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Role of Community-Based Organizations (CBO) in Formalizing the Informal E-waste Dismantling Sector of India: An Opinionated Perspective

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Abstract. The informal e-waste dismantling community consists of individuals who recycle and dismantle electronic waste (e-waste) outside of formal regulations. This informality is due to a lack of knowledge about proper waste handling, complex formalization procedures, competition from the formal sector, and economic challenges. Community-based organizations (CBOs) play a vital role in addressing these issues. CBOs support the formalization of informal dismantlers by providing licensed workspaces, access to recycling technologies, and assistance in transitioning to the formal economy. Formalizing the informal e-waste dismantling community through CBOs ensures compliance with regulations, promotes sustainability, and provides economic opportunities and social benefits. Case study analysis revealed that E-waste dismantler communities formed Community level, Sub-provincial Level, and Provincial level representatives partnered with local government bodies and organizations to attain socio-economic stability. They also contribute to capacity building, collaboration, and access to resources, and markets, supporting the transition to a formal sustainable e-waste management system.

Keywords: Community-Based Organization, E-waste Dismantlers, Democratic councils, Circular Economy, Capacity Building

1. Introduction

A Community-based organization (CBO) is a base-level, non-profit group that functions locally to respond to the needs and worries of a particular community or group of people. CBOs are frequently established and run by residents to enhance the social, economic, cultural, or environmental well-being of their neighbourhoods. They collaborate with various stakeholders to accomplish their objectives, prioritize community participation and ownership [1] and involve community people in decision-making processes. CBOs are essential in bringing together community resources, promoting community empowerment, and putting into practice long-term fixes to local problems. They are motivated by the values of inclusion, involvement, and group effort to bring about positive change and raise the standard of living in their communities.

By bringing together participants from many sectors, such as the government, Community-Based Organizations (CBOs) assist in fostering local-level multilateral collaboration, aiding in tailored policy development through joint identification of shared e-waste dismantling industry concerns and opportunities [2]. The CBO model universally enhances multilateral platforms, aligning local formalization policies with global solution initiatives to empower grassroots multilateralism and bolster



economic status. CBOs foster regional recycled material markets, encourage innovative reuse and recycling business models, and promote circular economy ideals [3] in the e-waste dismantling industry. CBOs collaborate with entrepreneurs and local businesses, transforming waste into value and backing the circular economy by formalizing informal dismantlers, key stakeholders in the chain. Compliant spaces enable fair chances for recycling, reuse, and mineral extraction in global value chains. E-waste dismantling's digitalization ensures global circularity. CBOs drive creative e-waste management strategies for the innovative disposal sector. CBOs help upcycle e-waste into eco-friendly products through collaboration with local artists and designers. The model retains capital within the skilled dismantling community while promoting resource sharing and awareness [4,5]. The CBO model ensures shared responsibility for scaling resources, fostering transparency and reducing community inequalities. This approach promotes a creative economy.

"Informal e-waste dismantling community" signifies individuals engaged in recycling e-waste outside formal regulations. These dismantlers collect, sort, and disassemble electronics to reclaim valuable components and materials for reuse or resale. Including electronics like computers, smartphones, and appliances, they operate informally in small-scale settings like impromptu workshops [6]. Formalizing the informal e-waste dismantling community is necessary to align recycling industry laws, as current guidelines exclude unauthorized dismantlers. These stricter regulations often neglect informal participants. However, informality resolution lacks clarity. The primary hurdle in formalizing the informal community is inadequate knowledge and motivation for proper waste handling, complicated procedures, and inability to meet requirements [7]. Their established network, labour skills, and economic contribution to the local economy are crucial. Incorporating the informal sector into waste management systems is a shared objective, yet the sector often faces neglect due to perceived competition. Disparities exist between formal and informal E-waste collectors' acquisition rates. Establishing new recycling systems in wealthy countries is costly. Developing countries face higher expenses due to informal competition and need for distinct workforce training .

Recent developments include the 2016 E-Waste Management Rules setting recycling goals and the 2017 Goods and Services Tax Act enhancing financial tracking and compliance [8]. Digitalization introduces new payment methods, aiding transactions and monitoring for tax compliance. Unorganized labour dominates the sector, leading to loss of benefits and bribery. Health hazards in informal workplaces persist. Formalization policies should address societal, economic, and environmental impacts. This article illuminates the unorganized e-waste management transformation via case studies and literature review [9,10]. A proposed management framework suggests formalizing dismantlers at community, sub-provincial, and provisional levels.

2. Methodology

The author has come up with a structure at the community level, provincial level, and provincial level where the e-waste dismantler community can collaborate with different governmental and non-governmental bodies at a different level of power levels with an overall aim of formalizing the sector to attain socio-economic status, achieving economic and social benefits. The primary literature considered for this study were two case studies done on field visits and independent research in Sitapur city, in the state of Uttar Pradesh, and local organizations. Secondary literature such as policy papers as well as articles from various Journals, opinion pieces, research papers were analysed to set up a possible organization framework.

3. First case Study

E[co]workspaces are creative co-working areas that are reasonably priced for microbusiness owners in the e-waste recycling industry in Delhi, India (Figure 1). Few local organizations promote economic growth and environmental sustainability using a community-based organization (CBO) model.[11] The organization works in collaboration with communities to develop environmentally sound solutions that also give locals job opportunities.

E[co]work is a brand-new idea that tries to close the gap between the legal system and the unregulated recycling industry. E[co]work, which is based on the co-working space model, provides genuine physical workspaces that are safe and compliant with the law and can be rented on a "pay-per-use for space" or "pay-per-use for services" basis. Also, the company will offer equipment for more effective processing and ensure safe working procedures.

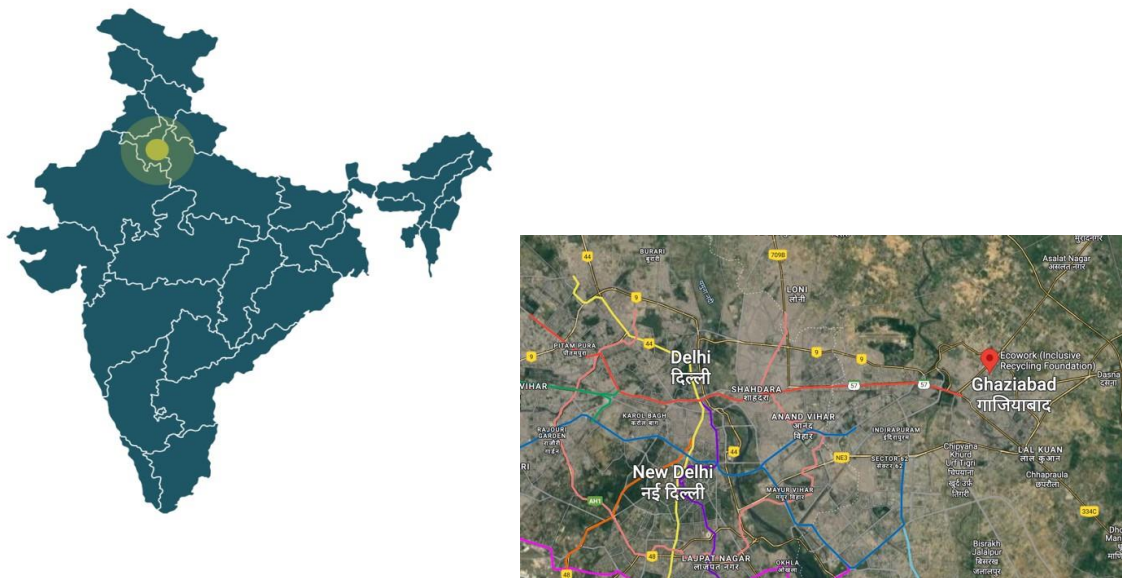


Figure 1. Intervention area zoomed out showing local Social Enterprise and the study area at Meerut Road Industrial Area, Ghaziabad, Uttar Pradesh, India.

Due to their established position, dismantlers can access a larger market, increasing the efficiency of their job, and take advantage of extra services like training, healthcare, insurance, banking, and more. The E[co]work concept, which has never been used before, has enormous potential to improve millions of people's lives and health, lessen environmental burdens, promote a circular economy, and advance the realization of the Sustainable Development Goals [12,13].

Licensed workspace, The E[co]workspace (Figure 1) gives micro-entrepreneurs a legal working environment and gives them the chance to get to know formal recycling technology and procedures. Appropriate technologies, and access to the official e-waste recycling tools, machines, and equipment that are currently unavailable to microbusiness owners. Support for businesses, E[co]work acts as an incubator for microentrepreneurs and assists with their transition from the informal to the formal economy [14]. Access to banking, financial, medical, and insurance services will also be made easier by the location. Effects of the Coworking Space, to meet the needs of dismantlers and give them access to cutting-edge, environmentally friendly recycling equipment. The area helps the dismantlers' perspective to change from one of humiliation to one of pride in their job. E[co]work promotes safer practices, higher salaries, and social mobility by offering shared infrastructure. It helps to dispose of hazardous fractions and closed material chains in an environmentally sound manner [15]. The health of the dismantlers, their families, and those around them will be improved through suitable ventilation systems, dust control measures, and protective gear.

4. Second case study

The informal E-waste dismantling industry presented problems for the cities of Sitapur (Figure 2), Lucknow, Uttar Pradesh. To combat this, a CBO model was created to support dismantlers' entry into the formal economy and empower them. Neighbourhood-level organizations were founded in Sitapur using the CBO concept. Ten organizations were created, each of which was made up of several dismantlers. This made it easier to coordinate and make decisions as a group. Neighbourhood-level organizations were founded in Sitapur. Ten organizations were created, each of which was made up of several dismantlers. This made it easier to coordinate and make decisions as a group.



Figure 2. E-waste Dismantling/Segregation Site in Sitapur, Uttar Pradesh, India

Weekly meetings were held to make sure the dismantlers' voices were heard. About 50 dismantlers actively engaged in discussions, exchanged ideas and worked together to solve problems. It was decided to create a democratic council made up of elected members of each neighbourhood association. The decision-making process and the dismantlers were connected through this council. A President, Secretary, and finance representatives were all present. The council determined the towns' infrastructure requirements through peer deliberations. To get policy support, these needs were outlined at the provincial level. A centralized e-waste collection centre and training facilities were important infrastructure needs. A governing body focused on legal and regulatory needs was established at the provincial level.

The provincial administrative head (Collector), who oversaw the body's operation, made sure that local viewpoints were taken into account when establishing and implementing policies. To encourage financial inclusion and basic healthcare services for dismantlers, a lead bank was chosen. [16] The State Pollution Control Board (SPCB) actively took part, offering advice on environmental rules and making sure that they were followed. The CBO model aided in the creation of jobs and economic growth, with 80% of dismantlers moving to formal working circumstances. 150 dismantlers were employed directly as a result, and support services provided indirect employment for another 150 people. Dismantlers improved their technical competencies through training and skill-enhancement programs under the CBO model. This led to higher productivity, increased income, and improved job prospects. The CBO model, along with environmental compliance enforced by the SPCB, ensured proper handling and disposal of e-waste. This contributed to reducing pollution and protecting the environment [17,18]. As a result, there was an uptick in output, income, and employment opportunities. The CBO model made sure that e-waste was handled and disposed of properly, while the SPCB enforced environmental compliance. As a result, pollution was decreased and the environment was protected.

5. Formalizing the Informal from within Community-Based Organisations (CBO)

CBOs seek to organize localized groups of informal dismantlers in each area. This may be done by using cutting-edge co-working models as employed by local organizations in the study area, and by offering

them secure, healthy, and legal workspaces [19]. As a result, integration with the official sector is made possible.

5.1. Community Level

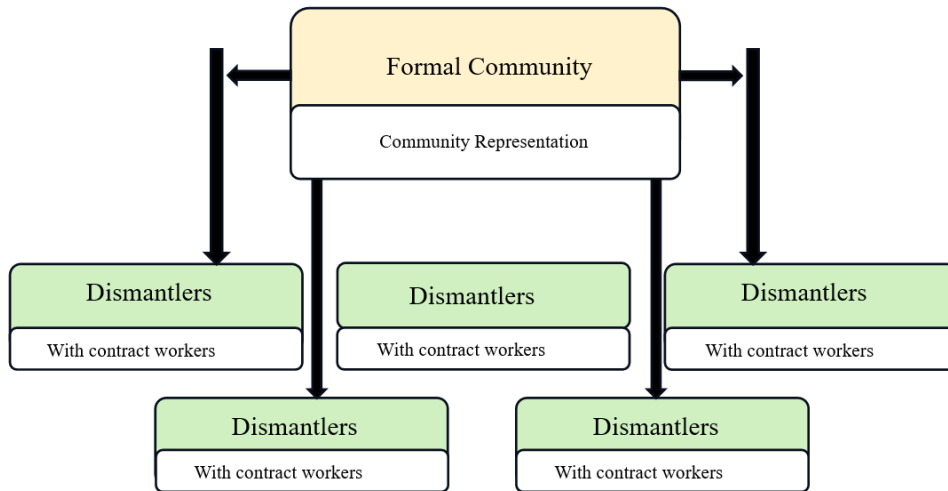


Figure 3. Formalizing at Community Level Organizational representation/Structure and functions.

The informal dismantlers will establish community-level organizations within the community, with the help of local organizations at Sitapur. The principal stakeholder (informal dismantler) will be assisted in the move to formality by the community spokesperson. It aids in licensing/formalization by providing safe workspaces and equipment, financial assistance through Banking Correspondents, digital inclusion for accessing targeted schemes, community-based awareness and technical education, information pooling, as well as support for procurement and market access for selling. (Figure 3). The coworking space guarantees a safe working environment without sacrificing employee health because it complies with all statutory requirements. The dismantlers are given formal working conditions through local social organizations. To guarantee that the voices of all dismantlers are heard, weekly meetings are held.

5.2. Sub-Provincial Level

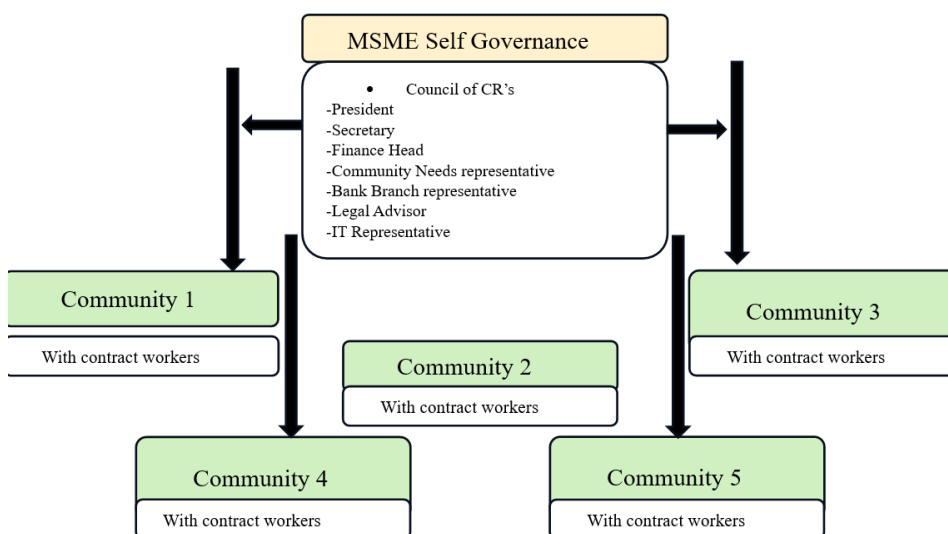


Figure 4. Formalizing at Sub-Provincial Level Organizational representation/Structure and functions.

The sub-provincial level serves as a conduit between the decision-making process and the local communities (Figure 4). A democratic body(Micro, small and medium enterprises) including positions like President, Secretary, Financial Representative, and various other roles, represents grass-root needs to district admin authorities. This body facilitates smoother formalization of grass-root dismantlers, addressing licensing, financial, and infrastructural requirements while supporting community needs such as health, education, and socio-economic benefits. It also involves a Bank Branch Representative for financial inclusion, a Legal Advisor for licensing and compliance, and an IT Rep for data services, resource sharing, and digital inclusion training. The communities' infrastructure needs must be peer-discussed and put up as needs for policy at the provincial level. Information technology representatives, employees of the lead bank branch, and a legal advisor shall serve as external representatives.

5.3. Provincial Level

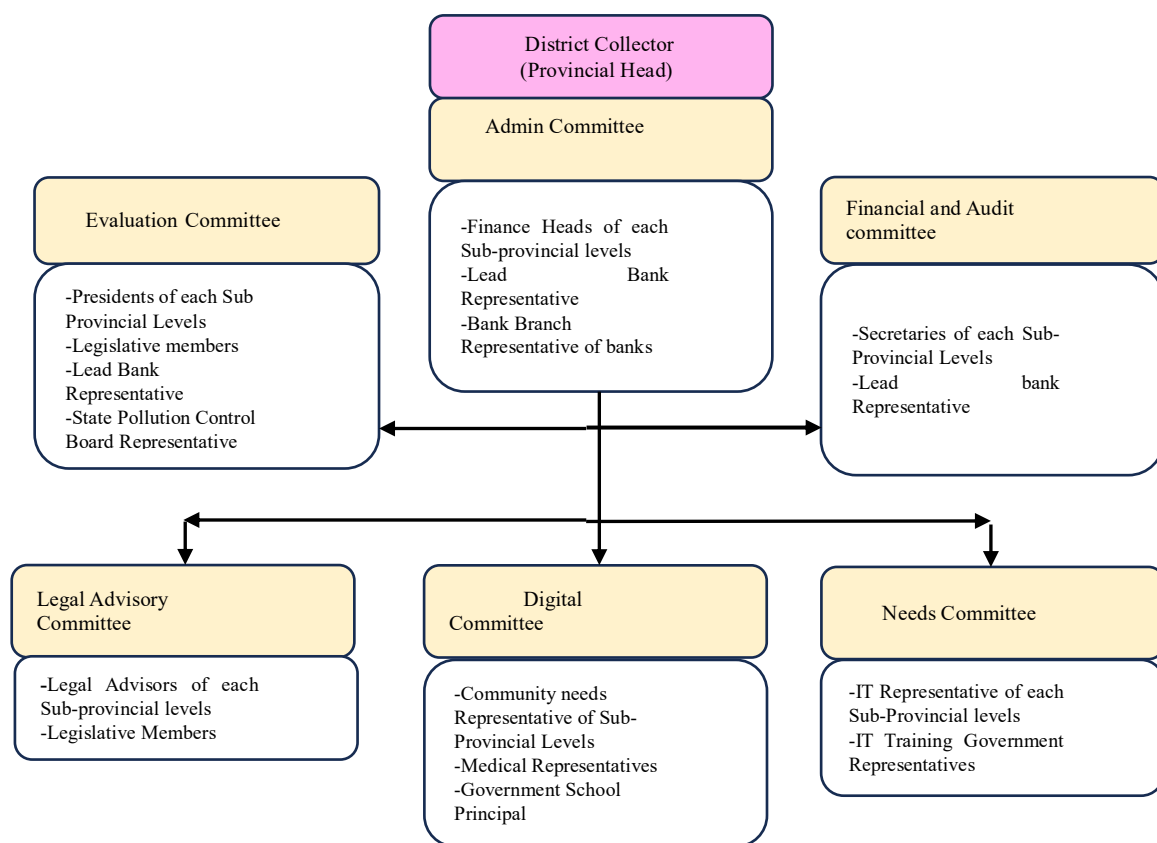


Figure 5. Formalizing at Provincial Level Organizational representation/Structure and functions.

The Admin Committee serves to draft policies, legislate, and act as an umbrella body for regulatory decisions. The Financial & Audit Committee oversees financial schemes, enabling their trickle-down effect. The Lead Bank representative promotes financial inclusion from various sources. The Evaluation Committee assesses performance and targets at Sub Provincial levels, facilitating peer review. The Digital Committee manages E-Waste inventory, inclusion needs, and policy suggestions. The Needs Committee supports socio-economic development of stakeholders, while the Legal Advisory Committee reviews compliance and enhances the regulatory environment. The Provincial Level is a governing body

that focuses on legal and regulatory requirements. The provincial administrative head (Collector), who chairs the feedback process, will make sure that local opinions are heard in the formulation and application of policies (Figure 5). Also, a Lead Bank is chosen to serve as the pioneer in fostering financial inclusion and primary health care (PHC) at all levels within the district or province. The State Pollution Control Board (SPCB), the coordinating agency for environmental laws, must send a representative. The demands of the community, digital/data Information technology (IT) needs (maintenance of the E-waste inventory), and legal advisory needs for the dismantlers will be addressed by the other verticals.

6. Result & Discussion

The involvement of Community-based organizations (CBOs) will automatically lead to awareness, CBOs educate the locals of Sitapur about the risks associated with incorrect e-waste disposal as well as the advantages of formalizing the e-waste dismantling community. Increased production and efficiency, Formalizing the community aids in streamlining operations and enhancing member coordination, which will result in an upsurge in productivity and efficiency. With greater exposure and recognition, the formal community provides increased visibility for the work being done as well as serves to boost the industry profile of e-waste dismantling. [20] Advocacy, CBOs push laws and rules that encourage the formalization of the e-waste recycling industry and advance eco-friendly e-waste management techniques.

Building capacity, CBOs instruct locals on the best procedures for managing and destroying e-waste, including safety precautions and environmental laws. [21] Collaboration and networking, CBOs help formalization and sustainably by managing e-waste by fostering collaboration between the e-waste dismantling community, governmental organizations, and other stakeholders. Access to resources and markets, Since the market is informal and mostly micro, small, and medium, they do not have a constant supply of e-waste and access to the market. The absence of formal channelization and producer linkages makes them vulnerable to shocks Thus, encouraging the formalization of the e-waste dismantling community, CBOs can assist in facilitating access to resources like finance, machinery, and technology [22].

Possibilities for employment and insurance, formalizing the e-waste dismantle community, more jobs will be made available and the community's earning potential increased, and as per the E-Waste Management Rules, the dismantler shall be liable for accidents. Insurance coverage through community-based facilities can be a way forward in this aspect and Increased safety for workers and better working conditions. Environmental protection, Formalization will result in the creation of more sustainable and environmentally friendly e-waste management techniques. Increased tax revenue for the government and financial support, despite government efforts aimed at the Ministry of Micro, small and medium enterprises even via Multilateral Development Banks, the informal dismantlers are excluded from this as they are not within the formal waste sector [23,24]. Formalization can enhance tax revenue for the government and stimulate economic growth.

Resource recovery, the formalization of e-waste will boost the recovery of valuable materials that can be utilized in manufacturing, such as metals, polymers, and glass. Health concerns can be reduced by formalization, including those related to air and water pollution and incorrect e-waste disposal, and dealing with hazardous materials and practices, there will be support and awareness around safe and healthy practices. More communities will have access to technology because of formalization since valuable materials from e-waste may then be recovered and used to make new electronic products. Community Presence will help in Dealing with waste makes them disregarded within the social forums. This is also affecting the well-being of their children and their educational needs. To effect positive change, CBOs work with key stakeholders and give community involvement priority [25]. Innovative solutions have been put into practice to address these issues, including E[co]workspaces that can provide positive changes in the dismantler society.

7. Conclusion

Community-Based Organisations (CBOs) are non-profit organizations founded and managed by locals to serve the needs of their neighbourhood. CBOs can encourage multilateral cooperation at the local level, spread the word about the circular economy, and use the creative economy to their advantage in the deconstruction of e-waste. However, the informal e-waste dismantling community encounters difficulties like a lack of formalization, complicated standards, industry marginalization, financial loss, and mounting regulatory pressure. These programs offer dismantlers licensed premises, assistance for enterprises, access to services, and better working circumstances. The success of the CBO model in empowering informal dismantlers, enhancing their livelihoods, and guaranteeing proper e-waste treatment and disposal has been shown through field visits and Sitapur case studies. Through CBOs, the informal sector can be formalized through the formation of democratic councils, localized groups of dismantlers, and provincial governing bodies. When CBOs get involved, the e-waste dismantling system experiences a rise in awareness, production, efficiency, exposure, and recognition. CBOs are essential for collaboration, advocacy, establishing capacities, and giving the formalized sector access to resources and markets.

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