

# STUDY

MARCH 2023

## INFORMAL WASTE COLLECTORS IN NORTH MACEDONIA:

## PERSPECTIVES, CONSTRAINTS AND OPPORTUNITIES

**Title:** Informal Waste Collectors in North Macedonia: Perspectives, Constraints and Opportunities

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**Explanatory Note:** The document contains two separate research studies, a field survey, and desktop analysis. The reader can find them as Part I and Part II consecutively.

**Disclaimer:** The views expressed in this document do not necessarily reflect the views of the Federal Ministry for Social Affairs, Health, Care and Consumer Protection of the Republic of Austria.

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# SUMMARY

The following is a summary of the **Study “Informal Waste Collectors in North Macedonia: Perspectives, Constraints and Opportunities”**, conducted as part of the project “Roma and COVID-19: Build Back Better through sustainable waste management” in 2022, implemented by the Roma Entrepreneurship Development Initiative (REDI), in partnership with Umweltdachverband and funded by the Federal Ministry of Republic of Austria Social Affairs, Health, Care and Consumer Protection.

The study aims to define the activities and type of support needed for informal waste collectors/green agents. The study results serve as advocacy tools to advocate for policy programs for the Government of North Macedonia to improve waste management policies and legislation related to the activity of informal waste collectors and other vulnerable groups in the Republic of North Macedonia.

## Executive Summary

There are between **3.000 and 5.000 green agents collecting waste in North Macedonia**. The interviewed green agents (512) collect more than 13.000 tons of waste per year. Most of it is plastic waste and metal; less than 14% collect paper and cardboard alone or in combination with other waste streams. One green agent deals with the waste of 27 persons per month. On the whole, green agents collect about 3% of municipal waste and contribute **40% to the recycling of raw materials**. Since in North Macedonia most of the waste is landfilled, their work has an important impact on national waste management.

Despite their great valuable work for society, economy and environment, their living conditions are oftentimes precarious: in terms of housing, **9% of green agents are homeless** and **8% of them face eviction**. Fourteen percent of them live with less than €100 per month. Furthermore, **86% of green agents collect waste for six to eight hours per day the entire year**. One reason for their precarious work is the lack of formal education: Two-thirds of the interviewees are without any formal education or have not finished their primary education. Seventy five percent lack any work-related skills. However, many are interested in training possibilities. The difficulty is that they cannot participate in active labor market measures such as wage subsidies, job-trainings or further qualifications because participants of these measures have to have finished primary school to do so. Apart from that, being formally unemployed (**96 % are unemployed**) leaves them with **limited access to medical treatment, health care and other social services**.

Because of their difficult position in society as well as the discrimination, stigmatization and harassment they face, green agents have a very low trust in dialogue with local institutions, especially waste management companies.

These findings, together with an in-depth analysis of EU and national policies and the presentation of country examples, led to policy recommendations to improve the situation of green agents. Green agents must be **integrated in the formal labor market**. Therefore, they need to be registered. This includes an identity card which is a fundamental component. To achieve this, green agents have to be involved in the

registration campaign since they trust each other and know their colleagues which is underlined by **the willingness of more than 60% to organize themselves in an association**. In order to decrease mistrust and frustration, the green agents must be equal partners in the whole process of integration programs. Furthermore, it must be clear to them how they benefit from the registration. One important measure to integrate green agents is compensation. They should not only be compensated for the resource value of the materials they salvage, but also for the economic and environmental benefits and economic savings they generate. In the past, they have not been consulted in the design of recycling and waste collector programs. Worse, they have been negatively affected by government-led waste initiatives.

In order to integrate the green agents, they need to get **assistance**. **They need improved infrastructure and equipment for their waste management activities**. Such assisting measures would also motivate them to register. However, most important is their legal access to waste - social entrepreneurship is the best way to achieve this. This should be accompanied by health and pension insurance combined with social financial assistance and their responsibilities to register at no financial costs to deliver the waste collected to the same collecting center and other responsibilities such as sending their children to school.

Furthermore, there is a **need for and interest in further education and training opportunities** - training activities must be financed so that the green agents can afford it. These training opportunities are not only to improve their chances in the waste management sector, but also to support other employment opportunities in order to decouple Roma from waste collection. One important tool is **driver's licenses** that enable them to take up other jobs. In addition, a special focus needs to be on women's needs due to their care work and a male dominated sector.

Green agents have established a separation and recycling system and have **knowledge about the materials**. Green agents contribute to circular economy measures as they reuse and refashion items. This potential can be used to create additional value with secondary materials. Municipal and industry representatives can use their knowledge to reform the waste management system. Instead of engaging private companies for work green agents are already doing, from an economic and environmental perspective it is reasonable to use their knowledge and to use a structured approach to use their capacities.

Green agents create significant sums of revenue and contribute to the local and national economy. Furthermore, they support the society in terms of self-employment, entrepreneurship, a clean environment, cheap materials for the industry, and reduced operational costs for Public Utility Companies. The potential of their work could be increased with specific support and organization.

# BACKGROUND

This research was commissioned by the Roma Economic Development Initiative - REDI in partnership with Umweltdachverband. The study is funded by the Ministry of Social Affairs, Health, Care, and Consumers of the Republic of Austria.

The research study aims to define the activities and type of support needed for waste collectors. The study results will serve as advocacy tools to advocate for policy programs for the Government of North Macedonia to improve waste management policies and legislation related to the activity of informal waste collectors and other vulnerable groups in the Republic of North Macedonia.

The field research was conducted from May to July 2022, upon formulating the research plan, timeline and methodology.

# PREFACE

The Republic of North Macedonia as an EU membership candidate country has to adopt and apply European standards and best practices through the harmonization of its national laws with the EU legislation. The Communication on Economic and Investment Plan for the Western Balkans, adopted by the European Commission in October 2020, provides detailed guidelines regarding the five pillars of the Green Agenda.

The Green Agenda for the Western Balkans aims to assist the region in tackling pollution problems and aligning the countries' environmental quality regulations with the EU acquis. Pillar number 3 explicitly mentions recycling and waste management as the key issue of circular economy. Prescribed waste management standards will not only contribute to a cleaner environment, but also to the protection of human health while ensuring better implementation of circular economy and contributing to sustainable production and consumption in the country. Current estimates concerning the generation of waste in the Western Balkans are around 1000 kg per capita, which is lower than the EU average (1700 kg per capita)<sup>1</sup>.

The big difference refers to the low recycling rates, as in the Western Balkan countries this is below 3%, compared to the 44% EU average. The EC guidelines suggest that the Western Balkan countries must implement effective separate collection schemes to have properly functioning waste management centers and recycling facilities. According to media reports, over 90 percent of the total plastic packaging collected in the Republic of North Macedonia is collected by informal collectors. The activity of the informal waste collectors is not regulated and is not part of the country's official waste management/selection system. Most of them are coming from Roma communities. These are the most marginalized groups living in chronic poverty.

Legal norms describe and prescribe the waste management regulatory framework, which in terms of waste collection tries to establish recycling incentives that are not appropriate in the case of Roma informal waste collectors, due to poor institutional capacities and inattention. Consequently, the work of Roma informal waste collectors is incentivized by influential economic actors of the grey economy that maximize their profits while keeping them at the end of the informal economy chain as a low-income part.

On the other hand, the crisis caused by Covid-19 has affected a number of sectors in the North Macedonian economy and negatively impacted the livelihoods of many people in the country. The waste sector was hit hard during this tough period, with many in the waste management value chain feeling the impact, especially informal waste collectors, that lost at this time mainly their economic basis due to mobility limitations during covid-19 crises. The volatile prices, the increase of transportation costs and the lack of certain materials, made the situation in the North Macedonian recycling sector look like "Survival of the fittest". The post-Covid economic recovery demands new sustainable approaches to the waste sector. There is a clear need for both the protection of human health and the environment, while simultaneously considering the urgent need to protect the livelihoods of those that are involved in the collection and selling of waste materials.

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<sup>1</sup> EC Guidelines for the Implementation of the Green Agenda for the Western Balkans, 2020



Visible impacts of poor waste management have been taking hold of public imagination in recent years, with images of illegal dumping and littering appearing frequently in the media. However, there is a social element to waste management that is rarely and wrongfully grabbing the attention of the North Macedonian public regarding the role that informal waste collectors play in the North Macedonian waste economy and society in general.

Namely, their important role is not recognized in the diversion of valuable resources away from landfills towards reuse and recycling. In an effort to improve the working conditions and livelihoods of the informal waste sector and to better integrate waste collectors into the country's waste economy, REDI – the Roma Entrepreneurship Development Initiative, in partnership with Umweltdachverband and funded by the Ministry for Social Affairs, Health, Care, and Consumer Protection of the Republic of Austria, commissioned a national and international waste management desk review and policy recommendations, including a field research conducted in May and June 2022, in order to improve waste management policies and legislation related to the activity of informal Roma waste collectors as well as to foster inclusion of Roma in all areas of life in North Macedonia.<sup>2</sup> Evidence-based documents can provide guidance to both the municipalities and the government on policymaking that would improve the working conditions of informal waste collectors.

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<sup>2</sup> As regards the target group informal waste collectors, mainly coming from the Roma community, Chapter 23 – Judiciary and fundamental rights in the context of EU-accession negotiations, where respective screening process has started recently, is quite important to consider.

## ABBREVIATIONS AND GLOSSARY OF TERMS

ARB	Asociación de Recicladores de Bogotá
CE	Circular Economy
EC	European Commission
EPR	Extended Producer Responsibility
EEA	European Environment Agency
GREEN AGENTS	Workers that are part of the green economy and their main job or occupation is collection of secondary raw materials. Through their activities, they contribute to a cleaner and better environment. REDI is promoting the term “green agents” when referring to informal waste collectors, in order to change the narrative, promote a positive image and role of the waste collectors in the society.
HDPE	High density polyethylene
ILO	International Labor Organization
LDPE	Low density polyethylene
LMIC	Low- and Middle-Income Countries
MBO	Member Based Organization
MSW	Municipal Solid Waste
MWM	Municipal Waste Management
MIC	Middle-Income Countries
NGO	Non-Governmental Organization
PUCs	Public Utility Companies
PET	Polyester Terephthalate, a clear or colored plastic, most commonly used in bottles
Processing	Manual or mechanical operations to preserve or re-introduce added value into materials. Usually involves densification, size reduction, sorting, and packaging or transport
PROs	Producer Responsibility Organizations
Recycling	The last phase in the value chain, where the secondary resources are processed in an industrial facility in order to make new products or materials

Reuse	Use of waste materials or discarded products in their original manufactured form without significant transformation
Recovery Rate	A ratio between the quantities of recoverable materials that reach recycling, composting or energy recovery, and the total amount generated
Separation at Source	Separation of different types of post-consumer waste materials at the site where they are generated
Secondary Collection	The movement of wastes collected from households from their first point of discharge into a larger vehicle, that transports them to processing, larger-scale transfer, or final disposal
Sorting	Mechanical or manual separation of mixed waste materials into single-material components
Treatment	Manual or mechanical operations to make discarded or disposed materials or mixed waste denser, cleaner, and closer to industrial specifications
Valorization	Recovery of materials separated or extracted from the waste stream because of their retained value
Waste collector	A person who identifies and extracts or collects recyclable materials from streets, public places, collection trucks, transfer stations, and legal or illegal/informal disposal sites
WIEGO	Women in the Informal Economy, Globalizing, Organizing

# **PART I**

## **FIELD SURVEY ON MACEDONIAN INFORMAL WASTE COLLECTORS**

# 1. RESEARCH METHODS

This research used a multi-layered approach to analyze the current manner of informal waste collection in the Republic of North Macedonia. The research aims to define the activities and type of support required for waste collectors, especially concerning pre- and post-Covid situations.

The research methodology includes analysis of the local context and practices, quantitative and qualitative identification of informal collectors' problems and needs, financial incentives and regulation, types/models of cooperation, and relations between key actors in the waste collecting processes.

We applied both inductive and deductive methods in making a logical connection between the survey dataset and the opinions expressed at the focus group meetings. In doing so, we made sure to avoid generalized qualifications and suggestions regarding all waste collecting workers and Roma communities, as a randomly selected sample's opinions and attitudes were gathered in the research. Nevertheless, the sample surveyed provides sufficient evidence and insights concerning the processes of waste collecting and underlining specific trends, patterns, and challenges faced by waste collectors.

## 1.1 Study Area & Target Group

The field research was conducted at the national level, covering 5 regions and 17 cities, including: Skopje, Kumanovo, Veles, Shtip, Kocani, Kavadarci, Negotino, Strumica, Gevgelija, Delcevo, Berovo, Bitola, Prilep, Kicevo, Gostivar, Debar, and Tetovo. The research primarily focuses on Roma (informal) waste collectors as a direct target group. The number of respondents is about 1% of the total Roma population (2001 census), which is a statistically representative sample.

## 1.2 Design and Research Tools Applied

This method contains a combination of traditional quantitative and qualitative approaches. According to Brannen and Moss (2012), the mixed method approach stemmed from its potential to help researchers view social relations and their intricacies clearer by fusing the quantitative and qualitative research methods while recognizing the limitations of both at the same time. We combined standard questionnaires and focus groups as instruments for collecting data, opinions/attitudes, and economic behavior of waste collectors. While the questionnaire provided quantitative data (frequencies, patterns, trends, etc.) regarding the waste collection process and needs for improvement, the focus group sessions brought qualitative inputs about the reasons, decisions,

preferences, and plans for doing this work. This approach ensured triangulation in learning and connecting data with attitudes, opinions, incentives, and behaviors of each party in the process of waste management. The research aims to contribute to building the big picture of the entire process, that is, what is regulated and prescribed by law, how the law is applied by key actors, what the barriers/ challenges are regarding the normative and operational applicability on a daily level, as well the power dynamics and culture of cooperation at the local level.

A combination of multiple methods, approaches, and techniques have been used for conducting the research, including:

1. Desktop review;
2. Structured interviews;
3. Focus group meetings;
4. Data coding and analysis;
5. Comparative analysis.

Data collection tools and methods included as follows:

1. Interview Questionnaire: an administered closed question questionnaire;
2. Focus Group Questionnaire: facilitated focus group discussions;
3. Computer data processing in SPSS.

### **1.3 Survey and Mapping**

The field survey contains a questionnaire for structured interviews and a separate questionnaire for facilitating focus groups. The questionnaire for structured interviews aimed to assess the needs of waste collectors and in parallel, to identify trends/patterns in the waste-collecting process, while the focus group questionnaire aimed to collect qualitative details about economic behavior, social situation, relationships with local companies and institutions, obstacles related to waste collecting, etc. For this purpose, InSoC trained 15 interviewers and tested the questionnaire on the ground, which after the testing phase was finalized for interviewing 512 waste collectors in 17 cities. For each interview, a questionnaire was filled up by interviewers (asking preferably the head of the family) while we recorded audio files and minutes from focus groups.

Municipality	Total	Gender			
		Male	%	Female	%
Berovo	2	2	100%	0	0%
Bitola	37	27	73%	10	27%
Debar	21	21	100%	0	0%
Delchevo	12	7	58%	5	42%
Gostivar	35	17	49%	18	51%
Kavadarci	12	12	100%	0	0%
Kicevo	7	4	57%	3	43%
Kocani	21	8	38%	13	62%
Kumanovo	40	21	53%	19	48%
Negotino	4	4	100%	0	0%
Prilep	30	28	93%	2	7%
Shtip	34	19	56%	15	44%
Strumica	32	31	97%	1	3%
Tetovo	7	7	100%	0	0%
Skopje	218	202	93%	16	7%
Total	512	410	80%	102	20%

**Table 1. Survey coverage, by municipality and respondents' gender**

In addition, six focus group meetings were organized in 5 cities, where a minimum of 10 persons participated in facilitated discussions. We used structured interviews with household heads to map waste collectors.

The questionnaire has a specific question about family members working in waste collecting. The mapping includes the name, gender, age, and education status of the family member. The personal data from the mapping process will serve some future project interventions and activities of REDI. REDI is legally responsible to protect personal and private data in line with the GDPR. InSoC will delete the mapping database once the final survey report is accepted by REDI.

## 1.4 Demographic data

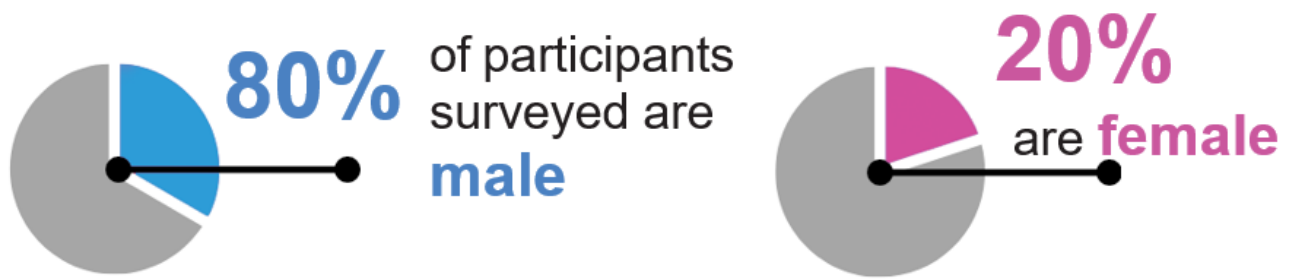
The survey includes 512 respondents representing 512 households with a total of 2063 household members, of which 440 or 85.9% of respondents declared that they collect waste every day; 24 or 4.7% of respondents only during the summer period; 31 or 6.1% collect waste occasionally or when they have no other job and 17 or 3.3% after working hours. Additional 280 persons, members of the families surveyed, join up survey respondents for waste collecting.

This makes up a total of 792 persons, or 38 percent of household members take part in the work with waste, meaning that approximately 4 persons out of 10 work in this area to bring some income to the family.

Municipality	Total	Age of household members							
		18-30	%	31-50	%	51-56	%	up to 66	%
Berovo	2	0	0%	1	50%	1	50%	0	0%
Bitola	37	9	24%	18	49%	7	19%	3	8%
Debar	21	0	0%	12	57%	6	29%	3	14%
Delchevo	12	0	0%	2	17%	5	42%	5	42%
Gostivar	35	11	31%	21	60%	3	9%	0	0%
Kavadarci	12	6	50%	6	50%	0	0%	0	0%
Kicevo	7	1	14%	2	29%	3	43%	1	14%
Kocani	21	1	5%	11	52%	7	33%	2	10%
Kumanovo	40	11	28%	19	48%	8	20%	2	5%
Negotino	4	0	0%	4	100%	0	0%	0	0%
Prilep	30	4	13%	20	67%	6	20%	0	0%
Shtip	34	7	21%	20	59%	7	21%	0	0%
Strumica	32	6	19%	16	50%	9	28%	1	3%
Tetovo	7	7	100%	0	0%	0	0%	0	0%
Skopje	218	91	42%	91	42%	36	17%	0	0%
<b>Total</b>	<b>512</b>	<b>154</b>	<b>30%</b>	<b>243</b>	<b>47%</b>	<b>98</b>	<b>19%</b>	<b>17</b>	<b>3%</b>

**Table 2. Survey coverage by age group**

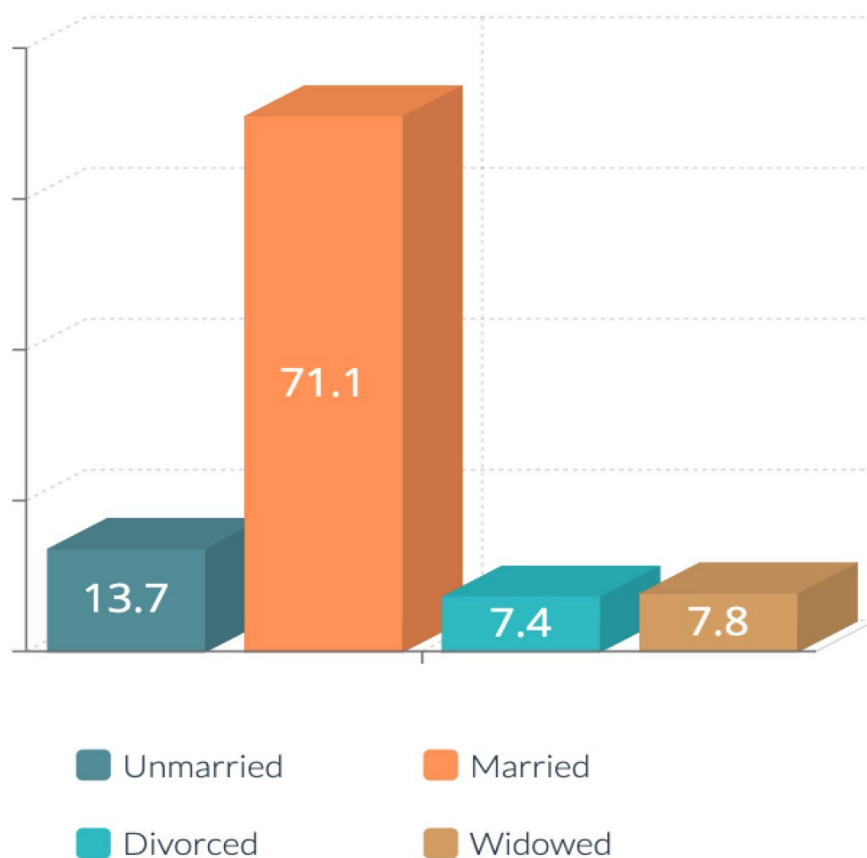




Eighty percent of participants surveyed are male, while the remaining 20% are female. The youngest participant is 18 years old and the oldest is at the age of 73.

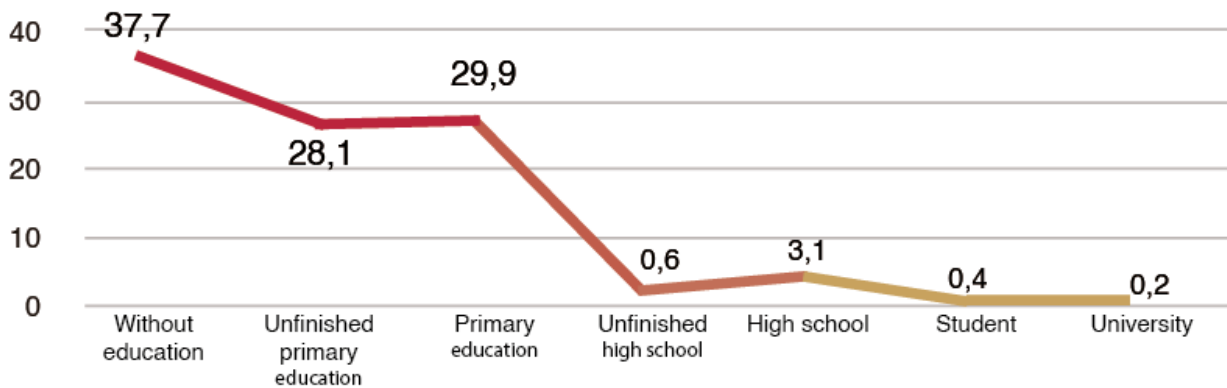
Clustered in age groups, 30% of the participants are between 18 and 30 years old, 47% between 31 and 50, 15% between 51 and 60 years of age, and around 8% are above 60 years old. By ethnicity, 509 participants declared Roma origin, 1 Albanian and 2 Macedonian. Ninety-five percent have birth certificates, meaning that just 5% of the sample surveyed lack birth certificates or regulated citizenship. The figure below shows the marital status of the waste collectors surveyed.

**Figure 1. Marital status by percentage**



Regarding educational background, two-thirds of the participants are without or have unfinished primary education. Just 30% of interviewed waste collectors have finished primary education. The number of participants with a high school degree (16) indicates that this job is not predominantly occupied by Roma with low education, since we identified two university students and one waste collector with a university degree.

The following figure shows the educational background of surveyed participants:



**Figure 2. Level of Education by percent**

Data analysis results show that 90% of waste collectors do not send their children (up to 6 years of age) to kindergarten. Similarly, the percentage of children (aged 6-14) not attending primary school is very high – 65%. **The most critical situation is at the high school level, where 93% of children aged 14-20 are out of the education system.** During the pandemic lockdowns, only 17% of children enrolled in schools had access to online learning.

In this context it has to be mentioned, that persons not having finished primary education are not allowed to participate at active labour market measures provided by the Public Employment Services in North Macedonia (with the exception of community works). That means in practice that 65 % of all informal waste collectors cannot join active labour market measures such as self-employment, wage subsidies, on the job-trainings, qualifications and trainings etc. due to these administrative hurdles. This is considered clearly as discrimination by administrative procedures and an important issue to be reflected in the context on EU-negotiations on chapter 23 – Judiciary and fundamental rights. It is proposed to declare discrimination issues as political criteria in the context of EU-accession negotiations with North Macedonia.

Regarding the employment status, **94% of participants declared being unemployed and only 6% are currently (formally) employed.** For 33% of participants, the waste collecting work is the main source of income; for 43% of waste collectors surveyed, the main source of income is the Guaranteed Minimum Assistance by the state.

Sixty one percent of participants live in a four-member family, while 15% and 11% of families have five and six members, respectively. The sample data shows that around 12% of families have 7 to 15 members.



children (aged 6-14) not attending primary school



children aged 14-20 are out of the education system

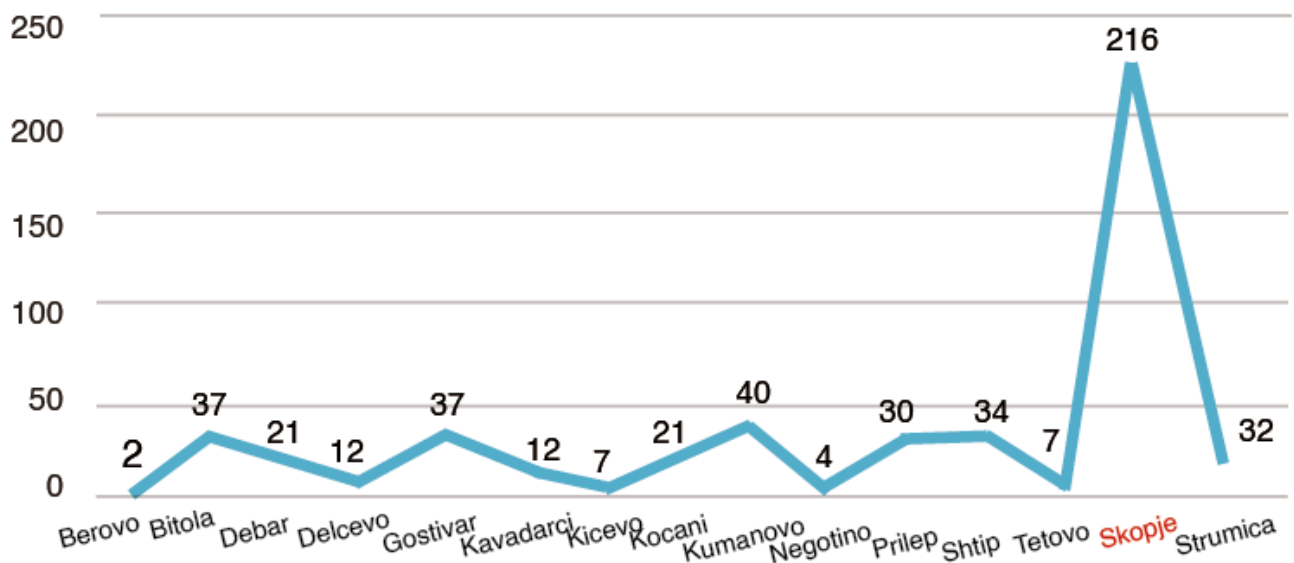


declared being unemployed and only 6% are currently (formally) employed

### 1.5 Sampling distribution by municipality

In line with the research methodology, designed to have a representative sample for each locality, the distribution and outreach of interviewed participants are based on the number of Roma population in each city. We took the number, as well the concentration of Roma, as primary determinants in defining the number of respondents per municipality. Accordingly, the highest number of waste collectors surveyed live in the capital city of Skopje. However, the initially targeted number of interviews is modified, since in some cities waste collectors rejected to take part in the survey. Irrespective of that, we managed to reach out and interview more than 500 waste collectors.

Figure 3. Number of interviewed participants by municipality



## 2. OVERVIEW OF LOCAL CONTEXT ON WASTE MANAGEMENT FROM ROMA PERSPECTIVE

Municipalities hold the responsibility for waste management, which in current practice, means organizing the removal of waste from street containers and storing it in landfills. Many studies and official state statistics confirm that the country has a low recycling rate and is predominantly dependent on landfilling. Informal waste collectors are the single contributors to waste separation and selection from street containers in both urban and rural areas. Roughly, up to 3% of municipal waste is collected by informal waste collectors for recycling, which supplies at least 40% of recycling raw materials.<sup>3</sup> State institutions recognize that informal waste collection is mainly done by Roma communities, which collect and sell the waste to middleman companies (mostly unlicensed), but on the other hand, state institutions do not recognize (or value) the significant role and impact of Roma waste collectors in the process of environmental cleaning.

Despite the national plans and targets to increase recycling rates, there is no structured or institutional approach to using the capacity of informal waste collectors. There is no dialogue or formal communication between local institutions and waste collectors, except during some sporadic conflicts between citizens and waste collectors (i.e., broken rubbish bins or dispersal of waste out of containers). The majority of Roma waste collectors surveyed are collecting plastic waste, to some extent scrap metal, and in smaller quantities - paper and cardboard. Glass, bio, and textile waste collection are not addressed by Roma waste collectors.

Waste collecting work is the single income opportunity for most of the participants surveyed. This is the main reason why Roma decided to do this job. It is performed individually or with family members, from time to time involving minors. They are aware that this is an unhealthy and risky job, but in the absence of other employment choices, this is their single earning option. Waste collecting provides them everyday income, as they collect and sell waste on a daily level. They collect the waste twice a day, early morning, and late evening hours. Most of the Roma waste collectors transport the waste to intermediary collecting centers every day, while some of them store the waste in their house yards and sell it on a weekly or monthly basis.

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<sup>3</sup> European Environment Agency, 2021

Each family or individual waste collector is organized differently concerning the number of family members engaged, location, transportation means, and quantity of waste collected. Those dealing with scrap metals are more organized and mobile as they collect waste in nearby cities, while plastic and paper waste is collected and transported locally. Roma waste collectors know each other very well. They don't consider each other as competitors, but rather cooperate and exchange information about waste localities or issues with the police or local institutions.

In addition, they inform each other about any higher price offers from middlemen companies. We observed that Roma waste collectors do not have the skills or options to negotiate/bargain the price for the waste collected, and instead sell it to companies that offer better prices. On the other hand, the middlemen companies state that prices are defined daily by licensed waste management companies that process, recycle, or export the waste out of the country. By the same token, we realized that informal waste collectors do the hardest job and make the lowest income within the chain of waste collection and management.

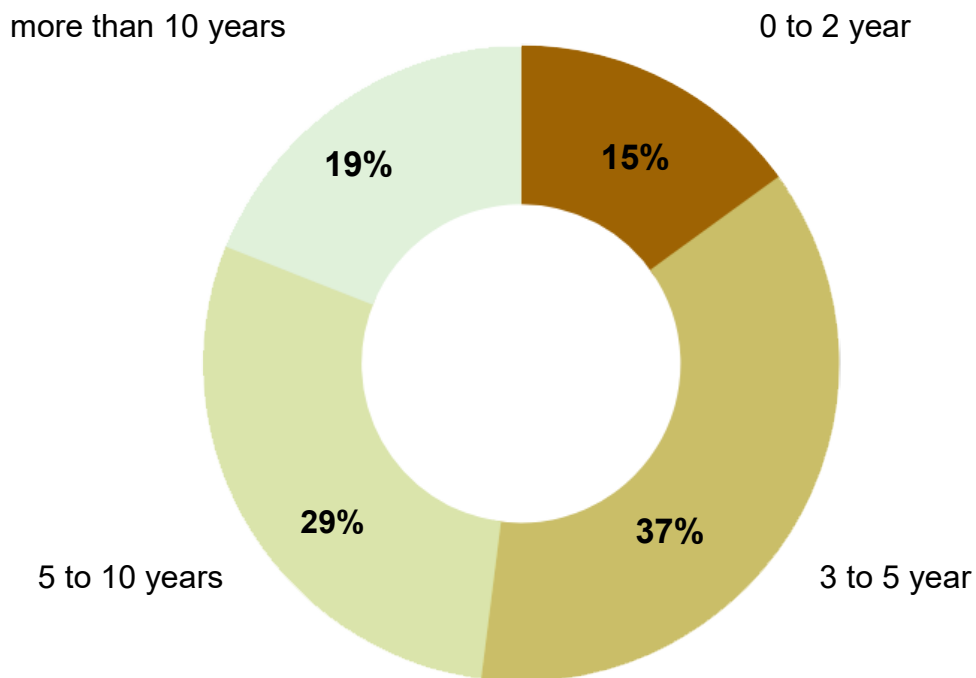
The quantity of collected waste depends on the size of cities, local economies/industries and the municipality's infrastructure and waste management organization. The best opportunities for waste collection income are found in the capital of Skopje. Focus group discussions revealed that earnings are the smallest in Prilep. It is important to emphasize that the Municipality of Prilep is the single city in North Macedonia that has its recycling center, meaning that it has established a door-to-door service for the waste collection of recyclable materials. Roma waste collectors in Prilep collect a minor quantity of remaining plastic, before or after the municipal company collects the waste from containers.

The case of Prilep Municipality is a clear example of Roma social and economic exclusion, as local policies and decisions did not consider the needs and capacities of Roma citizens.

### 3. DATA ANALYSIS AND FINDINGS

Waste collection is a primary job for 84% of the participants, while for 16% of the sample it is a second job. This is multi-year work for all surveyed participants and according to their current opinion, they will continue to work this job for a longer period. The next chart shows the years of work with the waste:

**How long have you been doing secondary waste collection?**



**Figure 4. How long have you been doing secondary waste collection?**

Sixty-five percent of the participants collect waste alone, 25% alone but sometimes with family members, and 10% always collect with family members.

When it comes to the issue of engaging minors to waste collection, the survey shows that **approximately 14% of children under the age of 14 are involved in fieldwork** (every day or occasionally).

**Do members of your household under the age of 14 participate in the collection of secondary waste?**

**Statistics**

**14%**

**of children under the age of 14 are involved in fieldwork**

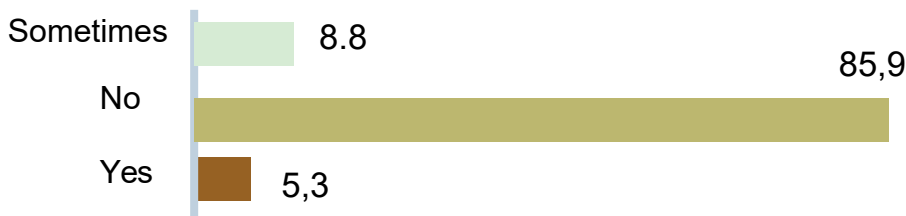


Figure 5. Household members under the age of 14 participate in the collection of waste.

According to the data analysis, the Roma waste collectors primarily collect **only plastics or metal**, while the number of collecting various materials is small. The next figure shows what type of waste is collected by survey participants.

**What type of waste are you collecting?**

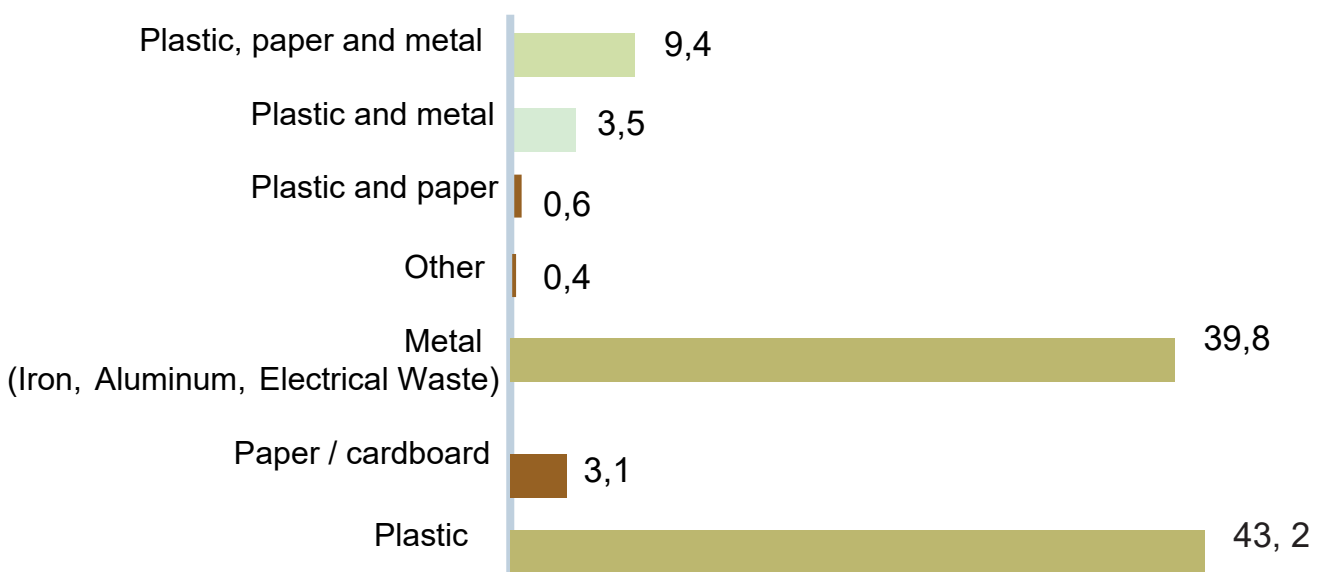
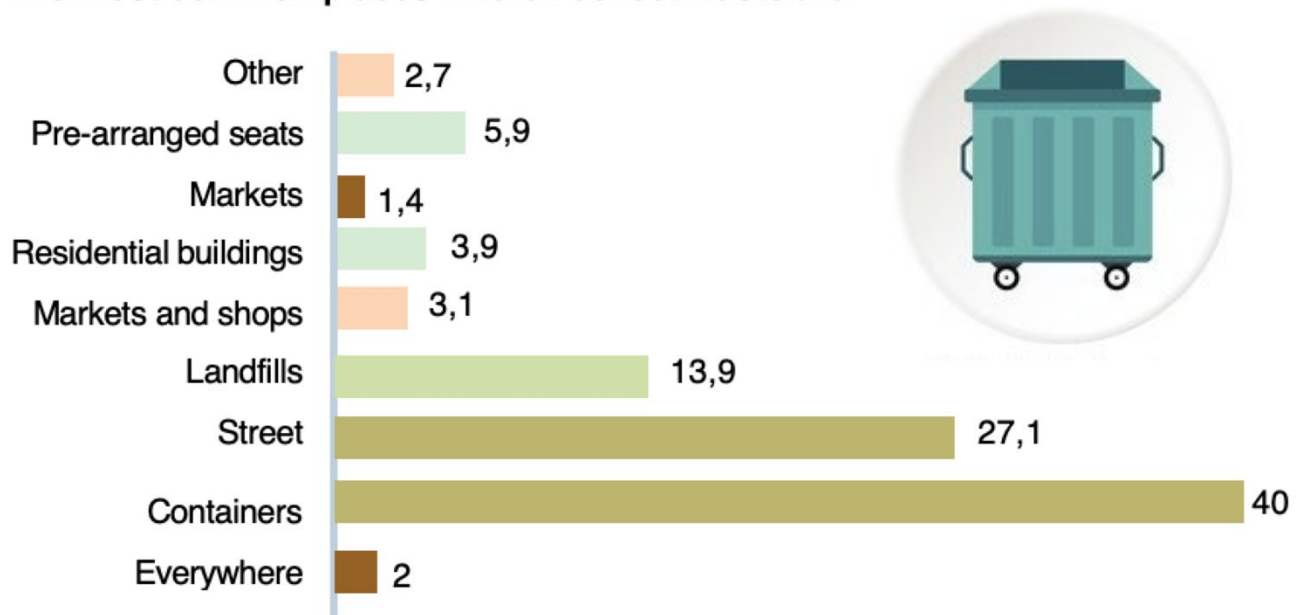


Figure 6. Type of waste.

The majority of waste collectors collect the waste in their municipalities (59%), in neighboring municipalities (36%), and prearranged places (2.5%). Waste collectors are well informed about places where they can collect secondary raw materials. The data below indicates the most common places of waste collecting, according to which is evident that Roma waste collectors mostly deal with the waste from street containers:

**The most common places where I collect waste are:**



**Figure 7. The most common places where I collect waste.**

For 86% of participants, this is work across the entire year, every day, 6 to 8 hours work (44%). For 5% of participants, this is seasonal (summer) work, for 6% it is a temporary job and for 3% is an after-working hours job.





Approximately 10% of participants collect 50 kg of waste per day, and 9% collect 100 kg daily.



**The majority of participants collect between 20 to 100 kg of waste (70%), indicating that these are the amounts they have to collect in order to cover their daily living expenses.**

### 3.1 Portfolio of waste collectors

Many surveys previously conducted in the country regarding informal waste collectors' situation provided a snapshot of the work and living conditions of waste collectors. To some extent, they helped state institutions and policymakers to have an informed policy-making process, but with limited insights about their survival strategies, skills, and competencies, as well as economic behavior framed by multi-generational poverty.

In closer and in-depth discussions during the focus group meetings, we tried to understand how these families manage to live on so little, irregular, and unpredictable income. To say more about the Roma waste collectors' life situation, we combine the basic needs approach with the capability and official social inclusion framework. By the same token, the following sub-chapters shed light on financial and operational capabilities, as well as daily practices/behaviors of informal waste collectors per se.

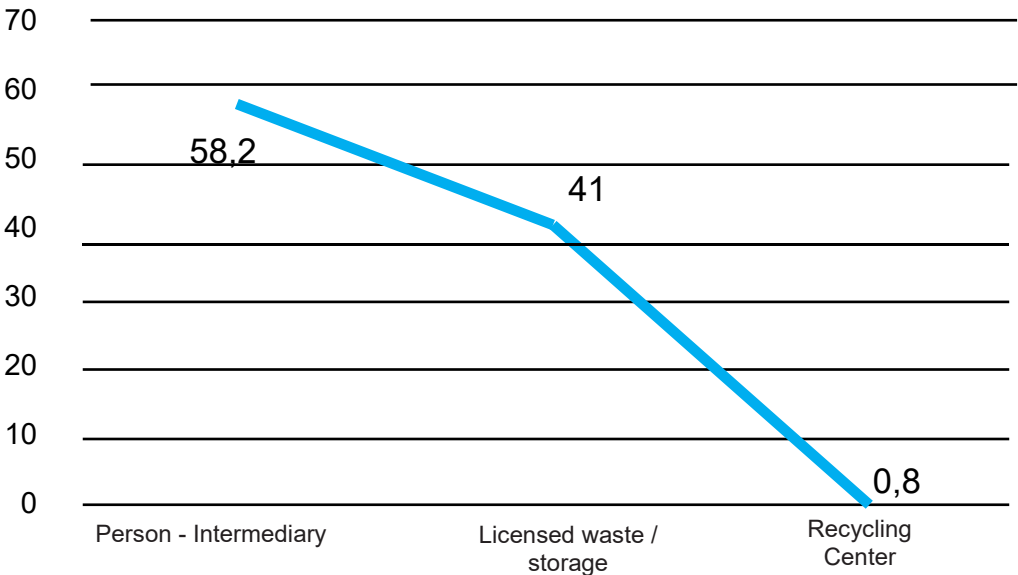
### 3.2 Waste collectors' work

For Roma communities across the country, waste collecting is a multi-generational and self-employment job, apparently part of the informal economy. Some started to work as children together with their parents, some as married adults, and some as poor elders. The reason is simple, to ensure income and food in the family. Waste collecting is a dominantly "male job" as it is physical work but does not restrict Roma women and children's participation. In the absence of formal work opportunities, Roma families usually follow the waste collecting examples within their communities/neighborhoods. No one instructed or advised them on how to deal with the waste, meaning that each family had its own learning process. Waste collectors are aware that this is unsafe health-related work and thus, prioritize personal health and hygiene as a basis for keeping their working capabilities functional.

Waste collecting is manual work, where physical power and tools are used. For most Roma families this is an everyday job, without holiday and weekend breaks, as they have to cover the food-related costs daily. It has to be performed every day, irrespective of the weather conditions and season. **The waste collecting work has four processing elements: selecting/sorting, collecting/storing, transporting, and selling.**

Each process requires a set of skills and knowledge, both operational and social, including money management. For example, selling requires trustworthy relations with the waste buying companies, in which mutual interest for profit is at the core of the relationship. Waste collectors do not have many choices regarding the selling companies, as they prefer immediate cash payment for the waste collected. The next table shows that the waste collected is mostly sold to intermediary waste companies which export it out of the country. **Only 0.8% of the waste is sold to recycling centers in the country.**

**To whom do you sell the collected waste?**



**Figure 8. Where the collected waste is sold**

The waste collectors' skills and knowledge are gained through practical life experience, sometimes on an ad hoc basis, sometimes in recurring cycles. Through multigenerational work, the accumulated skills and knowledge of waste collectors are important means of survival, but so far, insufficient to enter the formal sector. Long-term work in the informal sector keeps them vulnerable and dependent on decisions and legal acts made by central and local institutions.

### 3.3 Financial skills

Following the waste collectors' logic, where health is the main priority for their ability to work, next to it, money management is a central skill. Knowing that waste collectors' families are poor, and thus, have no adequate amount of money, meeting daily life needs with an insufficient amount of money is a fundamental survival feature.

**Coping with uneven flows of cash is a common challenge for all survey participants. It requires high self-discipline, rational spending during peak income days/months, as well as saving, in order to not go hungry in days/months with no or insufficient income. Such a combination of financial skills makes them resilient and capable to meet some unexpected needs. As mentioned previously, the poverty of Roma waste collectors is a multidimensional outcome of both non-monetary and monetary deprivations. In other words, the forces of social, cultural, economic, and political exclusion should be monitored simultaneously in order to formulate multi-dimensional policy measures against poverty.**

This requires longitudinal research observations, which for now, is an absent objective of research studies. Therefore, in this part of the survey, we bring the latest information about the financial situation of waste collectors in three categories we consider crucial for exiting poverty and subsequently, regulating their work into the formal flows of the economy.

### 3.4 Income

Monthly income in families of collectors is coming from various sources, which means that it is challenging to determine the amount of income from waste collecting work. For 70% of surveyed families, part of their monthly income is regularly supported by various types of state social assistance, while for a third of the sample, the single income in the family comes from waste collecting. In addition, we have to consider that the income from waste collecting work fluctuates, with no income days, or days with different amounts of money.

Knowing that most of the waste collectors do not have written evidence about the quantity of collected waste, the next three tables indicate guesstimates concerning the average monthly income, percentage of income coming from state social assistance, as well as gender-related income.

## What was the average monthly income in your household last year?

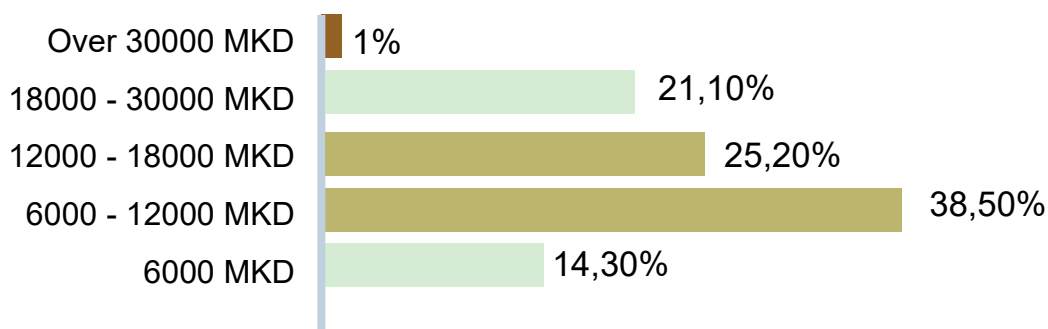


Figure 9. Average monthly household income

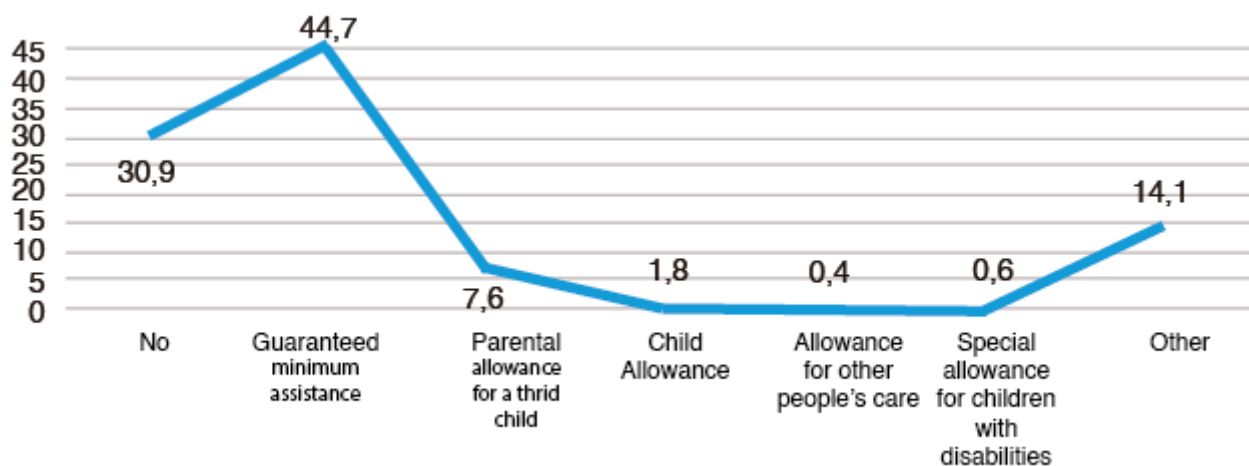


Figure 10. Household social income in last year

Considering that 30,9 % of all informal waste collectors do not receive social benefits and 55,3 % of all informal waste collectors do not receive Guaranteed minimum assistance, limited access to social benefits for this target group seems to be a big issue. Within various projects there were discovered different administrative obstacles, direct and indirect discrimination as regards access to social benefits and social services by Roma community representatives.

## What was the average monthly income in your household in the last year (by gender)?

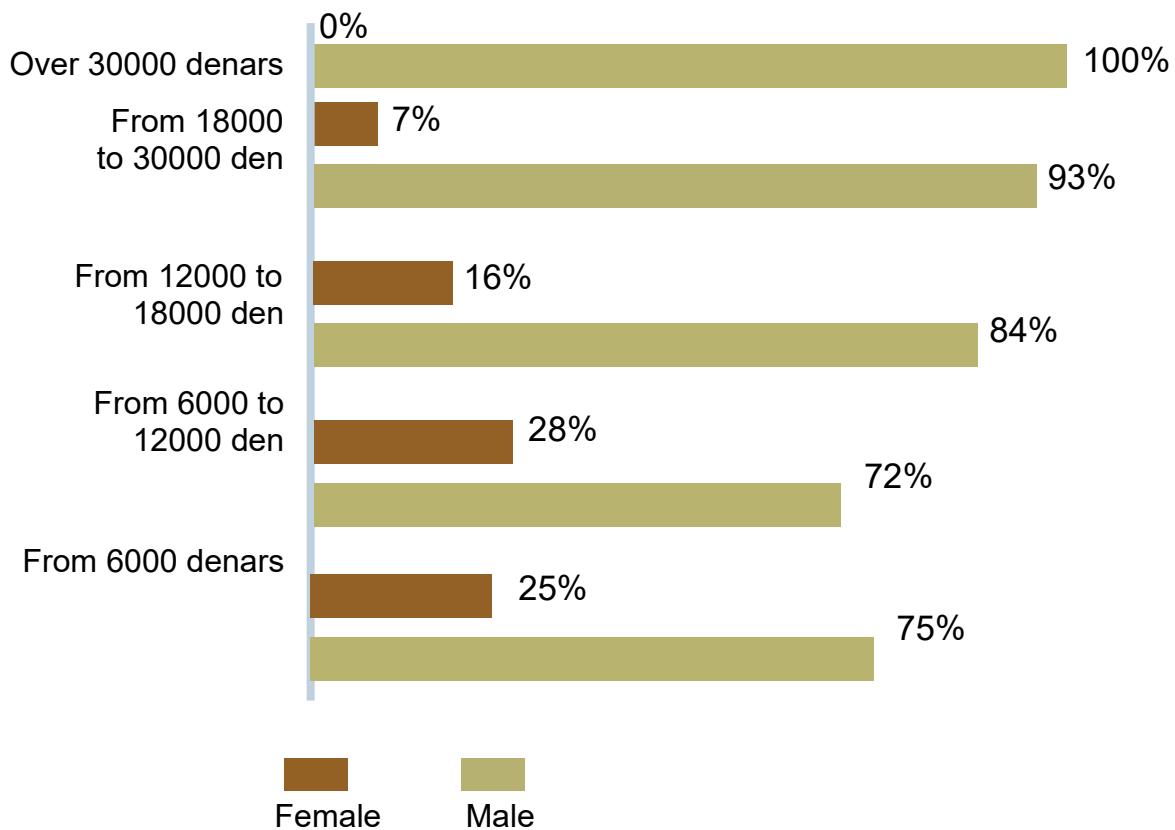


Figure 11. Household monthly average income in last year

### 3.5 Expenditures

The results show that 14% of surveyed waste collectors live with less than 100 Euros monthly. This is the poorest group of waste collectors, as its daily income is below 2 euros per capita. We identified one 11 member-family in the sample having less than 100 euro-monthly income, which is approximately 30 eurocents per capita in a day. Similarly, one of the surveyed participants counts 15 members in the household, having a monthly income of fewer than 200 euros. This family can afford to spend around 40 eurocents per person on a daily level. By the same token, the results show a gender-based income gap, as women waste collectors earn less than males. Every second woman earns between 100 and 200 euros monthly (53%).



According to the data of the collectors surveyed, the aggregated monthly income of all 512 households totals between 85,568 and 139,252 euros. **The average income distribution to all responding households is between 161 to 272 euros monthly, which is below the minimum salary in the country (300 euros).** When dividing the total income amounts by all household members of the sample (2063), it turns out that each member of the family has between 41 to 67 euros monthly to cover their living costs.

All interviewed participants spend part of their income on basic food. The monthly spending amounts fluctuate per household, depending on the monthly income budget they gain. Sixty-eight percent of participants spend between 50 and 160 euros on food monthly. The extremely poor households (16%) spend less than 50 euros per month, and approximately the same percent (16%) of waste collectors spend more than 160 euros on food. As for other living costs, 25% do not pay or do not have access to electricity, 34% don't use telephone/internet services, 30% can't pay for heating during the winter, 44% can't pay for any medication, and 49% can't afford to buy clothes for their family members. Apart from such poor financial situation, during the focus group meetings, we understood that majority of waste collectors have debts for food and utility costs (those who have access to public utility services). In addition, they are borrowing from each other 50 to 100 euros for a short term in emergency situations, indicating their capability to borrow and repay loans. None of the participants has bank loans or borrowed money from loan sharks, a fact that proves their capacity to live from their daily incomes. Social disadvantage and deprivation is the dominating living standard informal waste collectors experience for years and decades already.

The tables below provide more detailed insight into monthly expenditures for food and utility services.

### How much do you spend for food on average during a month?

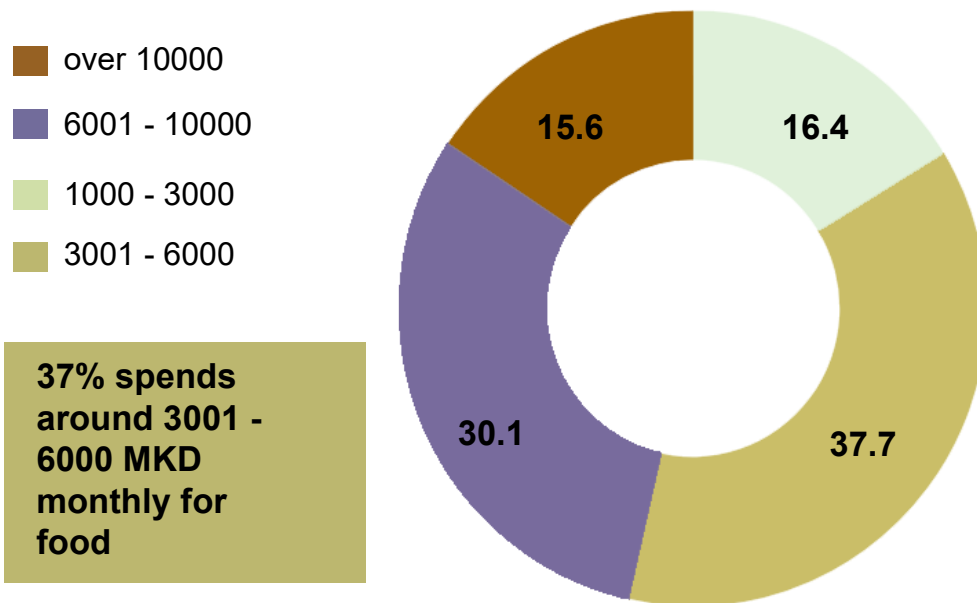


Figure 12. Household monthly spending for food in last year

### How much do you spend on average on electricity during a month?

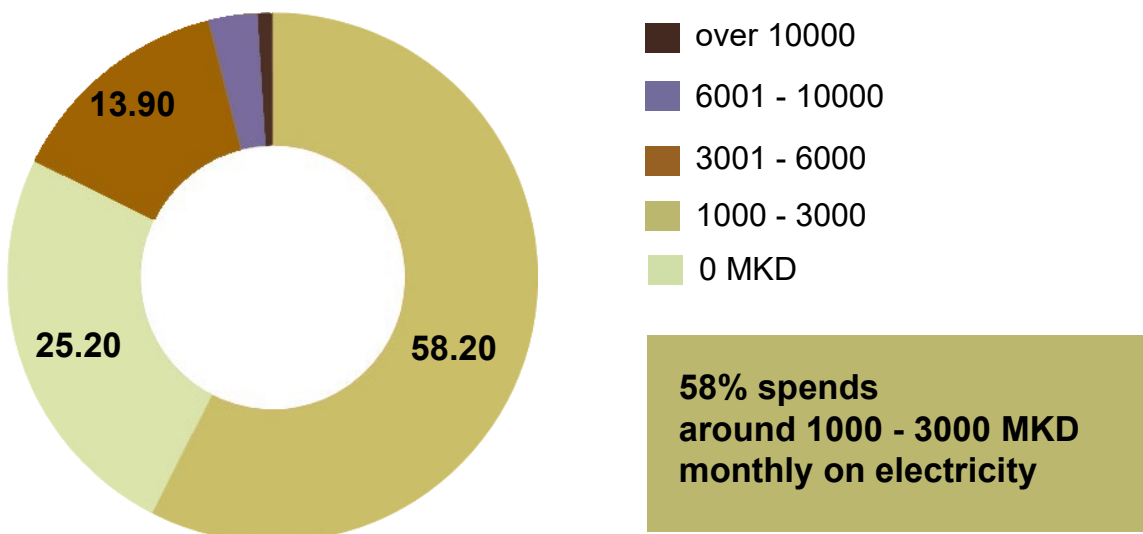


Figure 13. Household monthly spending on electricity in last year.

**How much do you spend on average on telephone and internet during the month?**

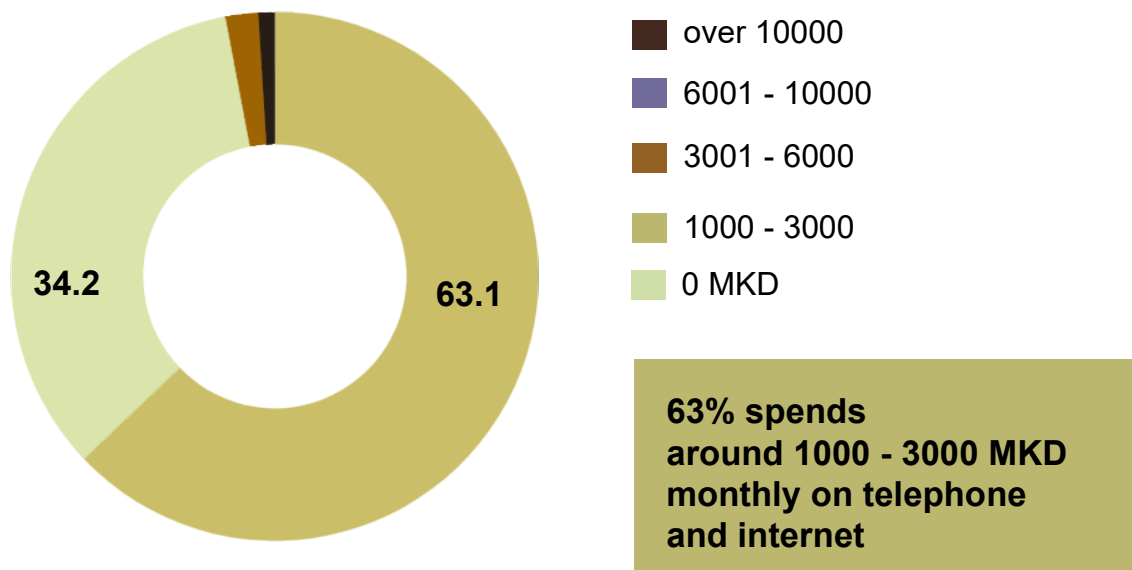


Figure 14. Household monthly spending for telephone and internet in last year.

**How much do you spend on average on medication during the month?**

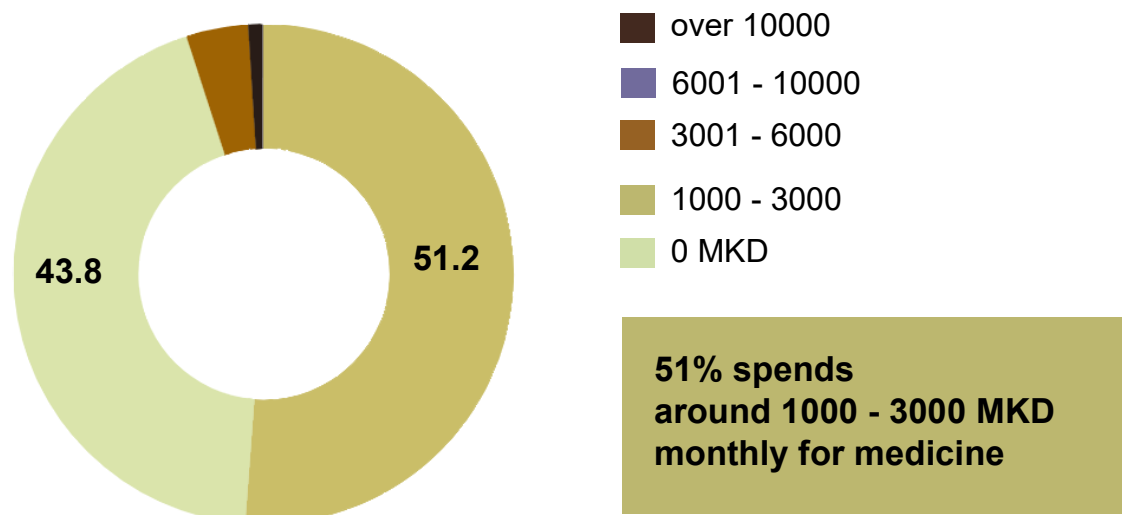


Figure 15. Household monthly spending for medicine in last year.

Therefore, limited access to medical treatment and to health service for informal waste collectors free of charge seems to be an important issue where urgent political activity is necessary.



## How much do you spend on clothes on average during the month?

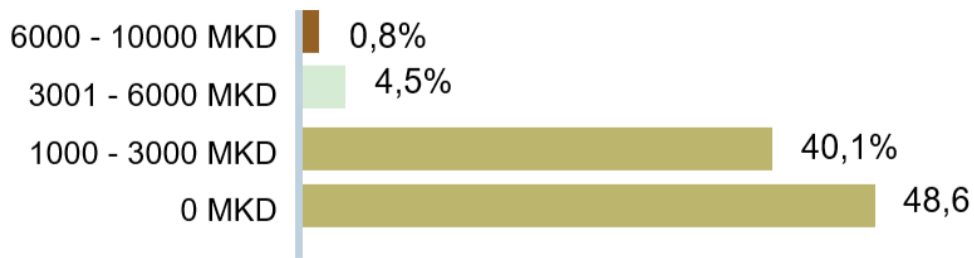


Figure 16. Household monthly spending for clothes in last year.

In addition, the questionnaire has a control question related to the coverage of household income from the sale of collected waste. The results show a narrow gap in the perceptions of respondents on given variables for covering living subsistence. However, only 13% of respondents are satisfied with the income they make from waste selling and claim to fully cover their living expenses, as well additional 26.6% claim to cover most of their living costs.

## How much of your household income do you cover from the sale of collected waste?

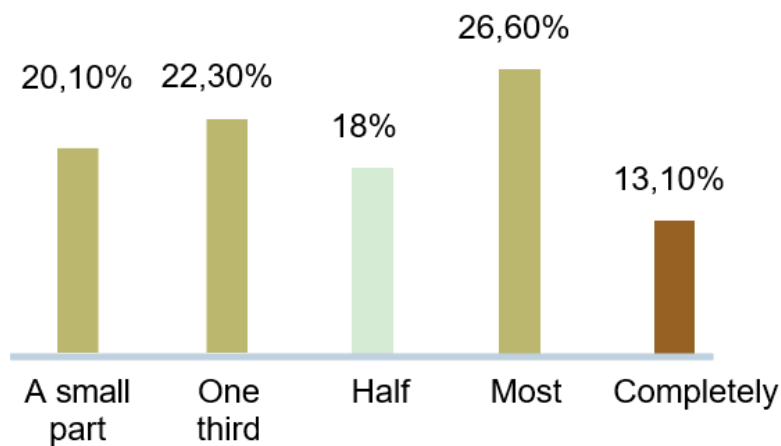


Figure 17. Level of household income coverage from collected waste sales

### 3.6 Work-related costs

Informal waste collectors do their best to minimize work-related costs in order to ensure sufficient earnings for living. For example, they have to pay for fuel when they collect and transport waste by motorcycle or car. Ninety-one percent of participants use their own tools of transport while 9% can't afford to buy or own means for transportation. The dominant tool for transport is a wheelbarrow (36%), a bicycle with a trailer (19%), and a motorcycle with a trailer (18%). Metal waste collectors use cars or minivans (13%). Occasionally they have to cover the maintenance costs for bikes, motorcycles, and cars. Due to low income, a significant number of focus group participants stated that they drive unregistered cars and motorcycles thus being frequently punished by the police.



The main reason why a lot of informal waste collectors do not have a driver's license is that access to a driver's license is only possible for persons having finished primary education in North Macedonia. As 65% of informal waste collectors have not finished primary education, they are ineligible to obtain a driver's license. This seems to be once again a discriminatory administrative obstacle without considering individual learning abilities and capacities, and it needs to be changed as soon as possible.

Some of the waste collectors use gloves and masks during work, but the majority of participants claimed that they can't afford to buy these products regularly. One out of ten collectors has a driving license, a fact that indicates that most of them are forced to save and rationalize costs concerning waste transportation. The table below shows the number of waste collectors having a driving license (A=motorcycle, B=car/minivan, and C=van/truck)

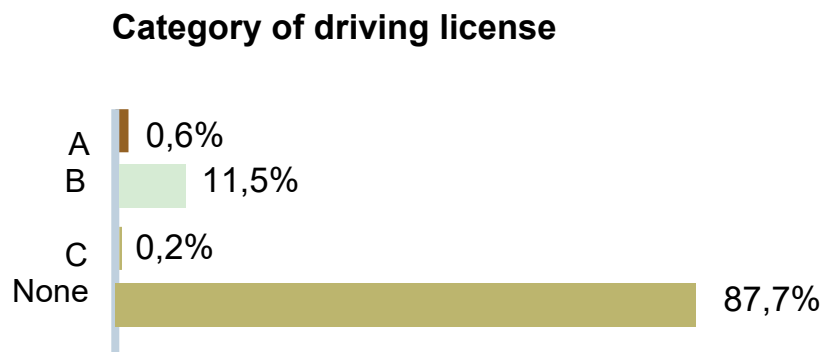


Figure 18. Driving license category

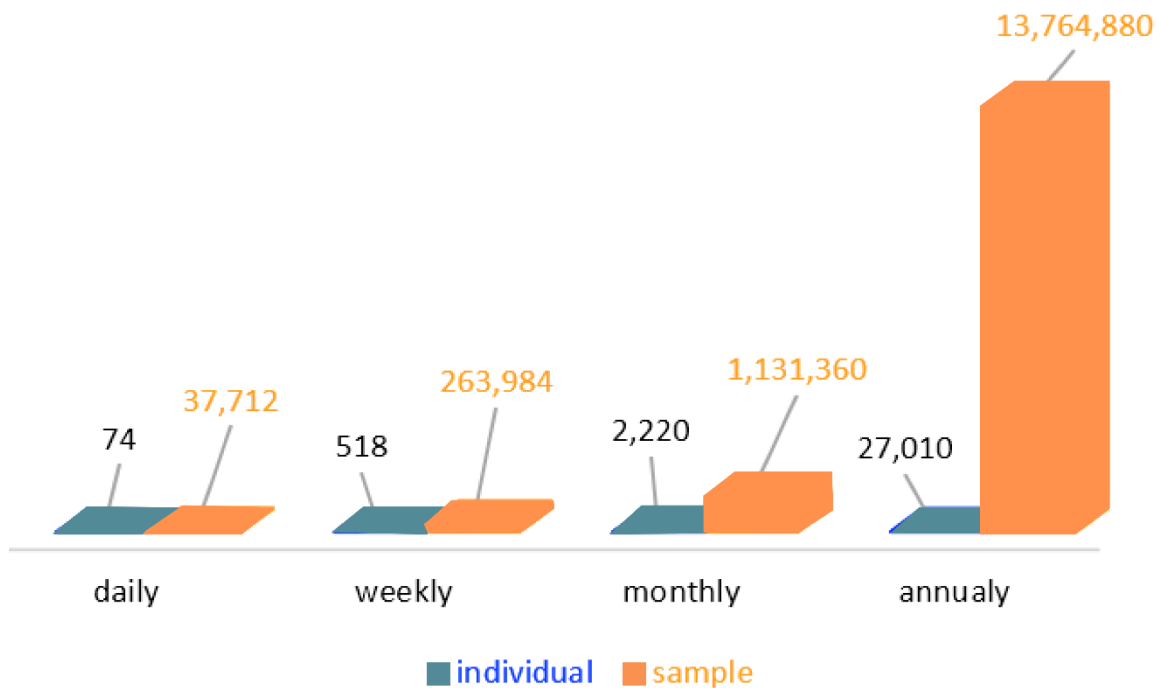
### 3.7 Operational capacity

The waste collectors surveyed spend a significant amount of time on fieldwork. According to the data analysis results, 512 participants spend a total of 3,344 hours per day on waste collecting. On average, each collector works for 6.5 hours a day. This means that each participant invests 81% of their available working hours compared to the 8 hours of work-day standard. Aggregated by annual level, the waste collectors surveyed spend 1,220,560 hours on fieldwork. Compared to formally organized work, there is good potential for more efficient and effective use of their time.

**The mapping results show that 792 persons of 512 households are doing waste collecting on the ground. This means that an additional 280 persons work at home on sorting and packing different waste materials, or from time to time, they join their relatives in the fieldwork. This is extra manpower that contributes to the waste collecting business, but it is invisible within the waste treatment chain.**

Similarly, the results of the data analysis show that participants collect 3.7 tones (37,712 kg) of waste per day. **On average, one waste collector collects approximately 74 kg of waste per day or 11,3 kg per hour.** They collect all the waste available in a given locality, claiming that they can collect more if available/accessible on the ground. **The figure 19 below estimates the quantity of collected waste (individually and per sample) on a weekly, monthly, and annual basis, assuming the quantity of waste and waste collectors remains the same. Under such circumstances, the surveyed sample of waste collectors can treat more than 1.1 kilotons of waste monthly. Estimates can be higher if the manpower organization is properly structured and equipped with technological equipment.**





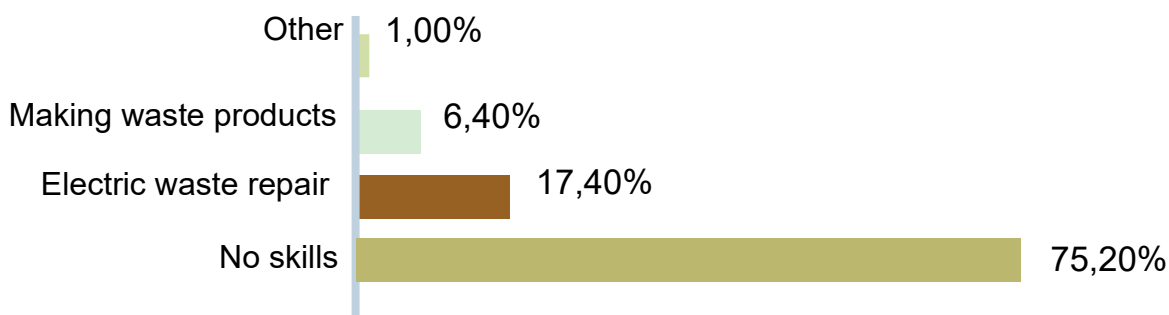
**Figure 19. Projected quantity of collected waste in kg**

The research identified several waste buying facilities owned by Roma. Some of them work without a license and few with a regularly registered business. The cooperation between waste collectors and waste buyers of Roma origin is trustful and respectful. This is additional capacity within Roma communities that can serve the waste collection formalization process. However, the owners of waste buying companies complain of unequal treatment and political pressure from municipal officials.

For example, the waste buying company in Shtip worked with a license from 2010 to 2018 but the current local government (in power since 2017) does not renew the working license to the company. Similarly, Roma waste buying owners in Skopje complain of selective pressure from inspections to close their facilities due to non-complying with regulations, while for similar facilities owned by Albanians or Macedonians, the inspections do not act as in the case of Roma.

We asked participants whether they have any other working skills besides waste collecting. Around 25% of them have additional waste processing skills, while 75% lack any work-related skills.

Figure 20. Do you have any skills and what are they?



Considering that 75 % of informal waste collectors have a lack of work-related skills there needs to be raised the question, where and how they can get necessary trainings and qualifications as they are currently excluded from respective measures provided by Public Employment Service and maybe also by other training institutes providing adult education.

### 3.8 Needs assessment results

A number of research questions are related to the living and working conditions of the collectors. Here, we bring the results of identified subsistence and work-related needs of waste collectors based on the responses given. Decent housing, access to utility services, health, and education are closely dependent on the work and earnings of every person, and vice versa, good living conditions ensure effective and productive work habits.

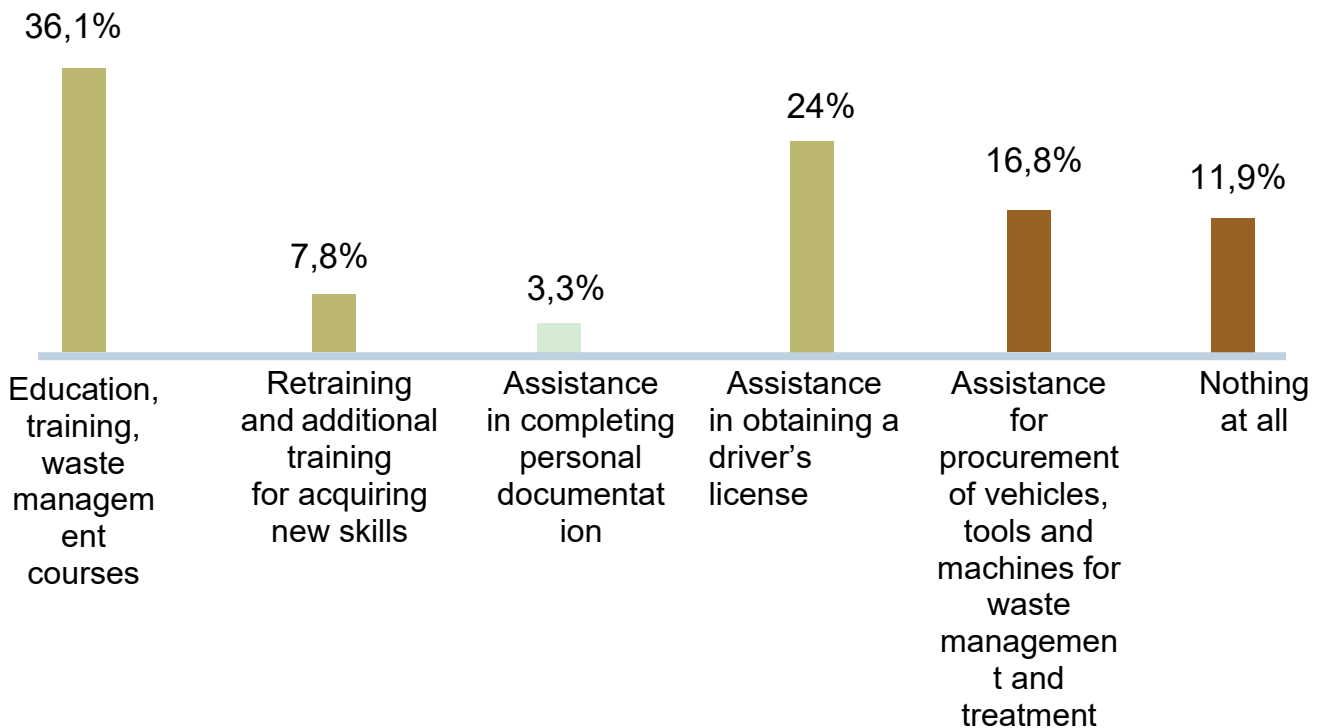
Nine percent of the participants are homeless, 8% live in rented properties and 6% live together with their relatives. **Eight percent or 48 families are facing potential eviction from current dwellings.** Every second family lives in a 21-40m<sup>2</sup> house, 17% in property under 20m<sup>2</sup>, and 23% in up to a 60m<sup>2</sup> dwelling. Sixteen percent of participants do not have access to electricity and 11% are without access to clean drinking water. Every second house does not have a toilet inside the property, while 19% of the houses are not

connected to a sewage system. Twenty-eight percent of participants live in segregated ghettos, without an organized system of waste collection by the municipalities.

Therefore, social housing as well as the establishment of preventive services to secure existing housing, which already exists in EU countries such as Austria (<https://www.wienerwohnen.at> or <https://www.volkshilfe-wien.at//soziale-arbeit/wohnungslosenhilfe/fawos/>) is important for vulnerable groups also in North Macedonia.

Regarding work-related needs, the next figure shows the share of interest and needs of waste collectors to improve their work and income.

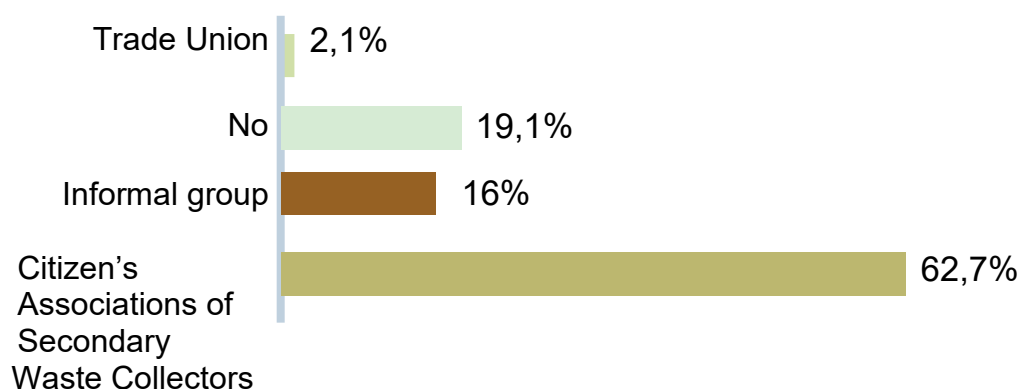
### Do you or your household members need any of these?



**Figure 21. List of waste collector family members' needs**

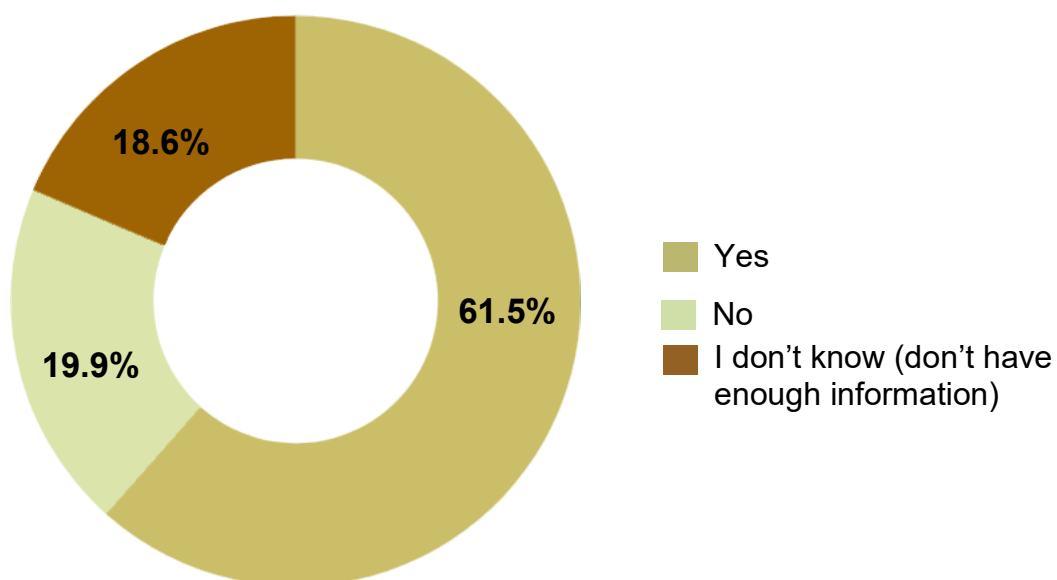
As shown, 36% are willing to attend educative training on waste management or basic management courses, 24% need support for obtaining a driving license, and around 8% would attend retraining or requalification courses. This indicates high interest to advance their skills and knowledge which is an important element for future assistance plans for waste collectors. Moreover, 39% of the participants are in need to have regular access to information about the terms and prices for the sale of secondary waste. The next figure shows their willingness/readiness for self-organization and getting assistance from REDI.

**Do you think you should organize yourselves in some form of association?**



**Figure 22. Waste collectors' view of the form of organization**

**Would you join REDI's initiative to organize informal collectors at REDI Recycling?**



**Figure 23. Perception of assistance offered by REDI**

### 3.9 Covid-19 implications & health situation of waste collectors

Since the introduction of first lockdowns in 2020, the living standard of waste collectors has deteriorated. Due to the restrictions, they couldn't move freely and work in the field, which negatively affected their daily revenues. Those receiving state social benefits had some modest income, but the collectors with no documents or unregulated status remained practically with no income during the pandemic. Only 25 percent of collectors received assistance from central or local authorities during the pandemic. This indicates that help did not reach a larger number of collectors, that is, they were forgotten during the pandemic. The following figure shows the percentage and number of supported families, as well as those that did not receive help from the institutions in charge.

#### Did you use any of Government Aid Packages during Covid-19?

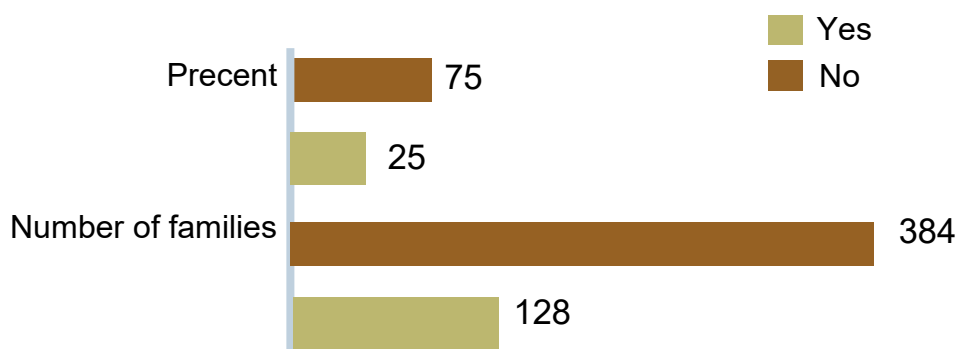
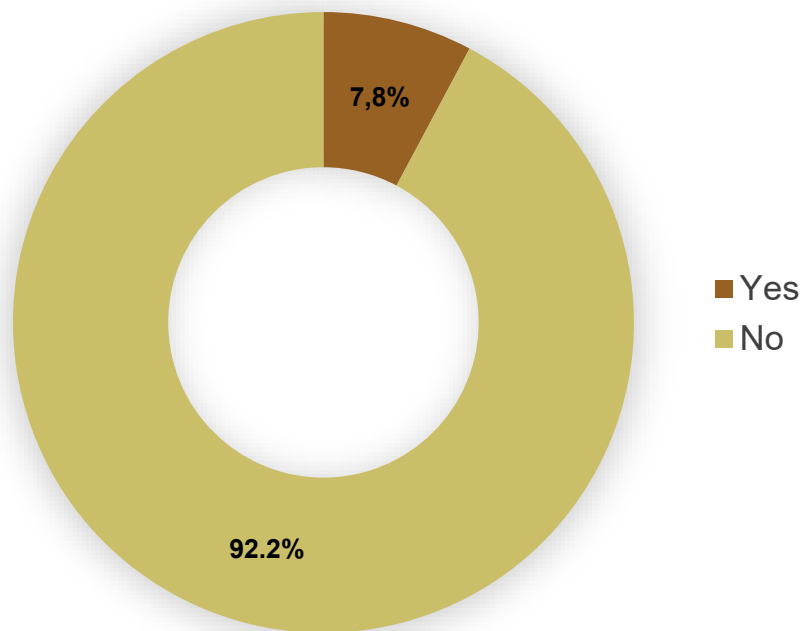


Figure 24. Government Aid Packages received during Covid-19

In spite of the very critical financial situation, the health of waste collectors remained good. Less than 8% of waste collectors have been infected with Covid-19 in the last 12 months. Similarly, only 9 out of 512 respondents got ill with contagious diseases, and 95 persons got sick in the last 12 months. Ninety percent of them had access to vaccinations, and around 22% visited a doctor for the same period. Access to health services is more critical for women, as 31% of participating women do not have a selected gynecologist. With such data, we can say that the pandemic has impacted income opportunities negatively, while the health of waste collectors remained relatively good. In addition, we assume that residing in isolated areas and cities' peripheries contributed to keeping health conditions within surveyed households stable.

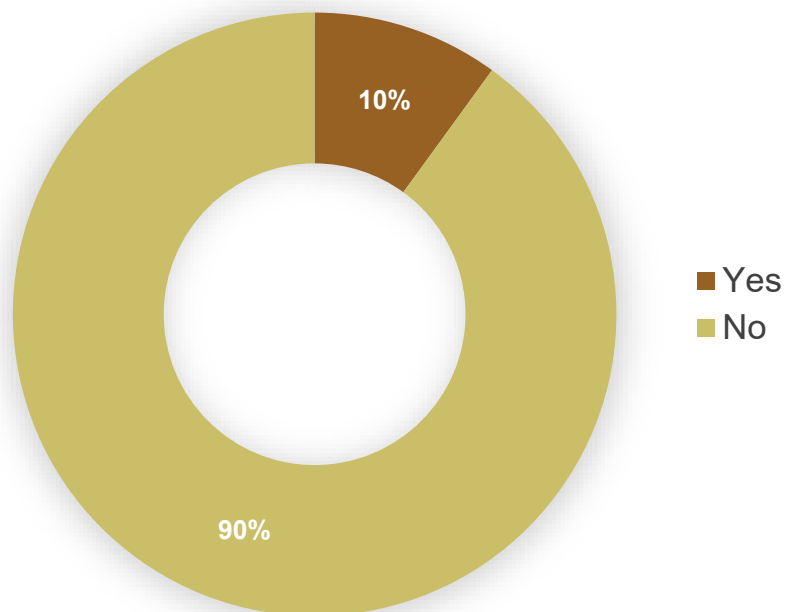


**Have you been ill with Covid 19 in the last 12 months?**



**Figure 25. Health Status – infected with Covid-19.**

**Do you have access to vaccinations?**



**Figure 26. Percentage of vaccinated against Covid 19.**

## For women: Do you have a gynecologist?

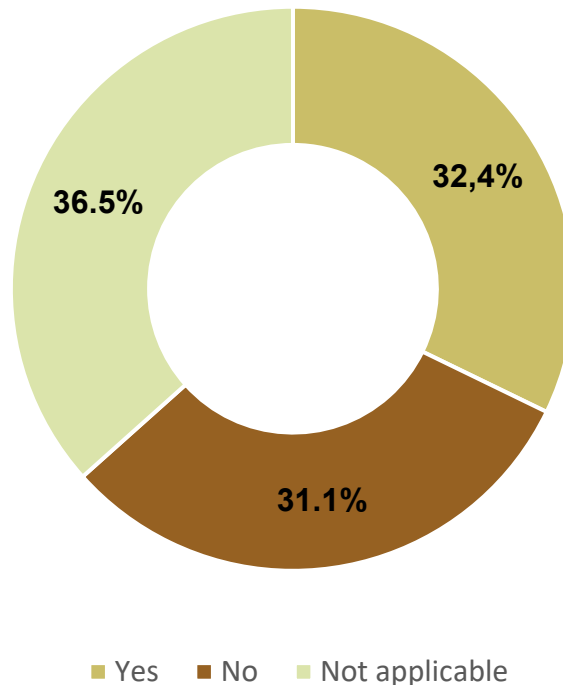


Figure 27. Percentage of coverage with a family gynecologist among women collectors of waste.

### 3.10 Conclusions

**Despite the poor organization and informal nature of waste collectors' work, the survey results show that this is a profitable, but also a hard-to-do business.** For decades, the poor organization of Roma waste collectors has been compensated by their survival strategies, where personal and family well-being fosters Roma waste collectors' productivity, irrespective of the risks, challenges, and treatment they face on a daily level. The lack of state institutional incentives is compensated by the low financial incentives of the informal market, whose key actors make a profit from the unfair exploitation of the labor of the poor. In our opinion, waste collectors are productive workers, benefiting both the environment and their own families.

In business management jargon, waste collectors are doing the right job in the wrong way. To some extent, waste collectors are aware of the added value of their work as regards the environment, but on the other hand, they are not informed about the cost-value and long-term prospects of their work on a macro level. Their horizon is narrow and short-term, focused on satisfying their basic living needs, with some modest expectations from the institutions and private companies for better treatment and payment of their work. For example, they are not aware of their collective potential and the outcome of their work at the national level.

**Currently, on average each waste collector collects 2.2 tons of waste monthly. Bearing in mind the official statistics that one citizen in Western Balkan countries produces 1 ton of waste annually, we can assume that a single Roma waste collector treats and deals with the garbage of 27 persons monthly. This is a very large cost-effective ratio for any type of client-oriented public service.**

**On average each waste collector collects 2.2 tons of waste monthly.**

**If one citizen in Western Balkan countries produces 1 ton of waste annually, we can assume that a single Roma waste collector treats and deals with the garbage of 27 persons monthly.**

To demonstrate the added value and productivity of their work, we calculated the total income from the collected amount of waste against the type of waste collected. The market price of copper makes waste collecting work most profitable. Next to it is aluminum, then plastic. By price, iron is the least profitable waste, but given the available quantity and access, it also enables good income for waste collectors. The following figures show the **forecasted value** for money at the individual and sample (512) level, in which one participant collects on average 74 kg of waste per day.

### Forecasted individual monthly income by waste type:



Figure 28. Forecasted monthly individual income by type of waste

### Forecasted sample monthly income by waste type:

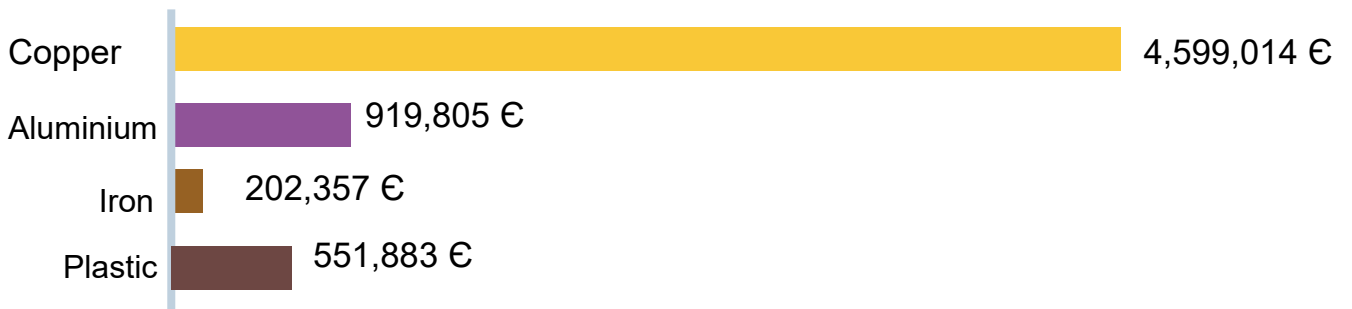
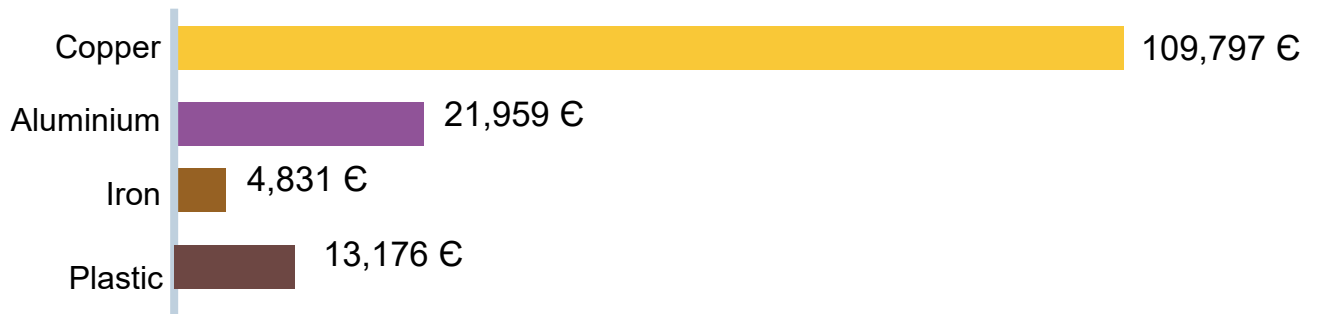


Figure 29. Forecasted sample (512 collectors) monthly income by type of waste

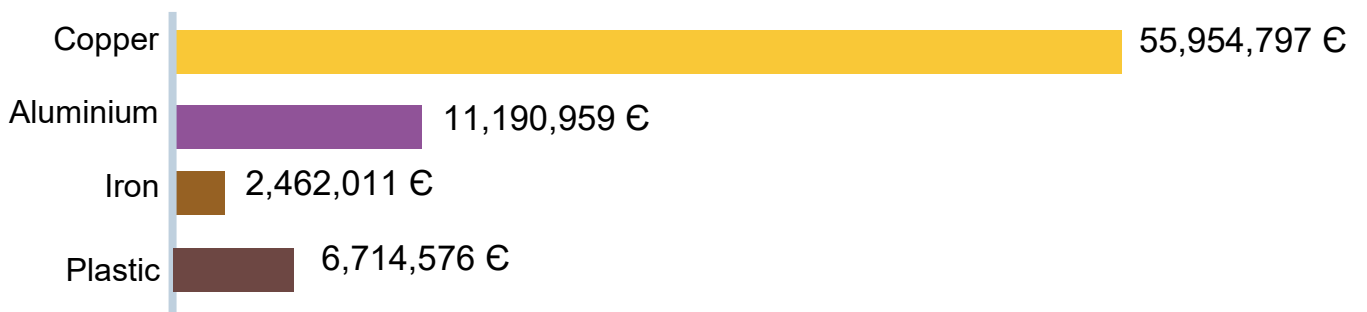
**Forecasted individual annual income by waste type:**



**Figure 30. Forecasted sample of individual annual income by type of waste**



**Forecasted sample annual income by waste type:**



**Figure 31. Forecasted sample of annual income by type of waste.**

**These are significant sums of revenue and contribution to the local and national economy on an annual and monthly basis.** Especially if it is considered that the waste collecting work is organized spontaneously and at the family level, without technology and institutional support. Data analysis suggests that the potential for waste collection and management is great, especially if the human potential of collectors is organized and structured through regular economic flows and strategic circular economy policies.

Waste collectors **are unable to anticipate** medium to long-term policies/developments, including how future policies and the EU accession processes will impact their income and work. The waste collectors from Prilep have already experienced the downsizing effects on their income while local authorities were advancing the structure and system of waste collection and recycling during the last ten years. The city of Prilep is a clear example that, if replicated in other municipalities, the availability and amounts of waste to Roma collectors will correspondingly decrease. In the long run, these processes will reproduce the **economic exclusion** of Roma waste collectors and **increase poverty rates**.

Roma waste collectors **have a modest, but also biased understanding** of the informal economy and its implications on their social and human rights. They know that it is unlawful to do unregistered work but must do so because their earnings are so low that they cannot fulfill their own statutory business obligations. If the income is formally registered and taxed, working with waste would not be profitable enough to meet their livelihood needs. This is the prevalent justification of their unregistered operation, and it is additionally supported by the belief that working in this way will keep them entitled to receiving state social assistance. Such practices and beliefs **perpetuate the low trust and dialogue** with local institutions, particularly with public waste management companies. The outcome of mistrust and isolated work suppresses the potential for cooperation which is a very important precondition for meeting the ambitious objectives of recycling markets.

Waste collectors are trapped in **multi-dimensional and multi-generational poverty**. Their current income serves their basic subsistence needs on a day-to-day basis. Current normative regulations and financial instruments do not consider the specific pressing needs of the poor waste collectors. Access to financial services or specific instruments for supporting the economic advancement of the poor is left to private moneylenders that charge high interest rates. Waste collectors need financial support more than any other group because they work and earn money every day in our ecosystems, which makes them creditworthy clients.

Given the very low living standards of informal waste collectors in North Macedonia, further research in line with EU-indicators on inequality and poverty seems to be necessary (compare: <https://ec.europa.eu/eurostat/web/experimental-statistics/income-inequality-and-poverty-indicators>).

**The informal waste collectors generate significant sums of revenue and contribution to the local and national economy on an annual and monthly basis. Especially if it is considered that the waste collecting work is organized spontaneously and at the family level, without technology and institutional support.**

**Waste collectors are trapped in multi-dimensional and multi-generational poverty. Their current income serves their basic subsistence needs on a day-to-day basis. Current normative regulations and financial instruments do not consider the specific pressing needs of the poor waste collectors.**

**Waste collectors need financial support more than any other group because they work and earn money every day in our ecosystems, which makes them creditworthy clients.**

## 4. FIELD STUDY RECOMMENDATIONS

This set of recommendations is primarily based on the survey findings and waste collectors' identified needs. These are specific recommendations that include the waste collectors' perspective (socio-economic status) thus considering both normative and operational realities in the country. In addition, provided that policy-making decisions have to be all-inclusive and social-justice-oriented processes as prescribed by the EU Green Agenda for Western Balkan countries, REDI should have a leading role in advocating waste collectors' needs and interests before institutions, as well as provide direct technical, financial, and legal support to waste collectors.

### 1. Establishment of a social enterprise as a tool for formalizing secondary waste collectors

The formation of a social enterprise should aim at the gradual formalization of the work of secondary waste collectors.

Due to this group's heterogeneity, way of life, and minimum income these people earn, social entrepreneurship is the best way to formalize their work. Consistent and coherent social enterprise work will take a large group of people out of the grey economy. **We propose that in the first five years, the state should gradually finance health and pension insurance contributions and in parallel provide social financial assistance for a certain period. The secondary waste collectors' obligation would be to register at no financial costs and to deliver the waste collected to a same collecting center in the municipality. The secondary waste price in the collecting center should be competitive with private waste collecting companies.**

Among other things, one of collectors' responsibilities would be to register their waste-collecting family members, where children under 18 must attend school. The compensation for the deposited waste would be in line with the delivered quantity thereof. The costs of contributions to be covered by the state would be calculated on that amount. In the first year, the coverage of the contributions should be fully financed by the state. In the second year, 80% of the costs would be covered by the state, and 20% by the collector. In the third year, the costs would be shared 50% - 50%.

While at the end of the fifth year the costs would be covered by the secondary waste collectors in full. The number of social transfers would also decrease in percentage each subsequent year. With the ending of social transfers and contributions by the state, the payment of minimum wage should be introduced, which would be financed from the green taxes collected by the state.



## 2. Organizing an educational process for handling and dealing with waste and introducing licenses

Given the increasingly active commitment of state policies to environmental protection, the state should provide education/training opportunities to waste collectors on how to handle and deal with waste. REDI should campaign and advocate the interests of waste collectors, by actively promoting their work as public work which contributes to the preservation of the environment and public health. Given that 70% of waste collectors are married, future educational support should consider their income and daily subsistence needs. Each training or education day means no income for their families, which means that financial incentives should be provided in parallel with educational training. Each person passing the education process should acquire the right to a free license.

## 3. Provision of legal and technical support

Waste collectors with primary school degrees should be supported in getting a driving license. In addition, younger collectors with no or unfinished primary education should be assisted to get a primary school degree. Those without personal documents and IDs should receive legal assistance to obtain personal documents. In the direction of the above recommendation, it is in the interest of the state to provide these persons with means of transport (motorcycles with trailers, quadricycles) by which they would collect and transport secondary waste in larger quantities and in a more efficient way. Additionally, waste collectors need donations of protective equipment, which they cannot afford due to their low incomes. This is particularly important for women and minors, as the most vulnerable group in the process of waste collecting.

## 4. Structuring/networking support

The trust and confidence among waste collectors are at a high level. This is a key asset for structuring their work-related capacities and building local teams/networks with delegated roles and responsibilities. Currently, they exercise this at a family level, meaning that they need external assistance to expand their income interests from the family to the community level. Awareness-raising activities and regular advising should encourage their choice to structure into larger teams/networks of waste collectors. This should be provided in parallel with ongoing policy changes while regularly adjusting to the work-related habits of waste collectors. This process should serve to delegate their representative at the local and central level in order to voice/protect their needs and interests before third parties.

## 5. Provision of microfinancing and microcredit support

REDI should introduce two financial instruments for supporting the needs of waste collectors. Micro financial loans should support the multitude of livelihood needs of their families, such as paying school and health fees, coping with emergencies and supporting a better living standard. Microcredit support should be linked to the entrepreneurial part of their work, conditioning the loans with a clear path towards formalization of waste collectors' work through the establishment of microenterprises. Initiating self-help groups based on gender or community belonging can change the attitudes and behavior of waste collectors, as well as encourage them to use microcredit

## 6. Ensuring equal access to active labour market measures and other adult education

Persons who have not finished primary education are not allowed to participate in active labour market measures provided by the Public Employment Services in North Macedonia (with the exception of community works). As a result, 65% of all informal waste collectors are unable to join active labour market measures such as self-employment, wage subsidies, on-the-job trainings, qualifications, and trainings, due to these administrative hurdles. This is clearly considered discrimination by administrative procedures and is an important issue to be reflected in the context of EU negotiations on Chapter 23 - Judiciary and fundamental rights. Furthermore, individuals who have not finished primary education have no possibility to obtain a driver's license.

Therefore, the following actions are necessary:

- a) To provide access for persons not having finished primary education to all active labour market measures and other adult education provided by public institutions, depending on individual learning and working capacities and abilities
- b) Provide Second chance for persons not having finished primary education, financed by Public Employment Service or other public institutions (Ministry of Education, Municipalities etc.)
- c) Provide access to driver's license based on individual learning capacities.

## 7. Improving access to social and health system and level of protection

A lot of informal waste collectors do not have sufficient access to social benefits, social services, social housing, as well as health care and health care services. The maximal amount of guaranteed minimum assistance per household is currently €165 per month, which is far from sufficient to cover the basic needs of many families of informal waste

collectors. The majority of them have quite low living standards and live in a situation of severe poverty and material deprivation. In North Macedonia, 30,000 persons per year lose access to power supply due to unpaid bills.

Therefore, the following actions are necessary:

- a) Improve access to and level of guaranteed minimum assistance
- b) Improve access to health care and health care services free of charge
- c) Improve housing subsidies and establishing a broad program on social housing for vulnerable groups
- d) Provide sufficient support for vulnerable groups to get and keep access to energy supply and to be able to cover energy costs
- e) Establish preventive measures to secure housing (compare Austria: <https://www.volkshilfe-wien.at//soziale-arbeit/wohnungsloshilfe/fawo>)

# **PART II**

## **REVIEW OF WASTE POLICIES AND LEGISLATION IN NORTH MACEDONIA, THE EUROPEAN UNION AND NON-EUROPEAN COUNTRIES REGARDING THE INFORMAL WASTE COLLECTORS**

# 1. INTRODUCTION

We live in an increasingly complex world, where economic goals must be combined with objectives that have social and environmental substance. Economic recovery, job creation, and poverty alleviation are currently at the top of government agendas all over the world. Meanwhile, we continue to face a global waste crisis, which can be mitigated through sustainable waste solutions that would address the issues governments are currently seeking to solve.

The North Macedonian situation in the waste management sector is not unique. Waste collectors make the same contributions across developing countries and play a role in developed countries. Waste collectors' integration into local and regional waste management systems and recycling industries is now considered a best practice. Countries are now focusing on waste collectors' integration as a key component of an effective waste management system. Waste collectors' integration is advocated by the World Bank and Inter-American Development Bank, and the OECD recognizes it as an important part of EPR.

Waste management is a particularly important domain of intervention for anyone supporting the organization of poor and vulnerable populations in North Macedonia. Waste collectors are the main actors of the waste system in the country providing an essential service to society in terms of self-employment, entrepreneurship, clean environment, cheap materials for the industry, and reduced operational costs for Public Utility Companies. Although they create these positive benefits, they are usually marked by bad reputation and placed on the margins of society.

Through the years, this injustice has motivated research activities and on-the-ground piloting as efforts to support this marginalized group of people. There were multiple stages of development concerning the improvement of livelihoods of informal waste collectors, and international donors have financially backed "REDI Recycling" to continue the process of formalization and empowerment that started almost 15 years ago.

One of the activities was to establish a waste collectors' social enterprise as an innovative solution recommended as viable by previous research studies and pilots. The results that "REDI Recycling" is producing are showing that there are potentials to attain higher values which these social enterprises can create while providing long-term sustainability. But, in order to be able to accomplish this, the value chain should be well-functioning as a prerequisite. Experiences of "REDI Recycling" in the current environment clearly demonstrate a need for a well-functioning value chain. This is possible if there are substantial efforts by local and national authorities to back it up with well-suited measures. It would be critical to improve the current regulatory framework, provide strong technical capacity and support, and create financing mechanisms and incentives. We need to continue demanding from the national Government changes in laws, by-laws, and policies such that waste collectors are considered part of waste management solutions and any current or potential obstructions to their work are removed.

By applying measures towards full integration as described in this document, North Macedonian local governments and the national one, have an opportunity to simultaneously alleviate poverty and transition towards sustainable waste systems that would not only reduce waste and unemployment, but also create better social and environmental welfare. This will improve waste collectors' overall quality of life, through a recognized job, higher and stable income, social benefits, and the possibility to better develop their skills. It will also benefit their children by reducing the economic pressure for them to contribute to the family income.

To create these changes, an impactful review of policies and regulations is required. It would guide the policy advocacy efforts that would create an enabling environment for the integration of waste collectors into the waste management system and society as a whole.

The research objectives include the following:

1. Identification of bottlenecks and opportunities in international waste management legislation and policies that can positively affect informal waste collectors on an individual and collective level (legal forms of operation).
2. The need to remove barriers that prevent greater integration of informal waste collectors in North Macedonian waste policies and legislation.
3. Definition of activities and type of support required for waste collectors, especially concerning pre- and post-Covid situations.

The overall steps required to meet these objectives were the following:

- Desk research and data analysis;
- Analysis of the local context and practices;
- Quantitative and qualitative identification of informal collectors' problems and needs;
- Final report write-up;

### *Legislation/Policy Review Key Takeaways*

Inclusion of informal recyclers in waste systems results in:

1. The job creation potential for inclusive recycling systems estimated at an average of 321 jobs per 10,000 tons of recyclables per year;
2. Quantifiable savings in waste management and reduced social assistance costs;
3. Better environmental outcomes by extending the life of disposal sites and reducing greenhouse gasses;
4. Greater economic and social justice for an important share of the population performing an essential service;
5. A powerful foundation upon which the North Macedonian waste sector can transition towards a zero-waste future.

## 2. INFORMAL WASTE COLLECTORS AND THEIR ROLES IN DEVELOPING COUNTRIES

According to Medina (2008), waste collectors constitute at least 1% of the population worldwide. That is more than 15 million people who secure their livelihoods through informal waste picking. Waste collectors refer to individuals or groups of people who are involved in activities including recovery, reuse, and sales of materials. The informality of waste collectors describes a group of people that is unregistered and unrecognized in their activities related to waste. Informal waste picking is characterized by labor intensity, low pay, low technology, and unregulated work (Wilson et al. 2006).

**Table 1. Summary of differences between European and non-European informality in the reuse and recycling sectors<sup>4</sup>**

Parameters	Outside Europe	Europe
Existence and status	Waste picking occurs widely in large cities and where there is growing welfare; numbers in Africa are small, while in emerging economies of Asia and Latin America, very large.	European informal recycling is well established, and the numbers in South-East Europe are moderate to large.
Social identifiers	Internal (rural-urban) migrants, unemployed and homeless persons, women heads-of-households, ethnic and religious minorities.	Young men of Roma ethnicity dominate among 'full-time' waste collectors.
Full-time/part-time	Colombian researchers divide waste collectors into 'authorized', 'unaffiliated', and 'street persons'	Many European informal recyclers see waste picking as a part-time or seasonal alternative to other forms of work.

<sup>4</sup> Source: Drafted by the authors based on Dias, 2006; Gutberlet et al., 2016; ILO, 2004; International Trade Union Confederation, 2014; Linzner et al., 2011; Mendonça, 2015; Ramusch and Obersteiner, 2012; Scheinberg, 2011; Scheinberg and Anschutz, 2006; Scheinberg and Nesić, 2014; Schmied et al., 2011; Sim et al., 2013; Vaccari et al., 2013. EPR: extended producer responsibility; EU., as cited in Scheinberg et al, 2016, p.834)

Occupational recognition	Occupational recognition for 'full-time' waste collectors is growing.	Occupational recognition is extremely rare and outside of European statistics/
Informality in the service chain	Informal service provision (micro-privatization of waste collection, is common in the service chain in sub-Saharan Africa and growing in Asia	Service chain informality is limited to underserved rural areas, or to 'side' jobs such as cleaning up attics or removing bulky waste.
Barriers to legalization	Experiences in Asia and Latin America have produced progress in legalizing and integrating informal recyclers in the framework of municipal waste management (and the service chain).	There are a few fragile examples of legalization of reuse operators, and some intentions to legalize and integrate recyclers of packaging, but the taboos and resistance are very strong.
Potentials for integration	Integration in the service chain as official recyclers has a good basis and potential to expand; the introduction of EPR systems for packaging in countries like South Africa and Indonesia appears to offer interesting new opportunities.	Integration in the service chain appears to be extremely difficult; better potential exists in relation to EPR systems under the new EU directives on waste prevention and reuse.

The materials that are mostly picked by waste collectors are the following: paper, cardboard, glass, plastics, metals, fabric for industrial use, and organic waste, which has value for agriculture (Wilson et al., 2006). The collected recyclables are sold to small-scale dealers where they are piled and resold to intermediaries who process and bundle them for industrial buying (Scheinberg et al., 2011).



In the context of municipal solid waste, at least four types of waste picking activities can be mentioned:<sup>5</sup>

- a) Itinerant waste buying: Collecting particular recyclable materials or reusable waste from households in return for money or other material;
- b) Street waste picking: Recovering secondary materials from mixed waste or communal containers;
- c) Municipal waste collection: Recovering secondary materials on the route from communal collection to disposal sites;
- d) Waste picking from dumps: Sorting through waste before it is filled at open dumpsites.

Medina (2007) underlines the following differences between industrialized nations and economically developing countries in terms of waste generation and recycling, which eventually separate the MSW management approaches:

- a) Industrialized countries have relatively higher capital and labor costs, so they form capital-intensive waste management services. On the other hand, labor-intensive systems are more reasonable for developing countries, since that means work opportunities for the unemployed;
- b) The lack of transportation structure, as improper roads or streets, hampers the wide use of regular collection vehicles in the developing countries;
- c) In industrialized countries, the quantity of waste is relatively higher due to the consumption level. Then, a significant amount of waste composition includes packaging materials such as cans, bottles, or plastic, which are basic recycling items. On the other hand, solid waste in developing countries has more organic content such as fruits, vegetables, and unpacked food, which has less potential for reuse.

With regard to those conditions, solid waste is not adequately managed formally in developing countries. Besides that, the informal sector is highly dependent on collecting reusable material from waste streams to earn its living and that is why waste collectors can achieve higher recycling rates than the formal sector (ILO & WIEGO, 2017). By using the power of the waste collectors, recycling rates can be increased and landfill diversion rates can be decreased without the need for expensive, high technology solutions.

Waste recycling in developing countries is done mostly by informal waste collectors and the data from different sources confirm this (Scheinberg et al, 2016). Despite all the socio-economic challenges that informal waste collectors are facing, the informal recycling sector in developing countries has achieved recycling rates of 20-30% (Wilson et al., 2012 via Wilson et al., 2013), and by doing this it saves the local municipalities up to 20% or even more of its waste management budgets (Scheinberg et al., 2010a, 2011, via Wilson et al., 2013). This would mean that the poorest populations are subsidizing the local and national authorities (Wilson et al., 2013).

The data on recycling rates collected from 20 different cities in high, upper-middle, lower-middle, and low-income countries is projecting the following contribution of the informal sector:

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<sup>5</sup> (Wilson et al., 2009 via Sozuer, Aytug & Cakirli, Nuray. 2018)

**Table 2. Recycling rates across 20 reference cities<sup>6</sup>**

<b>Income level</b>	<b>Range %</b>	<b>Average %</b>	<b>Average contributed by the informal sector %</b>
High	30 - 72	54	0
Upper - middle	7 - 27	15	15
Lower- middle	6 - 39	27	16
Low	6 - 85	27	26

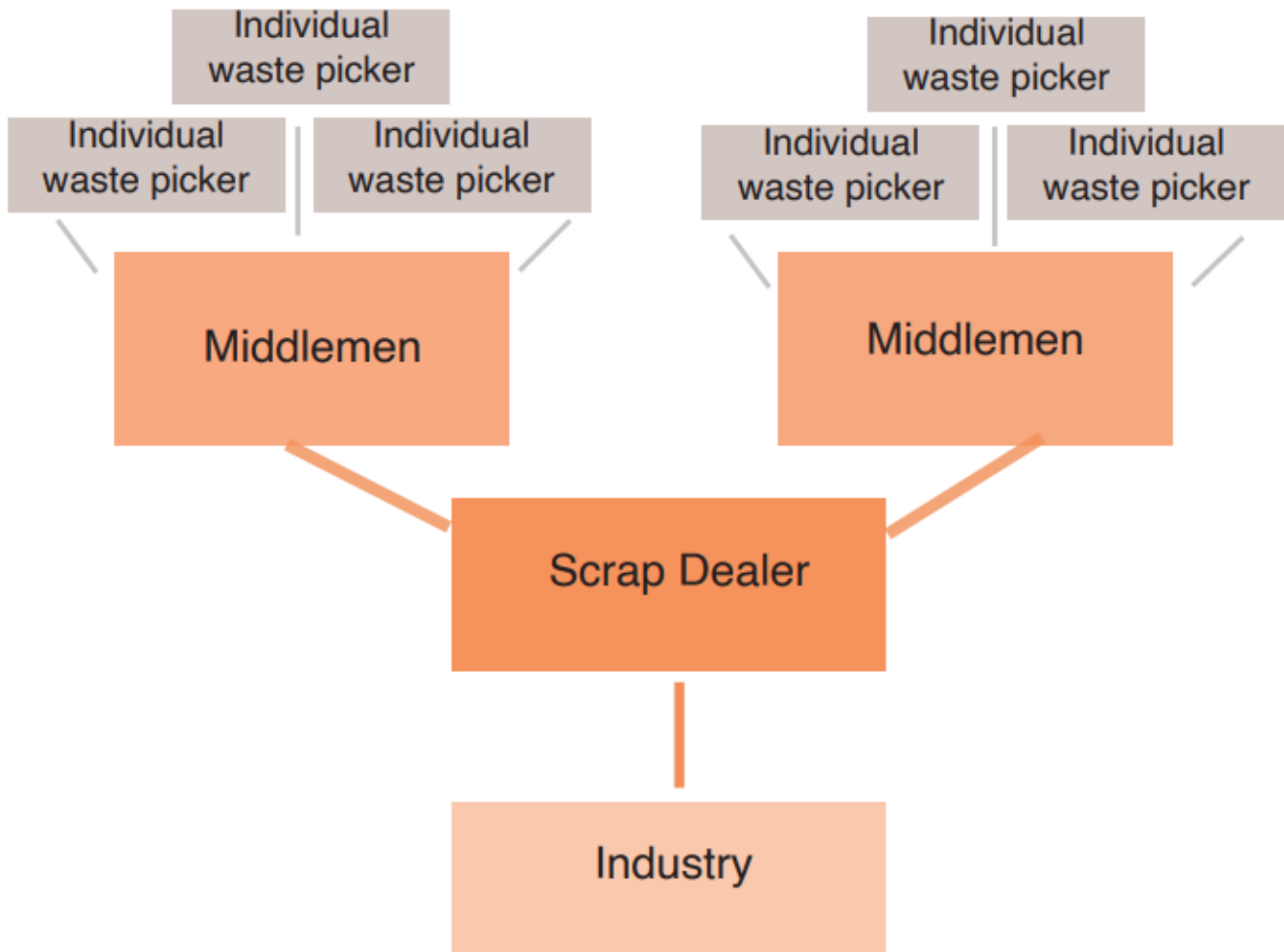
Source: Scheinberg et al. (2010b), Wilson et al. (2010b), Wilson (2011), as cited in Wilson et al., (2013)

It has also been argued that recycling contributes to the reduction in the use of energy and materials like coal and iron when compared to the extraction of raw materials. Also, it can be pointed out that land, air, and water pollution are reduced, thereby minimizing global warming. From this point of view, informal waste collectors play an essential role in sustainable development according to Medina (2000). According to Downs and Medina (2000), despite the marginalization of informal waste collectors, they constitute an active part of the chain of production that contributes to the sustainability of the supply of raw materials for different industries. They are a source of raw materials for industries that recycle paper, plastics, metals, aluminum, and tissue among others.

<sup>6</sup> Rotterdam, Netherlands; San Francisco, US; Tompkins County, USA; Adelaide, Australia; Belo Horizonte, Brazil; Curepipe, Mauritius; Varna, Bulgaria; Canete, Peru; Sousse, Tunisia; Kunming, China; Quezon City, Philippines; Bengaluru, India; Delhi, India; Managua, Nicaragua; Lusaka, Zambia; Nairobi, Kenya; Bamako, Mali; Dhaka, Bangladesh; Moshi, Tanzania; Ghorahi, Nepal.

Still, the informal waste collectors are at the bottom of the waste chain.<sup>7</sup>

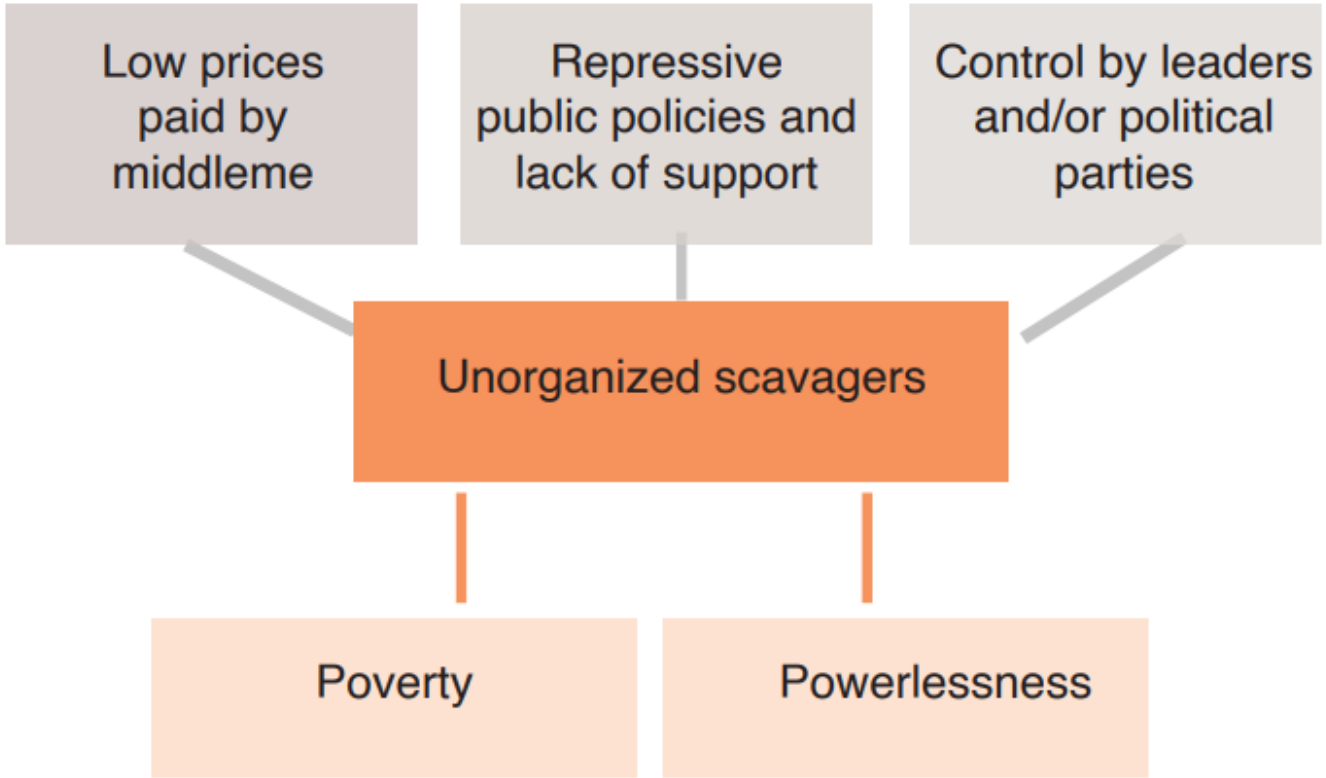
Figure 1. Typical supply chain for recyclable materials<sup>8</sup>



<sup>7</sup> (Scheinberg et al., 2011; Wilson et al. 2006).

<sup>8</sup> Source: Medina, 1997., as cited in Medina, 2011, p.18

Figure 2. Typical power relations in waste picking in developing countries<sup>9</sup>

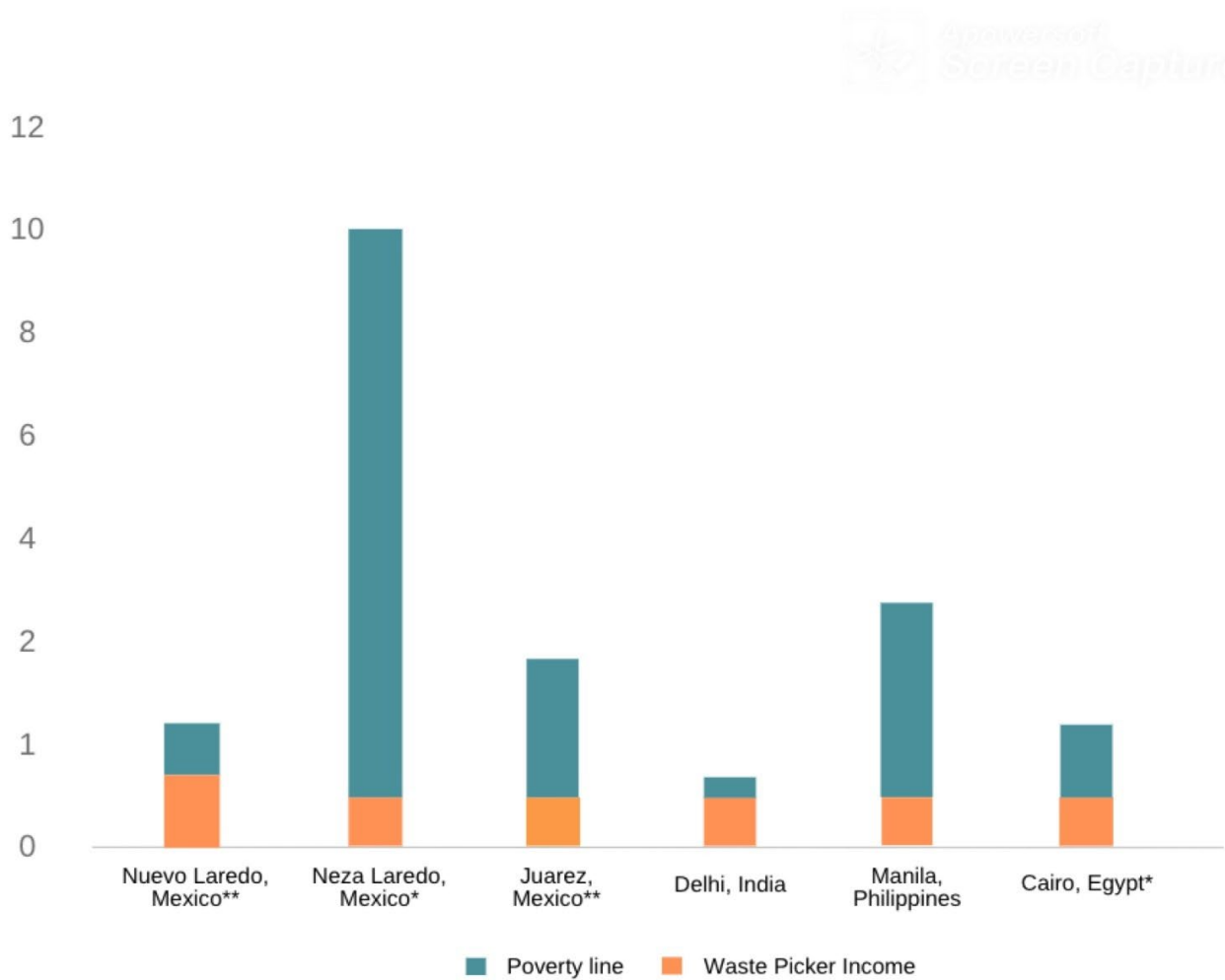


To add up to all the above-mentioned positive aspects of the informal waste collectors, it can be also noted that even with the current levels of waste collectors' exploitation, they create themselves higher wages. For instance, waste collectors earn above the national minimum wage in Brazil. In Cairo, waste collectors earn an average of €4.30 per day or roughly 100€ per month, while waste collectors in Lima earn up to €135 per month. In Pune, they earn about US\$ 108 per month.<sup>10</sup>

<sup>9</sup> Source: Medina, 1997., as cited in Medina, 2011, p.19

<sup>10</sup> (Rocha Perrupato-Stahl, 2016).

**Figure 3. Waste collectors' income in selected cities<sup>11</sup>**



The importance of waste picking is gradually becoming accepted by the waste industry, producers, and a number of international institutions like the World Bank (2018). Informal activity has achieved the status to be considered in plans for waste management (Scheinberg et al, 2016).

In MICs with very large populations of informal recyclers, such as Brazil, South Africa, Colombia, China, Indonesia, and India, conflicts and competition for materials have led to advocacy, research, and projects on integrating the informal sector into processes of modernization of waste management systems (Scheinberg et al, 2016). Their integration generally depends on a demand for informal recyclers to formalize themselves, so they may be able to operate legally within the different service chains (waste collection and disposal) or the value chains (recycling industries) (Scheinberg et al., 2016).

<sup>11</sup> Source: Medina, 1997., as cited in Medina, 2011, p.20

Informal waste collectors' formalization refers to a situation where they are recognized as an official occupation, and informal recyclers have a legal identity, are protected by laws, are covered by social security, and, paid for the value of the service they are delivering to the city and the environment (Scheinberg et al, 2016). But according to different authors and their research, there has been little willingness to recognize that waste collectors are affecting the waste management systems in middle, upper-middle, and high-income countries in North America Oceania, high-incomeAsia, and Europe. <sup>12</sup>

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<sup>12</sup> (Scheinberg et al, 2016).

### 3. WASTE POLICIES AND LEGISLATION IN NON-EUROPEAN COUNTRIES

The importance of waste picking is gradually becoming accepted by the waste industry. Many studies and research conducted especially in the last 10 years suggest that efficient and effective waste management models in developing countries are possible. But evidence shows that these affordable systems can be achieved only if they are tailored according to the local needs and conditions. And on top of that, direct involvement from the different stakeholders is required.<sup>13</sup>

Good practices in inclusivity were demonstrated in many non-European countries, which are proof for this much needed model, if one wants to successfully implement waste management policies in developing countries. (Wilson et al., 2013).

These practices included:

- Communication with, and consultation of, users in strategic planning and siting facilities;
- Communication and involvement of users in the organization of day-to-day services;
- Institutionalizing inclusivity through a solid waste platform.<sup>14</sup>

The enabling environment for a successful integrated solid waste management requires adequate policy and legislative frameworks supported by institutional structures and capacity, and technology usage that is affordable to citizens (Scheinberg et al., 2010). By the inclusion of informal waste collectors in formal municipal systems, solid waste management constitutes an integrated mix of systems that complement each other rather than parallel systems operating independently of one another (Scheinberg et al., 2010).

These systems take the form of source segregation schemes, door-to-door collection schemes, or small- to medium-scale composting schemes, though they might also comprise elements of recovering non-organic recyclable materials, construction and demolition waste, or other waste streams such as tires or electronics. Informal workers can be integrated into these systems in many ways, as the examples of the cities of Pune, Belo Horizonte and Bogotá show<sup>15</sup>.

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<sup>13</sup> (Bartone, 1995; Wilson et al., 2013; UN. ESCAP 2017).

<sup>14</sup> (Rodic et al., 2010, Scheinberg et al., 2010b, via Wilson et al., 2013).

<sup>15</sup> (Dias, 2016).

## 3.1 Informal Waste Collectors' Integration Frameworks in Three Cities

This section explores the relationship between stakeholders and institutions in three cities, chosen because of their variations in location, the dominance of policy drivers, complexity and development of the solid waste system, and recycling performance. For each of these cities, a brief case study is presented.

### 3.1.1 Belo Horizonte, Brazil

The process of informal waste collectors' integration into the municipal waste management systems in Brazil started almost 30 years ago. According to researchers (Dias, 2016), it was a pioneering move in which the local waste collectors' cooperatives played an active role in shaping the new integrated recycling system. The model aimed to integrate two types of waste collectors. The first group consisted of waste collectors collecting recyclables in the streets and dumpsites, and the second group consisted of waste collectors acting as waste collectors and offering their services to help citizens get rid of their waste (operating like cart drivers) (Dias, 2016).

The new model focused on sorting the waste at source and involved the waste collectors in both collection and sorting. They implemented three main functions:

- Door-to-door collection of recyclables; This function is implemented by specific waste collector cooperatives by using vehicles or manual push-carts.
- Curbside collection of recyclables;
- Drop-off points (designated locations where citizens can bring their recyclables).<sup>16</sup>

All collected materials (mainly plastic, paper and metals) are brought to warehouses of the waste collectors' cooperatives. Here, the materials are processed before moving up the recycling chain. All cooperatives have scales, personal protection equipment, and big bags. Some have shredders and forklift trucks. Materials are sold to the industry in Belo Horizonte or within the state of Minas Gerais. The cooperatives receive all the money from sales, which is then shared between the members.<sup>17</sup>

The agreement between the cooperatives and the city included several key provisions from the city:

1. A monthly stipend for administrative costs;
2. Infrastructure for use by the waste collectors, such as containers and warehouses for sorting and storage;
3. Vehicles for the collection of recyclables;
4. Education on the environment.<sup>18</sup>

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<sup>16</sup> (F. Colombijn & M. Morbidini, 2017).

<sup>17</sup> Idem.

<sup>18</sup> Idem.



Additionally, in order to further improve the livelihoods of waste collectors and provide a clean environment, the state government of Minas Gerais passed a law according to which, every waste collector cooperative is receiving additional payment from the state treasury that is called the Recycling Bonus. The cooperatives are entitled to receive this funding and distribute it to their individual members according to the nature and quantity of the materials they have collected (Dias, 2016).

### 3.1.2 Bogota, Columbia

Waste collectors in Colombia historically faced harassment and violence, and Governments imposed regulations to prevent them from accessing the waste. In 2003, the Municipality of Bogota began contracting private companies to collect recyclables, which threatened and compromised waste collectors' livelihoods. Between 2003 and 2011, the Asociación de Recicladores de Bogotá (ARB) went to court to secure waste collectors' rights, winning seven challenges. This culminated with a 2011 Constitutional Court ruling that the municipality needed to give waste collectors the exclusive right to recyclables in the city, create an integrated waste management system that is built on the existing informal system, and pay waste collectors for the service they are providing to the city (Abizaid, 2015; Parra, 2020; Samson, 2009).

The Asociación de Recicladores (ARB), with support from its allies, subsequently created an operational, economic, political and social proposal to incorporate the entire waste picking community into the public waste management system (Abizaid, 2015).

Normally, waste collectors earned only what they could get through their sales of sorted materials. After the 2011 court ruling, ARB negotiated with the city government to create a payment scheme that rewards waste collectors for the service they provide. Waste collectors' in-depth knowledge of waste collection and value chains meant they were able to negotiate a payment structure that was fair and reasonable to them. The payment scheme was implemented in 2013 (Abizaid, 2015).

From 2013 to the present, new public policies at the national level have partially reflected the orders of the Constitutional Court and established a scheme for the recognition and official integration of waste collectors and their organizations as providers of public recycling services (Abizaid, 2015).

The first phase of implementation focused on paying individual waste collectors. To be eligible, active waste collectors had to register with the program, have an identification card, and have access to a banking system. Those who did not have bank accounts were assisted to open them. Municipally owned buy-back centers and some privately owned ones were registered as part of the system. Once the waste collectors were registered, when they sold their materials to registered buy-back centers they received regular payment for the sale of their recyclables. In addition, every two months they received an electronic payment from the municipality for the service provided. This payment was made by the municipality based on the amount of recyclable material they had sold, records of which were kept by the accredited centers (Abizaid, 2015). Mobile buy-back centers reduced the distances waste collectors needed to travel to sell their materials,

enabling them to collect more and work fewer hours.

The court had ruled that payment should be made to cooperatives. After the system to pay waste collectors was established and functioning, the second phase, in which payments are made to registered waste collector cooperatives which then pay the individual waste collectors, was implemented. The cooperatives were granted five years to fulfill their conditions as formal service providers. They report the tons of recyclable materials collected, transported and sold in the single government information system for public service providers (Parra, 2020).

This is more than a payment scheme; it is a comprehensive integrated recycling system. The informal waste collectors' associations affiliated with ARB, use trucks to pick up segregated recyclables from routes throughout the city, as well as from businesses and institutions. ARB offers training on segregating waste to clients to improve their outcomes. Waste collectors who are not part of the routes collect waste from the trash in public spaces or private houses. Material is then delivered to one of the many recycling centers (warehouses or buy-back centers) throughout the city, run by ARB or its affiliates, or to specific collection points in the city. At these points, trucks weigh the materials, record them in the registered waste collectors' account, and transport the material to a warehouse (Parra, 2020).

One element of successful integration mandated by the court involves ensuring that there is support in place to help waste collectors and their organizations build capacity to ensure they are able to work safely, professionally and effectively. ARB has worked with the National Training Service of Colombia (SENA) to design and deliver a certification process focused on the specific qualifications required for recycling services. Certification gives the public additional confidence in the service providers who collect their recyclables (Parra, 2020).

At present, ARB collects from 400 fixed sources of recycling (institutions, shopping centers and residential compounds) and, along with many affiliated organizations, covers hundreds of residential routes throughout the city every week. More than 13,000 waste collectors had their earnings increase four-fold, allowing them to buy necessities and pay school fees. The public and the municipal budget benefited, too. These workers recovered about 1200 tons a day, keeping 19% of the city's discarded material from reaching landfills. Today, this model to remunerate waste collector organizations for services provided is being implemented in 24 cities in Colombia (Parra, 2020).

### 3.1.3 Pune, India

The waste collectors' union KKPKP (Kagad Kach Patra Kashtakari Panchayat) was established in 1993. The formation of this union made it possible for waste collectors' ability to be represented at various decision-making levels and allowed them to advocate for their rights.<sup>19</sup>

In 2000, the national government adopted new solid waste rules requiring that municipalities shall ensure waste separation, door-to-door collection and processing of recyclable materials (Dias, 2016). In order to achieve these ambitious goals, the Pune's municipal government decided to focus on local solutions, rather than technological ones that are not financially viable (Chikarmane, 2014). This local government need, coupled together with the advocacy efforts by the KKPKP, helped the city enter a contractual agreement with the waste collectors' cooperative that KKPKP was able to open as India's first waste collector cooperative, named the Solid Waste Collection and Handling (SWaCH) (Dias, 2016). The members of this cooperative provide door-to-door waste collection to the city households, while waste is segregated into recyclables and compostable items. Compostable items are turned into fertilizers for public spaces (Chikarmane, 2014; Dias, 2016).

According to Dias (2016), waste collectors are paid through user fees and they are accountable to the residents, as well as the municipality. As part of the integration process, local government provides the Solid Waste Collection and Handling-SWaCH's working space, technical training, equipment, disability and health insurance, educational support for children, and all administrative costs (Chikarmane, 2014). And still, for Pune's local government, this arrangement is cheaper than if it had to pay for this service through a private service provider (Dias, 2016).

By 2008, the cooperative serviced 127 out of the 144 sub-units in all 14 administrative wards of Pune, involving 1500 waste collectors and servicing 200,000 residents. SWaCH also organizes regular training and skill-upgrading workshops for its members, such as free driving lessons, computer skills training and communication skills workshop.<sup>20</sup>

KKPKP set up a number of cooperative scrap shops, the profits from which are shared by its members. It also set up a credit which looked after its members' savings and provided them with loans and ran a 'gold loan scheme' which allowed members to pawn their jewelry to the union at lower interest rates relative to money lenders.<sup>21</sup>

KKPKP now has over 9,200 members drawn from the waste collector community in Pune (Chikarmane, 2014). It has won important resources and recognition for waste collectors from the municipal government, and made significant contributions to the gradual repositioning of waste collectors as participants in a critical urban service and enabled significant improvements in the livelihoods of waste collectors (Dias, 2016).

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<sup>19</sup> (Kabeer et al., 2013; Chikarmane, 2014).

<sup>20</sup> (Chikarmane, 2014).

<sup>21</sup> (Kabeer et al, 2013).

## 3.2 Threatening Shifts in Developing Countries' Waste Public Policy

In the past decade, threats to waste collectors' livelihoods in the global South have been triggered by shifts in public policy towards privatized solid waste management. This has taken three main forms: incineration, privatization and urban space restrictions (Samson, 2009).

### 3.2.1 Incineration

The usage of these technologies receives public subsidies on the basis that they are turning the waste into renewable energy. The first incinerator in Africa was built in Ethiopia in 2018, with Chinese investment and Danish technology (Tadias, 2018), while national bans on incineration are being challenged from the Philippines to Mexico, although research shows that recycling is always preferable to burning (Zero Waste Europe, 2017). This is true both socially, in terms of waste collectors' livelihoods, and environmentally, regarding CO<sub>2</sub> emissions and air pollution risks (Zero Waste Europe, 2017). Also, there are cases like the one in Delhi, where waste collectors and residents have allied against incineration.

### 3.2.2 Privatization

Private companies are becoming increasingly interested in waste as a resource. For example, in Johannesburg, the Genesis landfill was privatized and waste collectors got violently evicted (GroundUp, 2018). Formal criteria for contracting municipal waste management services that are being put in place end up excluding waste collectors, for example in Egypt and Ghana. The closure of landfills has often led to the simple shifting of environmental damage in places like Belém and Rio de Janeiro.

### 3.2.3 Restrictions in Urban Spaces

These can affect waste collectors and their livelihoods. An example is the prohibition of animal or human-drawn vehicles. Such examples can be seen in Porto Alegre and Montevideo. Another example is the installation of the so-called smart containers in Buenos Aires and Bogota. And in the name of modern, beautiful and hygienic city centers, waste collectors are denied access to certain urban areas, like in Phnom Penh, Cambodia.

### 3.3. Conclusions

The review of the various documents has shown that waste collectors make important economic, environmental and social contributions in non-European countries. It pointed out the great value of waste collectors' integration in waste management systems.

Recycling rates vary widely, but 20–30% is achieved by the informal recycling sector in many low- and lower-middle income countries. This is a stand-alone private sector activity, guided and supported entirely by market prices, and taking place at no direct cost to the city. Building on existing informal sector recycling and integrating it in the formal system presents a huge win–win opportunity precisely because it is already saving many cities millions of dollars and providing livelihoods to large numbers of the urban poor. Such integration will also allow many of the persistent challenges of such activities to be addressed. Research regarding the three referenced cities showed that in the places where political commitment and leadership is strong, and where the local community is actively involved, solutions that are locally appropriate and affordable can be found.

In effect, the informal recycling sector, in most cases city poor, is subsidizing the rest of the city. There is a major opportunity to build on these existing recycling systems in order to:

- Increase further existing recycling rates;
- Protect and develop people's livelihoods;
- Address both actual and perceived issues of such activities (occupational and public health and safety, child labor, uncontrolled pollution, untaxed activities, crime and political collusion);
- Reduce even further the costs to the city or municipality of managing residual wastes.

These challenges of integrating the informal sector with the formal one can be addressed, but only if a systematic approach is followed and mutual difficulties are openly acknowledged (Velis et al., 2012). It was interesting to discover that there is some evidence that recycling rates are lower in some of the more developed upper-middle income countries, perhaps reflecting the history of the developed world where the early formalization of solid waste management as a municipal service replaced pre-existing informal recycling systems.

The first and foremost conclusion that can be drawn from the many examples throughout the non-European developing countries is that there are no universally good solutions, but rather solutions that need to be developed by the local stakeholders and target the specific local needs and conditions. However, one issue was especially eye-opening, and that is the critical understanding that **successful waste management solutions in developing countries are possible only when all the different actors are involved and represented.**

In addition, it is noticeable that an essential ingredient of the success of inclusive integration in Belo Horizonte, Bogota and Pune is **the role of waste collectors in organizing themselves to strengthen their demands for integration into formal solid waste systems and for recognition as key economic actors.** In all of these

cases, waste collectors' organizations were very important for the coordination and representation of their interests with different stakeholders. The benefits of these organizations include: improving incomes, facilitating better working conditions, contributions to health improvements, raising social status and self-esteem. They can provide an institutional framework that enables the hiring of waste collectors as service providers circumventing intermediaries.

The second conclusion goes in the direction that **full structural integration starts by the legal framework recognizing access to waste as a public good**. This was critical in all the successful case studies throughout the world. Connected to this were the critical elements of integration that included **provision of proper contracting** between waste collectors' organizations and local and national governments. That ensured the payment for collection services, and provision of infrastructure for sorting and capacity-building. This type of support to waste collectors' organizations is critical to enable waste collectors to enter new niches and upgrade in the recycling value chain.

Finally, **social protection schemes** and proper programs to address specific risks (child labor, childcare) should be in place to protect the most vulnerable and break the vicious cycle of exploited children growing into exploited grown-ups.

These conclusions are conclusive with insights from many researchers who have focused on the importance of waste collectors as part of the solution to social and environmental problems. It is also convergent with the findings about cities where formal integration happens, as in Belo Horizonte, Bogota and Pune. Thus, these studies provide evidence to support the argument that the formal integration of waste collectors makes sense and is feasible, as these three cities demonstrate. **The impacts of an inclusive model, one where formalization of the informal is coupled with rights to have access to waste, will include increased earnings of workers through stable monthly income; improved work conditions (uniforms, specially designed carts and buckets for collection of waste and sorting spaces, etc.); access to welfare (daycare for children, education scholarships, pension schemes); ensured voice and representation; and improved assets**. This model leads to more secure livelihoods for workers. But it requires a broader understanding of solid waste systems and complexities of waste picking, and a willingness to think outside the box in order to see waste management beyond conventional approaches.

In addition, we have explored how policy developments such as privatization and waste incineration can threaten to undermine the livelihoods of waste collectors, and how waste collectors can challenge these processes. It is important to understand that the joint meetings of waste collectors and activists from around the world identified privatization and waste-to-energy as the two main threats to waste collectors globally. So, there is a justified reason to be careful about these types of developments also in the North Macedonian waste management system.

# 4. WASTE COLLECTORS AND THEIR ROLES IN THE EU COUNTRIES

## 4.1 Overview of the EU Waste Management

Waste management in the EU has progressed over the last two decades from proper disposal methods to a greater focus on prevention at source and recycling. An efficient municipal waste management, advancing the top level in the waste hierarchy, does not only contribute to higher value extraction from resources, but also reduces the pressures on the environment (EEA, 2015). In addition, it generates a higher quality of life, especially in metropolitan areas, by potentially mitigating climate change and creating jobs.<sup>22</sup>

In 2018, the total waste generated in the EU by all economic activities and households amounted to 2,337 million tons (Eurostat, 2022). From 2010 to 2018, total waste generation increased by 5% (114 million tons) in the 27 EU Member States.

The trends observed suggest that the EU is not on track to meet its goal of reducing waste generation. The trends also indicate that the EU as a whole, is not yet fully implementing the first step of the waste hierarchy, or waste prevention, as laid down in the Waste Framework Directive. Achieving the absolute decoupling of waste generation from economic growth, is a primary objective of the EU waste and circular economy policies.

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<sup>22</sup> Girard, 2006; Marelllo & Helwege, 2014.

## 4.2 Waste Collectors and their Roles in EU Countries

The European Union hosts some of the world's most developed waste management systems and an ambitious policy commitment to the circular economy. The existence of informal recycling and reuse activities in Europe has been vigorously denied until quite recently, and it remains a very challenging subject for the European solid waste management sector, as well as for European institutions, although waste picking and informal recovery in Europe have a long history. For example, waste picking was legalized in Paris in the 1200s, only to be forbidden again in the 1960s.<sup>23</sup>

In the Member States, informal recyclers excluded from legal recycling niches increasingly collide with formalized and controlled EU approaches to urban waste management, packaging recovery schemes, formal reuse enterprises, and extended producer responsibility systems. The current levels of conflict have emerged gradually, as the EU has financed and supported the modernization of its member countries and their waste management systems, which pushes local and national authorities to divert increasing amounts of waste from disposal to recovery<sup>24</sup>.

European government and private institutions in charge of municipal cleansing and hygiene, see the informal sector as undermining their work and creating dangerous risks to public health and safety. Informal recyclers and reuse operators rarely have a legal status, and they themselves feel that the economic niches that support them and their families are being eliminated without offering them an alternative.<sup>25</sup>

There are more informal recyclers in the EU than is generally acknowledged, and their recovery activities are undermining the EU-harmonized recycling, reuse, waste management, and producer responsibility systems, especially in the new EU countries. According to Scheinberg et al. (2016), informal recycling and reuse activities are like a double-edged sword: On the one hand they are seen as the cause of health, safety, and environmental problems, and on the other, they are a significant resource for cities and regions to meet or exceed ambitious EU recovery and diversion targets.

Most of the waste collectors in the EU belong to one or more of the three vulnerable groups, such as:

1. Persons of Roma ethnicity, who have very low educational levels and are the targets, especially in Italy, of a range of social exclusion measures.
2. Internal and cross-border migrants and refugees without legal status or lacking formal identity papers.
3. Young persons, the elderly, women heads-of-households, home-less persons, and others who are excluded from the labor market (Scheinberg et al., 2016).

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<sup>23</sup> Gutberlet, 2008.

<sup>24</sup> Scheinberg, 2011; Velis et al., 2012

<sup>25</sup> Scheinberg et al., 2016



**Table 3. Global informal occupations as documented in Europe<sup>26</sup>**

Global occupation	Global features found in Europe	Specific variations or characteristics found in Europe
Occupation 1, Waste Collectors (WCs)	Collect materials on foot or by tricycle or motorcycle or cart from street set-outs, containers, illegal and legal dumps	European waste collectors pick both recyclables and reusables, and do not usually specialize.
Occupation 2, Itinerant Waste Buyers/Collectors (IWBs/IWCs)	IWBs move along a route and trade directly with household and business waste generators, buying recyclables and offering a private separate collection service.	In Europe, IWCs are more likely to get the materials ‘as a donation’. A European variation is also to perform some paid service, like cleaning out an attic or helping with moving house, and having the right to take materials.
Occupation 3, Small Dealers, or small junk shops	The first level of mobile or stationary traders who buy from waste collectors and IWBs/IWCs. Premises are often without permits, and attract fines from zoning officers.	A European variant is second-hand traders, who buy and upgrade or repair materials, evaluate whether they can market them into the upper levels to antique markets, and then sell them.
Occupation 4, Second- hand Operators	Not considered part of the informal recycling sector in countries like Brazil or India, although picking of reusables for own use is a common supplement to waste picking for recycling.	In Europe, reusables are picked by street and container collectors, IWCs, traders, transporters, and merchants, and include merchants specialized in direct sales of reusables via pop-up flea markets, stalls in formal markets, and concession shops.

<sup>26</sup> Sources: Chikarmane and Narayan, 2009; Democratic Transitions Initiative, 2013; Gunsilius et al., 2011; International Trade Union Confederation, 2014; Luppi and Sole, 2015; Ramusch et al., 2015; Scheinberg and Mol, 2010; Scheinberg and Nesić, 2014; Scheinberg et al., 2007, 2010b; Schmied et al., 2011; Simpson-Hébert et al., 2005; Toska and Lazarov, 2007; Toska et al., 2012; Vaccari et al., 2013; Velis et al., 2012; Wilson et al., 2006, as cited in Scheinberg et al., 2016, p.825)

Occupation 5,  
Swill Collectors,  
herders

Collectors of food waste and spent frying oil for animal feeding or soap. A common variant is to graze livestock on official dumpsites or unofficial waste heaps.

Grazing of pigs on village dumps is common. Swill or spent oil collection in Europe is usually an activity of the formal, rather than the informal sector.

**Table 4. SWOT analysis of European waste collectors in recycling and reuse sector**

<b>Strengths (internal characteristics)</b>	<b>Weaknesses (internal characteristics)</b>
<ul style="list-style-type: none"> <li>● Responsible for most of the recycling outside of the 'old EU', even where EPR systems exist;</li> <li>● Activities contribute to cities achieving reuse and recycling goals;</li> <li>● Manage substantial volumes of materials, keeping them out of landfills;               <ul style="list-style-type: none"> <li>● Legally support themselves and their families;</li> <li>● Deep recycling knowledge and strong commercial connections to the value chains;</li> </ul> </li> <li>● Actively trade in second-hand, flea market, and antique sectors;</li> <li>● Generally interested in improving their situations and legalizing their work;</li> <li>● Have ideas of what they need for legalization and improvement</li> </ul>	<ul style="list-style-type: none"> <li>● Originate from socially disadvantaged groups, have low levels of education, weak social skills, unstable living situations, and little experience with accessing public facilities or claiming their rights;</li> <li>● Activities exist based on disappearing opportunities, including legal access to materials and tolerance for their activities;</li> <li>● Little interest or experience in organizing themselves, or creating representation;</li> <li>● Lack experience in how to navigate necessities of legalization, such as registering enterprises and working in permitted areas;               <ul style="list-style-type: none"> <li>● A substantial number lack legal identity.</li> </ul> </li> </ul>

### Opportunities (external influences)

- New EU commitments to the hierarchy demand higher performance in the reuse and recycling sectors;
- EU circular economy package is likely to increase recyclability of many products and packages;
- Circular economy reporting systems create an opportunity to register informal recycling transactions and material flow;
- New registration systems can form the basis for meeting new demands for tracking and traceability of packaging and EPR systems, and be a channel for transfer of funds from producers to informal actors;
- Interchange of information between European countries and emerging economies creates a growing understanding of the sector and sets the stage for occupational recognition at the European level, and creates some momentum for engagement.

### Threats (external influences)

- There is entrenched mutual distrust between formal institutions and informal reuse operators and recyclers;
- The European waste management service sector is under increasing pressure to perform, and this translates to imperative of preventing informal valorization on landfills and streets. There is an increasing economic pressure on the solid waste sector, and formal public and private stakeholders are not so willing to share responsibilities and resources;
- Local authorities do not necessarily want to legalize illegal persons because they will gain access to education and medical facilities that are already under-financed;
- European local authorities may prefer to develop reuse and recycling and circular economy institutions through civil society and the formal private sector.

Source: Elaborated by the authors based on Gutberlet, 2008; International Finance Corporation, 2008; Popovska et al., 2008; Rutkowski and Rutkowski, 2015; Samson, 2009; Scheinberg and Mol, 2010; Scheinberg and Nesić, 2014; Scheinberg et al., 2010a, 2010b; Schmied et al., 2011; Simpson-Hébert et al., 2005; Soos and Popovici, 2007, 2008; Wilson et al., 2010. EPR: extended producer responsibility; EU: European Union., as cited in Scheinberg et al., 2016, p.825)

# 5. WASTE POLICIES AND LEGISLATION IN EU COUNTRIES

European environment policy has evolved significantly since the 1970s. It has given the EU cleaner air and water, and a better understanding of our dependence on a healthy environment. It is one of the policy areas most supported by EU citizens. Additional documents are supplementing the EU waste and policy framework, like The European Green Deal that aims to promote growth by transitioning to a modern, resource-efficient and competitive economy.

EU waste policy aims to protect the environment and human health, and help the EU's transition to a circular economy. It sets objectives and targets to:

- Improve waste management;
- Stimulate innovation in recycling;
- Limit landfilling.

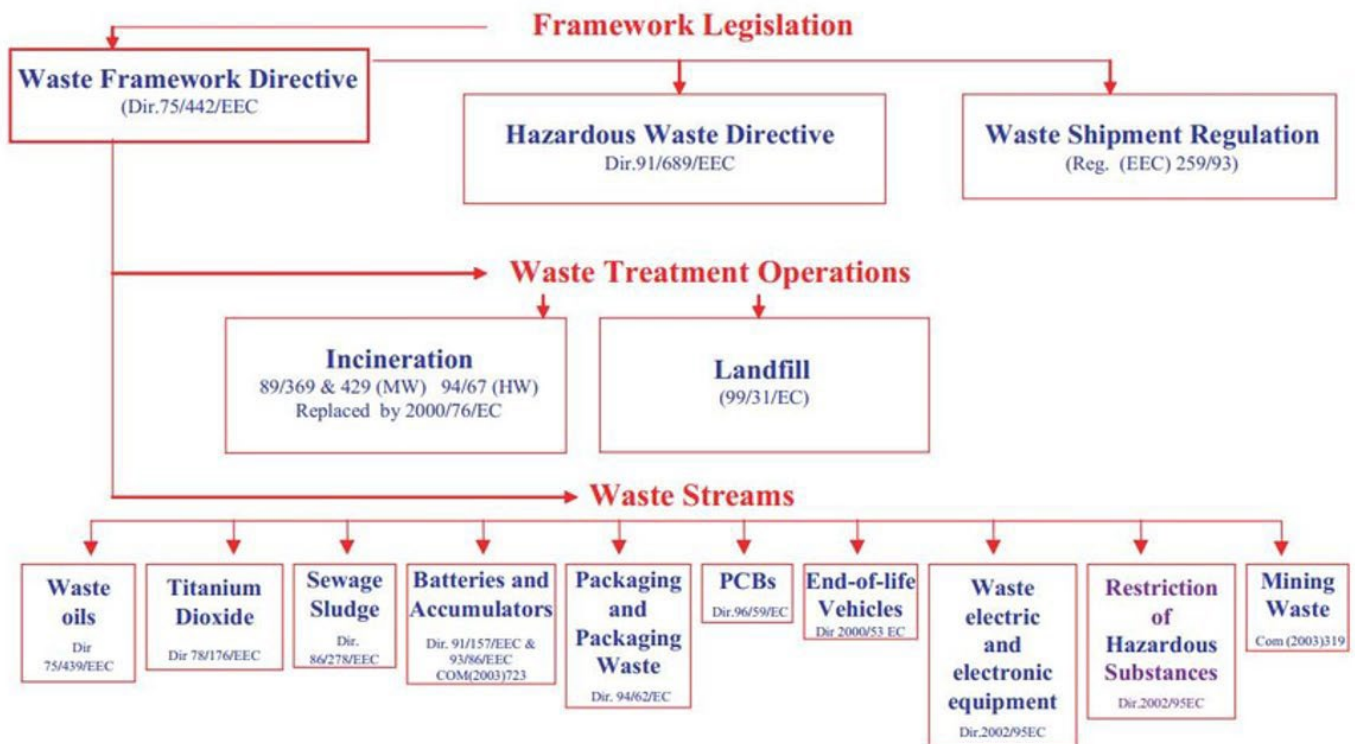
The modernized European waste collection system is regulated by the Waste Framework Directive 2008/98/EC (EC, 2008). All EU Member States and pre-accession countries use the Directive as a guide. Higher levels of the solid waste hierarchy, such as waste prevention, reuse, and recycling have a higher policy priority.

Important changes approved in the framework of the European Circular Economy Package introduce a robust set of reforms that give even more priority to reducing the production of waste, redesigning and diverting products and packages from disposal (EC, 2016).

The EU waste and materials policy framework and the requirements of the Circular Economy Package require producers to manage the end of life of their products and packages. The three principal directives for packaging waste, chemicals, and electronics, regulate the management of the end of life of products and packages in a sustainable way, largely through ensuring recycling and safe disposal. This highly developed, dynamic, and institutionalized approach to waste and materials management creates an entirely different context for informal reuse and recycling in Europe than for similar activities in Asia, Latin America, and Africa (EC, 2016).

These are the EU laws related to waste:

- [Waste Framework Directive](#);
- [Batteries and accumulators](#);
- [End of life vehicles](#);
- [Landfill waste](#);
- [Mining waste](#);
- [Packaging waste](#);
- [RoHs](#)'
- [PCBs/PCTs](#);
- [Sewage sludge](#);
- [Waste containing POPs](#);
- [Waste shipments](#);
- [WEEE](#);



**Figure 4. EU Waste Legislation Framework**

**The Waste Framework Directive 2008/98** particularly puts high standards and norms for waste management in Member States. This main Directive has contributed to increase recycling and recovery percentages of waste (EEA, 2011). In accordance with the Directive, individual countries have targeted for 50% of their municipal waste to be recycled by 2020 (EEA, 2013). Consequently, most of the Member States reduced landfilling between 10% and 20% in the period of 2001-2010 (Eurostat, 2012).

The Directive sets out reuse and recycling targets for SWM as follows:

- By 2025, a minimum of 55% (by weight) will be prepared for reuse or recycling;
- By 2030, a minimum of 60% (by weight) will be prepared for reuse or recycling;
- By 2035, a minimum of 65% (by weight) will be prepared for reuse or recycling.

## **Roadmap to a Resource Efficient Europe, European Commission (2011)**

The Roadmap to a Resource Efficient Europe outlines a “roadmap” to transform Europe’s economy into a sustainable one by 2050. It proposes ways to increase resource productivity and decouple economic growth from resource use and its environmental impact. This Roadmap aims to address resource inefficiency in the sectors responsible for the greatest share of environmental impacts – namely food, buildings and mobility, whose combined effects account for 70-80 % of all environmental impacts.

Measures aimed at transforming production and consumption are set out, with incentives for investors to promote green innovation, and a greater role for eco-design, eco-labelling, and greener spending by public bodies. Governments are invited to shift taxation away from labor towards pollution and resources, and to provide fresh incentives to push consumers towards resource-efficient products. The Roadmap also recommends adapting prices to reflect the real costs of resource use, especially regarding the environment and health.

## **8th Environmental Action Programme, European Commission (2020)**

The 8th Environmental Action Programme will guide European environment policy until 2030. A key objective of the Programme is to turn the Union into a resource-efficient, green and competitive low carbon economy. There is a special focus on turning waste into a resource, with more prevention, reuse and recycling, and phasing out wasteful and damaging practices like landfilling.

By 2030, the European Union and its Member States are to ensure that:

- The environment and human health are protected by preventing or reducing the adverse impacts of waste generation and management.
- Per capita waste generation and waste generation in absolute terms are reducing.
- Landfilling is phased out for recyclables and recoverable wastes, while energy recovery from non-recyclable materials is limited.

## **5.1 European Commission Circular Economy Package**

In a sustainable SWM perspective, The European Commission (EC) adopted an ambitious CE Package, which stimulates Europe’s transition towards a CE to boost sustainable economic growth. The legislative proposal on waste sets clear targets for waste reduction and establishes a long-term path for waste management and recycling (EC, 2017). Moreover, the EU developed a new environmental improvement process that includes the principle of sustainable innovation: Horizon 2020. Horizon 2020 is the biggest EU research program ever, with nearly €80 billion of funding available over 7 years (2014–2020).

The EU introduced many directives for improving waste management activities in compliance with Horizon 2020. The most important are: the Directive 2008/98/EC on waste, which imposes the improvement of waste management activities, with a view to protecting human health and promoting more CE; and the Directive 1999/31/EC on the landfill of waste, which makes progress in the implementation of raw materials recovery by reducing landfilling of waste.

According to the Environmental European Agency (EEA), latest available trends show that recycling rates for both municipal solid waste (MSW) and packaging waste have increased substantially: recycling rates for MSW increased by 13% between 2004 and 2014, and recycling rates for packaging waste by 10% between 2005 and 2013. In 2014, 43% of the MSW generated in the EU-27 and Norway was recycled, while in 2013, 65% of packaging waste generated was recovered (EEA, 2017).

The revised legislative proposals on waste set clear targets for waste reduction and establish an ambitious and credible long-term path for waste management and recycling.

Key legislative measures adopted under the plan include:

- a) Directive (EU) 2018/851 amending Directive 2008/98/EC on waste;
- b) Directive (EU) 2018/850 amending Directive 1999/31/EC on the landfill of waste;
- c) Directive (EU) 2018/852 amending Directive 94/62/EC on packaging and packaging waste;
- d) Directive (EU) 2018/849 amending Directives 2000/53/EC on end-of-life vehicles, 2006/66/EC on batteries and accumulators and waste batteries and accumulators, and 2012/19/EU on waste electrical and electronic equipment.

The EU adopted a European Strategy for Plastics in January 2018. It is part of the EU's Circular Economy Action Plan, and builds on existing measures to reduce plastic waste. The plastics strategy is a key element of Europe's transition towards a carbon neutral and circular economy. It will contribute to reaching the 2030 Sustainable Development Goals, the Paris Climate Agreement objectives and the EU's industrial policy objectives. The Plastics Strategy aims to protect our environment and reduce marine litter, greenhouse gas emissions and our dependence on imported fossil fuels. It will support more sustainable and safer plastics consumption and production patterns. The Plastics Strategy also aims to transform the way plastic products are designed, produced, used and recycled in the EU.

## 5.2 EPR System for Packaging Waste in Bulgaria

A new EPR system for packaging waste was established in 2004. At the time, neither well-functioning public sector service nor private sector value chains had been established. The introduced EPR system achieved to a certain extent growing recovery targets with well-established recycling practices of the large industrial and commercial sectors, while the separate collection of recyclables from households was facing significant challenges. In parallel with the EPR system, a considerable number of informal waste collectors were engaged in collecting recyclable materials and selling them to buy-back centers, while alternatively achieving significant levels of recycling rates.<sup>27</sup>

A report by the Ministry of Environment and Water of the Republic of Bulgaria (2003) illustrates the situation before they introduced the new EPR system, and estimated that

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<sup>27</sup> (Doychinov and Whiteman, 2013)

around 10,000 informal waste collectors pre-existed and relied on their waste collection activities to sustain their livelihoods. However, these informal waste collectors were not consulted when the new EPR system was established. As a result, the targets set for recycling packaging materials failed to take account of the amount of recycling that was already underway. Ironically, these targets were lower than the actual rates of recycling in the first years of implementation.<sup>28</sup>

The primary instruments in the new EPR system were a packaging tax and collective, industry-financed physical compliance scheme with 100% producer responsibility for end-of-life management of packaging waste. Individual producers, including distributors and importers, had a mandated, individual take-back obligation unless they became members of the collective compliance scheme. The packaging industry opposed the scheme and argued for a shared responsibility arrangement with the municipalities. The mandated take-back scheme was introduced, setting the stage for 12 years of conflict over collecting recyclables from households, particularly between the formal and informal sectors, and undermining the effectiveness of the system.<sup>29</sup>

The primary means of physically collecting recyclable material within the EPR system was plastic, color-coded drop-off containers placed in the street. Recyclables could also enter the system through occasional door-to-door separate collection initiatives. Traditional recovery channels were ignored, including several types of buy-back centers, pensioners collecting recyclables from the street to supplement their pension income, and the recovery activities of professional street, container and dump collectors. The formerly state-owned recycling industry was not involved.

As a result, the new EPR system failed to benefit from the activities and networks of informal waste collectors for household collection. In addition, the designers of the new system failed to anticipate the resistance of households and small businesses to abandoning their preferred recycling channels. Consequently, the buy-back recycling centers continued to operate in parallel with the newly established separate collection containers (Doychinov and Whiteman, 2013).

Moreover, the existing informal recyclers found the containers to be a convenient and free source of materials that they could extract and sell to the buy-back centers. It is estimated that 90% of materials has continued to flow through informal channels (ISWA/EXPRA/RDN, 2014).

Both the formal and informal sectors became locked in an overt and covert conflict. The formal sector argued that buy-back centers should be closed and informal workers arrested for theft of their materials. Informal workers whose livelihoods were threatened retaliated by vandalizing infrastructure and doing whatever they could to undermine the operations of the formal sector. The dysfunctionality of the EPR system has also come at a high financial cost. The system has been well-capitalized by the EU and national funds, particularly for waste infrastructure. However, because it captures as little as 10% of the materials, and because the investments in infrastructure are so expensive, it has very high operating costs and disappointing revenue streams. This creates a vicious circle in which there is a continued need for infusions of funds to keep the infrastructure operating. On the other hand, the 90% of materials collected in the informal sector does not benefit

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<sup>28</sup> Doychinov and Whiteman, 2013

<sup>29</sup> Idem.



from EPR funding.

A regional workshop in Bucharest, Romania, in October 2014, named “Challenges to separate collection systems for different waste streams-barriers and opportunities”, established that the Bulgarian experience is widely shared across the region (ISWA/EXPRA/RDN, 2014). Representatives of EPR schemes in 10 Balkan and Mediterranean countries including Greece, Turkey, Malta, Tunisia, Romania, Bulgaria, and North Macedonia presented their challenges mainly related to the difficulties of competing with the informal sector recycling. As in Bulgaria, these efforts were largely unsuccessful. Clearly, new approaches that treat the informal sector as partners rather than competitors, are needed.

### **5.3 Italian Informal Reuse Operators (The Case of the Porta Portese Market in Rome)**

In 2015, the second-hand and reuse sectors in Rome were documented to include 3,500 itinerant second-hand reuse traders, dozens of second-hand shops, and 90 consignment shops (Occhio del Riciclone, 2015). More than 70% of these reuse operators were informal traders, selling their wares in the streets, at fairs, in antique and historical markets, and at pop-up flea markets. Occhio del Riciclone, an Italian political and social development association, estimates annual reuse sector revenues at around 65 million euro attributable to the informal operations in this sector in Rome. Yet, despite this economic contribution, the sector enjoys neither recognition nor support from the City Hall (Scheinberg et al., 2016). There is continuous tension between the city and the operators, and there are numerous instances of small and large-scale conflicts. Since 2000, organized reuse operators have offered numerous local proposals to authorities to formalize and regularize their activities.

The situation deteriorated in 2007, when Rome City Hall and its sub-territorial entities decided to remove the informal reuse operators from the city (Scheinberg et al., 2016). Six flea markets were shut down one by one. Each closing increased uncontrolled activity and infractions at the margins of the others, which ultimately caused them all to be closed. In 2009, a large number of the displaced Roma operators forced their way into the Porta Portese Market, emerging in a conflict with the deeply rooted local operators (Scheinberg et al., 2016). The directors of the Association at Porta Portese succeeded in micro-interventions that resulted in a dialogue, reducing tensions, creating space for communication, and ultimately, solving the conflict. The leaders explained that a war among the poor would help no one. Later, in 2009, Italian and Roma itinerant operators cooperated in negotiating with the City Hall for a transparent and fair system for use of public spaces to sell used goods. This cooperation contributed to the formation of ‘Rete ONU’, a national network of second-hand operators (Scheinberg et al., 2016). Rete ONU has succeeded in establishing an official dialogue with the national government and working actively with the national congress to obtain occupational recognition. One of their key proposals for the government was to establish a second-hand national EPR system, and a used durable goods distribution system that is fairer, safer, and more reliable than their current strategy of micro negotiations with a mix of municipal systems. With this in mind, one member of Rete ONU, Mercatini Srl, was working on a measurement instrument for LCA (Life Cycle Assessment) piloted in Turin, that quantifies

and values the impacts of reuse incentives in the second-hand sector and host municipalities. This approach would greatly facilitate traceability, which is the core demand made of EU EPR systems for e-waste and other durable goods.

## **5.4 Austrian Waste Management Structures and Support Structures – Insights of the Study Visit**

As part of a study visit to Vienna, Austria, in March 2022, REDI representatives and stakeholders from North Macedonia visited various institutions active in the field of waste management. They discussed the circular economy approach and its implementation with different stakeholders, as well as some possibilities to integrate the unemployed in the labor market.

One of the stakeholders of the study visit - the Public Employment Service Austria (AMS) shared its vast experience in labor market integration of the unemployed with sometimes low levels of education. The Agency's objectives are personal stabilization, empowerment, application-support and transition to the social and care system. Within the AMS' program, the initial information day and an interview are mandatory. The target group must appear there or otherwise they are sanctioned. The rest of the program is voluntary. There are additional services available, such as "open counselling on-site" or "in-depth counselling". Apart from the AMS program, there are socio-economic enterprises that cooperate with the AMS. One of these is the Dismantling and Recycling Center (DRZ) which is funded by the AMS. The center offers temporary jobs and training contracts to the long-term unemployed. Their activities include an occupation in DRZ, coaching and support, trainings and outplacement. Other actors such as the Repair and Service Center (RUSZ) which is a social enterprise, also have programs to integrate the unemployed.

The representatives of the Austrian Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) explained that waste separation was introduced in the 1990s. The system was accompanied by licensing fees – communities lose money when waste is missing. Furthermore, they prepare information materials for schools in order to explain the procedures.

Thus, environmental consciousness can be raised, especially in schools. Waste management plans have always been accompanied by awareness campaigns by the BMK. According to the Ministry, the separation of biowaste was a very important measure, because biogenic waste was the biggest problem for landfills.

The lessons learned from the study visit are that the establishment of waste separation by the government in combination with awareness campaigns is an important tool to create an efficient waste management system. "Austria is among the top performers in the EU with regard to waste management; its municipal waste landfilling rate is 2%." (Ghenea 2022). Furthermore, a cooperation between socio-economic enterprises and the employment service could be an important tool to support and integrate informal waste collectors.

## 5.5 Conclusions

We were able to learn about the frameworks of EU policies, how waste collectors operate within the EU borders, what their specifics are and how they are perceived. By doing so, and comparing it to how the same benchmarks are constituted in non-EU countries throughout the world, one can definitely witness the differences and some similarities. That is why this requires us to draw different conclusions and mark the differences. This would be important in order to be able to set impactful recommendations later on, for the North Macedonian scenario.

Considering the necessary modernization of waste management in North Macedonia in line with EU-obligations, it has also to be clearly stated that traditional informal waste collection will be much less profitable in the future, as the use of plastic bottles will progressively decline and they will no longer be available in the sufficient amount for their collection to be economically viable. For this reason, and due to other reasons as well (e.g. equal access to all areas of life), it is quite important to create and consider increasing job opportunities in other sectors for former informal waste collectors.

The first conclusion from the analysis of the EU waste policies, legislation and waste picking, would be that a crucial link is missing in the puzzle. And that would be in the area of **documentation and statistics**. First and foremost, Eurostat does not work on documenting the informal recycling and reuse in the EU. That would mean that there is no collection of socio-economic figures like census, ethnicity, sex, age and location data, or numbers on people living from informal recycling and reuse. Second, there are no technical and economic performance figures.

So, EU institutions are not aware of the numbers of tons diverted from disposal through informal valorization activities that are associated with modelling of costs and benefits. That can hinder any potential policy and legislation creation that can result in the future, such as traceability approaches for EPR schemes that can link waste collectors' efforts to a system of incentives. Because, when everything is considered, without the above-mentioned general considerations, we cannot speak about the creation of any specific procedures for reporting, benchmarking, and legalization at the level of EU Directives in the framework of the circular economy package that is a logical solution. The current ignorant behavior of the EU institutions is denying the existence and contributions of waste collectors in the EU, and that is marginalizing huge groups of people that work outside the formal waste management systems.

The second important conclusion from the analysis is that the **EU legislation and policies do not offer solutions towards the processes of waste collector's legalization**, and this makes it different from the integration experience we were able to analyze in Colombia, Brazil, or India.

The EU generally lacks initiatives based on exploration and experimentation with the legalization and integration of informal waste collectors. Through the various sources, we could see some small steps towards legalization that include inviting informal recyclers and reuse operators to cooperate with public institutions in identifying common goals, barriers, and approaches to legalization, like in the cases of Italian flea markets. In addition, there are only a few examples of EU sources of financing and technical support for project-based integration and legalization, like one recent attempt in Paris to support the Association of Waste Collectors “Amelior” to create a recycling and reuse center. But these types of financial support offer only a local medium-scale impact at most.

Therefore, unfortunately, we can conclude that within the EU legal and regulatory frameworks, there is no component of economic and social inclusivity towards waste collectors. That can mean that reuse operators and recyclers operating in the EU informal economy do not have access to a reliable, fair, and long-term process to legalize their status, stabilize their conditions and position and participate in the circular economy as economic agents.

Quite contrary, it seems evident that the intention is to try to entirely exclude them and compensate for their work through technical solutions. If we take into consideration the fact that even in the highly industrialized countries like Germany, there are still pockets of the population trying to make a living by waste collecting (especially homeless people), we can conclude that the efforts to squeeze these vulnerable populations out of the different waste streams, shows to be utterly futile.

# 6. NORTH MACEDONIAN INFORMAL WASTE COLLECTORS AND THEIR ROLES

## 6.1 Overview of the North Macedonian Waste Management System

Waste is one of the biggest environmental issues in the country. According to the State Statistical Office's data, in 2020, a total of 913,033 tons were generated, out of which a total of 630,086 tons were collected (State Statistical Office, 2021). That would mean that 78% of the population is served by waste collection services, with a higher coverage in urban areas than in rural ones (EEA, 2021). The difference between the total collected and total generated waste ends up in nature. The numbers and situations closely correlate with what is happening in other developing Low and Middle Income Countries (LMICs).

In addition, all waste reports recognize that the condition of the landfills in the country is unsatisfactory. It is a staggering data that out of fifty-four landfills, only the landfill "Drisla" meets some minimum standards, but even that one requires significant infrastructural and technological improvements (EEA, 2021). It is acknowledged that this is mainly due to the lack of funds (European Environment Agency, 2021), which is the same as the situation in many developing countries throughout the world.

The collected volume of selected waste in the country is minimal and it represents about 1.4% of the total municipal solid waste (MSW) collected in one year (State Audit Office, 2021). According to State Auditors (2021), one of the reasons for these low numbers of selected waste, is the number of containers placed for waste selection, which is insignificant in relation to the number of inhabitants and the index of waste generated. That practically indicates that selection conditions have not been created (State Audit Office, 2021). Additionally, their report (2021) states that there are no initiatives and activities for plastic waste reuse or any incentives to support processors. This is coupled with the fact that no significant measures have been taken by manufacturers to extend the life cycle of products.

There are more than 150 registered entities for the collection, storage and treatment of non-hazardous waste, like paper, plastic and scrap metal. With regard to the treatment of separated waste streams, collected by informal waste collectors from dumpsites and bins, the waste is sold to the recycling industry, where the following processes take place (Ministry of Environment and Physical Planning, 2021 via EEA, 2021):

1. The collection of metals (ferrous metals and aluminum) is undertaken by the informal sector and by the PRO, and there is a strong and stable market for recovered scrap metals. Scrap metals are processed in the existing ironworks or are exported. Copper, aluminum and non-recyclable ferrous metals are exported, mostly to Greece, Turkey and Bulgaria.
2. The paper and cardboard market is divided into two parts. The paper factory located in Kochani organizes the collection of one part (around 20 %) and the other part is mainly collected by the informal sector.
3. The market for recovered paper is not capable of taking up all recycled paper that could be produced from the waste paper currently collected separately. Thus, the paper factory in Kochani cannot use all separately collected paper, and the remaining waste paper is exported to Serbia and Croatia.
4. Regarding glass waste, there are very limited recovery and recycling activities.
5. Three companies are registered for the management and processing of PET waste and one for polyolefins. The plastic waste is pre-treated in North Macedonia and exported to Turkey for recycling.
6. The collection of recyclable non-packaging waste plastic is undertaken by the informal sector, with a focus on 'hard plastics', such as high-density polyethylene (HDPE), polyvinyl chloride (PVC), polypropylene and polystyrene, originating from crashed car batteries, pipes and containers.
7. There are very limited recovery and recycling activities for textile waste. Unfortunately, the cement kiln in Skopje started to use some quantities in order to use cheaper materials for their processes.
8. Although there are some existing facilities for bio-waste, most are not in operation (European Environment Agency, 2021).

The current situation in the recycling industry requires legal entities that perform treatment and processing of waste in order to achieve efficient operation of their facilities, to import waste, and after the performed operations for its treatment and processing, to usually export it to the international market (Josifovski et al., 2017).

Systems for packaging waste materials are established by the producer responsibility organizations (PROs), mostly in the Skopje area, in agreement with municipalities and other entities included in the EPR scheme. Currently, the recycling rates for packaging waste in the country are low, indicating that the EPR scheme for packaging is not functioning well. That presents a missed opportunity because packaging waste is one of the most valuable. It is a resource that has an economic value in the market, greater than the cost required to collect, transport, and recycle. Packaging waste in the total quantities of municipal waste is between 15% and 22%. North Macedonian citizens create annually on average about 50 kg/per capita of packaging waste or about 115,000 tons (Ivanovski et al., 2016). For 2019, PROs reported that 85,719 tons of packaging were placed on the market and 34,230 tons were recycled (EEA, 2021).

According to the estimates of some representatives of PROs, about 80% of the packaging waste recycled is collected and selected by informal waste collectors. The problem is that there is no separate record of exactly how much comes from informal collectors (Ivanovski, 2015). In addition, State Auditors (2021) found that the established system of records and information did not provide complete, accurate and up-to-date information related to the permits issued and plastic waste collected, processed and disposed of. There is a lack of activities for monitoring the waste management at the national and local level, while the supervisory activities by competent institutions are insufficiently represented.

Some relevant data can be found in the recent EEA's MWM Country Fact Sheet Report, which confirms that around 2-3% of municipal waste is collected and sorted by informal waste collectors, who collect such waste from dumpsites and bins and then sell it to the recycling industry (European Environment Agency, 2021). If we consider the corresponding numbers collected by waste collectors in similar countries and conditions, we can conclude that waste collectors are the most important stakeholders in the North Macedonian packaging waste recycling value chain.

## **6.2 Overview of the North Macedonian Informal Waste Sector**

The North Macedonian informal waste sector includes individuals, households and groups that valorize parts of waste through activities that are not legal, organized, supported, recognized, or monitored by the official authorities in charge of waste management. On average, around 3,000 people engage in waste picking daily (Josifovski et al., 2017). Informal waste collectors sell their materials to small and medium-sized junk shops, antique and second-hand shops, and sometimes also larger dealers, exporters, and end-users. Waste collectors depend on these enterprises, but often express a view that the prices are less than fair (Josifovski et al., 2017).

Low prices make this an unstable activity, so some informal waste collectors often switch to other work activities, and some of them engage as seasonal agricultural workers or some other types of temporary work engagements. Informal waste collectors have been doing this work for many years in the same way in terms of poor infrastructure, no health protection, poor storage space, no processing equipment and activities outside the legal framework. Many waste collectors confirm that time has passed, but waste picking has not changed almost at all (Josifovski et al., 2017).

Regarding the educational level, 90% of respondents are without or with uncompleted primary education. In terms of their housing status, 95% of respondents have declared that they possess no property and only 8% have declared permanent residence (Josifovski et al., 2017). Others live in substandard conditions and 44% lack the access to water in the immediate surrounding area and only 10% have toilets in their dwellings. Regarding health insurance, 30% of respondents lack such insurance, so accordingly, they have no general practitioner.

Only 5% of respondents have two-room housings and the number of persons with whom they share the housing is between two and twelve. When referring to children included in the informal waste picking, it is important to emphasize that as high as 89% of the children of informal collectors do not attend school.<sup>30</sup>

There are several main forms of waste valorization by the informal waste sector in the country. The first form is aimed at collecting and sorting recyclable materials from mixed municipal waste containers or landfills. The second form is the collection of waste for personal and commercial use, through the use of materials collected for heating their homes or the sale of materials that can be reused, repaired or sold in the formal and informal markets. The third form is the collection of excess food to feed the family and the animals that they keep. The earnings of informal waste collectors are below the minimum guaranteed salary, but this is still selected as a better option for their earning compared to other alternative methods.<sup>31</sup>

The novelty in the country is the opening of the first social enterprise for informal waste collectors, called “REDI Recycling”, which at the moment, operates in the area of a few Skopje Municipalities, but it has the intention to spread across the country and move forward in the value chain, so hopefully, in the future, more advanced recycling operations will be performed by the waste collectors themselves. In this way, a larger part of the value from waste will go to waste collectors and change for the better the current situation that allows larger recycling industry stakeholders to give unfair prices to waste collectors.<sup>32</sup>

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<sup>30</sup> (Josifovski et al., 2017).

<sup>31</sup> Idem.

<sup>32</sup> Idem.



# 7. NORTH MACEDONIAN WASTE POLICIES AND LEGISLATION

## 7.1 Overview

North Macedonia is in the process of acceding to the EU, so it implements a wide range of measures to harmonize its governance, legal and regulatory systems, and bureaucracy, with the EU Member States' requirements. The Macedonian MSW is being modernized within the EU accession process. This brings changes to these three main areas:

- Public institutions responsible for municipality cleanup and waste collection;
- Value chain of recycling traders and processors;
- Producers, importers wholesalers, distributors, and retailers of consumer goods and packaging.

As the pre-accession period progresses, North Macedonian municipalities and national ministries, under the EU policy influence, are required to take more responsibility for organizing the waste recycling, reuse and prevention. With just a few exceptions, recycling is something that is new for Macedonian municipal authorities, whose public cleanup companies have focused just on collecting waste and cleaning the streets. They lack funds, experience and expertise to organize waste sorting activities. And they do not recognize that the informal waste collectors are the primary stakeholders to the recycling industry (Josifovski, 2017). PUCs have a perception that waste collectors 'make a mess' when they sort out materials from containers and that this is making their work more difficult (Josifovski et al., 2017). Waste companies claim that waste collectors are 'stealing the waste', even when households make a decision to give their washing machines or old clothes to an informal waste collector or to someone collecting it to sell it at the flea market.

The North Macedonian waste management system includes the following entities:

- The Ministry of Environment and Physical Planning;
- The Environment Directorate;
- Local Government Units;
- Regional Waste Management Centers;
- Public Enterprises;
- Legal and natural persons established to perform communal activities, including individual waste collectors, waste processors and legal entities handling packaging waste;
- State Environmental Inspectorate and other institutions.

In the sphere of environmental protection, the Ministry of Environment and Physical Planning is the designated party for the creation and monitoring of environmental policies, implementation of laws, and supervision of activities that aim to protect the environment.

It includes the following mediums: water, air and soil. In the field of waste management, the Ministry of Environment and Physical Planning fulfils the following obligations:

- Proposes all the laws and by-laws in the field of waste management to the North Macedonian Assembly;
- Creates the Strategic Plan on Waste Management in North Macedonia;
- Implements international agreements and conventions on waste management;
- Issues permits for the different waste management activities;
- Approves local waste management plans drafted by municipalities;
- Approves Environmental Impact Assessments.

Legislation envisages the adoption of strategic, planning and program documents at central, local and regional levels. According to the State Audit Office (2021), some of these documents have not been adopted or have expired. All this, according to them, points to some inconsistencies in establishing an integrated waste management system. Also, although certain activities have been initiated, regional waste management has not yet been established, which does not create the basic prerequisites for the prevention of waste generation and processing.

The Ministry of Environment and Spatial Planning prepared six new laws on waste management which were adopted by the Assembly. These new changes have both elements of substitution and entirely new texts.

- New Draft Law on Waste Management;
- New Draft Law on Packaging and Packaging Waste Management;
- New Draft Law on EPR for Management of Special Waste Flows;
- New Draft Law on Management of Electrical and Electronic Equipment and Management of Electrical and Electronic Waste;
- New Draft Law on Management of Batteries and Accumulators and Waste from Batteries and Accumulators;
- New Draft Law on Management of Additional Waste Flows in the System of Producers' Liability.

The Law on Management of Additional Waste Flows incorporated four new waste streams (waste textiles, waste tires, waste oils and waste vehicles) with an EPR system, based on the experience gained in the management of products and packaging waste, batteries and accumulators and electrical and electronic equipment.

The main differences that these laws brought were the following:

- No more free plastic bags passed out in the markets, only biodegradable plastic bags
- PET to be stored in regional landfills where recycling centers would operate;
- Price of communal waste service to be regulated by the energy and water services regulatory commission with the possibility waste disposal to be charged per quantity of generated waste and not per square meter;
- Prevention of the generation of waste tires, waste oils, waste textiles and waste vehicles (waste products) by reuse, recycling and other types of waste processing to reduce their disposal.

The new laws do not mention or take the informal waste collectors into consideration, although all reports produced by foreign (UNEP, 2021) and some domestic policy entities (State Audit Office, 2021) are suggesting to the contrary. They suggest that the country has its waste management specifics in the form of informal waste collectors, who instead of being pushed out of the waste streams, need to be supported and integrated.

## 7.2 Legal Framework

### 7.2.1 Law on Environment

The objectives of the Law on Environment are as follows: conservation, protection, recovery and improvement of the environment quality. In accordance with these objectives, the Law requires licensing in the fields of waste management. By this Law, all entities in the area of waste management need to draft an Environmental Impact Assessment (EIA) Study regarding the treatment/processing of hazardous waste materials. In addition, entities included in the dangerous waste management have to develop a separate assessment.

### 7.2.2 Law on Waste Management

One of the main principles of this Law is the 'polluter pays' rule, which means that the waste generator shall pay for all the costs, including costs for the prevention, collection, transportation, treatment, storage, disposal and monitoring of waste. This would mean that entities generating communal or other type of non-hazardous waste shall leave it on to legal entities holding a license for the above-mentioned activities. The management of communal waste according to this Law, comprises household and commercial waste. Household waste is collected on a daily basis, mainly in outdoor containers placed on public grounds, or in bins that households own themselves. On the other hand, commercial waste producers shall make a separate contract with a licensed service provider. "REDI Recycling" went through the processes of acquiring some of the different licenses that are required to operate pursuant to laws, thus giving the waste collectors the chance to operate legally.

It is important to notice that there have been 11 changes made to this law in the past years. One of the most notable ones was made 2020 when the Assembly voted on a ban on waste imports intended to be incinerated for energy creation.

### 7.2.3 Law on Packaging and Packaging Waste Management

The main objective of the Law is to establish a system for returning, selecting, collecting, reusing, processing and recycling of packaging waste. According to this Law, all packaging and packaging waste generators shall take responsibility for the product after it is being placed on the market. The Law enables the waste producer to choose how to handle packaging and packaging waste in one of the three methods mentioned below:

- By themselves;
- By making a contract with a licensed company for managing packaging waste;
- By payment of a fee to the state for each type of packaging waste generated.

The PROs have a central place in the packaging waste management system according to the Law. They match manufacturers and importers that first place on the market products and packaging that at the end of their life cycle create waste burdening the environment, with legal entities and individuals that collect and transport plastic waste, while having to provide processing or disposal of the amount of plastic waste taken and collected.

It should be emphasized that around 48% of the companies that generate packaging and packaging waste are not paying in accordance with law (European Commission, 2017), which additionally complicates the situation, especially with regard to the accurate records of waste quantities generated (European Environment Agency, 2021) and the overall sustainability thereof. According to reports (European Commission, 2017), the staffing of enforcement services is below the level required to effectively enforce waste management laws.

Also, more specific records can be produced through increased promptness of inspection authorities in terms of packaging waste handling by waste producers. Reports are suggesting that a large number (the percent might go as high as 40%) of companies do not pay anything or pay much less than what they would normally pay. This creates discrimination against the companies that pay fees every year (Ministry of Environment and Physical Planning, 2020). The small amount of compensation for packaging waste management on the treasury account for this purpose is due to the given legal possibility for the taxpayers to be exempted from paying compensation if they have concluded an agreement with a PRO to assume the obligations for packaging waste management. The PRO shall use the profit made to meet the national goals through the collection and processing or recycling of the waste generated from packaging.

The State Audit Report (2021) notes that PROs, independently, without any restrictions, decide on the manner of using the revenues they obtain. The amount of fees collected, whether paid to a treasury account or to a collective operator, is insignificant, indicating insufficient financial resources to encourage activities for the collection, transport, processing and disposal of packaging waste.

That is why the latest State Audit Office's Plastic Waste Report (2021), states the following conclusion: "The policies, measures and activities undertaken by competent institutions for the establishment of an integrated plastic waste management system are not effective and do not allow for avoiding and reducing the amount of plastic waste generated, efficient use of usable waste materials and full compliance with the waste management principles". State Auditors suggest that authorities should draft policies and measures to integrate informal waste collectors in order to make improvements in this area (State Audit Office, 2021).

The same Audit Report (2021) suggests that in order to establish an operation of an integrated waste management system, it is necessary to provide stable financial resources that will provide regular and sufficient revenue to cover costs. The Report concluded that the funds acquired on the basis of the Annual Environment Investment Program and the fees charged (for packaging waste management etc.) do not enable sustainability of the system by those that generate waste, which also affects plastic waste management and does not allow for consistent application of the 'polluter pays' principle.

## 7.2.4 Communal Services Law

Under this Law, communal services are considered to be a matter of public interest. They are under the authority of municipalities and accordingly, the municipality can establish public communal enterprises or delegate such services to other legal entities (Communal Services Law, 2012). According to this Law (2012), the Government and municipalities shall make communal services available to citizens by providing:

- Support for the construction, maintenance and operation of communal infrastructure facilities;
- Control of legal entities providing particular communal services;

According to the same Law, Municipal Councils shall adopt a decision on communal order and measures for its implementation, including activities of collection, transportation, and handling of municipal waste collected. This Law obligates the provider to perform its services with quality and maintain the functionality of facilities and equipment. In North Macedonia, the collection and transportation of municipal waste is almost entirely performed by Public Utility Companies (PUCs) established by municipalities and the City of Skopje (European Environment Agency, 2021). State Auditors (2021) negatively evaluated PUCs' work and found that PUCs lack a sufficient number of special vehicles used for collection and transportation of packaging waste or selected waste in general.

The cost-benefit analysis conducted in 2017 (Josifovski et al.), calculated that the informal sector, in the existing work conditions, is saving, for the local authorities alone, about 1,045,033 euros per year. These savings are high since the PUCs do not have to collect, transport and dispose of the communal waste, which is a service they have already charged the citizens. Savings are generated depending on which part of the process the material is collected from; therefore, when this is done directly from combined waste containers, it can be stated that utilities' costs are prevented from the earliest stage (Josifovski et al., 2017). Therefore, it is illogical to consider as illegal the collection of municipal waste from Public Utility Companies' waste containers by the informal collectors, since the sooner they pick it, the less costs are generated for the PUCs. In addition, the cleaner the materials, the higher the values thereof.

**Table 5. Barriers to formalization and potential measures in the current Macedonian context**

Categories	Barriers	Measures
Policy/Legal	<ul style="list-style-type: none"> <li>• Lack of institutional capacities;</li> <li>• Poor law enforcement;</li> <li>• No informal waste collector policies;</li> <li>• Unreliable data and statistics;</li> <li>• Laws disfavoring informal waste collectors;</li> <li>• Lack of health and safety protection mechanisms;</li> <li>• Power and economic conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Legal identity and formal recognition of informal waste collectors and their organizations;</li> <li>• Create a clear legal and policy framework for informal waste sector integration;</li> <li>• Create linkages between the informal sector, municipal departments and decision-makers;</li> <li>• Provide training in sorting, processing, recycling techniques and value-added services;</li> <li>• Provide health and pension insurance;</li> <li>• Provide occupational safety equipment;</li> <li>• Pilot projects to test different measures and policies.</li> </ul>

## Financial

- No financial sustainability and growth potential;
- Financial incentives for recycling schemes without the informal waste collectors;
- Poor bargaining power;
- Deficient equipment and space.

- Develop a source segregation financing scheme;
- Contract informal waste collectors for waste services;
- Provide grants to organizations of waste collectors;
- Provide space for recycling facilities, storage of recyclables, and processing;
- Establish social enterprises, cooperatives and associations;
- Support waste collectors to provide diversified waste services.

## Social

- Social disrespect for informal waste collectors;
- Poor understanding of informal waste collectors' contributions;
- Child labor;
- Poor educational levels;
- Poor trust between the different stakeholders.

- Constitute inclusive structures with equal representation of waste collectors, businesses and government officials;
- Finance awareness campaigns;
- Improve work conditions and livelihoods, rather than transferring waste pickers into other occupations;
- Provide scholarships for kindergarten and school attendance to informal waste collectors' children.

## 7.3 Conclusions

The Macedonian informal waste collection sector is a social group of several thousand citizens, including children, who collect and value parts of waste through activities that are not organized. Even State Auditors (2021), conclude that the informal sector is hardly mentioned in legislation, except regarding the registration thereof. Possibilities for waste collectors' formalization and organization through a social enterprise or public-private partnership, which would provide them with a stable income and legalization of their activities, have not been considered.

From the waste policy adoption and implementation, one can conclude that as the technology-driven and formalized EU waste approach spreads in North Macedonia, spaces for informal activity close (Ministry of Environment and Physical Planning, 2021), often in parallel with economic reforms that lead to fewer formal employment opportunities. Those whom the labor system cannot absorb, and who are unable to survive in formal economic niches, face loss of livelihood, and have to depend on social welfare systems, at a time where these are not sufficient enough.

**One of the most urgent issues is to provide persons not having finished primary education (65 % of all informal waste collectors) with equal access to the active labor market measures (qualifications, wage subsidies, on-the-job-trainings, assisted employment services, etc.), to other further education provided by public institutions, and to a driver's license.**

Better access to social benefits, social services, and social housing, as well as to health care and free health care services is also vital to cover at least the basic needs and to stop massive material deprivation faced by this target group for years and decades already. Effective monitoring of school attendance, especially of children from families at risk and sufficient preventive and support measures are also important to stop the vicious circle of poverty, school-drop-out due to poverty, missing school and professional education, limited (usually day-to-day) work and low income, and material deprivation.

When it comes to efforts undertaken to harmonize Macedonian waste management with the EU policies and legislation, one is not able to see any reduction in the amount of waste generated or sustainable development through its processing. In addition, waste selection is not a daily habit and behavior, and there is a low level of primary and secondary waste selection, which in turn adversely affects the effective and efficient waste treatment.

In addition, it is hard to make a conclusion as to which formalization approach has the greatest chance of success in the long run, in the country. Nevertheless, **the inclusion of appropriate measures at institutional levels is a key factor in formalization of strategies, increasing the chances of success.** Moreover, the empowerment of formalized waste workers is again confirmed as a further key success factor, though it is influenced by how governments design policies and strategies for a sector acknowledging the contribution of formalized recyclers and viewing them as relevant stakeholders in waste management systems. Further research is needed regarding the impacts of the enabling measures on the current status of formalization experiences, especially the inclusion thereof in policies and national MSWM strategies. What "REDI Recycling" is doing at the moment with their operations in Skopje, can help local and national authorities tremendously, if they would truly decide to integrate and support the



informal waste collectors.

In short, full structural integration of workers needs to start by a legal framework recognizing access to waste as a livelihood resource. The current ban on picking MSW is helping no one, because in this way, waste collectors lose their income, waste goes to landfills by transportation everyone is paying for, and PUCs are not saving money that can be invested in improving the infrastructure.

At the moment, a critical element of integration would include the provision of proper contracts including payment for collection services, but no one of the stakeholders believes this is possible. Additional critical element would be the provision of sorting infrastructure and capacity-building for informal waste collectors. However, what we can see is the contrary: PUCs and PROs are competing with informal waste collectors in order to make it more difficult for them to pick the waste sorted from the bring system and underground containers.

A strong support to waste collectors' entities in terms of infrastructure and equipment is critical to enable them to enter new niches and upgrade in the recycling chain. This needs to go hand in hand with the altered social protection schemes and proper programs that would address specific problems like child labor, such that different measures can protect worker's livelihoods.

The Macedonian integrative model should be implemented with insights from many researchers who have focused on the importance of engaging waste collectors as part of the solution to the complex issue of waste collectors' formalization. The findings from the cities where formal integration has happened (like the introduction of payments or subsidies to waste collectors in either reuse collection and/or resource recovery within source segregation schemes), as in Belo Horizonte, Bogotá and Pune should be taken seriously, since even the EU cities and municipalities are following their example.

By our analysis, we clearly provided evidence to support the claim that formally integrating waste collectors makes sense and is feasible, as these three non-European cities and the examples from Italy and Bulgaria demonstrate. The impacts of an inclusive model, one where formalization of the informal sector coupled with the rights to have access to waste, will include increased earnings of workers via: stable monthly income; improved work conditions (uniforms, specially designed waste collection carts and buckets and sorting spaces, etc.); access to welfare (daycare for children, education scholarships, pension schemes); ensured voice and representation; and improved assets.

This model leads to more secure workers' livelihoods. However, it requires a broader understanding of solid waste systems, complexities of waste picking, and a willingness to think outside the box in order to see waste management beyond conventional approaches. There are clear limits as to what unsupported and unorganized waste collectors can achieve regarding their contribution. So, without external/state financial support, they can, at best, capture and process only the small fraction of dry recyclables, which offers only sufficient profit margins.

Given the predominance of biowaste in Macedonian municipal solid waste composition, in the range of 48% (UNEP, 2021), substantial recycling rates can be achieved only by also focusing on organics resource recovery, which, however, historically has been outside the direct attention of waste collectors, possibly because of very low values per

ton. Additionally, this data shows that the MSW in North Macedonia has a waste fraction with high water content, which makes this waste more suitable for reutilization based on biological treatments and not thermal treatments such as waste incineration (UNEP, 2021). That is why UNEP's (2021) documents recommend that future low carbon projects in the waste sector should not include thermal treatments such as incineration, unless the biodegradable fraction is separated. This is another argument to support the informal waste collectors and stay away from waste incineration.

## 8. RECOMMENDATION AREAS

### 1. Documentation, recognition, and statistics

There is a widespread agreement that registration is a fundamental component of waste collector integration. It can provide accurate data on how many waste collectors there are, who they are and where they work and, if designed properly, it would allow waste collectors to experience the first benefits of integration. Despite all of their contributions, Macedonian waste collectors face discrimination and stigmatization. They are not seen as part of official "modern" waste management and recycling systems. This has negative consequences, not only for waste collectors, but also for the economy and environment, as waste collectors are not able to contribute their knowledge and expertise to the development of recycling systems and improve their livelihoods.

#### Recommendations:

- a. Registration and identification cards;
- b. Gathering data and statistics<sup>33</sup>;
- c. Recognition of their contributions.

At a minimum, registration should include the provision of a photo identity card that includes the name of the waste collector, the municipality, industry or business that is registering the waste collector, and a registration number.

Registration forms should capture this information, as well as additional information including: gender, race, age, how long they have worked as waste collectors, where they work, whether they work individually or collectively, whether they sell individually or collectively, contact details. In many places in the world, waste collectors are registered by municipalities. The goal should be to create a common up-to-date registry on all waste collectors. In addition, in order to ensure the success of the process, waste collectors can be involved in designing and running registration campaigns.

They are the experts on what would encourage waste collectors to register, and waste collectors will be more likely to trust other informal waste collectors to register them. It is important to recognize that when informal waste collectors work on registration, they are

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<sup>33</sup> Statistics and indicators on inequality and poverty, inter alia in line with EU-obligation

losing their daily income, so the registration campaign should include a budget to pay them for their work. The most important factor would be to have clear benefits for the informal waste collectors who would register themselves.

## 2. Support for organizing and engagement in participatory decision-making

When informal waste collectors are not involved as partners in integration programs, they often decide against participating. If they do participate, they may withdraw, as programs often don't meet their needs and can even make them worse off. For waste collector integration to succeed, it must meet real needs and improve waste collectors' conditions and incomes. The best way to ensure this is for informal waste collectors to be centrally involved as partners in all phases of waste collector integration initiatives, starting from inception to implementation, including revisions and the start of the next cycle.

Waste collectors know best how the recycling system works, how official recycling systems affect them, and what their needs are. The design and implementation of waste collector integration programs must therefore be participatory and negotiated with them. Rather than taking the form of pro forma consultation, it is important that waste collectors are understood as equal partners in the integration processes.

The formalization experiences in countries like Brazil, India and Columbia has demonstrated that the establishment of participatory structures is a crucial component of waste collector integration. It is not only waste collectors who must participate. Integration requires meaningful participation by municipal and industry representatives, which includes openness to changing their assumptions about waste collectors and informal recycling systems, their visions of what a recycling system should look like, and their historical ways of relating to waste collectors

The academia and non-governmental organizations like "REDI" that have experience working with waste collectors can play a crucial role in waste collector integration by assisting municipalities and industry to understand waste collectors and their work, as well as how to approach the collaboration with waste collectors. They can also support waste collectors to strengthen their capacity to mobilize and negotiate. As few academia members and NGOs in North Macedonia have direct experience working with waste collectors; waste collector integration should include strengthening the knowledge of other organizations and academia in the social sector so that, when appropriate, they can draw on their existing skills to facilitate engagements between stakeholders and support integration.

Generally, waste collectors have had negative experiences with municipal officials and industry. They have been stigmatized, harassed, and treated extremely disrespectfully. They have not been consulted in the design of recycling and waste collector programs, and have been negatively affected by government-led waste initiatives. As a result, they may be very wary when approached about integration. Organized waste collectors are better able to develop proposals regarding how recyclables should be collected, the role they should play in the recycling economy and value chain, and the form that waste collector integration can take. They are also better placed to engage and negotiate with other stakeholders.

### **Recommendations:**

- a.** Partners in the design, implementation and revision of waste collector and recycling programs and initiatives;
- b.** Continuous access to local and national government officials through a theme-specific formal governmental structure;
- c.** Core funding for organization of waste collectors.

It will take time to create the positive relationships necessary for waste collectors' integration. Meeting regularly and respectfully, sharing all relevant information, being transparent, being open to learning, and meaningfully engaging in issues raised by waste collectors are all important to build trust. Waste collector engagement should be as inclusive as possible and all types of waste collectors must be engaged, where different approaches may be required with different groups. Waste collectors should also receive information about, and take into consideration, how industry and municipalities function, including the possibilities and constraints they face. Ensuring that waste collectors have access to, and develop reciprocal relations with, municipal and industry officials, provides a strong foundation for integration.

It is imperative that the improvement of Macedonian waste systems should be developed in collaboration with both existing and potentially impacted partners and stakeholders, including: scrap dealers, aggregators, recyclers and other relevant actors in the informal supply chain, along with producers and government authorities. The design of waste systems should be an open and public process.

Waste collectors should engage as equal partners in negotiations with government and producers to determine fees and work out implementation processes.

### 3. Infrastructure and improved income

Waste management with social inclusion means fairly remunerating and improving infrastructure for informal waste workers. A key principle of waste collector integration is that waste collectors must be compensated not only for the resource value of the materials they salvage, but also for the economic and environmental benefits and economic savings they generate. The vast majority of Macedonian waste collectors work independently. Many collaborate informally, but collect and sell materials individually.

Paying a higher rate to waste collectors to collect recyclables that are not currently salvaged because the sale price is too low could assist relevant industries to achieve EPR targets and increase recycling rates and diversion from landfill.

#### Recommendations:

- a. Legal access to waste;
- b. Consistent, fair and transparent prices:  
Equitable distribution of profits in the value chain;
- c. Payment for collection;
- d. First preference as providers of recycling services:  
Pay waste collectors rather than owner-drivers to collect recyclables;
- e. Contracts and agreements with private and public institutions;
- f. Provide trucks and other vehicles to transport materials;
- g. Covered, secure, safe space to sort and store materials and equipment;
- h. Support with equipment through recycling centers and recycling hubs;  
Establish buy-back centers and aggregation points;
- i. Provision of infrastructure for offices and land.

Pay waste collectors a top-up fee for their services based on kilograms collected and sold at registered buy-back centers and aggregation points. Additionally, the industry can use extended producer responsibility (EPR) levies to pay waste collectors via registered buy-back centers. This approach to paying individual waste collectors via buy-back centers or other agencies could be highly appropriate and effective in North Macedonia. In addition to ensuring that waste collectors are fairly compensated for collecting materials, it would facilitate both waste collectors' registration and gathering of data on the amount and types of materials collected. This type of a model can also work for social enterprises that can sell materials collectively and also be paid. Municipalities and industries could contract buy-back centers, an NGO, or a private company fully committed to the waste collector integration principles to facilitate payments and provide ongoing support to waste collectors.

EPR regulations must be implemented, monitored, and enforced by government bodies. Governments should recover costs towards socially inclusive municipal recycling and waste management programs from producers. The role of government bodies should be clearly defined to avoid confusion about responsibilities. Waste collector integration provisions should not be relegated to the grant-making wing of government or producer organizations, but structurally funded as part of the EPR system.

#### **Innovative socially- integrated EPR measures to achieve this include as follows:**

- 1.** EPR should develop and institutionalize long-term projects and systems that fund the full costs of such systems' operations, including collection, transportation, sorting, and processing;
- 2.** Remuneration to implementing organizations should include payment for all services provided, including environmental costs and costs for any training, organization, infrastructure needs, access to clean water, administration, legal advice, visibility and outreach, compliance with labor and social protection laws, and disaster response resources for service providers;
- 3.** Waste collectors in the system can potentially have access to social and labor protection financed through EPR contribution;
- 4.** EPR should include price floor mechanisms (minimum fair price) and increases based on the inflation index to shield waste collectors and their organizations from the volatility of material pricing. These price floors should be accessible to anyone selling materials, not just contracted parties.

## **4. Gender-specific needs**

All waste collectors encounter multiple challenges in securing their livelihoods. Women waste collectors face further constraints due to gender inequalities in the sector and society. Women waste collectors must frequently decrease the hours they work as waste collectors due to social assumptions that they are primarily responsible for the unpaid labor of caring for their children.

This leaves them with less time to generate an income than men. As in a number of international studies, women waste collectors are more likely to report common mental health disorders than their male counterparts. These studies note that this could be due to women waste collectors experiencing more stress in trying to secure a basic income and men dominating access to materials (Makhubele et al., 2019). The physical challenge of transporting heavy loads of recyclables back to their sorting areas at the end of day contributes to many women street waste collectors picking lighter materials, working in smaller areas and migrating to landfills. In addition, men (and particularly younger men) use their greater physical strength to monopolize the highest value materials and seize first access to materials at both landfills and on the streets (Nzeadibe and Adama, 2015; Ogando et al., 2017).

All of these factors contribute to women waste collectors having lower incomes, more hazardous working conditions and less control over their own work than their male

counterparts.

### Recommendations:

- a. Formal commitment to informal collectors' gender equity;
- b. Formally commit to gender sensitive planning, policy and program design, implementation and evaluation;
- c. Provide equipment designed for use by women;
- d. Provide protection from gender-based violence;
- e. Free and available child care.

**Care must be taken to the greatest extent possible, to provide networks of infrastructure and support for women waste collectors facing gender-based harm, to ensure that women waste collectors have knowledge and information on gender-based harm and options available to them, and to create safe spaces for women waste collectors to share their experiences.**

## 5. Improved waste management

Informal waste collectors are often negatively affected by formal recycling programs, as these programs ignore the existence of the informal waste collectors' system of separation and are designed as if no recycling system already exists. Often, private companies are contracted to do separation at source and are paid a fee for collecting separated recyclables, which are the same recyclables that waste collectors' livelihoods depend on. These kinds of formal recycling programs reduce or eliminate waste collectors' access to materials, exacerbate their poor working conditions, criminalize waste collectors and increase the harassment that they face. Waste collectors' incomes can decrease to such an extent that waste picking is no longer a viable economic activity and they lose the jobs they created for themselves.

Although research on Macedonian informal waste collectors focuses on their collection of recyclable materials, waste collectors regularly salvage materials that can be reused, repaired, and used to create new items. Waste collectors keep these items for themselves and also sell them informally. When the value of recyclables drops, waste collectors have been found to start collecting more items that can be reused and refashioned. There are waste collectors who specialize in these reusable materials and do not collect recyclables. Waste collector integration in North Macedonia should include a focus on facilitating separation at source for these items such that they are not contaminated by waste and waste collectors can access them more easily. It can also include the development of centers where waste collectors can be trained and have access to space and equipment to repair, refurbish and create new items for sale. This will make an important contribution to reducing waste going to landfill and improving waste collectors' livelihoods. It can be part of a broader shift to create new businesses and jobs by unlocking new added value.

Additionally, one of the main challenges confronting Macedonian municipalities is the lack of funding mechanisms dedicated to supporting waste management in general, and waste collector integration in particular. The lack of funding mechanisms creates restrictions on the kinds of activities that can be undertaken. There is a pressing need to

secure funding opportunities to support waste collector integration programs.

There are some ways that municipalities can secure additional funding for informal waste collector integration. Crucially, as different Extended Producer Responsibility (EPR) schemes are implemented, this should unlock new funding for waste collector integration. Also, municipalities should consider the reallocation to waste collector activities of operational funds saved through the diversion activities of informal waste collectors. For example, for every ton or cubic meter of landfill airspace saved by the work of waste collectors, the equivalent value and associated municipal collection cost should be diverted to support waste collectors' activities.

Also, informal waste collectors in North Macedonia do not typically work with organic waste, but it can be a way to diversify their work and increase their incomes. Organic waste contaminates paper and packaging recyclables and comprises 48% of Macedonian MSW (UNEP, 2021). Extraction of organic materials from waste streams should receive increasing attention in the country as a way to further decrease waste going to landfills, obtain more and cleaner recyclables, and prepare for expected implementation of requirements and targets regarding organic waste. Particularly due to the limited commercial value of organic waste, municipalities will need to pay for service providers to collect the organics. In this context, the collection of organics by waste collectors should be considered as a component of waste collector integration that would generate benefits for waste collectors, municipalities, industry and the environment.

### Recommendations:

- a. Access to training opportunities;
- b. Adoption of local and national plans and other documents on waste management which envisage the work of waste collectors:
  - Establishment of a state program for support of informal collectors;
- c. Complete and segregated waste collection servicing all residents;
- d. New EPR schemes for clothing & footwear, bulky waste and other types of waste that ends up as litter:
  - Set EPR targets for reuse and repair;
- e. Design services for reuse and repair at the local level:
  - Introduce an obligation for municipalities to provide priority access to local waste collection points in order to acquire goods for repair and reuse;
- f. EPR should include enforceable mandates and targets for the integration of waste collectors and their organizations in EPR systems and all decision-making bodies and processes;
- g. Prevent, prohibit and eliminate climate-intensive technologies like incineration and pyrolysis/chemical recycling;
- h. Financial incentives for the promotion of reuse and repair:
  - Introduce a reduced VAT rate for goods and services provided by social reuse and repair enterprises, especially if engaged with socially disadvantaged groups.

EPR is a key market-based instrument used to apply the 'polluter pays' principle to the management of certain waste streams. By setting up EPR measures, legislation will require from producers of products to bear financial and/or organizational responsibility for the management of the waste stage of a product's life cycle, including separate



collection, sorting and treatment operations. Additionally, different collection systems would need to be designed to meet the needs of the municipality, as well as waste collectors, and would require formal agreements specifying the work to be conducted and the support to be received.

## 6. Social Inclusion, health and safety

Social benefits such as unemployment, sickness, maternity, child care and pension provide support to workers at times when incomes are insecure. Social benefits can prevent vulnerable informal workers from falling into even worse forms of poverty, and are especially important for waste collectors whose incomes are regularly at risk and who often do not have savings to rely on when they are unable to earn (Lund & Srinivas, 2005).

While waste collectors make so many important contributions, they pay a high price in terms of their physical and mental health. Waste collectors' health is compromised by their living conditions as well as their work environments (Gutberlet, Jutta & Uddin, 2018; Parizeau, 2015). Waste collectors undertake hard physical labor in unsanitary and hazardous contexts and are exposed to significant health risks. These risks can be divided into biological hazards, chemical hazards, physical hazards (Parizeau, 2015) and mental health hazards. Specific health hazards waste collectors encounter during their working day include:

- being injured or killed by trucks at landfills, as well as cars and other vehicles on the roads;
- exposure to gasses and smoke from the burning of waste, including electronic waste burned to extract metals;
- contact with hazardous waste and chemicals;
- limited access to clean drinking water and ablution facilities;
- burns and cuts from waste materials.<sup>34</sup>

### Recommendations:

- a. elimination of stigmatization, harassment and social exclusion;
- b. scholarships for education of the children of informal waste collectors
- c. mapping waste collectors' health risks;
- d. awareness campaigns;
- e. phase-out of materials containing or emitting hazardous substances which harm the health of waste collectors or recyclers;
- f. occupational health and safety coverage;
- g. provide personal protective equipment;
- h. access to clean water and ablution facilities;
- i. establishing door to door selective collection by waste collectors to reduce their

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<sup>34</sup> (Gutberlet, Jutta & Uddin, 2018; Parizeau, 2015; Scheneck et al., 2019).

- exposure to health risks from mixed MSW;
- j. safer working conditions in landfills and streets;

Conducting awareness campaigns to change perceptions of informal waste collectors and deepen understanding of the importance of waste collector integration is an essential part of creating a supportive environment for waste collector integration. Such campaigns can be run by a number of different organizations. Ideally, they should be coordinated. It is essential that waste collector representatives and NGOs that support them are involved in designing, overseeing and implementing all awareness campaigns.

Hazardous substances and especially substances of very high concern (SVHC) should be prevented and phased out in order to achieve a non-toxic environment and zero pollution. The presence of hazardous substances should be communicated throughout the life cycle of products and materials. A public information system about harmful substances present in products needs to be put in place.

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