposing the waste. Especially in our country as I have seen and experienced myself most of the women have the domain in household works and many are generally confined to the household. Women are charge of the responsibility of taking care of the home and the health of the family members that can be taken as waste managers (Bernstein, 2004). So, women may have a different role to play in waste management. But my paper does not focus on the gender issues and solid waste management. Gender issues can give many insights to community participation in waste management.

There are different stakeholders involved in solid waste management, National level (different ministries- Environment, Public Health, Local Government), trade associations Local level, user groups, workers, NGOs, CBOs (Ibid). I did not approach the concerned national level stakeholders and also the local politicians for the paper.

## 1.4 Summing up

This part of my research deals with the basic information about solid waste management and the problem of waste management in Nepal and why the research is going to be conducted. This chapter states my research questions and its limitations as well.

## 1.5 Structure of the thesis

**Chapter 1**- The intention of this first chapter, is to give a general introduction to my research topic, why the research is being conducted, the research problems, the objects of the study and the limitations of my study.

**Chapter 2**- deals with literature reviews. The literatures are concerned with the history of waste management in Nepal, community participation in solid waste management as a whole, community participation in waste management in Nepal etc.

**Chapter 3**- Gives an introduction to the methodological part of my research. This includes the research strategies I used during my filed work my data collection methods and techniques I used to obtain the information. This chapter also gives some information about my experiences in the process of data collection in the field.

**Chapter 4**- The fourth chapter of my study includes the geographical setting, introduction to the study areas and introduction to different concerned organizations which are involved in solid waste management and are part of my study areas and my topic. It also gives the laws and policy concerning the environment in Nepal.

**Chapter 5**- The fifth chapter of my study includes the data and information that I received through my fieldwork.

**Chapter 6-** The sixth chapter of my study includes the discussion of the findings from my study.

**Chapter 7**- I have three study areas. All the three communities are participating in the waste management through some projects or with the help of NGOs. So, I felt there can be some comparisons between them. Thus, this chapter deals with the comparisons between solid waste management in three settlements.

**Chapter 8**- This is the last chapter of my thesis. This chapter includes the summary, conclusion and my thesis.

## CHAPTER TWO

## THEORITICAL REVIEW

This chapter includes the literatures concerned with solid waste management, community participation in waste management, history of waste management in Nepal and others important aspects of community participation for my thesis.

### 2.1 Waste Management

University of West of England states that 'waste management is broader than just the disposal of waste. It includes the generation, collection, processing, transport, minimization of the production, the reconceptualizing of waste as an economic resource, mobilizing the communities in the process, and protection of human health and environment (Nyachhyon, 2006).

Solid waste management practices in developed countries progressed from 'no-system' to an increasingly centralized 'municipal system'. The classical approach to solid waste management, considers solid waste management as an 'urban planning' problem or a public health issue. According to this approach, the municipal authorities are the main actors in the field (Baud et al. 2001 cited in Ahmed and Ali 2004). The same model was followed by the developing countries and it is deemed that the responsibility for managing solid waste primarily rests with the municipal authorities. However, a number of private sector operators with varying capacity are adding valuable contributions to the SWM sector. The question then arises whether a synergy in the form of partnership between the two sectors may be achieved or not to deliver better SWM services? (Ahmed and Ali, 2004).

Basically the residential households prefer to get the waste services that are effective and dependable. They are not much concerned with the dumping the waste as their environment is not much affected by the distant dump sites.

In low income residential area people normally give priority other basic services like food, water supply, electricity and others but waste management does not come under the priority. It is because they can dump their waste nearby in the open areas or the rivers (Schubeler and countries, 1996).

Other writers too put light on this issue. Most of the solid waste management works come under the public services, for example sweeping of the parks, streets and public goods are those which benefit the public as a whole and not the individual. Thus, the responsibility (cost recovery) of waste management is also taken by the government. In developing countries the local government/authority may not have sufficient or may lack necessary budgets for the solid waste management in that case the people are charged with some amount. World Bank's World Development Report 1991 states that "private sector participation is not to be undertaken as end in itself but as a means to an end: to use resources more usefully" (Cointreau-Levine and Program 1994).

There are calls in both academic and donor level aiming for the policy to integrate the informal actors (people who are involved in the SWM indirectly like the rag pickers) in solid waste management. This is based on the idea that there cannot be an efficient management in SWM only with the municipality's involvement and that it is needed to have private informal, formal participants and the community based organizations as well. However, there are cases where the informal workers in SWM are viewed with a negative attitude. They are ignored on the basis of caste/ethnicity. The work in scavenging is treated as low work and the workers suffer a lot, some are even murdered. Government has a low priority of these works and sometimes there are collusion in SWM i.e., the political parties use the scavengers as muscleman in elections. The informal works in SWM in Addis Ababa and their contribution to recycle and reuse of materials are either ignored or unrecognized. On the other hand, even the workers kept distance with the government officials and worked secretly so that no one knew about their work and they did not have to face the legal matters and the heavy tax as well (Baudouin and Zelalem, 2010).

## 2.2 Community participation in Solid Waste Management

Waste (1996) defines community and community participation as – "A community consists of people living together in some form of social organization and cohesion. Its member share in varying degrees of political, economic, social and cultural characteristic as well as interest. Community Participation - is the process by which individuals and families assume responsibility for their own health and welfare and for those of community and develop the capacity to contribute to theirs and the community development. They come to know their own

8

situation better and are motivated to solve their common problems. This enables them to become agents of their own development instead of positive beneficiaries of development aid."

According to Anschutz (1996) community participation is taken as a crucial aspect of solid waste management.  Community participation in solid waste management is always required because solid waste management is a continuous maintenance system, for example to store the garbage in a specific bag or bin, to bring it to an agreed point, to separate it in dry and wet waste etc. community participation maybe even more important than in any other urban service. Only recently the management of solid waste services by communities themselves has received attention. But real community management means that community members, or their representatives, decide on what to do and how do it. Community-based solid waste management projects are activities carried out by members of the community. However, these communities are concerned with the collection and transport of solid waste from the neighborhood to a dumping site outside it. Secondary collection, i.e. transport of the waste to the final disposal site and operation of this site, is usually carried out by the municipality. Bulle (1999) in his study states that all municipalities in the South find themselves confronted with management and organizational problems in the fields of sanitation and waste management:

- Inability to comply with growing demands concerning waste dumps and waste collection,

- Technocratic aspects in decision-making systems,

- Lack of equipment, financial resources, municipal policies or legal frameworks

Craig and Mayo (1995) argue that community participation and empowerment are the widely advocated topic both in North and South when there is poverty, polarization and social exclusion. World Bank sees community participation as a means for ensuring that third world development projects reach the poorest in the most efficient and cost effective way sharing costs as well as the benefits through the promotion of self- help (Paul 1987, cited in Craig and Mayo, 1995). Brundtland Commission also concludes that participation has an important role to play in sustainable development. Empowering the poor through participation has almost become a slogan (Thomas 1992, cited in Craig and Mayo, 1995). NGOs (Non-governmental Organizations) are historically identified with community participation and empowerment. It is believed that NGOs are committed to support the communities and empower them towards

development. The community as a whole can exercise power through participation and empowerment but without any negative effects upon the powerful. They can help themselves in the development and gain tools for self reliance (Thomas 1992, cited in Craig and Mayo, 1995). But if power is conceptualized in zero terms empowerment has a negative impact. Increase in power of a certain group may lead to the decrease in power of the other group. Empowerment may have different meaning depending upon different ideologies. But long term empowerment through participation has to be dealt within the framework of economic, social and political perspectives.

But Cooke and Kothari (2001) raise the point that participation has become an issue which has harmed those who were supposed to be empowered. They present participation as 'tyranny'. Tyranny is the unjust exercise of power. The participatory approach developed out of the short comings of the top down approach. The aim of this approach was to make people central to development and encouraging the socially and economically backward marginalized people in decision making over their own lives. The participatory approaches to development are justified in terms of sustainability, relevance and empowerment. Cornwall states that a community consists of both men and women. They hold different power relations in the society. She is curious about what it means to be a man or woman in a given context in a community (Cornwall 1998 cited in Cooke and Kothari 2001). Participatory approach fails to recognize the changing and the multiple identities of individuals, impact upon their choices about how to participate and overlook the potentials links between inclusion in participatory processes and subordination. Unless participatory processes take into account the relative bargaining power of so called stake holders they are in danger of merely providing opportunities to the more powerful (Ibid).

### 2.3 Non-governmental Organization

The term, "non-governmental organization" or NGO, came into currency in 1945 because of the need for the UN to differentiate in its Charter between participation rights for intergovernmental specialized agencies and those for international private organizations. NGO does not have a specific meaning. It may have various definitions and meanings depending upon the context and the circumstances. But there are basically three characteristics of an NGO. NGO must be independent from the direct control of any government. An NGO will not be constituted as a political party; it will be non-profit making and it will be not be a criminal group, in particular it

will be non-violent. NGOs may have global hierarchy and with a central authority or may be based in a single country (Willetts, 2002). NGOs have helped in decreasing role of the state actors promoting the private sectors or the civil societies. It has also helped in promoting the common interest in international arenas.

### 2.3.1 NGO and Waste Management

According to (Schübeler and Countries, 1996) Non-governmental organizations (NGOs) operate between the private and governmental realms. NGOs may provide important support to informal sector waste workers and enterprises, assisting them to organize themselves, to improve their working conditions and facilities, increase their earnings and extend their access to essential social services such as health care and schooling for children. NGOs may help to increase the community's capacity to manage waste collection

- People's awareness of waste management problems,
- Organizational capacity and the formation of community-based organizations (CBO),
- Channels of communication between CBO and government authorities,
- CBOs voice in municipal planning and implementation processes,
- Technical know-how of locally active CBO, and
- Access to credit facilities.

According to Klundert and Lardinois (1995) NGO have worked in waste management but these organizations have promoted either environmental health (e.g. the need for clean cities), social goals (such as the involvement of street children or working conditions of women and children in particular, generally considered as the most vulnerable group), or a combination of these two. He gives some examples one of NGOs involvement in solid waste management [see Klundert and Lardinois (1995)].

Advanced Locality Management in India serves as a good example of NGOs and community based organizations working together. According to Rathi (2006) 'Community participation in waste management has been initiated in Mumbai India. Community participation in waste management has been initiated in Mumbai as a result of a good urban governance campaign, which started as a joint project between the Government of India and Municipal Corporation of Greater Mumbai (MCGM), in collaboration with United Nations Center for Human

Settlements. This model of is called 'Advanced Locality Management (ALM)'. ALM is a community based approach for effective management of civic services at the grass root level. The concept of ALM was introduced in 1997 and was implemented in 1998. Main target of this goal is to segregate the waste- compost it and sell the inorganic waste. The ALM model works as follows: The locality participating under this scheme forms a committee, which is responsible for planning, implementing and inspecting various aspects of locality development. It also coordinates between MCGM and local residents for smooth functioning of civic services. MCGM carries out various educational programs to create awareness among citizens. Moreover, MCGM gives priority in solving the civic problems of the communities involved in waste management programs. MCGM appoints an officer at the ward level to look into citizens' complaints and to coordinate with the local committee. All residents who fall under the ALM scheme have to segregate their waste into wet and dry fractions, corresponding to biodegradable and recyclable materials. Rag pickers organized and trained by NGOs, collect these wastes and process the biodegradable waste and sell the recyclable material. MCGM helps to establish composting pits in these areas and also gives priority attention to such areas for other civic services. In this scheme, NGOs also play a very important role by organizing the rag pickers and giving them necessary training for collecting and composting waste. There are 360 ALM groups and 283 composting centers are working under this scheme. The responsibilities of managing waste are also divided to the concerned groups. A figure has been presented below which shows how ALM model works.



Figure 3.1 ALM (community participation in waste management)
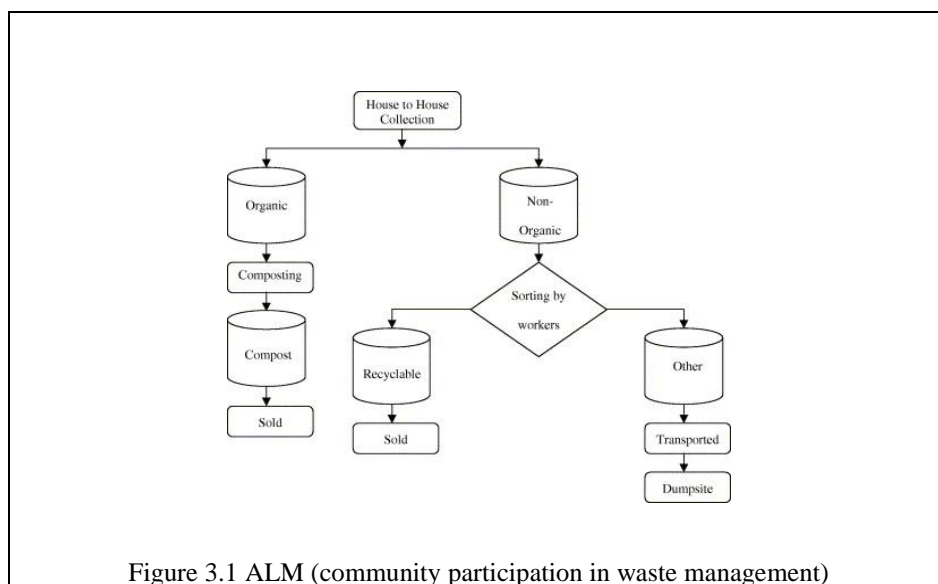
**2.4 Public-Private Partnership**

Public-Private Partnership (PPP) is one of the popular schemes which involve both public and private institutions for the development. According to United Nations Public-Private Partnership for Urban Environment (UNPPPUE), Public Private Partnership (PPP) refers to tripartite form of contractual agreement between the public sector (government and municipality) and the private sector (formal and informal enterprises) for provision of basic services based on a combination of commercial viability, sustainability, environmental awareness, social responsibility, public accountability (fairness, competitiveness and transparency) with effective involvement of the civil societies (communities, NGO, research groups) as beneficiary target groups (Nyachhyon, 2006) (Ibid).

According to Ahmed and Ali (Ibid) Public–private partnerships are considered as alternatives to full privatization' in which government and private companies assume co-responsibility and co-ownership for the delivery of city services. Through these partnerships, the advantages of the private sector—dynamism, access to finance, knowledge of technologies, managerial efficiency, and entrepreneurial spirit—are combined with the social responsibility, environmental awareness, local knowledge and job generation concerns of the public sector. Under mutually favorable circumstances it is advantageous to have both the public and the private sectors playing active roles, thus capitalizing on the strengths of each sector.

PPPs could offer the best of both sectors. Though the concept of PPP sounds easy going it is not the case in reality. Environment for the public and private sectors to work together is a pre requisite for the PPP to foster the trust and working relationship. PPP is more than the public sector merely offering co-operation to the private sector to facilitate the profitability of local firms. It is far more than occasional meetings between the city council and local business organizations. Partnerships are shared commitments to pursue common goals (Kolzow,1994 cited in Ahmed and Ali, 2004). Some enabling conditions that are required to form successful PPPs are:

- "A positive culture that encourages leadership and citizen participation, and that is related to the long-term development concerns of the community.

- A realistic commonly accepted vision among the public sector, private sector and the community members that is based on the area's strengths and weaknesses as well as on a common understanding of the potential for the area.

- A participatory ethos in concerned organizations that can blend the self-interest of members with the broader interest of the community" (Ibid).

## 2.5 History of Waste Management in Nepal

The waste which has become a problem for now was a source of income generation. 40 years ago a tin (tin in Nepal is usually referred to a metal box in which oil was filled initially. When the oil was used the tin was used for other purposes) of waste could be sold for 40 paisa (smallest unit of Nepalese currency) but now one family has to spend about 40 rupees to manage the waste (Nefej, n.d). Waste management was not a problem in Nepal initially. The cities or the houses built in Kathmandu usually had a common courtyard. These court yards were normally used for social gathering or for defending settlements from forays. These courtyards were later changed into the common dumping site for the waste as the population increased. Wastes from these courtyards were collected between time intervals and this was the responsibility of all the surrounding households. But nobody concerned about the public cleaning (Thapa, 1998). People managed to have some piece of land where the people themselves used the waste as compost. With time, population and the eating habits of the people also changed and with this also increased the waste. Chandra Shamsher the then Rana Prime minister realizing the problem of waste started 'Safai Adda' (sanitary office) to manage the waste. Kuchikars (cleaners and considered as low caste people) were given the responsibility to collect and dispose the waste. According to another source, in older days people used to have 'saaga' and 'nauga'. Saga is a common pit used for collecting the waste by the whole community and nauga is the pit dug underneath the stairs in the ground floor. Waste from kitchen, urine and sometimes even night waste were collected here. The waste collected in both Saaga and Nauga were turned to compost and thus used in the yards or sold to farmers. Safai Adda was renamed as Municipality office in 1931. But the changes in the name did not change the work of the people (Thapa, 1998; Tuladhar 1996; Sthapit 2007 cited in Dangi, 2009a).

Nepali has a caste based society and waste management in Nepal is considered as a caste specific work so, here I find it important to discuss something about caste and ethnicity in Nepal. India has a caste system. Caste system in Nepal is also dominant and it is believed that caste system in Nepal is a part of the caste system that originated in Indian sub continent long years back. King Jayasthi Malla in the 14th century in the process of restructuring the Newars is credited or blamed to begin the cast system in Nepal. Prime Minister Junga Bahadur Rana, the founder of 104-year long autocratic Rana rule, promulgated the Muluki Ain ("National Code") of Nepal in 1854. It divided all the Nepalese people in fourfold caste hierarchy: (1) *Tagaddhari* ("Sacred thread wearing" or "Twice-born"), (2) *Matawali* (Liquor drinking), (3) *Pani nachalne choi chhito halnu naparne* ("Water unacceptable but no purification required, if touched" or "Touchable Low Castes"), and (4) *Pani nachlne choi chito halnu parne* ("Water unacceptable and purification required, if touched" or "Untouchable Low Castes"). Though there have been different movements and abolishment made in National codes, against caste system it is still in practice (Bhattachan et al. 2009). According to Dangi too (2009b) Nepal has institutionalized the caste system since Nepal was unified. People are divided into different caste and the work is allotted in the same way. Since Safai Adda was established case of solid waste management or cleaning comes under Kuchikars (cleaners). They are considered as the low caste people under the Newar community. This is the same case today too. Hachhethu, (2003) writes that Nepal is a pluralistic state in terms of caste and ethnic, linguistic and religious composition. After the restoration of democracy it has helped to raise the voice of the different groups of people which was considered silent before. There has been different conflict regarding the caste and ethnic relations. Bahun and Chhetris are considered as the dominant group because of the position in power and structure of the country. Other groups are considered as minor[1] groups in Nepal.

After the agitation in April 2006, Nepal is trying to regain the political stability but the nation is surged to ethnic conflict. The marginalized people are making demands. In Nepal's diverse population there are officially 59 groups of indigenous people, others include Madhesi (residing in the lowland of terai), High caste Hindus from the hill, low caste Hindus (Dalits-untouchable caste), and indigenous nationalities (adibasi-janajaati) (Hangen, 2001).

---

[1] The groups in Nepal which have been historically discriminated.

The establishment of the office and the cleaning works handed to a certain group of people led the people to think that waste was not their problem and they did not have the responsibility to manage it anymore. Making a certain group work as cleaners changed the habit of the people and it also broke the trend of people managing their waste themselves (Pokhrel and Viraraghavan, 2005).

Prior to 1970, the solid waste in municipal areas was locally managed. Almost all the waste was of organic nature. Only little of the waste was disposed and almost everything were reused, recycled or assimilated into the soil. The organic waste easily biodegradable was either used as animal feed or widely recycled into the compost manure. Every household had a pit to dump the waste which is not continued in the modern time (Nyachhyon, 2006). Thus, we can assume that there are two basic reasons for the growing quantity of solid waste generation in the municipalities in Nepal-

- The concentration of opportunities and facilities in the urban areas and not in the rural ones.
- With urbanization the life style, consumption pattern too has changed. With the improvement in technology people are more used to with the latest fashion, packaged fast foods, electronic equipments etc.

The present waste management system in Nepal was developed more than two decades ago in Kathmandu Valley. Implementation of organized solid waste management started in 1980 with the establishment of Solid Waste Management Resource Recovery Mobilization Centre (SWMRMC) (Waste, 1996). The Solid Waste Management and Resource Mobilization Act, 1987 (BS 2044) transformed the Solid Waste Management Board into the Solid Waste Management and Resource Mobilization Center (www.mld.gov.np). It was funded by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) for the three municipalities in Kathmandu Valley. Compost production and resource recovery was established at Teku in 1985, sanitary land fill site for the final waste developed in 1986 at Gokarna, northern part of Kathmandu city. After that, Shova Bhagavati along the Bishnumati River was established as temporary dumping site for one and a half year which ended in 1995. A report by Nefej (Nepal Forum of Environmental Journalists) on Bagmati, one of the holy rivers in Nepal mention some of the bitter facts of the municipality. A decade ago the high court (2058/09/02) (2001 December 17) of

Nepal ordered not to throw the waste along the side of Bagmati, however this order has been ignored by the local offices. Teku Dovan is the example of the order not being followed. 90 % waste is collected by the municipality and is disposed somewhere. The smell and the waste carried by the birds create problems. In Gokarna dumping site methane gas was collected in the area where waste was disposed and later it was burnt. People used that gas for cooking for many days. People near the landfill sites oppose the disposal because the birds carry the waste to their homes and also because of the bad odor that comes from the waste. This problem will not be solved until and unless people of Kathmandu try to manage it themselves. Waste has also become a problem because there is a political vacuum as there is no elected local government now. Before the mayor could be blamed for all those things but this is not the situation now. 70 % of waste in Kathmandu comes from the households, thus, it has to be managed from the household itself. Most of the household waste is easily decomposed. Likewise, 20% of the waste can be reused. Municipality has not followed the rules and orders. That is the reason why municipality cannot impose the right to people in Kathmandu to manage or not to throw the waste in the streets.

In 2005 Sisdol in Okharpauwa has been established as the land fill site. It has the capacity of 275000 cubic meter of waste disposal. But it is full now. Here too, there have been frequent problems in the disposal of the waste between people residing there and the government. The municipality staff said that people have unnecessary demands. He also gave an example that if the animals die in their homes they start to politicize the actions and demand compensation for the lost livestock. In his mind, these demands cannot be fulfilled.

**Pictue 2.1: Teku Transfer Station and Sisdol Landfill site**

Source: Own source

Solid waste management in Kathmandu serves as an example of failure in developing countries to effectively manage environmental hazards (Dangib, 2009). Poor solid waste management leads to the deterioration of ground and surface water quality, as well as air and land pollution which is the negative impact to the environment. The impact depends on the waste composition and disposal practices (Pokhrel and Viraraghavan, 2005).

In Nepal, the waste collection system is not well managed. Little of the waste is collected and most of them are dumped along the road side or along the river beds at any time and at any place. The waste is handled by many before it is placed in the vehicle. According to Sherpa (n.d) multiple handling of the waste makes solid waste management inefficient. Common practices for managing the solid waste in Nepal are-

- Door-to-door collection
- Source segregation at the household level
- Composting at the household level (Reduce/reuse)
- Initiating User's fee system-ownership/rights
- Involvement of NGOs and private sectors
- Waste collection and transport to landfill sites not regular
- Vermi-composting

- Garbage of waste remain in the public place for long-time
- Dumping of household waste on the banks of river


## 2.6 Community participation in solid waste management in Nepal

Joseph (2006) finds municipality as one of the important stakeholders in waste management and has defined its role-

- Keep waste management in priority

- provides infrastructural inputs and services

- Have a definite organizational setup

- Implement legislation and punish violators

- Compliment public/private partnership

- Enlist informal sector participation maintain an up to date database

As has been published in the brochure with a motive to improve the degrading environmental condition of Kathmandu, Kathmandu Metropolis has established the Community Mobilization Unit under the Environment Department. Main focus of this unit is to encourage the people to contribute in the better environment of Kathmandu. It has the following aims:

- Encourage the students and the local community to participate in different environmental activities.
- Encourage people to reuse the things to minimize the waste.
- To form groups in the schools to perform different environmental works
- To make the people aware about the different local, national and international environmental problems.
- To provide the necessary information, trainings and technological help to the community that has been actively involved in protecting the environment.

One of the good examples of community participation in waste management is presented by people in Dang. Dang Ghorahi one of the western parts of Nepal gives good example of

making money out of waste. People of Ghorahi have been able to run a model sanitary landfill site at Karauti Danda from their own resources and turned it into a source of income through bee-keeping, producing compost and selling reusable items (Udaya, 2010).


**2.7 NGOs in Nepal**

The number of NGOs has increased in size, scope and number in the last few decades. With the increment it has also become important in the social, political and economical ground. According to the Year Book of International Associations, the total number of internationally recognized NGOs is well over 16,000. The Human Development Report, 1994 estimates about 50,000 local NGOs operating in the South (Fernando and Heston, 1997).

Dhakal (2006a cited in Dhakal, 2007) explains that establishment of NGOs in Nepal was not easy before 1950. People had to ask permission from the prime minister. But when the democracy was announced in 1951 there were favorable conditions to establish NGOs. However, the restoration of Panchayat[2] system (a party-less political system) again created problem in establishing NGOs. It was basically because the ruler was afraid that the people would be aware of things and situations and go for agitations. Thus, the establishments of these entities were very slow during 1961 to 1990s (Dhakal, 2007). The number of registered NGOs in Nepal has reached from 220 in 1990 to somewhere between 10,000 and 15,000 today (Montgomery, 2002). Nepal is ranked among the poorest countries so roles of NGOs are considered as important and compulsory for the grass root level development. The government of Nepal too has maintained favorable conditions for the NGO sector so the numbers of NGOs in Nepal have increased. Most of NGOs in Nepal are foreign aided while some have been established and supported by the local

---

[2] Panchayat is the political system of Nepal in effect from 1962 until 1990. It was based on the Panchayat system of self-governance historically prevalent in South Asia. It was formulated by King Mahendra after overthrowing the democratically elected government and dissolving the parliament in 1960. The Panchayat system was first institutionalized by the 1962 Constitution of Nepal. The political system was a party-less "guided" democracy in which the people could elect their representatives, while real power remained in the hands of the monarch.

community. NGOs have contributed a lot in the development of the socioeconomic structure of the country (www.visit nepal.com).

## 2.8 Summing up

Waste management in Nepal has a long history. The main part of this chapter I find is how waste management shifted from the responsibility from the community to an office later called as municipality. This chapter reflects some parts of the research about why the research is being carried out. It includes other literatures related to community participation and NGOs which play an important role in managing waste. Methodology follows this chapter in which I explain about the techniques I use thorough out my study.

# CHAPTER THREE

# METHODOLOGY

At general level method means Epistemology, the study of how we know things, it's about strategic choices i.e., how to get information and at the specific level method is about technique (the sample size, whether to use face to face interview or others and etc.) (De Vaus, 2002). In this chapter I will present the methods that I decided to use. I will also describe the research process, with the problems and difficulties and my experience that I encountered during fieldwork, the ethical issues and the reliability and validity of my research as well.

## 3.1 Qualitative/Quantitative approach

'*Whether we use words or numbers we might as well use them right*' (Ibid). Both the quantitative and qualitative approaches have strengths and weaknesses but there always have been debates on the basis that which one is better (www.experiment-resources.com). Golafshani (2002) state that quantitative study helps the researcher to be familiar with the problems and generate a hypothesis and test it. Quantification in research has a long trend. Phenomena were calculated and measured, yet it can be observed that there are so many things that cannot be counted or measured for instance feelings, attitudes or more. Qualitative research is a particular tradition in social science that fundamentally depends on watching people in their own territory and interacting with them in their own language on their own terms (Kirk and Miller, 1986). Qualitative research means different things to different people. In qualitative research one feels free to use the ideas and analyze unlike the quantitative technique where we use pure statistics (Tesch, 1990). My research attempts to use both the methods. My research does not use complex quantitative techniques to analyze the information. But as I used household surveys as the research technique there are certain information that I can use in quantitative form using the tables.

Similarly, I have also used interview as the other research strategy for my research. The information derived through interviews cannot be analyzed statistically. So, the information derived from interviews is analyzed in words. So, my research uses both qualitative and quantitative approach.

## 3.2 Source of data

The source of data or information is either primary or the secondary source. My research has used both the sources of data as available and as relevant.

- 'Primary sources are those items that are original to the problem under study' and the effectiveness of these data depends on how appropriate the researcher designs his/her research questions and how he or she interacts with them' (Mugagga, 2006). The primary data for my research have been collected in three communities in Kathmandu who are involved in solid waste management through different projects. The research tools like the observation, house hold survey, interviews have been used to obtain the information.

- Secondary data consists of information that has already been collected for another purpose but which is available for other's to use. Secondary source of data is an important source of data when there is limitation of resource, time money and which limits data collection for extensive areas. Secondary source of data can be used in comparison and they can provide the basis for analyses as well (Clifford and Valentine, 2010). Here, the secondary information will be collected through library sources, articles, magazines, published and unpublished research reports, databases, internet etc.

## 3.3 Household (HH) survey

Use of questionnaire in research is one of the oldest forms of research. Simon (2006:164) defines questionnaire as 'questionnaire is a device or tool for collecting information to describe, compare, understand and/or explain knowledge, attitudes, behavior and/or socio-demographic characteristics of a particular population (target group)'. A questionnaire survey represents an important and flexible tool in diverse development context. However, care is very necessary to avoid some pitfalls caused due to language, norms, education while conducting research through questionnaire surveys. .

I have three study areas and I tried to conduct HH questionnaire. To know the different aspects of community participation the household questionnaire was used. The questionnaire included

semi structured questions. The questionnaire was used in all the settlements under the projects mentioned below. The questionnaire was used to know the different aspects of their family background and their relation to waste management. The questionnaire is presented in Appendix I.

- Buddhajyoti

- Chamati

- Chakrapath (Milijuli, Ganesh and Jagriti Basti)

## 3.4 Interviews

Interview is a verbal interchange where, one person, the interviewer, attempts to elicit information from another person by asking questions.' In qualitative research interview relies on rapport building and dissuading the issues in details. The interviewer develops an interview guide for the purpose but they do not use it much as every individual is unique and their conclusion as well. However, the quality of the data collected depends both in the interviewer and the interviewee. Sometimes the interviewee may act poorly and sometimes the interviewer. In both the cases the conclusion is affected (Kathleen and Lapan, 2003, and Mathers, Nick and Amanda, 1998 cited in Mugagga, 2006).

In research interview is the one where two people talk or converse about the mutual and common in interest. According to Kvale (1996) the researcher either takes the role of a miner (digging metal from the earth) or the traveler who wanders and collects the information and opens it as a story later. Conversation is the basis of all interviews. Conversation may have different forms ranging from a small talk to a research interview. Research interview is a professional interview. However, obtaining information through conversation in social science is hardly counted as method till date. Sociologist and anthropologist have long been using interview to obtain the necessary information. A qualitative interview in recent decades is the new phenomena in research. Developing the interview as the research method involves a challenge to renew, broaden and enrich the conceptions of knowledge and research in social science. In my field work I had the opportunity to talk with people who were involved in solid waste management and somehow concerned in making the people participate in the solid waste management. This

includes both formal and informal conversations.  I consider them as my key informants. The ist of my key informants are as follows:

- EDEN Acting Project Manager

- Staff from municipality (community mobilization unit, environment department).

- A staff from EDEN in Chamati

- A staff from EDEN in Buddhjyoti

- Staff from Newa Khala

- Staff   from Nepal Pollution Control and Environment Management Centre (NEPCEMAC)

- A staff from Community recycling centre (CRC)

## 3.5 Sample size detemination

Sampling is the process of selecting units (e.g., people, organizations) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen' (www.socialresearchmethods.net). Sampling in qualitative research is not rigidly defined as in quantitative research (Coyne, 1997). According to Gobo (2004) sampling in qualitative methods is neglected by the qualitative researchers and the survey researchers put it as the positivistic worry and the way it uses the non-probability methods. Trying to prove him wrong I have tried to take samples but as my research is more qualitative samples has been taken from non probability method. The samples used in my resesrch are of purposive sample. According to Patton (1990), the 'logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling' (p. 169: cited in Coyne, 1997). Schatzman & Strauss (1973) state that after visits to sites and locations the researcher starts to think about the sample and how to take them. Categories such as age, gender, status, role or function in organization, stated philosophy or ideology may serve as starting points to decide the sample size (cited in Coyne, 1997).

There are 75 households in the Buddhajyoti settlement, about 300 in Chamati area and about 500 households in the Chakrapath area that are involved in the management of the solid waste. I planned to take 10-15% of the total population so that the validity of the paper would increase. While conducting the household surveys in Buddhajyoti the respondents have similar answers to most of the questions. I faced similar kind of problems in Chamati area too. In Chakrapath area I tried to meet the target. Besides that, as has been mentioned in chapter two (more in chapter five) waste management or the work of cleaning in Nepal is conducted by a certain caste group. I wanted to know if any specific caste groups in the community had special influence in waste management or not.

## 3.6 Reliability and validity

Reliability and validity are important in evaluating data in research process. The concepts however, were normally used only in quantitative research under positivist epistemology. Creswell (2007) argues that in qualitative research, 'reliability often refers to the stability of responses to multiple coders of data sets'. Kirk and Miller (1986:21) define validity as, validity is the question of ―whether the researcher sees what he/she thinks he/she sees whereas, and reliability is concerned about the replicability of the research. Reliability refers to whether or not you get the same answer by using an instrument to measure something more than once. Reliability is a necessary but insufficient condition for validity. Kvale and Brinkmann (2008) explain about three different criteria of validity in qualitative research: validity as craftsmanship, communicative validity and pragmatic validity. These three types of validity explain how researcher shows whether research work is valid or not. Validity however, is never proven absolutely but it is a goal towards which we strive (De Vaus, 2002).

However, in the analysis I have used direct quotations from the interviews, to let the reader know what I base my analysis on. Although the reliability can, to some extent, always be questioned in qualitative research I have tried to increase my reliability through the quotations.

**Validity**

The respondents knew that I was there for my study purpose and it did not benefit them in anyway. So the information they have provided to me may not be so true or depending in their mood they might have given me different information. In the case of interviews as well the staff

26

of different organizations may have taken me for granted and may not have given me the right information. But I am not sure if they did or did not do that.

## 3.7 Ethical issues

Each decision made in research involves a potential compromise of one value for another. Researchers must be very aware of what they do to minimize the risk in receiving the information from people concerned. Research ethics are codes or guidelines that help reconcile value conflicts. It considers the potential risk for the participants.

There are three areas of risks in social research. First, participants may be harmed as a result of their involvement. The potential harms include death or injury, stress, guilt, reduction in self-respect or self-esteem, unfair treatment, withheld benefits, and minor discomfort. Second, professional relationships and the knowledge base may be damaged. These risks include falsification of data, plagiarism, abuse of confidentiality, and deliberate violation of regulations. Third, problems for the community or society may result. Societal risks involve the effect of cultural values and beliefs on the knowledge produced and the impact of that knowledge on society (Gillespie, 1995).

I was always aware about the ethical issues. I was aware that I had to make clear about my purpose of the study and the inquiry I was making. As I was doing research in solid waste management my first target was to approach the metropolitan office. I did that but it took me some time as the staff in the concerned department were sometimes on leave and sometimes out of the office for their work. But as soon as I came to their contact I started taking interviews. With their consent I recorded their information.

Recording was done with some respondents wherever possible with their consent but in the case where respondents felt uncomfortable notes were taken. While taking pictures of different activities too I asked for their permission. Most of the respondents knew that my research was not beneficial for them yet they provided me their valuable time.

Some respondents had the experience of their children doing research so they were very encouraging and wishing me luck for my studies. Some respondents also expected me to work in the same field after I complete my studies and not limit my experience to the study only. Some

respondents were comparing me with their daughters. Being a very good listener I listened to what the respondents said about the private and family life, their hardships and their experience as well. I felt happy that they did not mind that I was taking their time. I did not have or face any conflicts during my field study. The respondents and staff were eager to help me and they did not take me as a burden. In fact, I shared the different problems of the respondents to the staff if they could be solved and they were positive about me.

## 3.8 Data collection, my status and my experience

I left Norway in the mid of April 2011. For almost two weeks I did not have the mood to take myself as a role of a researcher because I was with my family after 9 months. Being in Norway was the first time I ever left home. I was being pampered and I was enjoying it.

I was making efforts to approach the municipality office and the community people in Buddhajyoti settlement. I was making my frequent visits to the municipality and Buddhajyoti settlement.

I was involved in the work after May 15. The political situation as expected was not stable when I was in my home country. The additional one year for writing the constitution was about to end but there was no constitution ready. It was a very sensitive time and there were frequent strikes (bandh[3]) in Kathmandu valley. People were trying to pressurize the leaders to have the constitution ready through strikes. Almost day I would hear that there will be bandh the next day. There was always a whim about the bandh.  I was so much in tension about what would happen after Jestha 14 (May 28, 2011-the last day when the constitution had to be announced) when the situation before that was so bad. It was almost impossible for me to walk to my study area as it took about 2 to 3 hours from my home. I made a backup plan that if it would remain the same I would stay in the lodge near new bus park area because the Buddhajyoti settlement was near the new bus park area. But my parents did not agree as it was a risk staying in the lodge or hotels around. Three months were again extended to write the constitution.  It was not good for the country and the people but. I was happy and expecting that there would be no more strikes. The extension took me out of some tensions. I know I was selfish at that time but I had no options.

---

[3] Ban on transport which is enforced through threats of violence against vehicles and drivers, during the bandh or after. In addition, shops and most work places are kept closed.

It is believed that the works are delayed in government offices in Nepal. I felt it was true. Initially when I approached the Kathmandu Municipality office I got to meet the concerned staff only after my third visit. Waiting for the concerned staff there was unavoidable. They were either absent or out of the office. I used to wait for hours there. It made me feel that I was an outsider. I wished if I had known someone in the municipality office.  Later, I was able to meet them. We used to have a very formal meetings and discussions. Kathmandu municipality provides a class for the nursing students about solid waste management. It is a compulsory for them. Luckily, the staff from the community mobilization unit from the municipality provided the class for the students.  After some visits, the staff invited me to attend the classes if I was interested, though he was not sure that it helped me. I attended the class which helped me to reduce the formalities between the staff. Especially my camera and my video camera helped me more in that respect. I was clicking pictures and I recorded the class for that day. After that the staff were taking me a bit more serious than other regular students who visit there for research works. I think I was taken more seriously about my work and I was not passing my time there. He was asking for suggestions to make the class better. He was also sharing the information from his laptop. He was providing me with the articles he had published in the local magazines. After some more visits we were free to talk about the solid waste. But the staff in community mobilization unit were Newars. They used Newari language whenever I was taking notes and not talking to them. I don't understand Newari language. So, it was not a pleasant experience for me to wait for people to stop their conversation and include me in the exchange. There was a newly appointed staff that was having the same problem. When we shared the problem about the language barrier to the senior staff he said they were talking something not concerned to us. I don't know if it was true. Later, Municipality staff were also encouraging me to apply for the government job in the Environment department.

**Picture 3.1: Nursing students taking class on solid waste management in Kathmandu, Environment Department, Kathmandu**

Source: Own source

In Buddhajyoti settlement one of the community members besides her busy schedule (she was a student and also looked after the waste management in the community) helped me a lot to communicate with the community people. With much excitement I was talking to a lady in the settlement. She was sharing her feelings like I was someone very near to her and she knew me very well. But after sometime when her son entered the house he asked what I was doing. I explained my situation to him and why I was there. May be he knew my study was not helping him, his family or the community as a whole  he was very rude to me and said that the problem of waste is always there and asked me to go away from there. I felt very bad and I was a bit disheartened. I wish I was prepared for negative behaviors as well.

In Chamati (ward 15) different organizations are working together. Chamati Newa Khala is one of them. It is a group of Newars working together for the betterment of the area. People from the Newari community are only the members here. A member from Newa Khala and EDEN as well took me to the office of Newa Khala. After some time we entered there they started talking in Newari and they were looking at me and taking and this was repeated. I knew they were talking

about me. I was feeling a bit awkward. But soon they started communicating with me and after sometime it was not a big issue.

It was not much difficult for me to collect information but it was not so easy as well. In Chamati the respondents shared that there had been few students before for the same purpose. The respondents did not have negative attitude but they knew my research was not beneficial for them and it was only a part of my study. They were a bit bored with similar kinds of questions from many people. But they did not show any negative attitude and behaviors to me and were very helpful.

During my field I also experienced that hierarchy matters to explore the information. As instructed by the municipality staff I contacted the staff in NEPCEMAC and I got the appointment. The day when I reached the office I knew that he was not there and asked me to take help from a junior staff. The junior staff was very helpful and willing to help in every situation he could. I had built a very good rapport with the junior staff after few conversations. But later when I visited the office again I happen to meet the senior staff and he asked me to meet him rather than the person he had recommended me before for the information. I didn't understand why it was like that but it may be that he wanted me to have access to limited information or maybe he wanted to be secure that some information would not be leaked out. But luckily I did not have to visit that office and I started visiting the sub branch of NEPCEMAC in Chakrapath/Chappal Karkhana where the staff was very helpful and supportive. It was not a problem to approach there. From the initial days I felt like an insider and the office staff were very cooperative and friendly. May be this was because I went there through the municipality staff. I felt the level of my degree and the country where I was studying made an influence in that. There the staff was curious to know how the waste was managed here in Norway and if I could learn anything about it and apply it in my country.

As my status in the community is concerned I felt like an outsider and insider both. When I approached the households I had limited time to interact with the people where the family heads both were working. They were busy in their household works and preparing to go out for work. I only managed to fill my questionnaire in those households. But the households where people did not go out for work made me feel like their family member and shared their things from their childhood days and their village life as well.

## 3.9 Summing up

This chapter explains about all the experiences I had during my filed study. It states about my method techniques used in the field to derive the information and how I will be presenting them. Next chapter includes the presentation of data and information in forms of tables and text wherever appropriate and their analysis.

# CHAPTER FOUR

# GEOGRPAHICAL SETTING, CONCERNED ORGANIZATIONS AND LAWS

The chapter of my study includes the geographical setting, introduction to the study areas and introduction to different concerned organizations which are involved in solid waste management and are part of my study areas and my topic. It also gives the laws and policy concerning the environment in Nepal.

## 4.1 Geographical setting

The environmentally acceptable management of municipal solid waste has become a global challenge due to limited resources, ever increasing population, rapid urbanization and industrialization worldwide (Pokhrel and Viraraghavan, 2005). Kathmandu is the capital and largest metropolitan city of Nepal. The city is the urban core of the Kathmandu Valley in the Himalayas, which also contains two sister cities namely Patan or Lalitpur, 5 kilometers to its southeast and Bhaktapur, 14 kilometers to its east. It is also acronymed as 'KTM'. The city stands at an elevation of approximately 1,400 meters in the bowl-shaped valley in central Nepal surrounded by four major mountains, namely: Shivapuri, Phulchowki, Nagarjun and Chandragiri. It is inhabited by 671,846 (2001) people. The Kathmandu valley with its three districts including Kathmandu District accounts for a population density of only 97 per square kilometers whereas Kathmandu metropolitan city has a density of 13,225 per square kilometers. It is by far the largest urban agglomerate in Nepal, accounting for 20% of the urban population in an area of 50.67 square kilometers. Kathmandu is not only the capital of the Federal Democratic Republic of Nepal but also the headquarters of the Central Region (Madhyamanchal) among the five development regions constituted by the 14 administrative zones of Nepal located at the central part of the country. The Central region has three zones namely, Bagmati, Narayani and Janakpur. Kathmandu is located in the Bagmati Zone (www.Kathmandu.gov.np).

## 4.2 Introduction to Study area

Kathmandu is named after the structure "Kasthamandap". Kastha meaning 'wood' and Mandap meaning 'covered shelter'. It is centrally located and is the headquarter of central development region. Kathmandu has the most advanced infrastructures and it is considered as the gateway for tourism. However, as mentioned above air pollution and solid waste management in Kathmandu have become prominent problems. Kathmandu is the city which is the most influenced by urbanization and is affected by the waste problem the most. Thus, 'Community participation in solid waste management in Kathmandu' is my research topic. For this I chose different places of Kathmandu as my study areas which are Buddhajyoti in Gangaboo, Chamati in Banasthali and Milijuli, Jagriti and Ganesh Basti in Chakrapath as my study areas. All these places come under the metropolitan area.

Buddhajyoti is a squatter settlement where about 75 households reside. This settlement is near the new bus park area and along the Bishnumati River. The community members in this settlement practiced waste management through a project named Entire Development for Environment and Nature (EDEN). One of the respondents said that they have been living there since B.S 2041 (1984/1985) and they are one of the oldest people to dwell in that settlement.

Milijuli, Ganesh Basti and Jagriti Basti in Chakrapath (Narayan Gopal Chowk) are the residential areas where people of medium to high class live. These areas are in the either side of the ring road. These areas are managing waste under Nepal Pollution control and Environment Management Centre (NEPCEMAC). According to the staff of NEPCEMAC about 500 household in these settlements are involved in waste management. Segregating the household waste has been taken as the focus in this area.

Chamati is a residential area. However, the municipality states that Chamati is a fertile farmland beside the Bishnumati River, being haphazardly developed into residential areas with sporadic buildings and is being brought into a system of planning through the Land Pulling Project (under Town Development Act 2045). Chamati area too is involved in waste management through EDEN. Besides EDEN, there are other organizations equally supporting the community members in managing the waste. According to the EDEN staff about 300 to 350 households are involved in managing the waste through community participation in this area. EDEN has been

working there for two years and when I visited the field it was almost a year after that EDEN had started its work.

All these settlements in my study area are about 4/5 kilometers away from each other. All these settlements are mixed type and not any ethnic group or caste is dominant. All these come within or near to the ring road[4] areas.



**Map: Study Area**

Source: Google, 2012

---
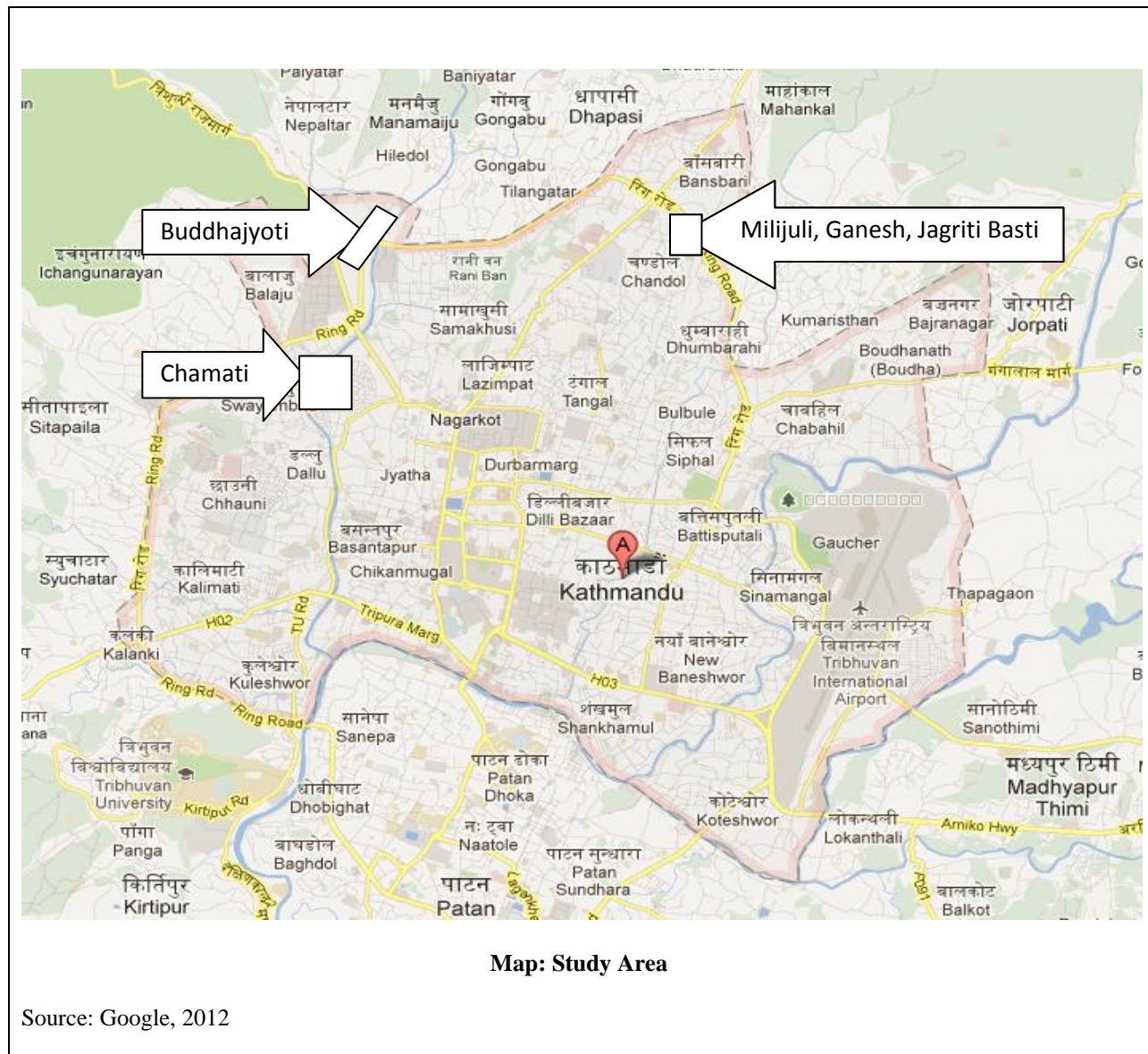
[4] A road that is built around a city or town to reduce the traffic in the centre. Nepal has a ring road with about 34 kms.

**4.3 Introduction to concerned Organization**

**4.3.1 Entire Development for Environment and Nature (EDEN) and Newa Khala:**
Multipurpose Community Development Service Nepal (MCDs) is an authorized local NGO
(Non-government Organization) which works with the underdeveloped communities in the areas
of medical, health care, literacy programs, toilet construction etc. There are various projects
under MCDS. One of them is EDEN (Entire Development for Environment and Nature).
According to the acting project manager of EDEN, MCDS is funded by different organizations.
EDEN is funded by a Baptist church organization from Japan. Though most of the staff in EDEN
are Christians it is not necessary that the community where EDEN works has to be a Christian
Community.

EDEN project was launched in November 2005 as a solid waste management service in
Kathmandu to fight against the waste which was piling like a mountain. The project was started
with the financial help from Okinawa Baptist Convention, Japan. The project started its work
with the Community participation in Buddhajyoti. The project motivates people to participate in
waste management and to reduce and recycle the waste. The project was phased out a year back
and the work was handed over to the community itself (EDEN, brochure). EDEN has started its
work in Chamati (ward 15) and according to the acting project manager they will be working
there for two years.

Community participation in Chamati is assisted by EDEN with World Vision and Newa Khala.
Newa Khala is a local organization where newars [5]are only the members. But it is working for
the community as a whole and does not confine itself to the Newar community for the betterment
of the community. It plays a major role in the community. According to the acting project
manager of EDEN it has become easier for them to convince people with its help. The presence
of Newa Khala has proven to be fruitful. However, the involvement of Newa Khala has also
created some problems in the community. According to one of the staff members of EDEN in
Chamati staff from Newa Khala are attached to the communist party (Unified Marxist-Leninist
(UML). There are many people in the community/same ward (15) who consider themselves as

---

[5] Newars are the indigenous people and are considered as the creators of the historical civilization of Nepal's
Kathmandu Valley

Congress party supporters. So, this makes it difficult to convince them to participate in solid waste management. But it seems that EDEN has not taken them for granted and is trying to convince them. The EDEN continued its work in Chamati after Buddhajyoti settlement. It has been about a year that it has started its work there.

### 4.3.2 Nepal Pollution Control and Environment Management Centre (NEPCEMAC)

NEPCEMAC was registered in 2054/1/16 (28th, April 1997) in Lalitpur District office. The main focus of NEPCEMAC was to minimize or control the environmental pollution caused by solid waste. It has been involved in different works including door to door waste collection, cleaning of public places, tree plantation. It established its branch office in Kathmandu (Swayambhu) in 2058/08/15 (30th, November 2001). It has also established its sub branches. Because of its active involvement in the preservation of environment it was awarded with the first prize (2005 June, 5- World Environment Day) provided by the then Ministry of Science and Technology of Nepal. NEPCEMAC is conducting the different activities like environment conservation, increment in environmental awareness, development of technique/methodology and so on (Ghimire, 2066 [2009/2010]). It has taken an initiation in managing the waste through the community participation with the help of Kathmandu municipality. It has been about one year now since (2010, March/April) it has started the community to participate in waste management.

### 4.3.3 Community Recycling Center (CRC)

Community recycling centre is a small organization which was established in Lagan (Kathmandu) in 2061 B.S (2004 A.D) with a motive to manage the inorganic waste as well. A club named KMC Youth Corner Club in KMC had distributed about 100 black compost bins before 2061 to manage the organic waste. The community people use the waste to make the compost. However, the inorganic waste was still there unmanaged. So, the members of the youth club decided to manage the inorganic waste and started the Community recycling centre in Lagan with the financial help of Kathmandu municipality. CRC collects the inorganic waste from the community (Lagan ward 21). But the staff said that they could also collect the waste from other communities or in individual. But as CRC was not a big organization it did not have the facility to go to different communities and collect the waste. People/community who were interested had to take the waste there. CRC collects the plastic bags, milk pouch, used oil plastic pouch, bottles for different prices and sells it to scrap waste collectors  or to other factories to

reuse it. According to the staff of CRC the community people have also started to reuse the plastic bags to buy the vegetables or collect them and give it back to the vegetable sellers and get the vegetables in discount. CRC also buys the compost from the community members if they wish to sell it. The CRC staff said that she could feel the difference between other manure and the organic compost. She shared that she felt the quality of soil was better when she used the organic compost in her flower pots. She said that the organic compost has a very high demand in the market for organic farming so it is not difficult to sell it.

According to her in the initial days one of the staff from municipality also visited the office and helped in collecting the inorganic waste but after some time it was stopped. Now besides the financial help only CRC members are running the organization.

## 4.4 Policy and laws in solid waste management, Nepal
**Solid Waste Management and Resource Mobilization Act, 1987 and the Town Development Act, 1988**

"The Solid Waste Management and Resource Mobilization (SWRMC) Act introduced in 1987 outlines the duties of SWRMC. The Head office of SWRMC is in Kathmandu. The act came into force in Lalitpur, Bhaktapur and Kathmandu districts and to other areas as prescribed by the then His Majesty's Government by notification in the Nepal Rajapatra (gazette). It authorizes to take action to control haphazard waste disposal and to collect service fees. Likewise, the act has provisions for various punitive measures against those engaged in activities detrimental to the intentions of the Act. To facilitate implementation of the Act, SWMRMC Rules were formulated in 1989 (Rules and Regulations, 1989, and Bye-Laws, 1990 of SWMRMC). These Rules laid down procedures to be followed by individuals and institutions designing sanitation services, solid waste collection and operation of public toilets. Likewise, Clause 9 of Town Development Act 1998 empowers the Town Development Committee to regulate, control or prohibits any act or activity which has an adverse effect on public health or the aesthetics of the town, or in any way pollutes the environment. It contains penalty provisions in the form of fines for the violation of the Act" (www.mld.gov.np). However, these laws do not seem to have implemented because there are frequent blockades of waste disposal in due to various reasons. According to the municipality staff the residents of Sisdol come to strikes even when any of the members in their

village fall sick or even if their domestic animals die. They want the concerned organizations to take the charge of it and have different demands.

According to Dhital (n.d) there were no specific national policies on waste management till 1996.  But there were some issues raised in Ninth (1997/98-2001/02) and Tenth periodic plan. Ninth Plan includes consideration for engagement of NGOs and private sector for the management of solid waste emphasis for composting of municipal wastes, setting of norms and standards in this field and its strict implementation in every municipality capacity building of local municipalities for handling solid waste related issues. Tenth Plan (2002-2007) emphasized upon the Public Private Partnership for Solid Waste Management and implementation of Pollution Pay Principle. However, these policies are silent regarding health aspects of waste management. Earlier policies categorized all the environmental problems and the solid waste as one. Those policies could not take waste management as desired. The adopted policy for the waste management in Nepal has following activities

- To make solid waste management system simple and effective
- To minimize the adverse effect of solid waste on the environmental and public health
- To mobilize the solid waste as a resources
- To promote public awareness for greater public participation on the solid waste management

Other laws, policies and acts related to solid waste are as follows:

The **Environmental Protection Act, 1997 and Environment Protection rule 1997, (First Amendment, 1999)**
"The Environmental Protection Act has the following provisions with regards to the solid
Wastes:
1. Nobody shall create pollution in such a manner as to cause significant  adverse impacts on the environment or likely to be hazardous to public life and people's health, or dispose or cause to be disposed sound, heat radioactive rays and wastes from any mechanical devices, industrial enterprises, or other places contrary to the prescribed standards.

2. If it appears that anyone has carried out any act contrary to sub-section (1) and caused significant adverse impacts on the environment, the concerned agency may prescribed necessary terms in regard there to or may prohibit the carrying out of such an act.

3. If it appears that the use of any types of substance, fuel tools or device has caused or is likely to cause significant adverse impacts on the environment, the Ministry may, by a notification in the Nepal Gazette, forbid the use of such substance, fuel, tools or device.

Schedule 1 and Schedule 2 related with Rule 3 of the Environment Protection Rule, 1997 (first amendment 1999) has mandatory provision to conduct Initial Environmental Examination or Environment Impact Assessment of Solid Waste Management Projects depending on their nature" (www.unep.or.jp).

**National Waste management council**

"In 1996, His majesty's Government of Nepal created the National Waste Management Council (NWMC) under the chairmanship of the Minister for Local Development. This Council works as a technical arm of the Ministry, and is responsible for national policy making.

The National Solid Waste Management Policy adopted in 1996 is a major step forwarded in this endeavor. This policy envisages a two-tier institutional system to execute management activities. This aims to have a separate institution from central to local level and all stakeholders regarding solid waste management should be under its organization. The local solid waste management agency is to act under instructions from the central level agency". The major objectives of this policy includes strengthening the local governmental units, launch awareness campaigns, involve non-governmental organizations in waste management, develop appropriate local technology, manage final disposal sites as per their amount and nature, promote self-help cleansing schemes, mobilize waste as recycling resources, make solid waste management an economically self-sufficient (sustainable) and self-reliant activity, privatize solid waste management activity at different steps, to intervene in solid waste generating activities at source to reduce them; and prioritize public cleansing activities at the local level. (www.mld.gov.np).

National Planning Commission (2010) gives the Interim Plan Working Policy on solid waste

management (2007/08-2010/11) which are as follows:-

- Specific steps will be taken for generating energy through solid waste management
- The use of plastic will be discouraged and plastic bags less than 20 micron will be strictly banned (National Planning Commission, 2010).

## 4.5 Summing up

Thus this chapter explained about the general setting about Kathmandu. Kathmandu is the capital city of Nepal and the study areas of my research are part of Kathmandu municipality. Besides that, this chapter also gives the details about the organizations which are connected with the settlements mentioned above. This chapter also gives a brief detail about the laws concerned with waste management. It is seen that there are several laws and policies for the management of waste. There have been amendment in the laws but it does not seem that the later policies have replaced the former once. But it is also a fact that the laws are not properly implemented when it comes to strikes while managing the waste (discussed a bit in chapter 5). The chapter is followed by the literatures related to waste management and other concerned issues as well.

## CHAPTER FIVE

## COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT: SOME FACTS

This chapter will present the information I received during my field work. I have tried to put the necessary information into tables and in words wherever practical and appropriate.

### 5.1 Caste/ethnic group

#### Table 5.1: Caste and ethnicity of the respondents

| Caste/ethnic group | Total number |
|---|---|
| Brahman/Chhetri | 31 |
| Ethnic groups | 41 |
| Others | 10 |
| **Total** | 82 |

Source: Field visit May-June, 2011

The above table shows that the respondent I confronted with is more from ethnic groups. According to the categorization the ethnic groups are mostly the Matwalis (Gurung, Rai, Thapa Magar, Tamang etc) and Brahman and Chhetri in the group of Tagaddhari (explained in chapter two). In the above table others include the castes which I did not know in which category they come (Bagh, Giri etc). I did not have any such criteria to choose the respondent so far but I wanted to know if the specified caste (Kuchikars were the members in the community and if there were if they had any special influence or behaviors in managing waste) though I did not find any. NEPCEMAC employed some staff in cleaning the roads in these settlements that were from the specified caste.

### 5.2 Qualification of the household members

Waste management is not concerned with only one member of the house. So, it was difficult to question about the qualification of the household members (how educated the family members are) when there was lack of time because they had to rush for their work or office or the kitchen

works. However, some respondents managed to give enough time and I managed to get all the details.

The people confronted were usually the head of the households. There was a huge difference in the education level. Some were highly educated as doctors, government office holder officers in police whereas, some were only literate. The literate ones were basically from the squatter settlement. I was surprised to know that their children were staying abroad in developed countries. They also stated that their children support their role in managing waste and encourage them to do that properly.

In spite of these things, I felt that managing solid waste was not the result of only being educated, one needs to have awareness about their environment. I walked with the waste collectors to different settlements. Some people in spite of being educated felt it bothering to segregate the waste; some people put the plastic bags in the organic waste if they did not see the waste collectors around though they knew that it was not allowed. The waste collectors took out the plastic bags from the rickshaw later.

**Table 5.2: Household members in the family**

| HH members | No. |
|------------|-----|
| 02-05 | 44 |
| 05-10 | 24 |
| 05-15 | 14 |
| **Total** | **82** |

Source: Field visit May-June, 2011

I found that the number of household members is an important aspect in solid waste management. The household members said that increase in family members in a household to some extent contributes to an increase in the waste. It is especially the case where there are children. Demand for packaged food for the children added more inorganic waste. One of the respondents said that they have their parents and children in their home. Parents do not prefer the packaged food at all and the children cannot live without it. It is very difficult sometimes to manage both of them. Another respondent gave a similar example. She said that their children were not allowed to take packaged food to their school. But they could not stop their children

taking those things when they were at home. Sometimes, it was also a better option for them to use the packaged foods to avoid the hectic schedule of cooking.  One lady owned a small hotel. She also had three children. She said that the quantity of the plastic waste has increased compared to the previous years. This was not only because she had three kids in her house but because handling plastic bags seems easier. She said that as she now knows the defects of the plastic bags she cannot avoid the plastic wrappers of the food. But she reuses other plastic bags as far as possible.

## 5.3 Migration

As has already been mentioned large number of people have migrated from different parts of the country for different purposes. People have shifted from one place to another but wherever they move and settle all the people generate waste. The respondents I inetrviewed with came from different parts of the country. Some of them had permanently resided in Kathmandu and some had temporary residence. However there were some females who said that they had never visited their home town. When they were married their husbands were already settled in Kathmandu so they had never visited their homes. Some respondents said that they were originally from other district[6] but they had no home and land there. Many of the respondents had a home to live in both the areas. But as there were more facilities people preferred to live in Kathmandu. They made visits to their districts during festivals. There were also people who did not resided in Kathmandu permanently. Since they had their jobs here they had to live in Kathmandu. I also encountered people (the old members in the house) who actually did not want to live in Kathmandu but did not have any choice because they were taking care of their grand children because their children were abroad.

## 5.4 Does age matter in waste management?

Managing of waste in a household is not concerned with only one member in the household. However, there always exists a question about the age. Does age really matter in managing the waste?  According to Bernstein (2004) Aging is also emerging as a critical problem in MSWM.

---

[6] An area of a country or town, especially one that has particular features. Nepal is divided into 75 districts.

Old people do not have access to waste bins and they are exposed to health risks and often have difficulties for paying the waste collection charges (see Bernstein 2004: 17). When asked if age really mattered one of the middle aged respondents said his parents live with him. There are three generations living in the same home, his parents, him and his teen aged children. He said that his parents especially his father doesn't view things like the unused wires, old telephone sets, tiers as waste. He separates and takes them out of the home either to throw it or sell it to the scrap waste collectors but he brings the things back again. He even brings things that he finds in the roads. He said it's a bit annoying. At the same time he said that his children do not use the old mobile phones. They change the mobile sets if the battery does not work. He said he would replace the mobile battery instead of the mobile itself. They see it as a waste. Waste for him is not the waste for his parents and waste for his children is not waste for him. He doesn't know if it is age or something else. But he thinks that he may think like his parents when he gets to their age and may be his children will do the same when they will get to his age. Or may be with time everything may be waste or nothing may be the waste. Another respondent said may be age matters in waste management. He was up to the view that people in old age slowly become dependent. He said, "I don't like and want to throw the things I bought when I was young and capable. I have affection with those things. I am getting older now and I am getting dependent. We are old people and we like old things."

## 5.5 Collection of waste

The main focus of the different organizations has been segregating of the waste. Segregation of waste is taken as an important aspect in community participation or any other kind of waste management because it is believed that 70% of the total waste generated in Kathmandu is considered to be of organic type. The study of Pokhrel and Vhararagavan (2005) also reveals the same fact in the year 70% of the waste was organic, about 9% plastic and rest included metal, glasses, papers etc. Organic waste can be managed through compost making. It focuses the fact that waste has value and it can be a good economic resource. An article in a daily newspaper 'Himalayan Times' published on August 20, 2010 presents an example of how solid waste can be a good economic resource. In all the three settlements people are encouraged to segregate waste at the source though in different ways. The member of Buddhajyoti said that there was a costumer who was doing organic farming in his place. As soon as her compost would be ready

she would sell it to him. She was interested in making the compost but she said that the space there was not enough. The other problem was that the people from the surrounding had to face the bad smell of the waste and sometimes they shouted at them. But she only spread phenyl to reduce the bad smell. May be she did not know other options to do that.



**Picture 5.1: Poster for segregating waste.**

Source: Own source

**Table 5.4 Total waste generated in a week**

| Waste in a week | Organic in kg | Waste in a week | Inorganic in kg |
|---|---|---|---|
| 0-3 | 27 | 0-3 | 22 |
| 3-6 | 35 | 3-6 | 30 |
| More than 6 | 4 | More than 6 | 3 |

Source: Field visit May-June, 2011

Waste generation in households depended on many factors such as household members (household with children have comparatively more inorganic waste), different season (people consume different things in different seasons). It was monsoon when I was collecting the information. It was the season of green corn, jackfruit, litchis etc. I felt that these things made the waste look more. One of the respondents said that in foods and fruits like corn, jackfruits there were more things to throw than eat. Besides that, in this season I also felt that people cut their plants which are also separated as the organic waste by the community people. But the survey revealed that people were confused about what to define as organic waste and what as inorganic one for example egg shells, the green plant, kernels of the corn, small pieces of clothes used to clean the kitchen etc. In Chakrapath area however, there were few households who used the organic waste by themselves.

## 5.6 Minimization of waste

As has been mentioned above the landfill site is full now. Besides that, the frequent strikes and the closing of the landfill site by the local residents create another problem for the disposal of the waste. Thus, minimization of waste can be a good option for all the people in Kathmandu. Poverty, gender, culture traditions are important social consideration in minimization of waste. According to Bernstein (2004) poor people generate low volume of waste and they recycle it. Besides that, they also generate income from recycling. The concept of reuse has started with the reuse of plastic bags. In Buddhajyoti plastic bags are used to make the handicrafts and the paper is also recycled. They are trying to minimize the waste. They are also trying to make money from recycling and reuse. But the Buddhajyoti community member said that there are so many problems to do so. For example, there are no markets for the plastic handicrafts and it is more expensive than other regular materials so, people do not prefer to buy those things. It is not possible to recycle the papers in the rainy season. There is no enough space to make compost so the family focuses on composting rather than recycling.

People in Chamati are either using plastic bags to make handicrafts or carry the bags from their home while going for shopping. If that is not possible EDEN is encouraging the community people to collect the inorganic waste like the bottles (coke, fanta etc), plastic bags, milk pouch, and others and take it to the office. EDEN is planning to take these inorganic wastes to CRC. One of the Newar respondents said that Newars do not even through the food as waste. He gave an example that if they have surplus steamed rice they rather dry it in the sun and use it again as food. If it is not possible they give the surplus food to the birds or animals.

## 5.7 Managing the waste before

People use different ways to manage and reduce the waste though they may be environment friendly or not. One of the respondents expressed her feelings that she and her husband don't feel like staying in Kathmandu. They have to pay for everything, even for managing the waste. They feel like going back to the village immediately but they cannot do anything because their children are not with them here. They are working abroad. They used to have pits in their field and yards (the traditional way of managing organic waste in Nepal). The waste would decompose there. In Kathmandu there is no space for digging a pit. Their children do not allow

them to go the village because they say that the lifestyle is difficult there. But they find it difficult to live here (Kathmandu) and not in village. Their children do not understand them.

Some people in Chamati said that they burnt the waste before EDEN approached them. They said that grasses, twigs took a lot of time to get decomposed so they found it easier to burn it and use the ash in the farm yards or the flower pots. Some also burnt the plastic bags. Some were aware and some respondents were not aware about the environmental problems which were caused by burning the inorganic waste (plastic bags). One of the respondents said that their family knew the adverse affect of burning of the waste. They hear about it in radio and television but burning the waste is the easiest way to reduce the waste.

In Buddhajyoti people had an easier way to manage the waste. There is a river flowing in front of their settlement. Most of the people dumped their waste in that river. Some of the respondents said that it was not the people from the settlement only who threw the waste in the river. People from the whole surrounding did that. One of the respondents said that the river is full of waste. Water cannot be seen in the river. It is only in the rainy season the water is seen in the river.

Waste in Chakrapth area was taken by the office. Before, people did not segregate the waste. They mixed it. NEPCEMAC collected the waste as other private companies do. But it has been about almost one year that NEPCEMAC has convinced people to segregate the waste.

## 5. 8 Economic context

The level of economic development is a determinant of waste generation and the demand for MSWM services. At the same time, the effective demand for waste management services .the willingness and ability to pay for a particular level of service is also influenced by the economic context of a particular city or area (Schübeler and Countries, 1996).

Buddhajyoti- People in Buddhajyoti did not have to pay for anything when the project was there. But as the project is handed over to the community now every household has to pay 30 rupees for the waste management. Though the people are charged with small amounts to get the service in Buddhajyoti the family taking responsibility to manage the waste in the community said that it is very difficult to manage the amount because there were so many people reluctant to pay the money. If all the households would pay the amount they can collect more than what they actually

needed to pay to the private company for the waste collection. But the family said that the amount collected is not even enough for paying the charge for the waste collectors.

Chamati- People who owns the compost bin paid Rs 400 for the bin. The original price for the bin in the municipality office is 1500 rupees. However, it is said that even this amount is with a discount. The cost price of the municipality bin is more than the one sold in. EDEN together with World Vision is assisting Chamati people because of which they have got the bin in reduced price. People are happy to receive support from different organizations.

NEPCEMAC-The service holders paid different prices for the waste management. It depended upon the family numbers or the number of kitchen. Normally they paid 150 Rs for the individual family with a kitchen. If there were people renting the house and there were more than one kitchen they had to pay up to Rs 300. The office staff collected the fare going house to house. The waste collector said that sometimes the community members gave them the money to pay to the office. He also shared what his friend did when he was given the money by the community members. His friend took the money and did not give it to the office. When later it was revealed he was not paid his salary by the office for which accounted more money than he took from the community member. He also shared that if they could make the community members subscribe to pick the waste they would get 100 rupees/family as commission.

## 5.9 Affects of transport strikes, obstruction and bandh in Nepal

Transport strikes in Nepal have become frequent phenomena in Nepal. The news published in Republica one of the National daily of Nepal on 2009/04/14 states that there were seven-hundred sixty-eight general strikes called; 1,011: the number of times traffic obstruction along major highways by protestors. These strikes were held within the time period of 11 month in the year 2065 (2009). There have been frequent transport strikes in the following years as well. The people living in the central part of the country are luckier in other aspects like job opportunities, education and many other aspects (Koirala, 2009). But these people are most affected by the strikes. In the four months of my stay in Nepal for the data collection there were about 10 days of transport strikes. When asked about the effect of strikes in managing waste the people had a mixed reaction to it. It was true in some sense. The people in Chamati said that they were not so much bothered about managing waste when there was the transport strike as they managed their

organic waste in their homes. Many of the families collect the plastic bags either to reuse them or give to EDEN so that EDEN manages the inorganic waste as well. They only use the municipality van to throw the glasses or shoes which cannot be reused. These things do not produce bad odors like the organic waste so it is easier for them. The van also came to their community once a week so it could be managed well.

In Buddhajyoti settlement the strikes gave some problems. The waste was collected in brought to the EDEN garden and then transferred to the waste disposal van. According to the community members the open space was less there. They prepared the compost in the same area so, it was difficult to manage both kind of waste in the same places. Sometimes, there was no space for making the compost.

In Chakrapath area people actually were not concerned about the strikes with respect to waste. According to them the waste was collected by a certain office and they paid for the service. The office was compelled to do that. In fact, these were people that were directly being affected by the strikes. Besides, the transport strike, Sisdol the landfill site was closed for various reasons and this was time and again. The people did not even know why their waste was not being collected.

The Kathmandu Post (published on 2011 July 17), one of the nation's daily newspaper wrote that garbage collection in Kathmandu Valley had been halted for the past three days after a landslide that occurred at four different places near the Sisdol-Aletar dumping site in Nuwakot district affected garbage disposal. Though it was a natural phenomena there have been many occasions that waste disposal in the landfill site has been affected. In the past five years, the Valley saw such piles of garbage on at least 62 occasions when locals at the landfill went up in arms with their various demands, forcing the Solid Waste Management and Resource Mobilization Centre, a government body, to offer them a package of solutions.

It seems that the organizations that seem to be most affected by strikes are municipality and NEPCEMAC. Although municipality is not involved in door to door collection, closing of a day/ strike means accumulation of piles of waste in the corners of the street. Besides, the political strikes, there are so many obstructions in the landfill site that do not allow municipality to dump the waste there. This has happened so many times, this result in the accumulation of waste in the

streets. Sometimes the waste does not get collected for a long time causing people difficult to walk in the streets.

NEPCEMAC does not have any problem in managing the organic waste. After collection the organic waste is taken to Hadigaun (around 3 km from the settlement/collection point) where composting is done from the waste. But it has problems in managing the inorganic. After sorting the inorganic waste the remaining waste is send to the landfill site. But if there is transport strike it is not possible. Because of the opposition and many other reasons the landfill site get closed many times and sometimes for many days. At this time it has no option but to remain quiet and not collect the waste. This creates conflict between the community and waste collectors. The community people also threaten the waste collectors saying that they will stop giving the waste to them and get the service from other organizations. If they would pay they could take the service from any company.

## 5.10 Problems in waste management

As I perceived both the community group and the project face problems in the process of managing the waste. The following table shows some problems for both the community groups and the project managers based on the questionnaire survey and the interviews.

### Problems in managing waste

Buddhajyoti-

| | Problems |
|---|---|
| **EDEN Staff** | • The community members are not united. Many people do not feel important to attend meetings and discuss about the problems and find solution. <br><br> • People think that the project is there to earn so there was little cooperation from the leaders in the community. |
| | • People have started mixing the waste again <br><br> • People's behavior has not changed. They are not united and the |

| | Community People | community people who think themselves as the leaders do things only if it is beneficial to them. |
|---|---|---|

**Chamati**

| | **Problems** |
|---|---|
| **EDEN staff** | • Newa Khala staff members support in Communism (UML) party. It becomes difficult to convince other community members who support other political views or are neutral.<br><br>• People who are tenants too are participating in in waste management. They have bought the bins but as they are not the permanent residents it is a problem. When they shift their homes they carry the bins with them. |
| **Community people** | People are satisfied with the works and facilities that EDEN has provided to the community people.<br><br>• But wish to dispose the inorganic waste twice a week.<br><br>• Community people wish the municipality van to make more regular visits in their community.<br><br>• Expectations more from the municipality. |

**NEPCEMAC**

| | **Problems** |
|---|---|
| **Staff** | • Many community members do not understand the problem of strikes.<br><br>• Some people still mix the waste. |

| | |
|---|---|
| **Community people** | • Difficult to segregate the waste always<br><br>• There is no regular collection of waste.<br><br>• It would be easier if both types of waste would be collected at the same time.<br><br>• Waste collectors do not come on time. |

## 5.11 Summing up

Thus this chapter includes some of the facts of waste management through community participation. This chapter basically explains presents the information I received in my filed. The next chapter gives some more detain information about solid waste management in the communities.

# CHAPTER SIX

# DISCUSSION OF FINDINGS

This chapter includes the discussion of the findings of my research.

## 6.1 Empowerment of the people

Page and Czuba (1999) empowerment as a process that challenges our assumptions about the way things are and can be. It challenges our basic assumptions about power, helping, achieving, and succeeding. Empowerment is a multi-dimensional social process that helps people gain control over their own lives. Power is often related to our ability to make others do what we want, regardless of their own wishes or interests (Weber, 1946, cited in Page and Czuba (1999). Power does not remain in isolation and it has the ability to change.

So, analyzing the level of empowerment, in Chamati people to some extent are more empowered. As they have the local organization to work with them together I find them to be in better position as other communities.

In Buddhajoti it is reported that even those who actively involved in segregating waste are not so serious after the project have left their community. People are in the same stage where they were before.

The way municipality staff used the metaphor "we provide net to the fisherman not the fish itself" was praiseworthy and this compels one to think that municipality has the long term planning to manage waste through community participation. Municipality is assisting NEPCEMAC in this process. NEPCEMAC collects the waste from the community. It has door to door collection system (It performs its work like other private companies do though it is a NGO). It collects both the waste in the same way in the alternate days. The only thing the participants are doing is segregating the waste. Some households even do not bother themselves to do that. They mix the waste. The organic waste collector said that he doesn't collect the waste if it is mixed as he is told to do so from the office heads. Such waste is then collected by the inorganic waste collector.

Service providers and service holders are to some extent doing a good job segregating the waste. But these have also made the participants dependent and think that the work is of the office and not theirs. When I was collecting the information from the households there were frequent

problems regarding the collection of waste. Basically, it was for the inorganic waste. I was aware of the fact that the road that linked the Landfill site was not in good condition. Because it was rainy season problems were more. Sometimes there was landslide in the area and sometimes it was reported that the vehicles carrying waste had accidents in the site which blocked the road several times a week.

Craig and Mayo (1995) say that community participation empowers people. They exercise the power to develop their self reliance. But in my case I do not find anything that the projects are trying to empower the community. They also focus that NGOs are historically linked in this matter. Cooke and Kothari (2004) explain participation as tyranny because it does not empower those who need it but there is exercise of unjust power. Here in this case the people are not the ones that are marginalized as Cooke and Kothari say. It is difficult to say if it is the community that does not want to be empowered or is it the projects that do not want the community to be empowered. Is it the exercise of power that does not allow the powerful to share its power?



**Picture 6.1: Inorganic waste collection**

Source: Own source

The organic waste they separate is taken to Hadigaun (2-3 kms away) where it is composted.

**Picture 6.2: Organic waste being mixed with rice husk to make compost**

Source: Own source

People are participating in managing the waste. But I felt that people here are not doing so because they are aware of the waste management problems. Waste is a part of every human being, no can avoid this fact. They too have to manage the waste every time. Being a part of the community they were involved in segregating the waste. But if the service is delayed they are helpless. They become rude to the waste collectors and also threaten them saying that they will find other service providers. People have become dependent to the service providers. NEPCEMAC is always present there to manage the waste for the people. In other words, it is just a service they are taking for which they pay. They have the option to change the service provider but they do not compost their waste by their own. Are the people empowered here when they are dependent for every service?

Though the project has already phased out in Buddhajyoti the EDEN project managed to hand it over to the community people. The situation has differed now and then in Buddhajoti in some ways. People are not so much interested to pay for the service and get the waste collected. But the EDEN has initiated to compost their waste themselves. People to some extent are empowered.

However, in Chamati people seem independent comparatively. People compost their waste themselves. They are assisted if they are in trouble. They get help in different things, get new ways to manage their compost, reuse the materials. They do not wait for the service providers in

any ways. EDEN, World Vision has shown them the way to manage the waste. EDEN is already planning to find a new sight for the project. It is working in Chamati for only two years.

## 6.2 Role of municipality and the status of the community members

According the staff of the municipality we need to focus on three things to manage the waste

1.  Stop thinking that the waste has been managed once the waste has been taken out from one's house.

    'Our concept is developing that way. If money could manage the things people from Kathmandu would make lots of expenses.'

2.  People intend to throw the waste every time and any time

3.   Mix the waste.

He expressed his that today we hear that about 1000 Nepalese go abroad in a day. People have started strikes, pad lock, burning the tiers as their habits. They o not use this energy in something creative. People have developed the thought that I am the only one and I alone cannot make a change. People know about waste management. But Nepalese when they pay money for something they think that their responsibility is finished. Same is the case in waste management. They think it is the responsibility of the municipality to manage the waste. Keshab Sthapit (the ex mayor) brought different slogans. He took the initial step towards waste management. But there was no continuity of the work. I think it's the human mind that has to be clean. If the mind is not clean enough even the cleaner place is not going to work.

Municipality is responsible for the street cleanings and all the other concerned activities like door to door collection is performed by the private organizations. But now we are trying to put habit to the people to segregate the waste. It is the first step that has to be done to manage the waste. If segregated, waste can be used for making compost but if it is mixed it is not possible that way. The ever increasing waste is the result of not segregated waste. On the question about reuse/recycling of the waste he replied that people of the community are encouraged to reuse the plastic. Giving an example of Nepali culture he said we have been practicing the reuse from the ancient time. Whenever the baby is born we rarely use the new clothes. We use the clothes from

our brothers and sisters, even I am doing so. He was also showing me a bag that he always carries while going for shopping and does not take extra plastic bags. He was giving me an example that he being the member of the community mobilization unit in Environment Department he was taking the initiation in managing the waste.

All the three areas in my research come under the metropolitan area. So, I thought to ask them about the role of municipality in managing solid waste in their organization or the community.

In an informal conversation with a staff member of the NEPCEMAC he said that municipality has the role of cleaning the city. But it cleans its certain routes only. It only collects the waste in the roads or city centers. The work in municipality is not well managed. In the recent years the private organizations are getting better in managing the solid waste than the municipality. It cannot ignore our work and the private organizations. So, now it has the moral pressure to get better in its works. He said that as far as his knowledge is concerned municipality has not worked in its own. The only difference between the municipality and the private organizations like theirs is that Municipality has the power to maintain law and order. It can give orders to manage the waste if it wishes to. But they cannot do so. It makes a great difference. They can only request people. But the municipality staffs are invited in different programs organized by their private company. They cannot be avoided.

The staff of EDEN also had almost the same opinion about municipality and its works. Municipalities being the government body all the private organizations have to directly or indirectly depend on. Other organizations may not want to take risk. There may be so many legal formalities to be fulfilled. Municipality can help in those matters.

In the Chakarapath area many of the respondents did not know about the municipality's role in their area. As they become member of NEPCEMAC they are provided with two buckets. According to the staff of NEPSEMAC and the municipality, municipality is helping financially to distribute these buckets to the people. The community people were only concerned whether their waste is collected or not. Some of the community members had direct link with NEPCEMAC staff but not the municipality.

According to the staff of Newa Khala the community had already received training about managing the waste through community participation held by the municipality. After that, EDEN

had approached them. But after that the municipality did not play any effective role for the community. According to the respondents in Chamati they are not happy with the municipality. They explained that a municipality van comes to their area twice a week. They have to throw the inorganic waste in the van. People who do not own a compost bin have to throw all the waste in the van. It comes to the Chowk (centre of the road, here community) but does not stay there for even five minutes. Sometimes they come to their houses when they see the van but by the time they reach the place again the van is already gone. They were expressing their anger through words. They said that they paid tax but were not having good facilities. Nothing is well managed, no proper roads, no sewage system no waste management.

In Buddhajyoti the organic waste is managed by the community. The inorganic/mixed waste is collected by a private company. It was the same process when EDEN looked after the waste management. The family thought that it was the municipality that collected the waste but it was not that way. They even did not know if municipality was doing anything for them.

Municipality's role in all the settlement seems very minor. People have complaints regarding the services provided by the municipality. The staff from different organizations also had the same view. According to Water aid (www.wateraid.org) the municipality has limited budget and skilled resources and if the budget is allocated it us not used in a proper way. This to me seems quite positive after hearing the response from the respondents. They had more complains to make than appreciate the work of the municipality.

According to Anschutz (1996) community-based solid waste management projects are activities carried out by members of the community. Community members, or their representatives, decide on what to do and how do it. In the above cases the role of the municipality is very minimum but the roles of community members also do not seem that important. Community members are active in segregation but they are not active in decision making. According to the staff of the projects they listen to what the community members say but maybe it was not true. Many of the community members wanted both the waste to be collected at the same time but the office staff (NEPCEMAC) said it was not possible.

**6.3 Does community participation equal segregating waste?**

As has been mentioned above waste management is a continuous process. It involves different things from collection to disposal. Every aspect is important in managing the waste and community has always important roles to play in managing the waste. However, the important question is "is it only waste segregation where the community can participate?" the municipality staff replied it was. He said that during trainings they discussed about reusing the things but when it came to reality they wanted people to get involved in segregating the waste first. He said that people do not find it convenient to separate the waste. People have to develop the habit to do that first.

The EDEN staff however was not so strict about it. He said that segregating the waste was the initial step a community has to take in managing the waste. But it was not the ultimate goal and the only work people can participate in. He said that once people feel easy to manage the waste and to segregate the waste they can make other people aware. That can be one of the important roles people can play and it will be a great achievement as well. He also told that if there is no support from any organization it is the community that has play important role in decision making. Communities have to be ready for all the good and bad because it is the community that has to involve itself in the work it is not always some kinds of project.

**6.4 Need of awareness and accessibility**

Community Recycling Centre is one of the organizations established with the motive to either manage the inorganic waste or reuse them. CRC is a very small organization in Kathmandu confined in two rooms. An organization with such a small capacity cannot take the huge responsibility of managing waste. The initiation to collect and reuse the inorganic waste by CRC is praiseworthy. But I felt that municipality is not giving so much attention to such an organization. Talking about the personal experience municipality runs a program in Nepal Television (Nepali National Television) called "Hamro Kathmandu" (Our Kathmandu) where it talks about different programs concerned with Kathmandu Municipality. It also shows programs related to solid waste management. I used to watch the program. But I never knew anything about CRC. I suppose nothing was mentioned in the TV program. I got to know about it through the municipality brochure and my visit to CRC after that.

**Picture 6.3: Community Recycling Centre, Lagan Kathmandu**

Source: Own source

The EDEN staff were aware of the work performed by CRC but at the same time Newa Khala staff was asking me to tell them what and how they work if I visit CRC. This shows that the information provided by the municipality is limited. Many of the respondents were not aware of CRC. Those who were also had problems taking the inorganic waste to the place as it was at a distance from their homes. The EDEN staff said that they had to collect more inorganic waste as possible because taking less inorganic waste to CRC became costly. CRC also did not have the facility to go to different communities and collect the inorganic waste. The respondents taking the service under NEPCEMAC did not have any idea about CRC as most of their inorganic waste was collected by the office itself. Some respondents sold it to the scrap waste collectors if they happen to meet them collecting their waste in their settlement.

One of the respondents in Buddhajyoti said that we cannot only blame that people are not taking care of the environment. Human being always goes for the easy solutions. For some it is easy to throw the waste in the river and for some to burn the waste. She had heard about CRC from the EDEN staff but it was a bit far away for her place to take the things there. Personally too, I feel that every household has to have access to organizations like CRC as everyone comes in contact with waste. There has to be many branches of organization like CRC. If people have access to such an organization there is very little chance of the inorganic waste coming out in the streets. CRC pays different prices to the plastic bags and bottles. In other words, CRC has given value to the things that we consider as waste. If people know about such organizations people may collect those things with a motive to protect the environment and also with a hope that they get some

amount for the things they don't want in their homes. It is not necessary that every citizen has to have the access to municipality. But the question is always there that how many people do visit the environment department to collect the information? People have access to radio and televisions. Besides that, it has its one Television program which has to be used for information. Municipality has to be more conscious in this matter and more flexible in this context and encourage people to take things to such organization. It has to think to make it a big organization with more collection points so that everyone has the access to it.

## 6.5 Expectation?

Different communities have been practicing solid waste management in their own ways. But as there are two different agencies involved there are they both may expect something good from each other. In my research the community people, the municipality and the different projects have different expectations from each other. The municipality staff said that they want the people take the responsibility of their waste. Taking the waste out of one's house does not fulfill the responsibility of the people.  Paying for the services is not the only work a person is expected to do.

The community people on the other hand expect good services from the municipality. Is has been set in the mind that municipality has the responsibility to manage the waste the people have more expectations from the municipality.

Waste management is a work of cooperation it has to be handled with cooperation. Dangi (2009) mentions that solid waste management in Kathmandu serves an example of failure. So, taking this fact in mind we cannot expect municipality to work alone and succeed and we cannot also assume that communities alone can manage the waste. They have to stand by the side of each other and cooperate. Unity is what is needed.

## 6.6 Social aspect

Waste generation is also conditioned by people attitudes (Schübeler and Countries, 1996). According to the staff of EDEN people in Buddhajyoti think that living in a squatter makes them poor and dependent and the government has to think about them and provide the facilities and services they need. Though people there are involved in small business as their economic activity

people living there think that it is the government that has to look after every matters of their settlement. As they are living in a squatter and they do not own any properties they do not have their own responsibilities towards their community.

Chamati people are keen on managing the waste by themselves. They get encouragement from the concerned projects, and people too are supportive in that aspect. One of the respondents said that her husband even picked the waste in the road and disposed it in the concerned place and he sometimes brought the waste home if he did not get any place to dispose it outside. Another respondent said she used to have a big drum where she composted her waste in her own. When EDEN approached their place she was excited about the work and purchased another bin though she was not in need of that.

In the other settlements waste management was a type of give and take relationship. Some people were conscious and some were not.

## 6.7 Dependency

The municipality member always stressed in a metaphor while I was talking to him, providing a fish net to the fisherman or the fish itself to make his living. He simply meant that it is always a better option to provide a fish net to the fisherman to make him independent in helping him live his life. Providing a fishes would not work that way because it will make them dependent.

But the question arises, is it really providing a fish net to the fishermen? As has been mentioned above the municipality staff said that community participation equals to segregating waste for composting. The people here segregate the waste but what is the outcome? Below is the Picture about how waste management is done by NEPCEMAC. It may give the answer to the question.

A chart has been presented here about how waste is managed in NEPCEMAC. The involvement of municipality and the private sector/NGO here and the works carried out looks similar to the ALM model of India. But in this case the community participation is less than in the ALM model. In ALM model there are certain responsibilities to all the participants may it be the community, NGOs or the municipality. Community members segregate the waste and pay for it.

Here is a chart for how waste is managed in NEPCEMAC. The chart looks similar to the ALM model but the way waste is handled does not seem as effective as ALM model in India



**Waste Management through NEPCEMAC**

**Figure 6.1: Waste management in NEPCEMAC**
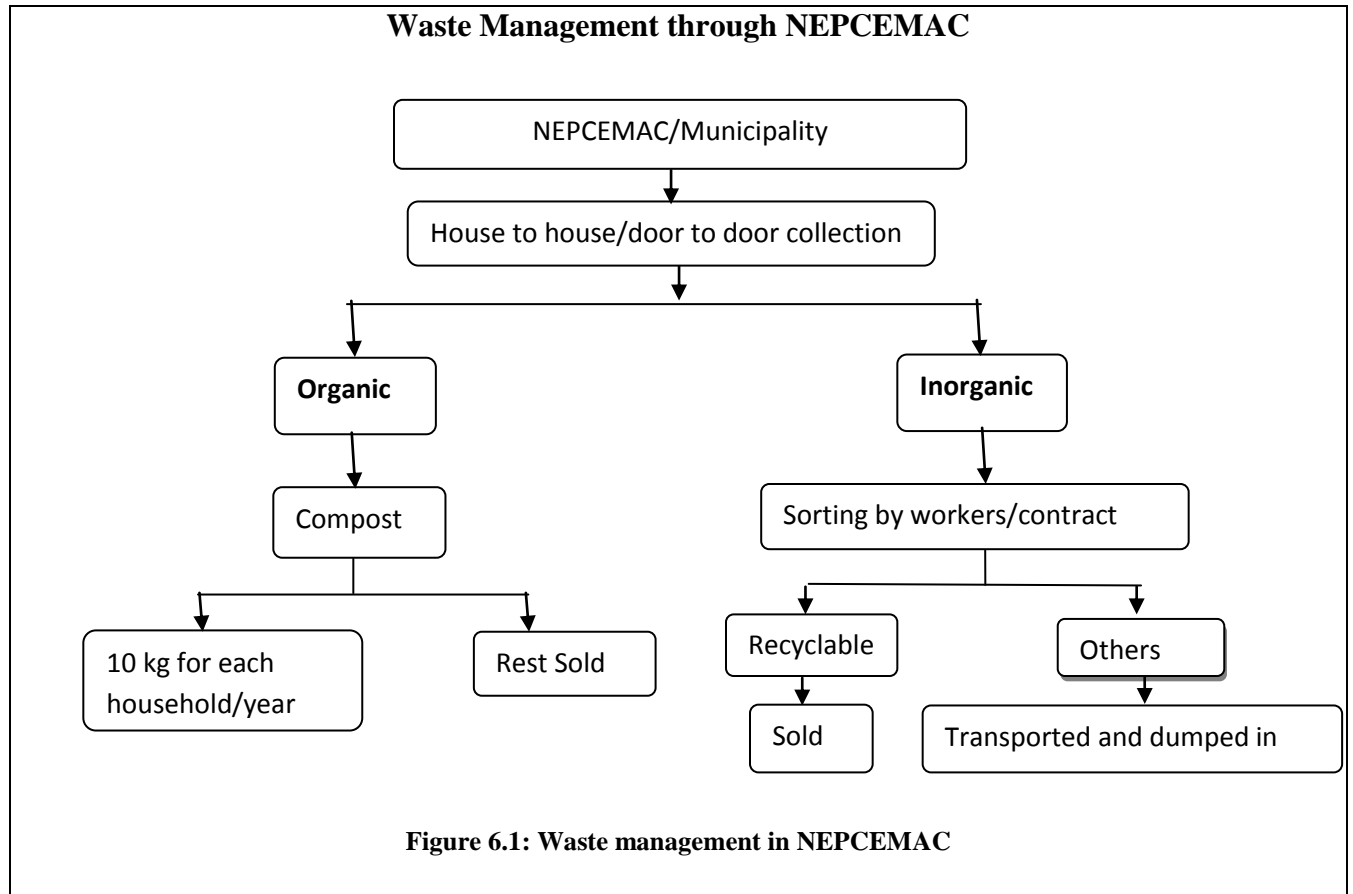
Then the question comes how municipality is providing a net to the fisherman and not the fishes itself. The people are involved in segregating the waste. All the other works are done by the office itself. The office provides 10 kgs of compost to the community members which they use for home gardens. I feel that the metaphor used by the municipality staff and the way it is making the community participate in waste management contrast to each other. I am not sure if he is aware of this fact.

**6.8 How can waste be managed in better way?**

It was very good to hear that people who were aware about waste management felt that people have to be given awareness about waste management. They thought that awareness was the most important aspect in waste management. Awareness helps to sought out more than half of the

problems in managing waste. They also said that they have to segregate the waste and tell them how to manage the organic waste. Inorganic waste had to be reused as far as possible.

**6.9 Summing up**

This chapter is the body of the paper and it gives some insights of community participation in waste management. People have their own perceptions of the waste that is generated in their homes.

This chapter will be followed by the seventh chapter which deals with the comparisons between the waste management in different communities.

# CHAPTER SEVEN

# THE WASTE MANAGEMENT IN DIFFERENT COMMUNITIES:
# A COMPARISION

This chapter gives a picture of the community participation in different communities and some comparison between them.

## 7.1 EDEN in Buddhajyoti

EDEN has worked in Buddhajyoti and the Chamati area one after the other. However there was slight difference in the way waste was managed. The staff of EDEN also find difference in the way waste was managed in these areas. These two areas settlements are entirely different in nature. Buddhajyoty is a squatter settlement where people are assumed to have a low economic profile. Chamati in the other hand is a residential area where middle or high class people settled.

Despite that, Buddhajyoti is a settlement where people participated to manage the waste with the help of project and now the work has been handed over to the community itself. Thus, the consequences before and after the project can be compared here.

EDEN started its work in Buddhajyoti in 2005. The project worked there for 3 years but as the work seemed incomplete the project was extended for one and half years. Later it was handed over to the community people. According to the EDEN staff when EDEN phased out from Buddhajyoti there had been a closing program among the community people and other invitees. After then, EDEN held a meeting with the community people. Community people recommended one of the families in Buddhajyoti and thus, the work of waste management was handed over to the family according to EDEN's terms and condition. The staff find many differences working with these two settlements. The staff said that it was a difficult to work with the people in Buddhajyoti. He shared his experience of people of other squatter settlement and said that people in Buddhajyoti were also the similar nature. He expressed that people in this settlement had a good income source as most of them owned shops near the new bus park area. I could also feel that. People had a bigger area to live compare to other squatters. Some people even rented their houses. Few had two/ three storey buildings. Despite all these the EDEN staff was up to the view

that people of squatter always thought that they are poor and the government has to look after them.

People in Buddhajyoti were and are not united. The staff shared that when they called for the meeting for some purpose many of the community members (especially the leaders of the community) were not present. The family taking care of the waste management and the community members having the responsibility in Buddhajyoti agree to this fact. In fact, there are some people in the community who pretend to be the leaders of the community but work for the community only when they think they will be benefited. One of the respondent said that they could never clean others waste and toilets. EDEN project came and did that for them but the community people say that they get dollars for that.

Usually, people have to pay for the services but people here did not have to pay for any waste management work when the project started. Besides that, the community people were provided with three bins to dispose the waste. They were asked to segregate the waste. The organic waste was used to make compost. The inorganic waste (which could not be reused) was collected which was later collected by a private company and taken to Sisdol. The project paid about 700 Rs for that purpose. Besides that, the project also pays 10000 rupees for the land where they have started a garden. Basically the garden was used to start organic farming and they did that for some time. But now the garden is used for growing flowers for commercial use.



A house in Buddhajyoti settlement

**Picture 7.1:  EDEN Garden and Rickshaw**

Source: Own source

The paper collected from the community was recycled. Plastic bags were re-used to prepare some handicrafts. But the community member who was trained to make the handicrafts said that the handicrafts made from these reused plastic bags were expensive as it needed a lot of time to make it. She also said that there are people who won't buy it if they know that it is made from reused plastic bags. People's perception towards reused plastic bags or the waste in other sense has not changed yet.



**Picture 7.2: Organic waste for compost, recycled papers and handicrafts from plastic bags**

Source: Own source

Most of the households segregated the waste when the project was doing the work. But when the work was handed over to the community itself there was a slight difference. According to the community members (having the responsibility to manage the waste) most of the people do not segregate the waste now. Hardly 3/4 buckets of segregated organic waste is collected. She said that this was because now they had to pay 30 rupees per month to get the waste collected. People were reluctant to do that. When asked if the amount was too high she said that it was not but they did not have the habit of paying for the waste. It was easier for them to throw the waste in the river (river flows in front of the community). They did the same before the EDEN project approached them. Another member of the community said that the project had to collect the money, so that they would have the habit of paying for the services. They didn't do that. It was

good for the community then but it is creating a problem now. The family manages to make compost but she brings the waste from a catering service nearby which does not come under Buddhajyoti. She expressed that they are also reluctant to do that because now they are about to sell the waste (food) to those who raise pigs in their home (people out of their community. The community people did not raise any pigs). She was taking it for free till then. There is no one to raise pigs in their community. The caterers were planning to sell it to other outsiders. They held the view that working with the waste was not good when it was not segregated. She shared that sometimes people also kept the night excreta and sanitary pads in the waste and it was very difficult for them to work with waste in such conditions. She said that it was very insensitiveness of the people to do that. It does not mean that you are allowed to or you can do anything if you are not doing that work.

Now they have to pay about 1500 rupees per month (whole community/75 households) to get their inorganic waste collected. She says that it is very difficult to collect the amount from the community members. If all the households would pay the money it would be more than enough. The EDEN managers and the community members decided to make it 30 rupees because they thought that they could use the extra money for the maintenance of the rickshaw and other purpose. However, this assumption did not hold. The community member (the family in charge) said that entire households in Buddhajyoti do not get the waste collected and do not pay the money either (even if collected they are reluctant to pay). She manages the money by selling the compost and also the plants and sometimes handicrafts. She expressed that it is become difficult to manage the amount during Dashain[7] or Tihar[8]. The waste collectors demand for double amount during these festivals.

---

[7] Longest and the most auspicious festival in the Nepalese annual calendar, celebrated with great rejoice by Nepalese of all caste and creed throughout the globe.

[8] Longest and the most auspicious festival in the Nepalese annual calendar, celebrated with great rejoice by Nepalese of all caste and creed throughout the globe.

**Linkage between the community people and the concerned organizations in Buddhajyoti**

**Buddhajyoti and EDEN**
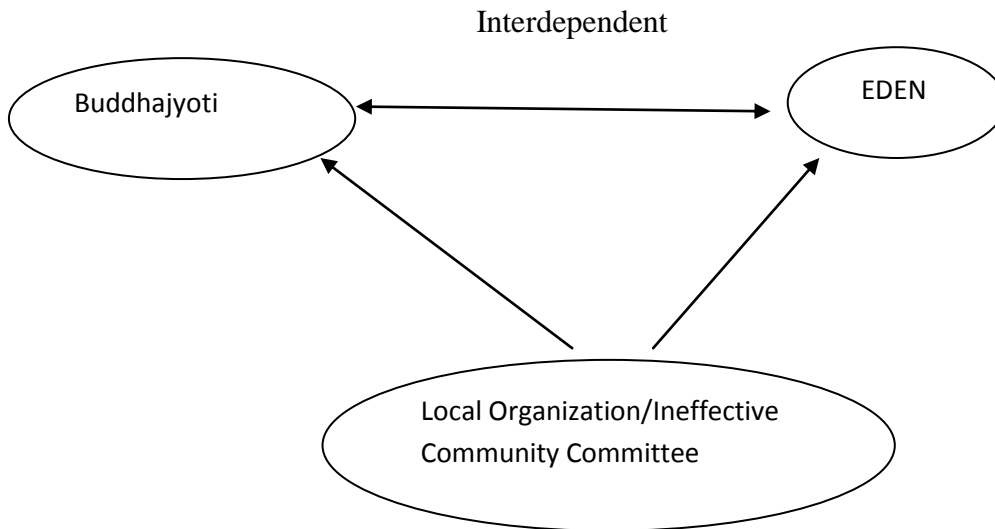


Figure 7.1: Buddhajyoti and its concerned organization

**Difference in waste management in Buddhajyoti with and without project**

| Description | During Project | After EDEN |
| --- | --- | --- |
| Segregation of waste | People segregated the waste | Not active as they were when EDEN was working with them. |
| Compost bin | Three bins were distributed for different purpose. | Only few people use the same bins now. |
| Unity | People not united/not so serious about the work. | People not united |
| Payment | Initially no payment was done. Everything was for free | Now people have to pay 30 rupees per month for the waste to be collected. |
| Difficulty level | Working with waste was easier as there was someone to take care and guide. | Now there is no one to control the community people so managing waste is a bit problem. |

## 7.2 EDEN in Chamati

It has not been so long that EDEN started its work in Chamati. It has been almost a year now and only about six months when I visited the area. But the way it has managed the waste is different from Buddhajyoti. It only provides a compost bin to the community members. The members have to pay 400 Rs for the bin. This is the bin that is provided by the municipality. They have to pay less for the bin because another organization named World Vision has been helping the community to purchase the bins. The actual price for the bin in the municipality is Rs 1500. It is said that this is also a subsidized price. The actual price for the bin exceeds 2000 rupees.

The difference between the community participation in Buddhajyoti and Chamati is that here individual people/households are involved in managing their own organic waste. Staff from EDEN gives training regarding compost making. They also assist them if they have any other problems while composting. The members here do not have to depend on other people to collect their waste and make complains if it is not collected. It is all up to them to manage their organic waste. People also faced problems about how to use the compost. People who own land had a good use of the compost but people who did not have had a difficulty. So, EDEN made a proposal that it would buy the compost from them but in a bit lesser than the market value (5 rupees less- market value is Rs 20/kg). Meanwhile, World Vision approached the community people with the concept of "karesa bari" (a farm yard). They proposal was accepted by the community people. The World vision provided used fish boxes for Rs 5. World Vision also provided with the seasonal seeds for free. People are using the compost to grow their own vegetables in the box and in their own home. One of the staff of Newa Khala shared that, she went to a vegetables shop in their community one day and she talked about the farm yard concept and the vegetables grown by the people there. The shopkeeper said that he had been wondering why there was people were buying less vegetable in his shop.

According to a staff of Newa Khala and EDEN both the fish boxes are not always provided to them. In fact, that is one of the ways to use the waste. If they wished for more they could buy it by themselves. They only showed how the waste and the compost could be used together. The people here tried to re-use the plastic bags. If not used EDEN was trying to make them collect those things and it had the plans to take it to CRC. They take the waste like the old shoes, glasses to the municipality van which they think cannot be reused.

**Figure 7.2: Chamati and its concerned organization**
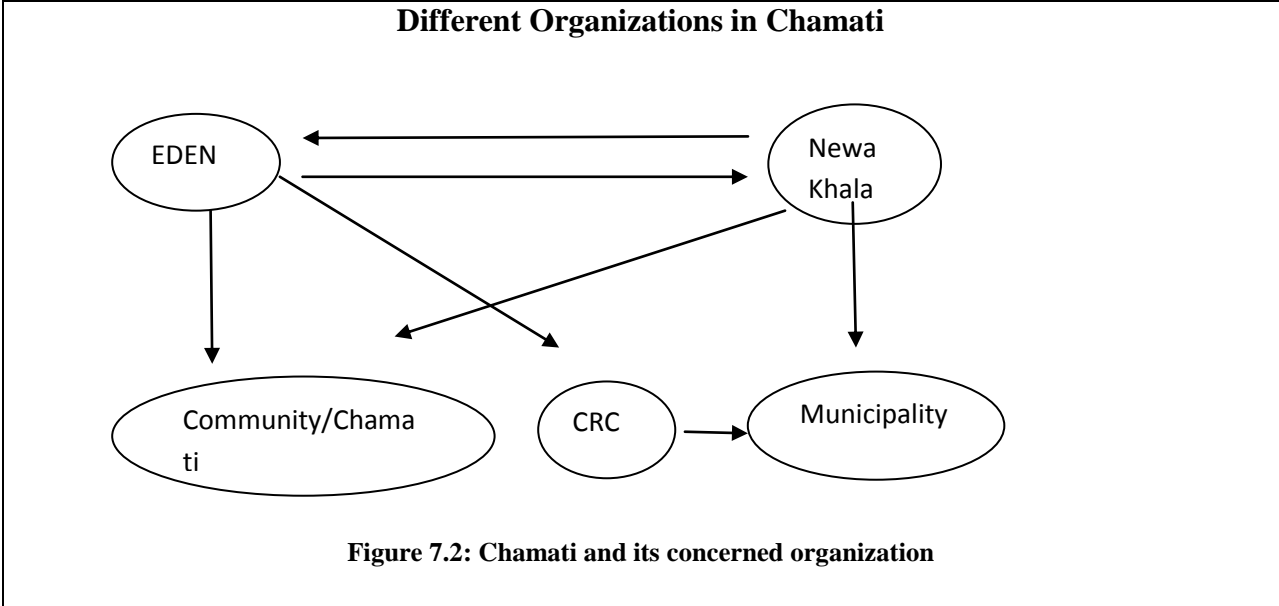
## Community Participation in solid waste management in Chamati in brief

| Description | During Project |
|---|---|
| Segregation of waste | People segregated the waste. They did it in their own so no need of collection |
| Compost bin | The bin is provided by with the help of EDEN and World vision |
| Unity | People united and are cooperative and supportive. |
| Payment | They paid Rs 400 for the bin and small payments for other things like spray bottles (to spray pesticides if their vegetables are attacked by insects), fish box. |
| Difficulty level | Handling the waste has become easier. |
| Dependency | People do not have to depend upon the waste collectors to take their waste. |

**Picture 7.3: Compost bin, Fish box used for planting vegetables and spray bottles**

Source: Own source and www.wepco.org.np (compost bin)

However, the management of inorganic waste has not started that well. The EDEN project is planning to collect the waste and take it to CRC. This is in the initial phase and they have collected the inorganic waste only in small quantity. Community members are also provided with training to use the plastic bags for making handicrafts. The staff of EDEN and staff of Newa Khala say that people have excitement to learn new things and happy to get things at less than the market price. They inform the community members if they have new plans or things to give to them. Some ladies shared that they used the Collin[9] bottles to spray the pesticides (mostly phenyl) in their vegetables (either in the garden or the vegetables planted in the fish box) if it is attacked by some kinds of insects. They were happy to get the spray bottles at very less than the market price.

## 7.3 NEPCEMAC and community participation in solid waste management

The main focus of NEPCEMAC was to minimize or control the environmental pollution caused by solid waste. It has been involved in different works including the door to door waste collection, cleaning the public places; tree plantation etc. Collection of waste is its regular job as an organization working in solid waste management. It is basically a private organization/NGO working in waste sector. But with the help of the Kathmandu municipality it has started to make the community participate in solid waste management. NEPCEMAC has provided two

---

[9] Glass and household cleaner.

buckets/bins to the community people. Green bucket is used to collect the organic and red for the inorganic waste. Waste is collected in the same way as other private companies do. The only difference is that in the rickshaw in which the waste is to be collected has a red and a green flag. Red flag for inorganic and green for organic one. Different people collect the segregated waste. The flag helps people to identify which waste to handover. The waste is collected in alternative days or in a gap of two days.



**Picture 7.4: Bins provided by NEPCEMAC to the community people**

Source: Own source

The community people are requested to segregate the waste. The organic waste is collected and then taken to Hadigaun to make compost out of it. The organic waste collector said that he is told to collect the waste only if it's segregated by the office staff. If the waste is not segregated he leaves it there and it is collected by the man who collects the inorganic waste. The community people are provided with 10 kilograms of compost a year which they use in their farmyards if they have or in the flower pots. There were some households who only give inorganic waste to the office and used the organic one by themselves.

**Gap between the community People and the concerned organizations in Chakrapath area**
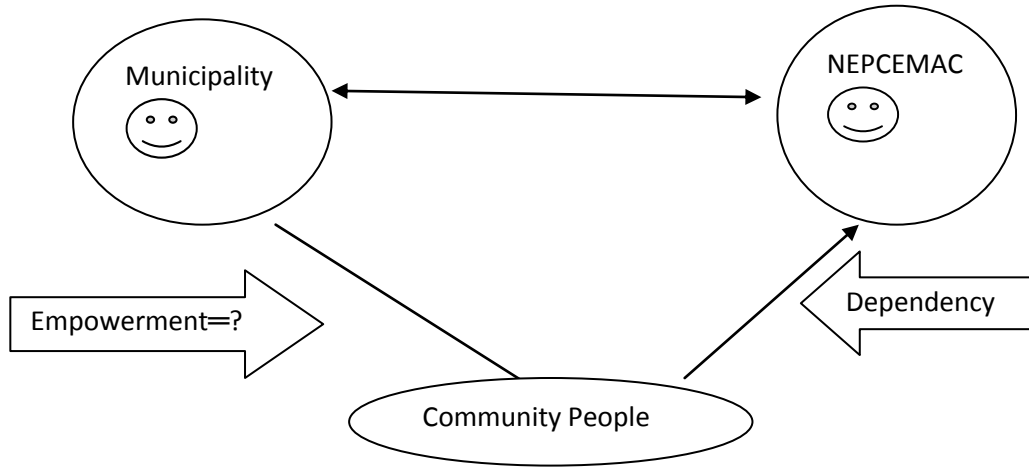
Figure 7.3: NEPCEMAC and the community

We can make some comparisons between the settlements and the work being done in these communities.

**Comparison between waste management in Buddhajyoti (EDEN), Chamati (EDEN) and Milijuli, Jagriti and Ganesh Basti (NEPCEMAC) in brief**

| Description | Buddhajyoti | Chamati | Milijuli, Jagriti and Ganesh Basti |
|---|---|---|---|
| Settlement | Squatter | Residential | Residential |
| Households | About 75 | About 350 | About 500 |
| Started | 2005 | 2010 onwards. | 2011 |
| Time period | Initially for three years but extended for one and half year more. | Planned for two years. | Being a private company it worked and is working with SWM in these communities. |

| Projects/organization involved | EDEN | EDEN, World vision, local organization Newa Khala | NEPCEMAC and Kathmandu Municipality |
|---|---|---|---|
| Segregation of waste | People segregated the waste when the project was running but now people are not so active. | People segregated the waste make compost out of it by themselves. | Community members are expected to segregate the waste. |
| Compost bin | Three bins were distributed for different purpose. Only few people use those bins now. | The bin is provided by with the help of EDEN and World vision | Two bins/buckets (green for organic and red for inorganic waste) are provided. |
| Unity | People were not united before and they still are not. | People are united | Some favor waste segregation, some do not. |
| Payment | Initially no payment was done. Everything was for free. Now people have to pay 30 Rs per month. But they are reluctant to do so. | Paid Rs 400 for the bin and small payments for other things like spray bottles, fish box. | They pay the monthly amount depending upon their household members/kitchen. |
| Dependency | -People who do not wish to pay for the service can dump it in the river/are not dependent<br>- | People do not have to depend upon the waste collectors to take their waste.<br>- Projects is a NGOs so they have to depend upon | People totally depend upon the office for the waste to be managed.<br><br>-Has to depend upon the municipality for legal matters. |

| | | municipality for legal matters | -Funding might also be from donors. |
| | | -Fund comes from a Japanese church so it is dependent to it to some extent. | |
| Reuse, recycle | Reuse plastic bags but since there is no market it is very less done. Segregated papers would be recycled but now even the papers are no collected as it has to. | Reuse of plastic bags. Collection of plastic bags and other plastic pouch to take it to CRC for reuse. Planning to buy a paper recycling machine. | Very few reuse of plastic bags to buy vegetables. |
| Scrap waste | People sell the scrap waste personally. | Sold to scrap waste collectors | All the waste is collected by the office. |
| Difficulty level for the community members | Working with waste was a bit easier when the project was there. Now it is more difficult. | Handling the waste has become easier. | No proper time for collecting the waste. it would be easier if both types of wastes would be collected together. |
| Difficulty level for the staff members | Difficult to unite people. Perception matters. People think that the foreigners or the NGOs are there to use the money they get (dollars). | But difficult to convince people on political grounds | Sometimes they do not understand the problem during strikes and bandh. |

| Role of Municipality | No assistance. A private company is involved in collecting the inorganic waste. | Indirect/nominal assistance. Consultation with the municipality has to be done for legal matters. | Direct assistance. The bins provided to the people are financially assisted by the municipality. |
|---|---|---|---|

Note: Though the populations of the different settlements have a difference and the settlements too vary I thought there were certain things as mentioned above compare worthy.

## 7.4 Summing up

This chapter compares the different aspects of waste management in the three communities. The communities with different population size in the community are involved in segregating the waste. But the way they do it is different. That is where we can make comparisons. This also shows if they the projects are successful or not. This chapter is followed by summary and conclusions and findings of my research.

# SUMMARY AND CONCLUSION

This chapter includes the summary and conclusion of my research.

## 8.1 Summary

Solid waste management is a very talked about issue in Nepal today. Lots of garbage is seen piled along the street and in the riversides. Nepal has a very high growth rate. Besides that, the unorganized urbanization is contributing to the unmanaged waste in Kathmandu. Migration is a common phenomenon. People from other parts of the country have migrated to the capital city in search for good facilities, employment opportunities, education and many more.

Rapid urbanization is creating lots of problems in Kathmandu. Air pollution, traffic congestion and problem in managing solid waste management are some. This paper concentrates in solid waste management.

According to the Local Self-Governance Act, 1999 municipalities are responsible to manage the waste. But in Nepal managing the solid waste is considered as failure. Waste management is a complex task which depends on organization and different actors responsible for it like the public and private sectors (Schübeler and Countries, 1996). This paper has focused on the community participation in solid waste management as it is one of the options to tackle the waste and reduced the burden to the municipalities. Thus, broadly, the paper has concentrated on the following questions:

- How are solid wastes managed through community participation (the overall context of the solid waste management process)?
- How does/has the municipality contributed to solve the problems of solid waste through the community participation?
- How two different strategies of community participation work?
- Has the approaches (community participation) resulted as intended in managing waste in Katmandu?

Kathmandu is the capital of Nepal and the most urbanized city of the country though the urbanization is not so systematic. Kathmandu is centrally located and it is the headquarter of central development region. Kathmandu is the city which is the most influenced by urbanization and is affected by the waste problem the most. As, 'Community participation in solid waste management in Kathmandu' is my topic I chose different places and different settlements of Kathmandu involved in managing the solid waste.

I have three study areas:-

**Buddhajyoti** – It is a squatter settlement near new bus park area with 75 household in the community. It started managing waste under a project called EDEN. It started the work in 2005 which continued for 3 years and now the project has phased out and the work of managing waste has been handed to the community people.

**Chamati**- Chamati is a residential area. Chamati area too is involved in waste management through EDEN. Besides EDEN, there are other organizations supporting the community in managing the waste management. There are about 300 to 350 households involved in waste management in this community and EDEN is still trying to convince other people of the community to participate in managing the waste.

**Milijuli, Ganesh Basti and Jagriti Basti-** These areas are located in Chakrapath (Narayan Gopal Chowk) are the residential areas where people of medium to high class live. These areas are on the either side of the ring road. These areas are managing waste under Nepal Pollution control and Environment Management Centre (NEPCEMAC). According to the staff of NEPCEMAC about 500 household in these settlements are involved in waste management. Segregating the household waste has been taken as the focus in this area.

Multipurpose Community Development Service Nepal (MCDs) is an authorized local NGO (Non-government Organization) which works with the underdeveloped communities in the areas of medical, health care, literacy programs, toilet construction etc. There are various projects under MCDS. One of them is EDEN (Entire Development for Environment and Nature). According to the acting project manager of EDEN, MCDS is funded by different organizations. EDEN is funded by a Baptist church organization from Japan. It started its work in 2005 from

Buddhajoti settlement. After handling the project to the community people after three years of its start of the project it started its work in Chamati and still working in Chamati.

Newa Khala is the local organization in Chamati. The local Newars are the members of this organization. Besides its other works it helps EDEN to manage the waste through community participation. It works as one of the support system for Chamati.

NEPCEMAC is the organization which has started its work in managing waste since 1997. It works in different parts of Kathmandu district. According to the staff it has started to make people participate in managing the waste with the assistance of the municipality in small area of Kathmandu in three communities named Ganesh Basti, Milijuli Basti and Jagriti Basti. It has become almost one year since it has started its work.

CRC is a small organization established in Kathmandu (Lagan) in 2004. It is run by a youth club called KMC Youth Corner Club. According to the staff there it was established with a motive to manage the inorganic waste. It gets some financial help from the municipality. It collects the inorganic materials and pays for those materials.

Waste management in Nepal has a history. Long years back when population of Kathmandu was less people used to manage their waste by themselves. They used to have pits called 'saaga' and 'nauga' where they used to manage the waste. According to another source there used to be common courtyard in the houses of Kathmandu where people dumped the waste. Later as the population started increasing waste also increased. Public cleaning totally stopped. Realizing this fact the then Prime Minister started 'Safai Adda' (cleaning office) to manage the waste and a caste group 'Kuchikar' was appointed for the cleaning. This led the people think that waste management was not their responsibility. Later the Safai Adda changed to today's municipality office. The present waste management system in Nepal was developed more than two decades ago in Kathmandu Valley. Implementation of organized solid waste management started in 1980 with the establishment of Solid Waste Management Resource Recovery Mobilization Centre (SWRMC) (Waste, 1996). The Solid Waste Management and Resource Mobilization Act, 1987 (BS 2044) transformed the Solid Waste Management Board into the Solid Waste Management and Resource Mobilization Center (www.mld.gov.np). It was funded by GTZ for the three municipalities in Kathmandu Valley. There were different landfill sited established in different

times. All of them were closed due to the opposition of the local residents on the environmental ground. Sisdol in Okharpauwa has been established as the latest land fill site. There are frequent oppositions from the local people in this site too. People come with different demands and there have been frequent closure of this site for days.

The communities actively involved in managing the waste. Projects have focused in segregating the waste as it is assumed that most of the household waste is of organic type. The communities are provided with the bins. Communities are not much involved in reusing and recycling. Disposal of waste (basically the inorganic one) is not done by the communities. They are dependent in one way or the other to other organizations or private companies.

## 7.2 Conclusion and findings

The rate of urbanization, migration and the problem of solid waste management have become common phenomena of Kathmandu. It has been mentioned in above chapters that people migrate from different parts of Nepal to the capital city for different purpose. As people seek for better opportunities migration in Kathmandu seems unmanageable. The increase in population has a direct relation with waste i.e., increase in population results in increase in waste. Though migration in Nepal is difficult to control waste to some extent can be solved through awareness programs and involvement of communities.

The concepts of PPP, involvement of informal actors, CBOs are the emerging concepts in managing the waste in recent years. Community participation in solid waste management is one of the best options in managing the waste. During my research I could make a study in three settlements. I tried to find out how waste was managed through community participation. In two of those settlements private CBOs and NGOs were active in making the people participate. In the other NGO and municipality were actively involved in the work.

**Management of solid waste in the community (waste generation, recycling, reuse, and disposal)**

The basic thing I explored was that the foremost thing done by the projects were to encourage people in segregating the waste at source. All the communities and projects I approached had the same focus. They said that when the waste was mixed it had no value and could only be dumped.

Segregation was also encouraged because studies show that about 70% of the total waste in Nepal is of organic type which is easily decomposed to use as compost. According to the staff in all the three communities I studied, community members were encouraged to segregate waste but the way it was managed was different. People had their own way of segregating waste. Different organizations approached the communities in their own way. Besides that, the other aspects of waste management like the reuse, recycle, disposal etc are not much practiced. This may be because even segregating the waste in the communities are in initial phase and according to the municipality staff they are trying to develop the habit of segregating waste in the community.

**Municipality and waste management in the communities**

Waste in Kathmandu was managed by the people few decades ago. It was due to some rulers and establishment of municipality office which resulted in the shift of cleaning as the job of the municipalities and not the common people. Municipality has the responsibility to manage the waste. Now, when handling the solid waste alone has become a problem for the municipality initiatives have been taken to start encouraging people to participate in solid waste management. All the three studies areas come within the metropolitan area. Buddhajyoti settlement does not receive any facilities from the municipality; in Chamati people are not much satisfied with municipality. They expressed their aggression regarding the waste management and other facilities as well. The community members of Chakrapath/Chappal Karkhana are getting the help from the municipality (got the buckets with the financial help from the municipality) but it was through an organization and not the municipality itself so it does not make any difference for them as well. They say that the service charge was increased when they convinced the people to segregate the waste. It's like give and take relationship between the office and the community people.

According to the staff of the projects municipality only stands as a legal organization. Municipality is trying to work in this sector now because private companies and NGOs are doing better jobs than them. Municipality talks and but there is no action. Municipality is a government body and as the project heads say municipality has the power and authority to make the rules and laws work. It should not only stand as a formal organization.

Thus, I did not find municipalities playing any important role in the communities as it has to and as it is expected in my study areas.

**NGOs and waste management in communities**

Role of NGOs in my study area:

**Buddhajyoti**

The attempt of EDEN to manage the waste in Buddhajyoti cannot be considered as a total failure. But it was the first attempt to make people participate in the management of waste so, it is praise worthy. This is also because the community members are still trying to make the community people participate actively in the work as they did before. But there are certain things lagging in this settlement. This is not from the project side but I think from the community itself. According to the EDEN staff and the community members too, the committee in the community is not so serious about the work here. It was difficult to convince people in doing the work since they can use the alternatives of dumping waste in the river.

Comparing to the other communities I felt that community equally has to take the responsibility of the work they are doing. There has to be someone/something in the community that can control or that can influence the community for betterment. Buddhajyoti lags in this matter.

**Chamati**

Chamati is another settlement where EDEN is working. Besides that, the local involvement of organizations seems to have encouraged people in the management of waste. Though the organizations are working in the same field and in the same settlement but personally I felt that they have different roles to play. The work of managing waste has been initiated by EDEN. According to the municipality staff people of Chamati also had received trainings from the municipality to manage the waste. Now the results seem better because they are working together. EDEN has been working there for only two years but Newa Khala being the local organization will always be there to guide the people and encourage people to carry on their waste management unlike in Buddhajyoti.

With the increase in population much of the vacant land has disappeared. It has been mentioned in above chapter that municipality claims that there has been haphazard development of settlements in Chamati. According to the EDEN staff they encouraged the people to use the bins there because barren land in Chamati was not available. The unavailability of land in Chamati

area has become a benefit for the people there. The way the municipality staff used the metaphor of the fish and the net and his explanation for it is more applicable in Chamati area. The management of the waste in the household itself is giving sustainability in managing the waste. People are getting training, guidelines and help for composting the waste. In other words they are empowered and becoming independent in this sense. The EDEN staff said that the tenants too are involved in managing the waste and if they move they carry the bins with them. The EDEN staff took it as a problem. But personally, I felt that it was a benefit. The members who move from one place to the other with the bin still manage the waste by themselves. They might bring along the bins because they have paid for it. The composting bins I suppose cannot be used for other purpose other than composting. Thus, they are not dependent to others even when they go to a new place. Besides that, they may also help others who are interested to manage the waste in their own. In this way, managing the waste individually in a community seems more sustainable to me.

On the other hand, as explained by the municipality staff NEPCEMAC and municipality is serving the fish to the community members and more than that I feel they are serving the cooked fish.  According to the waste collector he does not collect the waste if he finds it mixed. He does so because he is told not to collect the waste by the office staff. It is then collected by the other staff as inorganic waste. In this way, the community member may not have the feeling to segregate the waste and they cannot be compelled too. Their waste is collected by either of the people. According to the waste collector they could also subscribe people to manage the waste for them. This means that NEPCEMAC sometimes acts as a regular private waste management office where people involvement in waste management as a basic service. People may not know why they are getting different bins and what the office staff is up to.

Solid waste management includes many activities besides segregating the waste. There are so many things that can be done reuse recycle, proper dumping etc. But the communities in one or the other way depend upon the service providers or the municipality van to get their waste disposed. Recycling of papers in Buddhajyoti and planning to recycle the paper in Chamati (using the recycling machine) do not seem practical. It cannot be conducted in a high level like an industry. The recycled papers and reused plastic handicrafts in small level may not help in

community development. The idea of plastic handicrafts is a good effort to reuse the plastic bags but that too is costly and may not be sustainable.

## 8.3 Important factors

There are some important factors that all the actors of community participation have to understand. They are as follows:

- NGOs and municipalities lag behind in providing awareness (people dump their waste in the river; they burn the waste even after their initiation to manage the waste, implementing ban in littering).

- Managing waste is a responsibility and not only a service.

- Municipality has to be more active (not stand only as a formal organization, use power and authority to make policies and laws and implement them) and the people have to be more responsible.

- There has to be sustainable organizational setup: NGOs, municipality itself, CBOs, PPP.

## 8.3 Summing up

Community participation in solid waste management may always be a learning phase for all the people involved. The communities, the projects, the way the waste is handled may always differ from one community to the other. It is not necessary that the same approach may be fruitful and successful to all the communities. The people concerned have to take the responsibility for what they do and what they do not.

# Reference

Aankhijhyal (n.d). *Waste disposal in Bagmati River bank.* Nepal Forum of Environmental Journalist (NEFEJ). Report by Umesh Mandal. Broadcasted in Nepal Television, Kathmandu, Nepal.

Ahmed, S. A., & Ali, M. (2004). *Partnerships for solid waste management in developing countries: linking theories to realities\* 1.* Habitat International, 28, 467-469

Anschütz, J. (1996). *Community-based solid waste management and water supply projects: problems and solutions compared.* Urban Waste Expertise Program (UWEP), Community Participation in Waste Management, UWEP Working Document No.

Basyal, G. K., & Khanal, N. R. (2001). *Process and characteristics of urbanization in Nepal.* Contributions to Nepalese Studies, 28, 187-225.

Bjerkli, B., & Zelalem, Y. (2010). *Between neglect and control: questioning partnerships and the integration of informal actors in public solid waste management in Addis Ababa, Ethiopia.* African Studies Quarterly, 11.

Bernstein, J. (2004). *Toolkit: social assessment and public participation in municipal solid waste management. World Bank.* [Online] http://www. worldbank. org/urban/uswm/socialassesstoolkit. pdf [Access date: 8 October 2007].

Bhattachan, K. B., Sunar T. B., Bhattachan,Y. K., & Indian Institute of Dalit Studies. (2009). *Caste-based discrimination in Nepal.* Indian Institute of Dalit Studies.

Bulle, S. (1999). *Issues and results of community participation in urban environment.* UWEP Working Document, 11.

Cointreau-Levine, S., & Urban Management Program. (1994). *Private sector participation in municipal solid waste services in developing countries.* World Bank.

Coyne, I. T. (1997). *Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries*? Journal of advanced nursing, 26**,** 623-630.

Cooke, B., & Kothari, U. (2001). *Participation: the new tyranny*?. Zed Books.

Craig, G., & Mayo, M. (1995). *Community empowerment: a reader in participation and development*. Zed Books

Creswell, J. W. (2007). *Qualitative inquiry and research design: choosing among five approaches*: Sage Publications, Inc.

Dangi, M. B. (2009a). *Solid waste management in Kathmandu, Nepal: The anatomy of persistent failure*. Published Doctoral Thesis, the Johns Hopkins University, Baltimore, MD. ProQuest LLC. Ann Arbor, MI, USA.

Dangi, M. B. (2010b). *Kathmandu's solid waste problem: what works, what doesn't*. nepalnews.com (Assessed on 29 March, 2011).

De Vaus, D. A. (2002). *Surveys in social research*. St. Leonards, NSW.

Dhakal, N. (n.d). *Urban management of Kathmandu valley*: hubpages.com/hub/Urban-Management-of-Kathmandu-Valley. Accessed on 29/08/2010

Dhakal, T. N. (2007). *Challenges of civil society governance in Nepal*. Journal of Administration and Governance, 2**,** 1.

Dhital, M. (n.d). *Legislation on health care waste management in Nepal*. www.authorstream.com/.../meghnath-466342-legislation-hcwm-in-ne... (last accessed 23/03/2012).

Fernando, J. L., & Hestonm A. W. (1997). *NGOs between states, markets, and civil society*. Annals, 554, 8-193.

Gautam, R., & Herat, S. (2000). *Environmental issues in Nepal and solving them using the cleaner production approach*. Journal of Cleaner Production, 8, 225-232.

Ghimire, B. (2009). *Batabarab   Byabasthapan maa NEPCEMAC ko prayas.* [Effort of NEPCEMAC in environment management]. NEPCEMAC Sandesh. Kathmandu, Nepal

Gobo, G. (2004). *Sampling, representativeness*. Qualitative research practice, 435.

Gillespie, D. F. (1995). *Ethical issues in research*. Encyclopedia of social work, 50, l9th.

Golafshani, N. (2003). *Understanding reliability and validity in qualitative research*. The qualitative report, 8, 597-607.

Government of Nepal National Planning Commision (2010). *Three year plan approach paper (2010/2011-2012/2013).* National Planning Commission. Kathmandu, Nepal.

Central Bureau of Statistics, Government of Nepal National Planning Commision (2011). *Preliminary result of national population census 2011 realesed.* Central Bureau of Statistics. Kathmandu, Nepal. www.cbs.gov.np (Accessed on 22 June, 2012).

Hachhethu, K. (2003). *Democracy and nationalism interface between state and ethnicity in Nepal*. Contributions to Nepalese Studies, 30, 217-252.

Hangen, S. (2001). *Creating new Nepal: ethnic dimension*. East West Center Washington

Joseph, K. (2006). *Stakeholder participation for sustainable waste management*. Habitat International, 30, 863-871.

Joshi, S. (2003). *Air pollution in Nepal*. Kathmandu University Medical Journal, 1.

KC, B. K. (2003). *Internal migration in Nepal*. Population Monograph of Nepal, 1.

Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Sage Publications, Inc.

Koirala, K. R. (2009). *2065 BS: a year of strikes: 768 strikes, 1,011 road blockades*. Republica. Nepal Republic Media Pvt Ltd. Kathmandu, Nepal. 14 April, 2009.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Sage Publications, Inc.

Kvale, S., & Brinkmann, S. (2008). *Interviews: Learning the craft of qualitative research interviewing*: Sage Publications, Inc.

Montgomery, L. (2002). *NGOs and the internet in Nepal*. Journal of Computer-Mediated Communication, 7**,** 0-0.

Mugagga, F. (2006). *The public-private sector approaches to municipal solid waste management. How does it work in Makindye division, Kampala district, Uganda.* Master's thesis, NTNU, 20.

Nyachhyon, B. L. (2006). *Prospects and constraints of public private partnership for urban waste management*. HMG EPN/ADB.

Page, N., & Czuba, C.E, (1999). *Empowerment: What is it.* Journal of extension, 37**,** 1-5

Pokhrel, D., & Viraraghavan,T. (2005). *Municipal solid waste management in Nepal: practices and challenges*. Waste Management, 25, 555-562.

Rathi, S. (2006) *Alternative approaches for better municipal solid waste management in Mumbai, India*. Waste Management*,* 26**,** 1192-1200.

Schübeler, P., & UNDP/UNCHS/World Bank/SDC Collaborative Program on Municipal Solid Waste Management in Low-Income Countries (1996). *Conceptual framework for*

*municipal solid waste management in low-income countries*. Swiss Centre for Development Cooperation in Technology and Management.

Sharma, P. (2003). *Urbanization and development*. Population Monograph of Nepal Volume, 1.

Sherpa, N. C. (n.d.). *Waste Management Initiatives and Challenges of Nepal*. Ministry of Environment, Science and Technology, Nepal.

Simon, D. (2006). *Your questions answered? Conducting questionnaire surveys*. London: Sage Publications.

Tesch, R. (1990). *Qualitative research: analysis types and software tools*. Routledge.

Tiwari, I. P. (2008). *Urban migration and urbanization in Nepal*. Asia-Pacific Population Journal, 23, 79

Thapa, G. B. (1998). *Lessons learned from solid waste management in Kathmandu, Nepal.* Habitat International, 22, 97-114.

Urban Waste Expertise Program Waste. (1996). *Community participation in solid waste management in Patan: Integrated Pilot Project of Patan conservation and Development Program: Case :Solid Waste Management in Subahal Tole*. Kathmandu, Nepal.

Udaya, G. M. (2010). *Profitable waste management*. The Himalayan Times. International Media Network Nepal Pvt. Ltd. Kathmandu, Nepal. 20 August 2010.

Van de Klundert, A., & Lardinois, I. (1995). *Community and private (formal and informal) sector involvement in municipal solid waste management in developing countries*. WASTE Consultants, Advisers on Urban Environment and Development, Nieuwehaven, 201, 2801.

Wateraid. (2008). Solid waste management in Nepal. www.wateraid.org/other/startdownload.asp?DocumentID=337. Accessed on 24/11/2010

White, P., Franke, M., & Hindle, P. (1999). *Integrated solid waste management: a lifecycle inventory.* Aspen Publishers.

Willetts, P. (2002). *What is a non-governmental organization? output from the research project on civil society networks in global governance*, http://staff. city. au/CS—NTWKS-ART. HTM.

……………. (2011). *Landslides block road, garbage disposal hit*. The Kathmandu Post. Kantipur Publications. Kathmandu, Nepal. 17 July, 2011. ekantipur.com. (Accessed date 15 March 2012).


**Internet source**

- www.Kathmandu.gov.np (Accessed on 15 January 2011).

- www.mld.gov.np/swm/policy.htm (Accessed on 15 March 2012).

- www.unep.or.jp (Accessed on 20 March 2012).

- www.socialresearchmethods.net/kb/sampling.php (Accessed on 15/02/2011).

- www.experiment-resources.com (Accessed on 29 December 2011)

- www.visit nepal.com /Nepal ... /ngo_in_nepal.php -Non Governmental Organizations in Nepal.  (Accessed on 7 June 2012)

- www.wepco.org.np (Accessed on 7 May 2012)

Other sources

- EDEN brochure

**Appendix I**

**Questionnaire**

1. Name/surname…………………………………………………………………………..…
2. Age………………………………………………………………………………….……
3. Sex………………………………………………………………………………….……..
4. Address
   Permanent……………………………………………………………………………………
   Temporary……………………………………………………………………………………

5. Household member……………………………………………………………………………
6. **When did your community start managing the waste?**

   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………

7. **How did you manage the waste individually (before)?**

   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………
   …………………………………………………………………………………………………

8. **What is the Total waste generated in your home?**

In a day……………………………………………………………………………………………….

In a week…………………………………………………………………………………………………

9. **What are the types of waste generated in your home?**

Organic……………………………………………………………………………………………….

Inorganic……………………………………………………………………………………………….

Reusable……………………………………………………………………………………………….

Recyclable……………………………………………………………………………………………….

Others……………………………………………………………………………………………….

10. **How do you participate in waste management?**

Waste collection……………………………………………………………………………………………….

Reusing/recycling waste……………………………………………………………………………………………………………….

Disposal of waste………………………………………………………………………………………………………………………

Decision making…………………………………………………………………………………………………………………………

## 11. Do you bear the waste management costs?

Yes………………………………………………………………………………………………………………………………..

How?………………………………………………………………………………………………………………………….

No ……………………………………………………………………………………………………………………………..

## 12. What are the services provided to you by the municipality?

……………………………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………………………

……………………………………………………………………………………………………………………………………………

## 13. Do you have any problems managing the waste?

During strikes (bandh) ……………………………………………………………………………………………….

Problem from Municipality……………………………………………………………………………………………….

Others……………………………………………………………………………………………………………………….

## 14. Do you have any expectation from the project or the municipality?

………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………
………………………………………………………………………………………

## 15. What else do you think should be done to manage the waste?

………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………
………………………………………………………………………………………………………………………

**Appendix II**

**Interview guide I**

1. When did municipality start community waste management?

2. How does the municipality choose the community?

3. How long does the training/assistance exist?

4. What about the reuse and recycle?

5. What is the responsibility of municipality is it only collecting waste in the street side?

6. What about the door to door collection?

7. Has the municipality worked in its own or with others?

8. How do you use the compost when people have very small houses and no area for farming?

9. Can composting be done in professional way?

10. Is it the landfill site that community has to depend for the waste disposal?

11. Municipality has power, why does it not use it to manage the waste?

12. Is community participation about segregating the waste?

**II**

1. Why did you choose the particular area for community participation?
2. Problems to make people participate in the waste management
3. How do you manage the financial matters?
4. When did the work start?
5. Is community participation about segregating the waste?
6. How does the municipality help you/your project?