

Livelihood and Sustainability of Informal Waste Workers in Kathmandu Valley: A Qualitative Narrative Inquiry

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Abstract: Managing waste in growing urban cities is an increasing challenge day by day. Waste management is one of the basic essential services provided by local authorities and regulated bodies. Solid waste management includes collection, segregation, sorting, treatment, transportation, and final disposal. Along with the formal sector, the informal bodies are also active in Nepal. Informal waste workers are contributing to waste minimization and promoting environmental justice by involving in recycling activities. This study aimed to explore the five sustainable components (Human, Social, Physical, Financial, and Natural) of informal waste workers. The study was undertaken in the Kathmandu Valley by qualitative narrative inquiry. It was found that the income of informal waste workers varied, was unstructured, and was unpredictable. There is a need for the personal safety of waste workers to improve their quality of life. The study found that the workers are most vulnerable in terms of social capital, as they have poor relationships with their communities. It is important to incorporate them into the waste management system and acknowledge their contributions to the environment.

Keywords: Environment, Informal waste workers, Livelihood, Narrative inquiry, Sustainability, Waste management

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1. Introduction

The world urban population is expected to increase by 72 percent by 2050, from 3.6 billion in 2011 to 6.3 billion in 2050 (UN, 2011). By the mid-century the world's urban population will likely be the same size as the population increases, cities emerged, urban settlements expanded, and related economic activities grew bigger day after day (Babybonela, 2013). This has increased municipal solid waste (MSW) generation. According to Hoorweg and Bhada-Tata (2012), the current global municipal solid waste generation of 1.3 billion tons, is expected to reach 2.2 billion tons in 2025. The amount of waste generated in Asia is projected to reach 657 million tons in 2025 compared to 277 million tons in 1998 (Swati, 2009), an increase of 137 percent.

In the past, when humans were mostly nomadic, natural decomposition was sufficient to manage the waste they generated. However, with the increasing amount of waste being produced, natural decomposition is no longer a viable waste management strategy. Failure to properly manage this waste can have negative consequences for both human health and the environment. In response, humans have

introduced conventional waste management methods. However, these methods, particularly in developing countries, face challenges such as a lack of collection trucks and inadequate working conditions (Babybonela, 2013).

Waste constitutes a key developmental and environmental issue. It is an almost mandatory consequence of human activity. Today humans generate more waste than ever before, not only because of the dramatic population increase over the past centuries but also because of the changing nature of consumption and the different composition of solid waste. Transference toward waste segregation at the household level and minimization of generating waste if possible and away from depositing it at landfills is important. There is more consumption and production waste with population growth. More comfortable segments of the population consume more and generally, their consumption also produces a stronger environmental influence. People engaged in waste management are also aware that they are critical economic agents, as they provide recyclable materials to formal enterprises and generate demand for service providers. Waste pickers' or waste workers' efforts reflect well on cities' cleanliness. Formally recognized or not, waste

workers play a significant role in cities' solid waste management systems.

The Sustainable Livelihood Approach was developed by organizations in the Global South and owed much to the work of Amartya Sen, the United Nations Human Development program, and Robert Chambers' work on the "wealth of the poor" and participatory methodologies. He offers the following definition of a livelihood:

A livelihood comprises the capabilities, assets, and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and provide sustainable livelihood opportunities for the next generation (Chambers & Conway, 1992). The notion of sustainable livelihood contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Solid waste management in Nepal

The population in cities is growing rapidly, leading to an increase in waste. This is due to urbanization, amenities, job opportunities, more access to education and medical services, and advancements in technology and commerce. As a result, the waste generated in the Kathmandu Metropolitan City (KMC) and even in the Kathmandu valley have become a problem for the environment, including a lack of proper segregation of household waste, human's less sensitiveness towards ecology, unfair competition, uncontrolled industrial waste, chemical waste from factories, medical waste from healthcare institutions, and harmful waste. The Local Self-Governance Act (1999) mandates the KMC to take responsibility for solid waste management. However, federalism in Nepal has provided local governments to develop local acts and regulations on the base of their needs and future planning.

Formally and Informally, various Private Sector Organizations (PSOs) have also engaged in waste collection and its management. Not only the KMC is facing the foremost challenges when there is a collection of waste without segregation, lack of reduction, reuse, and recycling of solid waste. Managing the transfer center and landfill site in an environment-friendly manner has also become a challenge due to the less conscious and poor condition of the access road to the landfill sites, the ineffective transport system, and the involvement of PSOs in waste management activities without obtaining the well sustainable system and authorized process (Urban Development Ministry, 2015).

According to the Solid Waste Management (SWM) Act (2011), solid wastes need to be managed systematically and effectively by reducing at their source, reuse, processing, or discharge to maintain a clean and healthy environment by decreasing adverse effects that may cause negative effects on people and as well the environment. Therefore, the SWM activities carried out by the KMC need to be assessed. For the policy arrangement: The Solid Waste Management National Policy, 1997 (2053 BS) is the main policy document for managing solid waste. The policy has envisaged the objectives to be achieved; make solid waste management work simply and effectively, decrease environmental pollution and adverse effect on public health caused by waste, mobilize waste as a resource, garnish

public participation through promoting public awareness, and privatize the solid waste management work.

The Nepal government has various legal documents like the Solid Waste Management Act (2011), Environment Protection Act (2019), and Local Government Operation Act (1017) supporting the overall management of waste management and environment protection. Safe and efficient waste collection systems are the foundation for recycling and managing waste and protecting our environment.

Waste collectors contribute to the cleaning of our environment through their daily collection work (ILO, 2010). However, waste collectors often face risks associated with their collection work, such as handling heavy and dangerous waste, traffic accidents, or a hot working environment. Instead of these hazards, they have been living for a minimum to fulfill the basic requirement. There is no such research available that supports how can informal waste workers increase their potentiality for livelihood with the purpose of the study is to find the perception and status of informal waste workers for their livelihood sustainability.

In the legal paper, everything is addressed instantly to ensure the contribution and platform creation for those who are involved in these sectors but practically their recognition is not captured even though there is no positive initiation where these people can directly involve and enhance environmental justice. Localization and amendment of such legal bindings are crucial to make it more practical by identifying gaps, reflecting on how it is working, and how can be made more flexible and workable therefore, many of the stakeholders can contribute positively to managing waste, changing their behavior towards community and individuals.

Sapkota et al., (2020) showed that Informal Waste Workers' (IWWs) median income was 500 NPR/day and besides their income, these people have been suffering from a lack of social security, and social rights and face multiple social challenges including varieties of discrimination. People are treating the nature of occupation where everyone has the right to survive and freedom to live whatever they want to do with respect to national bindings, but it is seen that the social barriers and attitudes of people or dwellers are the major influencing factors.

A livelihood comprises not only the material world, but it also doesn't encompass only the earnings. However, the living of the informal waste workers in the wider context; sociological, emotional, and relational attachment were not drawn by any research. Therefore, this paper tried to establish a wider connection of livelihood scenarios of the informal waste workers.

There are lots of hidden narratives of the individual, living experiences, ways of thinking, and ways of acting to cope with the situation, exploration is important to localize the local or individual belief system. This paper has also the supposition that it can support empowerment and awareness and provide some insights into one's own ways of living.

One of the findings of the qualitative research by Sapkota, et al., (2020) stated that informal waste workers

are suffering from different types of discrimination as verbal abuse (called derogatory names and profanity). Discrimination is not limited only to the professions but also their place of origin. For covering wider views of livelihood, the social aspects should be incorporated into the daily living of people, these types of behaviors from community people do not add to the sound health of the people and affect the sustaining of the livelihood.

For sustaining the livelihood means of the informal waste workers, it has focused mainly on financial access whether it covers many other aspects of meaningful living. Therefore, other means like human capital, natural capital, social capital, and physical capital, are not covered. These can be done by recognizing them as a part of the individuation and improving their living standard. Therefore, the study aims to explore informal waste workers' livelihood and sustainability.

The theme of the ninth meeting of the Conference of the Parties to the Basel Convention was Waste Management for Human Health and Livelihood (HLPF, 2018). The sustainable livelihood idea was first introduced by the Brundtland Commission on Environment and Development, and the 1992 United Nations Conference on Environment and Development expanded the concept, advocating for the achievement of sustainable livelihoods as a broad goal for poverty eradication.

The Sustainable Development Goals (SDG 2015-2030) offer a comprehensive plan for enhancing lives globally. Effective waste management that aligns with the principles of the Basel Convention is crucial for protecting human health and improving livelihoods.

Solid waste management has been a critical issue for urban areas (Devkota et al. 2004). A vast quantity of uncontrolled waste disposal and the inability to collect it is the major problem for waste management in developing countries (ESCAP, 1995; Blight and Mbande, 1998). Normally wastes are collected and treated by municipalities (UNEP/ GRID-Arendal, 2006). The waste composition differs from developing countries with a high proportion of organic waste, averaging well more than 50% in most cases, to developed countries having a large fraction of paper and plastic (Dhussa and Varsney, 2000; Stentiford et al. 1996). The trend of solid waste generation has transferred from developed to developing countries resulting in urbanization and industrialization (AIT, 2004).

Hussein's (2018) research on the sustainability and informal waste collectors' livelihood, and solid waste management in urban areas showed that Tanzanian collectors had a reasonable possibility of success and a workable means of sustenance. Despite the fact that waste collectors transported rubbish using pushcarts and head-carrying sacks rather than cutting-edge equipment. Although the facts may present us with perplexing quandaries, possibilities are all around us and depend entirely on our way of thinking. There are opportunities when it comes to making money, and in terms of waste, it's actually not waste. It is a major source of information on people's various lifestyle choices and widespread environmental concern.

However, there was not enough information provided to address how the money earned might be kept sustainable. Fofana (2009) reported that the average monthly income of informal solid waste collectors in Sierra Leone is greater than the minimum pay for a formal sector job. As a result, this research again provides an in-depth analysis of how informal solid waste collection as a livelihood strategy in metropolitan towns may be made more accurately sustainable on a global scale rather than just concentrating on people's increasing financial resources.

Cycle hawkers and also waste pickers are the pioneers of waste reduction since they make a living by selling the waste they collect (Pacheco 1992). In general, persons who live lives tied to waste and means of subsistence are viewed as having lesser-valued jobs in Nepal. As a result, individuals from all over the country and the neighboring country are drawn to this type of work; nevertheless, many of them are progressive and have been employed for a longer time. Workers interact with scrap shops in a variety of casual or official ways. Scrap collectors, who either pick up trash from the street or purchase it from house owners, are the major means of establishing employment.

These studies indicated that waste is not a useless thing, but has a high monetary value, which has supported many people for their living and should be acknowledged for their contribution to waste management. Majumder (February 2011) stated in a conference paper that 28.98% of solid waste generated could be reused/ recycled whose selling value is higher. By recycling unwanted items and keeping cities clean, employees inadvertently benefit people, communities, and the environment while also sustaining themselves. However, such waste workers face many challenges just to get by each morning and each evening. Exploration of the improvement of the means of subsistence for informal waste workers is ever significant.

2. Materials and methods

This research utilized a qualitative narrative inquiry design to address the research questions.

This storytelling as narrative inquiry explored the situation of livelihood purposively. There were five participants for this study including two female informal waste workers (Nepalese -3, Indian -2) selected purposely from the informal clusters. Those selected participants usually collect household recyclable waste and sometimes work for a scrap dealer to segregate the recyclable waste. They were residing in the Bagmati and Bishnumati corridors of Kathmandu Valley.

The study employed open interviews with them to collect data. The researcher collected primary data through direct observation, interviews, and focus group discussions.

3. Results and discussion

3.1. Length of time engaged daily (social capital)

Minimally people spent 5 hours per day to get a minimum income for daily survival, participants expressed that they have no fixed time for collection of recyclable waste. People should have more access beyond routine work as a definition by Scoones (1998), social resources link with the social networks, social claims, social relations, affiliations, and associations upon which people draw when pursuing different livelihood strategies requiring coordinated actions.

The trend of spending time as a daily survivor is not following any fixed routine because the collection of recyclable materials is not confirmed at all, sometimes if they get labor work, they do. Interviewed informal waste workers have no schedule to go for buying the scrap materials, and randomly they are spending their time on work. The working time is uncertain, and they have been investing valuable time just for livelihood to fulfill the basic requirements (food, shelter, and clothes).

3.2. Daily income and saving of waste workers (financial capital)

Income or financial capital consists of the access to capacity for cash, savings, credit, and debt. It also comprises the basic infrastructure, equipment, and technologies needed to pursue any form of livelihood strategy (Scoones, 1998).

It was difficult to discover the exact regular income although on average all respondents responded that they have an average daily income ranging from NPR.400 to NPR. 600. It was found that respondents who have been working for a longer period comparatively have more income than those who joined recently, and it was reflected in the saving pattern. They are not doing any significant savings where they work. Most of the savings are related to fulfilling the loan installment, taken from local vendors or locally available financial institutions.

3.3. Satisfaction and happiness of informal waste workers

The participants expressed that they are happy and want to continue their job. However, they expect some facilities from the community and government. Where, (IFAD) International Fund for Agricultural Development (2008), defines physical capital in relation to the sustainable livelihood approach as infrastructure, houses, buildings, communication, tools, and equipment. Unhappy or unsatisfactory with this profession is related to the fact that they will not get similar benefits and freedom in another business. People who are engaged in this sector are much more unstructured. Sometimes the same people sell vegetables on a bicycle, some get labor work, and some even engage in construction work. Therefore, the workers are situational and ready to do any type of work that makes them money. Taking the definition of IFAD, informal waste workers are very far from access to well-being in the infrastructure, houses, and communication, and even they do not use proper safety equipment while working in risk areas.

3.4. Waste workers' contributions to urban sustainability and natural capital

Despite the noticeable presence of informal waste workers in many cities in Nepal, their contribution to the urban environment and economy is largely overlooked and underappreciated by city planners who adopt a rational-modernist approach to suburbanization that relies on the use of capital-intensive machinery imported. However, in cities without household collection or municipal recycling systems, waste workers play a crucial role in addressing a pressing challenge of the 21st century, the growing amount of solid waste. A growing body of evidence highlights the significant impact that informal waste workers have on cities' solid waste systems, the environment, the economy, and the quality of public spaces. Informal waste workers are valuable assets to their cities.

In detail, the efforts of informal waste workers help to extend landfills' lifespan by reducing the amount of waste that needs to be disposed of. Additionally, they play a crucial role in the economy by supplying recyclable materials to the recycling market that would otherwise go to waste.

According to Chambers and Conway (1991) through the sustainable livelihood approach, natural capital can consist of land and water resources, forest products, wildlife and biodiversity, and environmental services, to name a few. Informal waste workers play a crucial role in preserving the environment by recovering materials for reuse or recycling and supplying valuable inputs to the global recycling industry. They not only promote material recovery but also improve the quality of life in their working areas.

Human capital includes a range of aspects, including one's health, education, knowledge and skills, and capacity to work (Scoones 1998). The informal waste workers suffer from a chronic cough, back, and knee pain, and enhanced exposure to bacteria, and viruses. A dog bite is very common and serious to them. Treatment procedure is not well accessible to them.

The high number of homeless individuals in the city who make a living from collecting waste, and lacking basic necessities, highlights a pressing public issue. By recognizing the informal waste workers as a crucial part of the waste management process, local governments, recycling companies, and NGOs can work together to improve their situation. This can be achieved by expanding recycling opportunities by creating more buy-back centers and promoting entrepreneurship among the informal waste workers, allowing for a wider range of recyclable goods to be collected and reducing the amount of waste sent to landfills.

Sustainable livelihood for waste workers is an important issue that requires attention and action from various stakeholders. Waste workers, who are often marginalized and facing various challenges, play a crucial role in managing waste and keeping communities clean. However, they often lack access to decent working conditions, proper equipment, and a stable income.

To ensure a sustainable livelihood for waste workers, it is important to recognize their work as a valuable part of

the waste management process and to provide them with the necessary support. This can include providing them with proper equipment and training to improve their working conditions and increase their efficiency. Providing access to affordable housing, easy access to their children's education, and healthcare can also improve their overall well-being. Another important aspect is to improve the economic viability of their work. This can be achieved by establishing more buy-back centers, subsidizing for establishing scraps, and proper places for segregation with wider awareness to household people to 'segregate the waste at sources' and encourage all to create such an environment where waste workers can sell their collected waste, as well as by promoting entrepreneurship among them. This would increase their income and reduce their dependence on informal waste collection.

Additionally, it is important to involve waste workers in decision-making processes related to waste management. Their voices and perspectives should be heard in the development and implementation of waste management policies and programs. This will ensure that their needs and interests are taken into consideration, leading to more effective and sustainable solutions.

It is an issue that should be addressed by governments, NGOs, and the private sector, working together to create a more equitable and sustainable future for all.

4. Conclusion

A study of informal waste workers in the Kathmandu valley showed that they lack skills and have low levels of education, making them outside of the formal employment sector. Their earnings are inconsistent to support their families. The study found that the workers are most vulnerable in terms of social capital, as they have poor relationships with their communities.

It is important to address the issues faced by these workers, which can be done by organizing them to have a common voice and be recognized in policies, incorporating them into the waste management system, and acknowledging their contributions to the environment. Providing support and services to these workers according to the specific needs of each region, while recognizing their value as members of the community, is essential for the urban informal economy of the country. To address their issues, it is important to organize them, include them in the waste management system, acknowledge their contributions to the environment, and provide support and services based on the specific needs of each region. Recognizing their value as members of the community is crucial for improving the sustainable livelihood of the waste workers.

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References

- Babybonela, T.W., (2013). Local Resources Mobilization Towards Sustainable Solid Waste Management in Tanzania: A Case of Kinondoni Municipality, Dar Es Salaam City.
- Chambers, R & Conway, G. (1991). Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. Brighton: Institute of Development Studies. http://publications.iwmi.org/pdf/H_32821.pdf
- Chambers, R. & Conway, G.R., 1992. Sustainable rural livelihoods: practical concepts for the 21st century. *IDS Discussion Paper*, 1-29.
- Denzin, N.K., & Lincoln, Y.S. (2005). Introduction: The discipline and practice of qualitative research.
- Devkota D.C., Watanabe, K. & Dangol, V. (2004). Need for Alternative Approaches in Solid Waste Management - Case Study Kathmandu Valley. 30th WEDC International Conference: People-Centered Approaches to Water and Environmental Sanitation. Vientiane, Lao PDR.
- Dhussa, A.K. & Varsney, A.K. (2000). Energy Recovery from Municipal Waste - Potential and Possibility, *BioEnergy News*, 4(1), 18-21.
- Dias, S. M. (2016). Waste pickers and cities. *Environment and Urbanization*, 28(2), 375-390
- EPA (1996). Pick Up Savings: Adjusting Hauling Services While Reducing Waste.
- Haub, C.A.R.L. (2007). World population highlights: Key Findings from PRB's 2007. World Population Data Sheet, Population Bulletin, 6(3), 1-16.
- Hoornweg, D. & Bhada-Tata, P. (2012). What a waste: A global review of solid waste management, in urban development series; knowledge papers no. 15. The World Bank: Washington D.C.
- Hussein, M.O. (2018). Sustainability of Informal Solid Waste Collection Livelihood in Urban Areas; A Case of Kinondoni Municipality, Dar EsSalaami, City. Tanzania.
- International Fund for Agricultural Development (IFAD) (2008). The Sustainable Livelihoods Framework. <https://www.soas.ac.uk/cedep-demos/.../SLFramework.ppt>
- ILO, (2010). Work Adjustment for Recycling and Managing Waste. Action manual for waste collectors and communities to promote their joint actions in improving safety, health and efficiency in waste collection and management.
- Khanal, B. (2008). Baseline Information on Solid Waste Management of Kathmandu Metropolitan City of Nepal. Solid Waste Management and Resource Mobilization Centre Ministry of Local Development Lalitpur, Nepal.
- Luitel, K.P. & Khana, S.N. (2010). Study of Scrap Waste in Kathmandu Valley. Department of Environmental

- Science and Engineering, Kathmandu University, Nepal.
- Mbaye, M.A.A. (2014). *The Informal Sector, Growth, Employment, and Sustainable Development*, University Cheikh Anta Diop Dakar, discussion note, Sénégal.
- McKechnie, L.E.F. (2008). Observational research. In Given, L. M. (Ed.), *The sage encyclopedia of qualitative research methods*, 573–577
- Merriam, S.B. (1998). *Qualitative research and case study applications in education*, San Francisco: Jossey-Bass
- Neogi S.K. & Mukherjee. S.K. (2000). Recycling municipal solid waste. 26th WEDC Conference: Water Sanitation and Hygiene: Challenges of the millennium. Dhaka, Bangladesh
- Pokhrel, D., & Viraraghavan, T. (2005). Municipal solid waste management in Nepal: Practices and challenges. *Waste Management*, 25(5), 555–562.
- Sapkota, S., Lee, A., Karki, J., Makae, P., Adhikari, S., Chaudhuri, N., & Fossier-Heckmann, A., (2020) Risks and risk mitigation in waste-work: A qualitative study of informal waste workers in Nepal. *Public Health in Practice*
- Scoones, I. (1998). *Sustainable Rural Livelihoods: A Framework for Analysis*, IDS Working Paper 72, Brighton: IDS. <https://opendocs.ids.ac.uk/opendocs/handle/123456789/3390>
- SWMRMC (2004). *A Diagnostic Report on State of Solid Waste Management in Municipalities of Nepal*. Lalitpur: Solid Waste Management and Resource Mobilization Centre.
- UN (2000). *State of the Environment in Asia and the Pacific*. United Nations Economic and Social Commission for Asia and Pacific and Asian Development Bank (ESCAP & ADB), United Nations Publication, New York
- UN DESA, (2014). *World Urbanization Prospects – Highlights – 2014 Update*. UN Department of Economic and Social Affairs. New York: United Nations. Available at: <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf>
- United Nations, (2012). *Sustainable Urbanization: A think piece*, United Nations system task team on the post-2015 United Development Agenda, UN-Habitat.
- Urban Development Ministry, (2015). *Solid Waste Management of Kathmandu Metropolitan City. Environment Audit Report, 2015*. Unofficial translation.
- WBCSD (2004). *Sustainable Livelihoods, Case Studies*. World Business Council for Sustainable Development. <http://www.wbcsd.org/plugins/DocSearch>



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