

Informal Waste Picker Activities: An Opportunity for A Formal Circular Economy Functioning in Cameroon

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ABSTRACT.

A lot has been done on the development and implementation of circular economy in diverse formalized economies and structured contexts in the Global Northern economies. But very little is known about circular economy in countries in the Global South. This is likely due to the high prevalence of Informality in these economies, slow progress in industrial development, and limited technological capabilities compared to countries in the Global North. Our research fills this gap by presenting a case study in Cameroon, where intuitively, circular economy principles have always been part of household management and as inspirational driver for informal community engagement for the common good. Revealing that, circular economy in its actual informal state stems from waste management handling, principally orchestrated by informal waste pickers. Through an inductive approach and a semi structured questionnaire administered to 43 independent waste pickers in Yaoundé and 31 waste pickers from the Association of Waste Pickers of Cameroon in Douala, three profiles of waste pickers were revealed according to circular economy practices they exercise. After some months of observation of their work on the streets and on the landfill site in Nyalla PK 10, we make known the challenges they face and the brave work they do. We propose some solutions to enlighten decision makers on how a formalization process of such circular practices can further promote decent work, tackle vulnerabilities, reduce poverty as well as inequalities and be a catalyst for a green transition in this region through a formalized circular economy model.

Keywords: Informal work, Waste pickers, Circular Economy, Economy of Francesco, Environmental sustainability, Social sustainability, Cameroon.

1. Introduction

Circular economy in Cameroon, in its actual informal state, stems from waste management handling, especially at the level of waste treatment. It is principally orchestrated by informal

actors whose activities fast-forward formalities and national policy measures. Out of an estimated 3,621,758 tons of municipal solid waste (MSW) produced per day in Cameroon, 80.3% ends up in open dumps, 19.3% in sanitary landfills, and 0.4% is recycled, despite 70%-80 of the generated waste being recyclable [1]. By 2050, the country's population is expected to grow to 50 million people. Such growth will imply greater environmental challenges linked to poor disposal of waste [2], social instabilities triggered by higher unemployment rates [3] with considerable drop in income levels, and unsustainable economic model fed by a use-and-throwaway culture [4] [2], if nothing is done.

So far, extensive research suggests an amelioration of the MSW management collection rates by integrating pre-collection and transfer stations [5][6] into the collection circuit. Engaging stakeholders by a decentralized participation through partnerships with non-governmental organizations (NGOs), and community based organizations(CBOs), which has proven to be an efficient form of management [5][7], unfortunately the different actors do not show consistency in their attributed tasks. Other measures have been taken to reduce waste at the source, such as the plastic ban that came into force in 2014, prohibiting the use of plastic of a thickness less than 60 microns to circulate in the market. Instead of these plastic packages decreasing on the market, they are said to be increasing, mostly sabotaged by corruption practices. Another great initiative in the country was the announcement of the creation of a National Waste Exchange platform at the first national waste forum in 2016 [8]. The idea of a national waste exchange platform was essentially to boost circular economy (CE) in the country by providing conditions where one's waste becomes another person's raw material. This idea is still in discussion. In 2020, the Parliamentary Network for Circular Economy (PANCEC) [9] was created, and its bureau adopted an action plan intended to mobilizing stakeholders nationwide on creating a win-win partnership on how they can contribute to the emergence of the country through CE. Other considerations in favor of CE and its accelerated formalized process, have been presented by the Friedrich Ebert Stiftung for the development of a trade union among all actors of waste management in Cameroon. All these networks in reflection have not been concretized materially through visible results they remain theoretical. Growing emerging trends of individual models of circularity have been spotted out by the UNDP Cameroon Accelerator Lab at the local and community-based level [10], yet no interest has been accorded so far to the activities informal waste pickers do as contribution to the current existing informal circular model.

This study attempts to fill this research gap. Putting a spotlight on informal waste pickers in the waste management circuit, who intervene at a local and community based level in the cities of Cameroon to unlock the potential of waste. In a concrete way, their intervention unblocks possibilities for other actors to transact and/or to transform waste into resources, up to third and

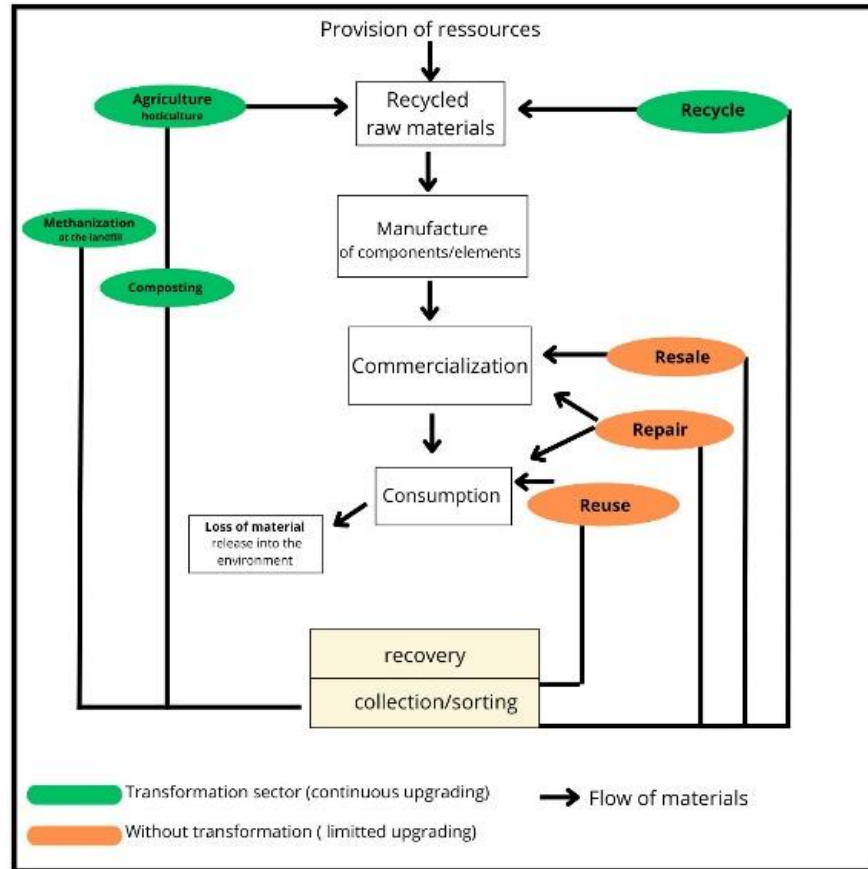
fourth cycles, preventing this waste from ending up in landfill in the first place or recovering valuable material before it is buried in landfill site.

1.1 Circular Economy in Cameroon

Cameroon's municipal solid waste management policy is based on a public-private partnership. Principally exercised by the main sanitary enterprise, HYSACAM but sustained by NGOs, urban councils, private companies such as THYCHLOF SARL, and other associations. There is no national strategy for the implementation of CE in Cameroon. Limited CE processes, however, are promoted in the legal framework on environmental management (Law No. 96/12 of August 5, 1996, relating to environmental management, sets conditions for the handling of waste, that is, its collection, storage, reuse, and recycling). Through the Decree N° 2012/2809/PM of September 26, 2012, it sets the conditions for sorting, collecting, storing, recovering, recycling, treating, and final disposal of waste, as well as the National Strategy for Waste Management (2007), which promotes the amelioration of waste management through the advancement of safe methods of treatment of waste by recycling and valorization [11]. It is known that recycling has emerged across Africa and also in Cameroon, mostly driven by poverty and unemployment rather than other reasons. The ideal national strategy for the implementation of CE in the domain of waste management should undoubtedly go beyond recycling and reuse to integrate eco-conception into production patterns and lay measures to target high priorities of circularity (like refusing and reducing raw material use) [12] in consumption patterns.

CE in Cameroon, as in other countries in the Global South, is different from CE in the Global North. What is common to CE in countries of the south is that, CE is only tagged to waste management processes (and it is handled informally) whereas CE in countries of the Global North and China starts from the raw material, eco-conception, (re)manufacture, distribution, consumption, reuse, repair, collection, recycle for and endless cycle of resources and at every stage of the cycle being sustained by policy framework. In the former, the value of products and materials is maintained for as long as possible as local practices can provide, consequently unsustainable for the whole ecosystem. In the latter, waste generation and resource use are minimized, with a positive impact on the environment and human flourishing. However, in the former context, Waste pickers play a central role of reintroducing secondary materials into the economy for second and third cycles, conserving both material value and natural capital [13] through local processes. Hence it is around the processes of recycling, repair, reuse, composting, and to a lesser extent, methanization that the model of CE is built in the main towns of Cameroon, as shown in Fig. 1 below.

Fig. 1. CE Model applied in Cameroon (Ngambi Jules, 2014)

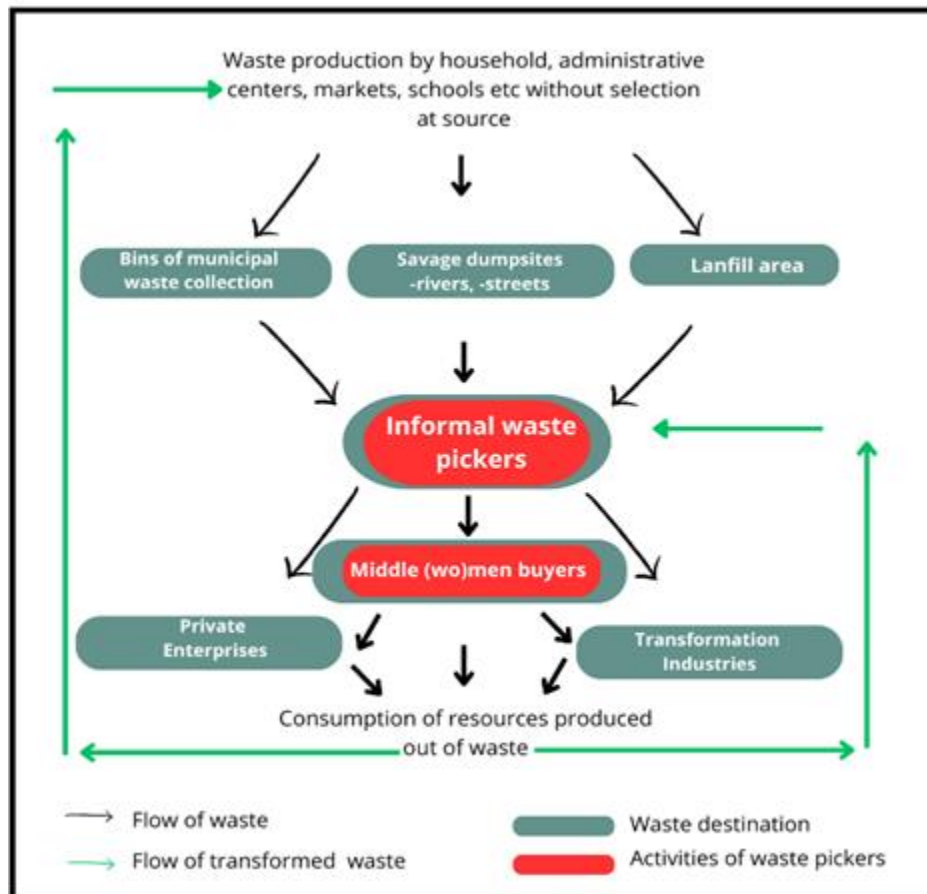


1.2 Actors of Circular Economy in Cameroon

The first actors to set up lucrative businesses exploiting the waste deposits in the city of Yaoundé are informal waste pickers [11]. Their activities involve recovering and sorting items such as metals, glass, polythene materials, plastic, irons, shopping bags, hospital drip bags, paper, cellular phones, wood, wire, batteries, leather, shoe and textiles, which are then offered for sale [14] [11]. They usually own small businesses or are self-employed, with little or no legal recognition and low capital investments. Their income is usually below the minimum tax threshold; therefore, they are not established as legal entities. What they do is considered subsistence activities and unofficial business activities [15].

Fig. 2 below shows how there is a consistent flow of waste mobilized by the activities of these waste pickers, which establishes them as key players and enablers of CE in the actual informal CE framework in the country.

Fig. 2. Flows of waste in the activities of waste pickers in an informal CE model in Yaoundé and Doula (Lameu, 2024)



On the other hand, formal actors too have a role to play in the practices of CE processes in Cameroon. Both public action through municipalities and private action through international organizations, NGOs and CBOs that encourage circular economy processes to grow and foster. This is the case for big enterprises like Brasseries du Cameroun, Source du Pays, Namé Recycling, ERA Cameroon, Kemit Ecology, Eco-green, Cœur d’Afrique –Roger MILLA Foundation, just to name these. In the National Strategy for Waste Management in Cameroon (2007), the valorization of waste is attributed to non-governmental actors. They do this through the rule of law, capacity building, sensitization and financing projects for the valorization of waste.

Research Question. The main aim of this study is to create an understanding of the activities of informal waste pickers, which contribute in an informal CE in the cities of Yaoundé and Douala. The objective is to highlight the opportunities their activities have in creating closed loops in

material resource management and consumption patterns through the recovery of discarded waste, storage, and reselling to enterprises and other actors who valorize waste. This study shall further present the challenges these informal waste pickers encounter in the implementation of their activities and how these challenges can be leveraged for the formalization of CE in policy, which may consequently lead to better working conditions for these often neglected actors in waste management. Our research questions are:

Which are the main opportunities from the activities of informal waste pickers that foster local CE business transactions?

What are the challenges faced by these informal waste pickers in exercising their mission, which contributes to creating closed cycles?

How can these challenges be solved and their actions leveraged towards a functional formal CE in Yaoundé and Douala?

2. Methodology

The study uses a methodological approach inspired by the Economy of Francesco (EoF) to investigate CE in a sub-Saharan country, specifically Cameroon. The EoF encourages a bottom-up approach, focusing on the vulnerabilities of these actors, because a true ecological approach always becomes a social approach by integrating justice in environmental debates, so as to hear both the cry of the earth and the cry of the poor [04]. This approach integrates methods of studying CE and poverty, including secondary data based on issues of managing municipal solid waste, livelihoods, from a linear model to a decentralized system of waste management (Ngnikam, E. 1997, Chalot, F. 2004, Sotamenou, J. 2009, Ngambi, J. 2015). Complemented by field work through a qualitative approach using questionnaires containing structured and semi-structured questions and interviews. This approach was appropriate in providing a unique perspective on CE informal actors' needs and perspectives in this developing country.

This study should provide an understanding of the activities of informal waste pickers as a contribution to the existence of an informal CE in two cities in Cameroon, Yaoundé and Doula, to enlighten decision makers in the formalization process of CE and promote knowledge of CE in the local jargon through field work. Eventually, this contributes to filling the gap on how countries of the south can move from resource intensive, precarious, informal economic contexts to build circular modes of production and supply chains capable of proposing an alternative to in global markets [13] [14] [15], through the integration of often marginalized informal actors.

2.1 Study area

Out of the 10 regions of the country, Bafousam, Douala, and Yaoundé are the highest generation hotspots of plastic, essentially through a change in consumption habits in favor of varied forms of plastic packaging. Yaoundé is the capital of the country with the highest plastic waste generation of 34.5236 kt and a population of 4,006,132 on a 582.08 km² surface area [16]. Followed by Douala, the economic capital with 30.2945 kt of plastic waste and a population of 3,515,388 on a 1,672.47 km² surface area. The work of waste pickers entails the recovery of varied kinds of material and is not limited to plastic. This work explores the actions of informal waste pickers in specific municipalities in the two main towns of Yaoundé and Douala. Our target is specifically on:

- The municipalities of Yaoundé 1 and 2 for independent informal waste pickers.
- Investigation of the presence of the Association of Informal Waste Pickers of Cameroon on the landfill of Nyalla PK 10 in Douala.

2.2 Description of data collection

According to Ngambi, J. (2015), the number of informal waste actors is difficult to evaluate in this country but could be estimated back then in 2015 to at least 600 individuals in Yaoundé. For the purpose of our work, our semi structured questionnaire captured information necessary to build an understanding of the activities of these waste pickers and to investigate the knowledge they have on CE and the nature of their collaboration with other formal actors in waste management. A total of 43 waste pickers were interviewed in two municipalities in Yaoundé, out of which 2 were women and 41 were men. The interviews were scarcely longer than 30 minutes, as these actors were found in the midst of their activities of recovery and sorting of waste, either in open spontaneous waste disposal sites, public collection bins, or at their personal recovery spots, which they established all across the town. These recovery points created by the waste pickers are identified by a structure of three planks erected in a rectangle; the two planks stand vertically opposite and parallel to each other and are longer than the one connecting them horizontally above, which is shorter, on which a scale is suspended. This scale serves to weigh all scrap materials they recover or that are brought to them. Scraps of all typologies (plastic, iron, aluminum, glass, bronze and copper) are then weighted, bought, and stocked for sale. These “waste picker recovery points” are found almost everywhere in the city and reveal the presence of at least three waste pickers at each spot. Other itinerant waste pickers were found collecting food scraps, which are used to enrich animal feed. Field work in Yaoundé was done throughout the months of October to November 2023.

In Douala, out of 300 officially registered members of the association of waste pickers of Cameroon, 16 were interviewed onsite in the landfill area with 2 board members, the president and the vice president of the association and 15 off-site in the landfill environs. Amongst the waste pickers identified onsite in the landfill, 3 women accepted to be interviewed out of the 6 women identified. In these interviews, participant observation was indispensable in the understanding of the functioning of their activities. The field work onsite in the municipal landfill area of Douala at Nyalla PK 10 lasted 4 days, from the 19th to the 21st and 23rd of October 2023. At the landfill site, interviews were conducted while the waste pickers were socializing amongst themselves as they were expecting the different collection enterprises to empty the collected waste from all over the town onto the plastic rugged ground at Nyalla PK 10 landfill. In both study areas, data was collected through recording and note taking for those who were uncomfortable with the tape recorder.

3. Results

3.1 Activities of informal waste pickers as opportunities for formal CE

More income earning and profit creation opportunities. Waste pickers are essentially service providers' and through the services they offer, and the earnings they gain, they ensure for themselves and their families a livelihood. Whereas, it is very common in society, to look down on the individuals who engage in waste recovery, sorting and selling of waste because of the poor conditions of their work and the repugnant nature of manipulating waste. But research has shown that not only do these activities create livelihoods for some of those engaged in them through their creative solutions, but it also reveals they sometimes gain more income from their activity as compared to other decent or "cleaner" jobs [17] [18]. Though of the informal sphere, they often have gains above the moderate poverty line of USD 3.10 a day, equivalent to about 1900 FCFA. Our fieldwork confirms these assertions as we received comments from respondents such as these:

- *"My daughter, if only people knew the gold that lies behind waste... I've built all my life on this work."* (Male respondent of age 55-60 years in an informal waste recovery spot, Bata Nlongkak – Yaoundé. October 2023).
- *"I have 25 years of experience in the recovery of waste. I spent 10 years at the landfill site of Maképe and now I've been working in this landfill of Nyalla PK 10 for 15 years. As achievements, I bought a plot, I've built a house on it, I sent my children to school, and my last son is at the university. His elders are married and are independent. If I continue to come over here it's just to keep feet, today I continue my job just as a way of maintaining*

my health." (Male respondent of age 60+years at the landfill site of PK 10, one of the patriarchs in waste pickers association of Cameroon, based in Douala. October 2023)



Fig 3: Waste pickers or Reclaimers at source on the streets of Yaoundé Nlonkak, Lameu 2023



Fig 4: Waste pickers “buyers”, at a warehouse besides the landfill PK 10 Douala, Lameu 2023

- *“You see these pipes, I just found them in the valley over there! I needed such solid and big pipes for my farm. It’s a happy day for me. I promise you, you can’t imagine the treasure there is in trash.”* (Male respondent of age 50-55years at the landfill site of PK 10, member of waste pickers association of Cameroon, based in Douala). October 2023)
- *“Per day, a waste picker can have up to 5000FCFA (8 USD) from the sale of recovered material. Sometimes it can be less than or equal 2000FCFA (3USD). It depends.”* (Female respondent of age 30-35 years and male respondent of age 35-40 years at the landfill site of PK 10, members of the Waste Pickers Association of Cameroon, based in Douala. October 2023)

The direct observation on the field in Yaoundé and Douala revealed a certain profile amongst waste pickers, who, encouraged by social and market necessities, develop sources of income (Table 1). They trade their recovered material to others who reuse, refurbish or transform it for other purposes.

Table 1. Profile of waste pickers according to place of waste recovery which determines their revenue

Profile	Actors involved	Place of waste recovery
1 st -profile	Waste pickers or Reclaimers at source. Mostly Men,	- Sanitary landfill
	Children,	- Open dumps - House to house - River side
2 nd -profile	Waste pickers “buyers”	-Low structured neighborhoods
	from waste pickers at source, most women who retire from waste picking at source engage in as “middle women” in the buying and selling of waste	- Ware houses and small shops - Landfill
3 rd -profile	Waste pickers “craftsmen or artisans”.	-Household -Small shops - road side
	Artists of recovery Shoe menders, shoe and bag craftsmen and women, bottle and plastic artisans, in several domains	

Waste pickers organizational system as an opportunity. Of all the 43 waste pickers interviewed in Yaoundé, none of them had ever heard of CE but almost all were convinced their action of recovery is a good thing for the environment. All were ignorant of the concept of CE but familiar with recycling. In Douala however, only the president and vice president of the association of waste pickers were aware of the concept of CE. The members of the association who were interviewed, even though some where learned, ignored the significance of the term, same too for

interviewees off-site the landfill. This ignorance to the concept its self has not limited their creativity in building an “informal network” in the city, which maximizes opportunities for value retention and creates a price for waste as resource.

In Yaoundé, waste pickers have established a system of waste recovery, and they know how it works. Spontaneous informal waste picker collection spots have emerged throughout the city in the past few years. Situated often around the points of collection of waste by the legal waste management enterprise, these waste pickers squat a meter or two around these corners, and they erect their scale, suspended on three recovered wood planks varying from 10 to 15 inches each. They use this scale to weigh the scraps they recover from the bins, or open dump site and rivers, as well as those scraps brought to them by other individuals in exchange for a price. Through the information obtained from interviews and observation, these actors hereby assemble all the recovered waste in warehouses until they attain a considerable number of tons. Once the desired tonnage is attained, they contract a tractor trailer that transports the resource to enterprises in need. For the functioning of this organizational system, we have feedback from waste pickers.

- *“...We do not work together, but we know each other. I know all the waste pickers in the zone of Manguier, Nlongkak, Emana, Olembe. There are some waste recovery points with ware houses and other recovery points without ware houses. At some recovery points, you can find either 2 or 3 waste pickers working together, but with those having a warehouse like mine, you will find at least 7 of us working together, especially on days when we have to send our tons of waste stocked to enterprises in Daoula...”* (Male respondent of age 35-40 years in an informal waste recovery point, Dépôt de Sable Manguier – Yaoundé)
- *“...in the sale of waste recovered items, there is no cheating. The scale is just like the eyes of God. The prices are known and the value of what you recover is the exact price you will be paid...”* (Male respondent of age 35-40 years in an informal waste recovery point, Tsinga - Mokolo elobi – Yaoundé)

In Douala, the Association of Waste pickers of Cameroon was created in 1996 and has 300 members registered till date. Each registered waste picker has the right to exercise on the municipal landfill site of Nyalla PK 10 in the recovery of waste, sorting and preparing the recovered resource for transportation and sale. Once the waste is collected from all over the town by the competent enterprises, through a waste collection system which does not consider sorting at the source, everything is brought up at the landfill and poured onto the ground for treatment. The waste treatment is then done by the waste pickers onsite, manually to sort out waste-resource, which is wrapped up in bails or nets in preparation for sale to valorization enterprises (like Bali plastic, Métafrique, Namé Recycling, Satir, Pro-metal). These enterprises either come at the landfill site to collect recovered materials or they await the recovered materials down-town

brought to them on tricycles or trailers. The manual process of sorting of waste onsite is sometimes aided by tractors of the collection enterprises who turn the dump over and over to facilitate manual sorting of consistent quantities of waste. Apart from this manual laborious mode of treatment, no other measures are disposed for and effective maximization of resources that waste might offer at the landfill site of Nyalla PK 10. The gains obtained from this tedious work is individual to the waste picker, so too are the costs of any danger or accident in the process.

3.2 Challenges

Amongst other informal working sectors, waste pickers are the most exposed to the complexities of climate change, such as increasing temperatures and heat stress [20] [21] due to the nature of their work. Consequently, rising temperatures and heat stress, coupled with the fact that they have no social security, absence of first aid care on landfill site, or any form of health follow up or insurance, are enough for waste pickers to reduce their working hours, while some prefer working at dawn and in the evenings at sun set.

Waste pickers are exposed to injury risks, exposure to dangerous waste, and accidents on a daily basis. In the course of our field work, it was common to see them with open wounds that were probably infected, taking longer to heal, thus exposing them to serious health issues. This was obvious as the waste keepers in Yaoundé and Douala scarcely wore any personal protective equipment (ranging from safety helmets, safety shoes, gloves, eye and hearing protection, breathing masks, high-visibility protective clothing or safety harnesses, and more). Most waste pickers in the association of waste pickers in Douala had a minimum of working tools, like safety shoes and common gloves, not at all adapted to the circumstances. These difficult and unsafe working conditions are often challenging for these individuals, who complain they do not receive help from the government in exchange for the significant work they do in contributing to the environmental sustainability of the city. These unsanitary working conditions and exposure to serious health problems are the main reasons for waste pickers to quit this job.

It was also common to hear from waste pickers who have a recovery spot and a ware house in Yaoundé that they receive treats from police agents. And the only alternative they have for establishing peaceful relations with these agents is by giving off part of the gains they obtain from the sale of recovered material. Some waste pickers declare that once they resisted such assaults, they either found their warehouse locked up or they found their scaling structure broken and stolen. So in the exercise of their activity, they will only progress with the police by sharing part of the profits they make from sales.

Another challenge arises for waste pickers when, out of their recovered waste, they receive stolen waste resources either from children or from other waste pickers. Some of the waste pickers said that since this sector is increasingly lucrative, it attracts street children and other unemployed individuals who go through it the easiest way by stealing other recovered trash or even stealing from households what they consider lucrative in this sense. When the proprietors of such waste identify their resource, things might go for the worst. This has obliged the waste pickers to develop strategies to unmask recovered waste from stolen objects.

One specific challenge for the association of waste pickers in Douala is that of failure in the formalization process of their work. Since its creation in 1996 until date, they have failed to create a mechanism for constant quantification of waste recovered from the different landfills of Maképé and Nyalla PK 10. It is also difficult to keep track of the typology in kilograms of waste reclaimed by its members over time. This has been a challenge, but it can also be a reason for a rapid effective regularization of the system for an efficient formalization process of CE in the country.

3.3 Proposed solutions

From our fieldwork observation, it was clear that CE in its actual form of existence in the cities of Yaoundé and Douala is thanks to the work that informal waste pickers do, which positions them as great enablers for the formalization of CE in the Country. We appraise them as indispensable actors in the recovery of waste and as middlemen/women between “waste producers” and “resource producers.” Even though the interviews reveal poor knowledge of CE as a concept, it disclose the local wisdom that lies in recovery, sorting, and recycling up to the 3rd and 4th cycles, thereby unblocking the potential for economic interest as well as for socio-environmental sustainability simultaneously.

Effective formalization of CE in our context will therefore pass across measures that reinforce the civic engagement of citizens, especially in environmental issues, awareness raising campaigns of good practices amongst waste pickers, and government interventions to regulate the functioning of informal and formal actors in this sector and its institutionalization in the policy framework. Through this participatory approach, geared at leaving no one behind and most especially by integrating waste pickers as a priority in the institutionalization of CE, will go a long way in providing decent jobs, clean cities, triggering economic flows and reducing social and economic inequalities. We prioritize the following three measures:

Strengthening social capital around values/opportunities of CE. Robert Putnam defines social capital as: “features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit. Social capital enhances the benefits of

investment in physical and human capital” [22]. We consider waste pickers as concrete physical and human capital, core enablers for a formalized CE, hence the necessity for public investment in the work they do. Our fieldwork confirms the assertion that CE processes are intuitive to the local population. They repair or reuse material intuitively, and because of economic constraints, material resources are kept in circulation. Waste picker activities enhance these practices for much longer cycles. However, it is certain that much more benefits could be obtained in resource creation, resource management, and consumption if higher circularity measures were established in local communities or municipalities as norms for the common good. To follow Putnam’s idea of social capital for prosperous communities, we suggest that political involvement is required to stimulate greater levels of economic growth through the social relations and the collective acts led by waste pickers in cities. Stimulating social capital amongst the different independent communities of waste pickers and amongst citizens in municipalities can be a form of bottom-up approach, a possible driver for an institutionalized CE model. Since profound behavioral changes as well as social change are necessary to move from a linear (extract, use, and dispose) model to more responsible circular models of consumption, production, and waste disposal methods, social capital could be the solution. The waste pickers’ community, which establishes social networks through their activities in the city are characterized by determinants of social capital such as trust, cooperation and civic mindedness [22] [23], which have critical potential for economic success. And according to some authors, strengthening social capital fosters the community’s potential of building sustainability locally and enhancing possibilities to deal with collective action and social changes [24] [23], in this case protecting the common good, the environment.

Education for CE. Field work has revealed very limited knowledge on CE among waste pickers and citizens. This lack of awareness amongst the local population and amongst the community of waste pickers on the subject limits the unblocking of the potential that lies behind it both from a socio-economical point of view as well as in an environmental perspective. This second proposal reinforcing the former. Since CE is closely connected to waste management, educating citizens through awareness raising on CE and educating waste pickers through capacity building will surely create a more dignified working environment and more performant human capital for present and future generations.

Follow up strategies of informal initiatives for the valorization of waste. According to the 2018 ILO flagship report on job losses and job creation worldwide, there is an increasing urgency for policy measures to motivate and accompany informal waste pickers. At the regional level, while there is an anticipated increase in job creation in the Americas, Asia, and the Pacific, and Europe of 3 million, 14 million, and 2 million jobs respectively, there could be a net job loss of -0.04% in Africa due to its dependence on fossil fuels and mining. However, according to this

same report, 6 million jobs can be created by transitioning to CE which includes activities like recycling, repair, rent, and remanufacture. Follow up of these informal initiatives by different municipalities will go a long way in facilitating the exercise of these activities without friction with other formal workers, as well as ensuring further decent job creation in the sector. In this sense, it becomes even more logical that the public initiatives towards CE should not end at the level of reflections but should be piloted from start to finish, for the common good.

4. Discussion

In addressing our research question, we have confirmed research works that show that CE has emerged mostly through waste management, specifically at the level of waste treatment. We found that the whole recovery activities and business transactions established by the forerunners in material recovery yet often neglected waste pickers are key opportunities not only for the formalization of the CE model in Cameroon but also for the broadening and institutionalization of its present CE model. This broadening could include other elements like designing for the future (eco designing) and providing services rather than products.

It was interesting to confirm the fact that through the services provided by waste pickers, income flows and profits can be maximized across multiple cycles of the same waste resource. It becomes an opportunity in the CE formalization process as it will provide the necessary dignified working conditions and security for these actors and create multiple opportunities for material retention, it's institutionalization will only further unblock this potential . Another opportunity lies in the already locally established organizational process between waste pickers, buyers, and producers, which regulates the functioning and flow of resources in the city. This locally established circuit is an enabler for a formalized CE model.

Furthermore, waste picking actually possesses the basic characteristics of a green job. In essence, the job of waste pickers minimizes contamination of waste, reduces greenhouse gas emissions, and preserves and restores the environment. But it will remain an "indecent job" if the activities of these waste pickers are not sustained by supportive policy measures that consider them as integral participants in the functioning of formalized CE in the country.

5. Conclusion

Waste picker activities are an opportunity for the formalization of CE. Through their activities of waste recovery, they also contribute to designing out waste and providing services out of already existing materials rather than more products out of new extraction of resources. However, more work is needed to get the formalization processes of CE running. Our work has provided an insight into the contribution of waste pickers to the broader discussion and has attempted to

present their activity as some non-negligible aspects to be considered in policy measures for an inclusive CE policy framework necessary to be established in our context.

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