

**UNDERSTANDING THE CONTEMPORARY CHALLENGES &
ADAPTIVE STRATEGIES USED BY INFORMAL WASTE RECYCLERS IN
MANSHIYAT AN-NAŞR TO SECURE THEIR RIGHT TO WASTE**

by

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ABSTRACT

Using the perspectives and experiences of traditional informal waste recyclers in Manshiyat an-Naşr, a group who has engaged within the informal waste trade in Cairo for more than 80 years, this thesis investigates how the informal waste sector value chain has changed within a more contemporary Egyptian society. Drawing on qualitative data gathered over the course of three (3) weeks in Egypt in August and September in 2022, I argue that the right to waste of informal recyclers in Manshiyat an-Naşr, which has historically secured their livelihoods within the waste sector, is threatened by processes of modernization and greater environmental awareness within Egypt. I find that increased competition and the implications of formalization have emerged as prominent challenges faced by second-generation informal recyclers in maintaining their right to waste. However, community members have adapted their activities and practices to acclimate to the evolving landscape of waste management in Cairo. These changes have included the use of three primary assets to secure opportunities and demonstrate their integral role within the sector: diversification, social networks, and external support. Thus, while the adaptive capacity demonstrated in this community suggests a strong sense of resilience and agency for livelihood outcomes, this work reveals that the lack of equitable integration remains the greatest threat to the modernizing municipal solid waste management (MSWM) sector, and undermines attainment of sustainable livelihoods for members of the community. I conclude by considering the theoretical and practical implications of these findings for informal waste recyclers in Manshiyat an-Naşr, and their impacts on other informal waste settlements in Egypt, and globally.

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LIST OF ACRONYMS

APE – Association for the Protection of the Environment

CCBA – Cairo Cleansing and Beautification Authority

CE – Circular Economy

EPR – Extended Producer Responsibility

ISR – Informal Sector Recycling

ISWM – Integrated Solid Waste Management

IWB – Itinerant Waste Buyers

MBO – Membership-based organizations

MENA – Middle East and North Africa

MNC – Multinational Corporation

MSE – Micro-and Small Enterprises

MSW – Municipal Solid Waste

MSWM – Municipal Solid Waste Management

NGO – Non-Governmental Organization

PET – Polyethylene Terephthalate

PPP – Public-Private Partnerships

ROOTA – Rising Out of the Ashes

SDGs – Sustainable Development Goals

SWM – Solid Waste Management

UN – United Nations

WMRA – Waste Management Regulatory Authority

CHAPTER 1: INTRODUCTION AND OVERVIEW

*“Anywhere in the world, people are classified. Everyone has a job.
My job is to be a waste collector, someone else is a doctor, another person is a policeman.
In the whole country, everyone completes each other.*

I am not sad that I am a garbage collector. I am sad that I do not get my rights as a garbage collector.

I am proud to be a garbage collector.”

– 32 year-old male waste recycler from the Manshiyat an-Naşr Informal Recycling Settlement

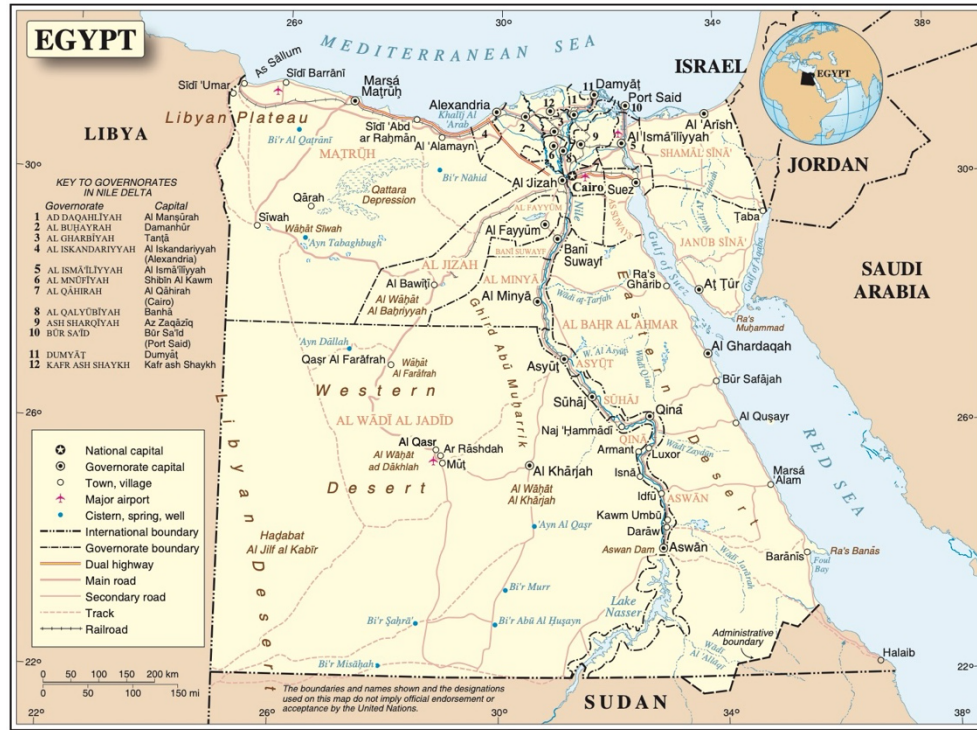
1.1 Problem Statement

In the Global South, rapid urbanization and population growth, coupled with insufficient governance structures and resources, –both financial and technical– have led to major issues within solid waste management (SWM) (Wilson et al., 2006; Dias, 2016; Aparcana, 2016; Negm & Shareef, 2019; Gil & MacAulay, 2019; Mostafa, 2019). The inconsistent, inefficient, and inequitable nature of these systems has left an opportunity for actors, within an informal context, to mobilize in gathering and recycling municipal solid waste (MSW) that would otherwise go uncollected from residential areas, litter the streets, and over pile landfills. Informal sector recycling (ISR)¹ can be found in most developing and transitional countries as a livelihood option for poor, disadvantaged, vulnerable and/or marginalized individuals and social groups (Medina, 2008; Ezeah et al., 2013; Wilson et al., 2009). ISR not only offers an economic means of survival for impoverished individuals, but a vital public service within highly disorganized contexts. This maintenance, through collection of waste left unaccounted for by the state,

¹ There are many terms used interchangeably to refer to the practice of unofficial actors separating waste material for its recycling. These terms include informal sector recycling (ISR), informal recycling sector (IRS), and informal waste sector (IFWS).

enhances environmental wellbeing by recycling large volumes of waste and reducing the need for landfills (Dias, 2016; Mostafa, 2019).

Figure 1. Map of Egypt (UN, 2012)



As the highest producer of MSW in the Middle East and North Africa (MENA) region, Egypt has historically struggled to implement and maintain effective waste management systems (Negm & Shareef, 2019), which has subsequently created opportunities for informal livelihoods in the waste sector. The traditional ISR actors in Egypt, known as *Zabbālīn*², have maintained an integral role in Cairo’s collection and recycling sector since the 1930s (Fahmi, 2005). They have

² “*Zabbālīn*” (زبالين), pronounced *zabbaleen*, is an Arabic word translating to “garbage people.” It is widely used in the media, academia, and at the community level to identify the traditional informal waste recyclers in Egypt, however, it is not a term that is accepted by all of its members. This term has harmful and negative connotations which further stigmatizes this already marginalized group, a discovery that was revealed to me through conversations with community members during fieldwork. Thus, *Zabbālīn* will only be used to offer an accurate account of this community’s history and to distinguish them from other actors within the informal and formal MSWM system, as it is discussed in extant literature. The term “waste recycler” (معيد التدوير) is a widely accepted alternative within the community. I will use the term “traditional waste recyclers” within my own account to identify this group.

created a highly organized and intricate ecosystem of informal value chain actors that make their livelihoods collecting, transporting, sorting, cleaning, trading, processing, and repurposing solid waste from the city's residential areas. Their work has offered Cairo an essential service at a time when MSWM was initially nonexistent, and then again when it was mismanaged. Structural disorganization continues to create opportunities for informal waste recyclers to take ownership of waste management and fill a gap in service delivery themselves. In neighbourhoods where MSWM is absent or inconsistent, this community informal has developed their own practice through a system built on the intergenerational inheritance of the right to waste, verbal negotiations, and family labour. With an estimated population of 50,000 to 70,000, this community is spread across seven (7) different settlements in the outskirts of Cairo (O'Neill, 2019). The largest and most longstanding ISR settlement in Egypt can be found in Manshiyat an-Naṣr, illustrated in *Figure 2*. This settlement was founded in 1976 (Fahmi, 2005) and is where ISR actors both live and work. It is also home to residents who are not engaged within the waste trade.

Along with the precarity and contingency which characterizes both their work within the informal sector and their position as minority Coptic Christians³ in a Muslim-majority society, these actors must also confront the continual implementation of policies that displace their settlements and in turn, economic activities (Fahmi & Sutton, 2010). As a result of their occupation and lack of government support or recognition for their work, this community experiences a high prevalence of epidemic outbreaks, illiteracy, poor environmental conditions, low income, and stigmatization (Fahmi, 2005). However, they remain resilient amid these

³ Coptic Christians, known as Copts or Egyptian Christians, are an ancient indigenous community who represent the largest non-Muslim minority in the Middle East, representing between 8 to 10 percent of the Egyptian population (Rowe, 2020). Today, the majority of the Zabbālīn community are Copts, representing 90 percent of the entire group (O'Neill, 2019).

structural obstacles and continually adapt to increasing challenges, showing no indication of altering their livelihood pathways.

Figure 2. Map of Manshiyat an-Naṣr Informal Recycling Settlement⁴ (Fahmi & Sutton, 2006)

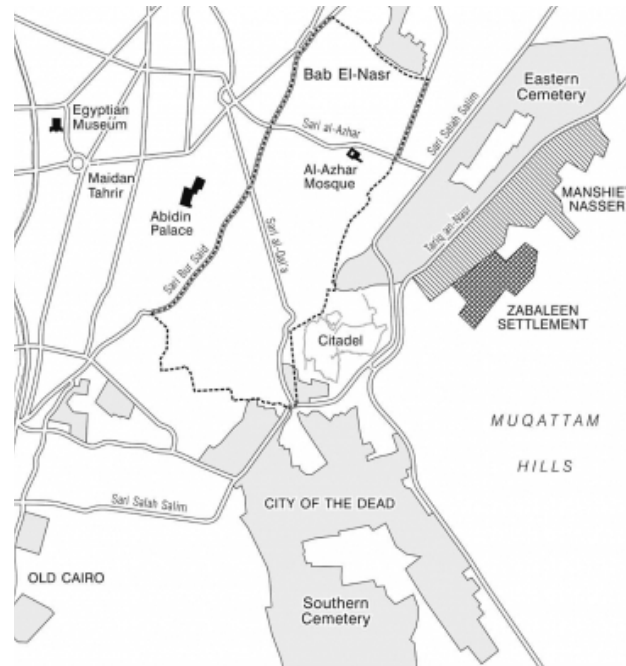


Figure 3. Photo of Manshiyat an-Naṣr Settlement (Source: Fieldwork, 2022)



⁴ This map situates the location of the Zabbālīn Settlement, labelled “Zabaleen” on the map, located in Manshiyat an-Naṣr, labelled “Manshiet Nasser” on the map.

1.2 Research Aim & Objectives

There is a plethora of literature on the informal recycling community in Cairo⁵, fueling the belief that it is an over-researched topic. However, the work of Didero & Eldefrawi (2019) indicates otherwise and reveals that well-founded and in-depth empirical research concerning this settlement is still worthwhile and necessary. Because this community is entangled with several universally-felt issues, investigation continues to offer relevant and important discoveries that are applicable beyond the singular ISR settlement in question. This community, and their livelihoods, continue to provide important insights that are useful in furthering knowledge of globalization, modernisation, neoliberalism, environmental hazards, the informal economy, community building, interreligious relationships, and the role of religiousness for identity and everyday practices⁶.

Moreover, current literature⁷ on the informal waste community in Manshiyat an-Naṣr focuses almost entirely on the history of the informal waste sector, the community's relationship with the state, and the privatization of waste management in the 2000s. Thus, while there is a body of scholarly research and writing on this community, there is still considerable space in the discourse to further explore the ISR community in Manshiyat an-Naṣr within a more contemporary lens. As the community is introduced to new actors, systems, and policies, they must navigate and adapt their traditional waste recovery system in accord. This is further emphasized by the gap in literature exploring the generational differences between informal waste recyclers who initially migrated from Upper Egypt to the Manshiyat an-Naṣr settlement to

⁵ Examples include El-Halwagi et al. (1987), Fahmi (2005), Fahmi & Sutton (2006, 2010), Didero (2012), Kuppinger (2014), and Jaligot et al. (2016).

⁶ Didero & Eldefrawi (2019) conducted research on the impact that privatization, pig culling, and economic restructuring had on two informal recycling communities in Cairo, including Manshiyat an-Naṣr. The analysis indicated that empirical research on this community makes it possible to better understand the interconnectedness of broader subjects, namely the ones indicated here.

⁷ Examples include O'Neill (2019), Gil & MacAulay (2019), Mostafa (2019), Negm & Shareef (2019).

participate in the waste trade, and their children who are now adults working within their inherited trade. This reveals how the work of this community has evolved with time, forcing members to adapt to new realities. More contemporary investigation on the livelihoods of informal waste recyclers in Manshiyat an-Naṣr is minimal, which can be attributed to the 2011 revolution⁸, the murder of researcher Giulio Regeni in 2016⁹, and the non-governmental organization (NGO) law introduced in 2020¹⁰, all discouraging social science research in the country as of recent.

More than 80 years later, this community continues to perform waste-related work as their central economic activity; however, because the livelihood options for these actors are largely a product of the social, economic, political, and environmental context in which they work, it is inevitable that aspects of their occupation continue to change alongside various macro-level pressures they are presented with. Today, the practices of this community have evolved alongside the progression of Egyptian society, characterized by increased modernization and greater environmental awareness. Combined, these two pressures have led to greater government intervention, increased urbanization, a push for the centralization of MSWM, and the emergence of technologically advanced formal waste management systems that threaten to further marginalize this community and the value chain system they have created. All of these

⁸ The Egyptian revolution of 2011 was as a social movement in which youth mobilized to voice their dissatisfaction for the oppressive authoritarian regime with the goal of achieving a more liberal and democratic system through protest and demonstration (Cavatorta, 2012). These events altered the political and economic landscape of the country, resulting in an increase of policing around political and/or controversial journalism, research, and attention within any capacity that negatively portrays the country or government of Egypt.

⁹ Giulio Regeni, an Italian PhD student who moved to Egypt to undergo his research on Egypt's independent trade unions, was murdered by Egyptian officials due to suspicion of spy-like activities (Brozus & Roll, 2021). This incident has discouraged researchers from abroad, and locally, from perusing research topics, be it controversial or not, in fear of their safety.

¹⁰ The Law Governing the Pursuit of Civil Work (Law No. 147 of 2019), more commonly known as the NGO Law, governs the process by which domestic and foreign NGOs can achieve legal recognition and outlines provisions on their activities, monitoring, funding, and research (TIMEP, 2019). This prohibits NGOs from conducting fieldwork or publishing studies without prior approval by the authorities. This has made it increasingly challenging for NGOs to not only perform their mandated work, but undergo research.

changes are happening simultaneously as environmental sustainability and protection enter the global conscious¹¹. Meanwhile, on a more localized level, the implementation of a new National waste management law¹² is demanding for more efficient waste management solutions and approaches to confront environmental challenges¹³. These pressures collectively have an immediate and direct impact on ISR communities around the world, including the informal waste settlement in Manshiyat an-Naṣr, which this study investigates in depth.

As the pioneers of collection and recycling of MSW in Cairo, this new waste landscape is forcing the community to transition from their traditional system in which they were able to carry out their work alongside formal entities responsible for MSWM, to a more modernized system in which their primary economic asset is being displaced by increasing regulation and privatized to waste companies. Their self-proclaimed right to waste, which previously guided their work and asserted them responsible for its collection, holds no legal validity, leaving them in an extremely precarious position which threatens their available economic opportunities. As their livelihood security within the waste sector is weakened, their economic livelihoods and overall wellbeing are at risk. Thus, the second-generation of Manshiyat an-Naṣr inhabitants must navigate new challenges as they take over the inherited work of those who first migrated to the settlement.

¹¹ As addressed by the United Nations (UN), and echoed by major think tanks, international organizations, and government bodies, environmental sustainability has become a pressing issue and subsequently a priority on a global scale. The 2030 Sustainable Development Goals (SDGs), introduced in 2016, is an international framework to guide development efforts for the world's most pressing challenges, further reiterates this priority; of the 17 goals outlined by the UN in this framework, 9 are directly related to the environment and ensuring its wellbeing, including: 6: clean water and sanitation; 7: affordable and clean energy; 8: industry, innovation and infrastructure; 11: sustainable cities and communities; 12: responsible consumption and production; 13: climate action; 14: life below water; and 15: life on land (UN, 2023).

¹² Law No. 202 of 2020 is Egypt's most recent waste management legislation which regulates the organization of waste management in the entire country.

¹³ Egypt launched a Sustainable Development Strategy, Egypt Vision 2030, in February 2016 to display its commitment to achieving the SDGs. It outlines the steps taken to achieve targets and progress made, outlining Solid Waste and Recycling as a National priority (MPED, 2021).

Against this backdrop, the specific objectives of this thesis are to: (1) critically examine the community's current income generating activities and practices to identify the challenges they encounter, (2) understand how actors are using their agency to remain involved within the waste trade and the adaptive strategies they have embraced to do so; and (3) identify how this community is being integrated into the formal waste management system through civil society, government, and private sector initiatives. I argue that the right to waste of informal waste recyclers in Manshiyat an-Nasr, which has historically secured their livelihoods within the waste sector through familial inheritance, is threatened by increased competition and formalization. I find that access to economic opportunities have decreased for community members as a result of new actors entering and/or interfering with their traditional system and the trend towards formalization within an unstructured waste sector. However, community members have adapted their activities and practices to acclimate to the evolving landscape of waste management in Cairo, which have been largely shaped by processes of modernization and greater environmental awareness. They have secured their right to waste within the sector and asserting their role as indispensable actors through the use of three main assets: diversification, social networks, and external support. Thus, while this community's adaptive capacity suggests a strong sense of community resilience and agency for livelihood outcomes, the study reveals that lack of meaningful integration remains the greatest threat to their right to waste and subsequently, the achievement of sustainable livelihoods in the waste trade.

1.3 Significance of Study

The findings presented in this thesis will deepen current understandings about the contemporary dynamics of this community, the threats they are confronted with, and the adaptive

strategies they have utilized to maintain their livelihoods. This is important in understanding the trajectory of their work within the evolving waste sector. It will also complement theoretical work that has been done in the community for years, which has largely slowed in recent times. All of this knowledge will contribute to a greater understanding regarding what the future holds for this community within the context of formalized MSWM systems in Cairo, and will spur additional research in the field. This will better inform effective policy making, integration plans, civil society projects and programs, and the potential involvement of religious institutions in the human development of this community and their work to offer more sustainable outcomes. The findings from this study will also offer applicability to other ISR communities within, but also outside of, Cairo, that could potentially inform action, policy, and practice that is based on the experiences and needs of ISR actors.

1.4 Outline of Thesis

In this chapter, I have introduced the topic, aim, and objectives of my research, situating it within the existing literature. Chapter 2 offers an outline and review of the major literature and conceptualizations relating to SWM and ISR, along with the sustainable livelihood framework which is the conceptual framework guiding my research. This section offers greater understanding of three main areas: the evolution of waste management, the emergence of the ISR economy, and perspectives and approaches to the phenomenon of ISR. Chapter 3 situates the literature and framework outlined in Chapter 2 within the context of informal waste recyclers in Manshiyat an-Naṣr and the overall MSWM system in Egypt. In Chapter 4, the methodology utilized for this study will be examined to reveal epistemological considerations, and processes of positionality and reflexivity throughout the collection and data analysis stages of this research.

Chapters 5 and 6 offer the results obtained through fieldwork, outlining the challenges ISR actors in Manshiyat an-Naşr are faced with which threaten their right to waste, and the assets they have utilized to strengthen their position as waste recyclers within the waste trade. Chapter 7 analyzes the significance of these challenges and assets by revisiting the sustainable livelihood relating the findings back to the research question. I conclude this thesis in Chapter 8 by offering a concise overview of the discoveries made and recommendations for further study on this topic.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Definitions and Conceptualizations within Global Discourse

2.1.1 Waste and Waste Management

The meaning of waste, and subsequently the way in which it should be managed, has evolved throughout history based on emerging trends and new discoveries within social, economic, and environmental realms. There is no single, precise legal definition of waste¹⁴ that is universally accepted (Bajdor et al., 2016, O'Neill, 2019). This is because of its highly subjective nature; across or even within countries, each jurisdiction has distinct regulating bodies with their own unique set of frameworks, legislations, policies, and definitions describing waste management, and in turn, what constitutes the waste being managed. However, there is an abundance of literature that investigates waste and its evolution which offers great insight and understanding into the nuances of this concept. What follows is a brief summary of how the conceptualization of waste has changed with time to offer a greater understanding of what waste means and how it should be managed.

In the late 19th and early 20th centuries, cities in Europe and North America (Gandy, 1994; Miller, 2000, Strasser, 1999, as cited in Kuppinger, 2014), and in the colonized South (Medina, 2007), faced new challenges handling growing quantities of waste as a result of rapid industrialization. While the disposal and management of waste has been of global significance since the beginning of human history, the problem of what to do with waste and waste generation entered social consciousness and public discourse with increasing quantitative of waste production and greater awareness regarding its negative impact on public health (Masood &

¹⁴Terms like waste, rubbish, trash, and scrap are used interchangeably to refer to the same concept. The term “waste” is most widely used within extant literature and thus will be used within this thesis.

Barlow, 2013). As recounted by Velis & Vrancken (2016), the legal birth of modern SWM can be traced back to two pieces of legislation from the United Kingdom in the 19th century. Within the 1848 Public Health Act, local authorities were given the power to provide waste collection services to households; and by 1875 in an updated account, it became compulsory for households to use bins and local authorities were obligated to perform weekly collection services, delivered by private contractors or a department of the public authority. There was a clear linkage between disease and poor sanitary conditions (Marshall, 2013), and thus waste collection services were introduced as a proactive strategy to avert public health crises by managing waste.

Within this legislation, there was no definition of waste; the first legal definition comes from the Council of the European Communities in 1975 and states that,

“‘[W]aste’ means any substance or object which the holder disposes of or is required to dispose of pursuant to the provisions of national law in force” (Council Directive 75/422/EEC on waste, 1975, p.40).

This definition offers a lot of flexibility in that it relies on guidelines outlined by National bodies to impose their own meanings of what must be disposed. It was not until 1991 when the Council revised and expanded on the definition by outlining specific categories of waste, such as “products whose date for appropriate use has expired” and “products for which the holder has no further use” (Council Directive 91/156/ECC on waste, 1991). Thus, during this period, waste was the responsibility of the state and to be disposed of due to its risk to public health.

Public policies that were established at the end of the 20th century shifted the focus towards managing the increasing amount of waste material and trying to recover value out of it (Bajdor, 2016) as a result of globalization, economic privatization and growth, and urbanization (Marshall, 2013). In 2011, the Bureau of International Recycling¹⁵ proclaimed “the end of the

¹⁵ The Bureau of International Recycling was the first federation to support the interests of the recycling industry on an intentional level (O’Neill, 2019).

waste era,” a statement which was widely echoed by environmentalists, industry leaders, and politicians (O’Neill, 2019). This meant that wastes were no longer unwanted materials to be discarded. With this change in ideology emerged the concept of a global circular economy (CE), a model in complete contrast to the linear economy¹⁶ that had dominated public thinking up until this point. The concept of CE proposes a global transition towards sustainability and is defined by the Waste & Resource Action Programme’s¹⁷ (WRAP) as a system...

“...in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life...” (WRAP, n.d., as cited in O’Neill, 2019, p. 97).

The emergence of CE has reshaped the process of managing and recovering waste from something that is collected, transported, and disposed of, to something that has value beyond its primary use and can be treated, cleaned, separated, reused, recycled, and ultimately recovered (Medina, 2008). This, in turn, has changed the priorities and objectives of SWM as well as the value chain actors involved within the system. However, waste disposal does not belong to the same sector as waste recovery. As stated by Bertolini (1992), “recovery traditionally fits in a market economy perspective [whereas] garbage evacuation comes under the public services” (as cited in Cavé, 2012). Thus, the lack of policy infrastructure within the waste management sector stifled progress in this regard (Baud & Post, 2003). The concept of Integrated Solid Waste Management (ISWM) came about to bridge these two sectors. ISWM is defined as the...

“...strategic approach to sustainable management of solid wastes covering all sources and all aspects, covering generation, segregation, transfer, sorting, treatment, recovery, and disposal in an integrated manner, with an emphasis on maximizing resource use efficiency (UNDP, 2020 p. 8).

¹⁶ The Linear Economy is defined as a traditional way to conceptualize waste as something we make, use, and then dispose of (O’Neill, 2019).

¹⁷ WRAP is an NGO in the United Kingdom that performs work in increasing knowledge and political transparency around consumer waste (O’Neill, 2019).

Waste is divided into two categories based on its source. MSW, which is the focus of this research, comes from domestic activities from human existence such as households, offices, markets, shops and restaurants and includes materials such as plastic, paper, metal, and other non-organic wastes (Mostafa, 2019). The second categorization is industrial waste which comes from business activity and construction (Bajdor et al., 2016). O'Neill offers a comprehensive definition of MSW, stating that:

“MSW is waste collected and treated by or for municipalities. It includes post-consumer waste from households, commercial entities, office buildings, hospitals, small businesses, and government agencies, including organic wastes, plastic, paper, glass, and aluminum. Plastic and paper wastes include bags, bottles, industrial plastics, newspapers, scrap paper, paper plates and napkins, cardboard boxes, and other packaging materials. MSW also includes yard and garden waste, street sweepings, and the contents of litter containers. It may also contain small quantities of hazardous wastes” (2019, pp. 79-80).

There is currently a global trend towards the privatization of SWM, meaning the transfer of state resources and activities to the private sector (Sansom, 2009). The waste management sector has built its business on the efficient management of SWM and taking up an intermediate role between public authorities and waste producing industries. Governments have arranged to collaborate with private companies to provide waste services, often creating public-private partnerships (PPP) with either local or multinational corporations (MNCs) (O'Neill, 2019). Within this partnership, the role of the private entity includes the responsibility and ownership of the waste material during processing, as well as the selling of the outputs (Velis & Vracken, 2015). By extension, the state takes on the risk and burden of protecting public health, and the environment, underscored by its obligations to, and responsibility of, waste management (ibid).

Bajdor et al.'s (2016) definition of waste offers a useful conceptualization for understanding how waste can become a means to livelihood for ISR actors, which is particularly relevant for informing the work of the present study. They consider two main aspects of waste in

their interpretation. In the first aspect, waste is a subject which has lost its primary function for the user. In the second aspect, the subject can be treated as waste with regard to its primary function, but can retain its value through the use of a secondary function. In this definition, waste is valuable in the sense that it not only has a purpose beyond its primary use, but also a value that someone else can generate profit from. This conceptualization is pivotal in understanding how actors have made their livelihoods in ISR. In extension, O'Neill (2019) offers more diverse and complex meanings by outlining six (6) different perspectives of waste that go beyond something that is simply discarded or recycled. These perspectives and associated definitions have been presented in *Table 1* below. ISR actors are able to make their livelihoods by treating waste as a commodity, waste as a resource, waste as a livelihood, and waste as an input. In earlier accounts of waste, SWM treated wastes as externality and wastes as risk or hazard.

Table 1. Perspectives on Wastes (O'Neill, 2019, pp. 56-57)

Perspective	Definition
Wastes as externality	Wastes are unwanted but unavoidable by-products of production or consumption that must be collected and discarded.
Wastes as risk or hazard	Wastes pose environmental and/or health risks through characteristics, management, or accumulation.
Wastes as commodity	Discarded objects bought, sold, or used; for example, glass, old clothes, or used cards.
Wastes as resource	Wastes are repurposed, mined, recycled, and sold/used; for example, wood, upcycled to furniture or gold extracted from electronic wastes.
Wastes as livelihood	Wastes, through collecting, recycling, or dismantling, provide income to people, often informal workers, living on or near the waste, municipal employees, and some of the world's largest utility providers.
Wastes as input	Waste that result from linear processes of production and consumption should be cycled back into production, with the goal of creating a closed-loop or circular economy.

2.1.2 Informal Sector Recycling (ISR)

The most traditional way of understanding the urban economy is by dividing it into two pillars; formal and informal (Zia & Devadas, 2008). While people who study economic production and labour across the economy often differentiate between formal and informal labour and business sectors (Chen, 2012), it is more accurate to think of this distinction as a continuum, rather than completely separate sectors and to note that individual firms and workers may operate across both ends of the spectrum (Baud & Post, 2003). Differentiating between the formal and informal sector provides a useful framework in understanding how waste sectors are organized around the world and how these sectors may interact with one another.

The formal sector can be understood as a modern or industrial sector that includes enterprises, both government and private, which are regulated by the state (Zia & Devadas, 2008). It consists of economic sectors and firms where businesses and workers operate within official economic and legal systems. Within this sector, businesses are incorporated and pay taxes, and employ workers through contracts that include social benefits such as welfare and workplace protection. Structured businesses in the formal sector include regulating bodies that oversee the health and safety of workers (O'Neill, 2019). In the case of waste, those working within the formal sector work for cities or within the private sector (ibid).

The informal sector, characterized as a traditional or subsistence sector, is the diverse set of economic activities, enterprises, jobs, and workers that lie outside of state control (Zia & Devadas, 2008). The International Labour Organization (ILO) and the International Conference of Labour Statisticians define the informal sector as “employment and production that takes place in, but not limited to, unincorporated small and/or unregistered enterprises” (UN-Habitat, 2015). These businesses and workers operate outside of normal legal frameworks, (i.e. outside of

tax, social security, and registration structures). Existing across economic sectors in developing and developed economies, the informal sector continues to provide a major source of livelihood for a significant proportion of the urban poor (Wilson et al., 2009). While operating outside of state and market organizations and rules, informal sector workers are usually part of alternate, yet organized, systems, with their own rules and systems of operation within hierarchies, collectives, or extended families. (O'Neill, 2019).

Many, if not most, informal workers in the developing world are working informally out of necessity and for survival (UN-Habitat, 2015). There is a deep correlation between informality and poverty; informality is often problematized as fueling poverty, social exclusion, hunger, gender inequality, and mass migratory pressures (ibid). Informal work is also highly precarious; this type of work is extremely variable as workers can be fired at will and the nature of the work performed is often risky and undertaken in unsafe conditions (O'Neill, 2019). Additionally, there are no government-sponsored safety nets protecting workers in the case that they are let go or leave the profession or sector. Unregistered businesses do not pay taxes, so there is no social service infrastructure in place for their employees (Soliman, 2020). It is evident that within the formal economy, there are structures in place to ensure the wellbeing of its workers, while the informal sector does not have the regulating authority or obligation to do so, creating inequitable outcomes for those involved. Thus, countering these issues within informal employment structures is necessary in order to safeguard the wellbeing of those engaged within the sector.

ISR is the most long-standing mode of organization in the waste and recycling sectors (O'Neill, 2019). ISR refers to the practice of unofficial actors involved in the recovery of material and waste management activities which are not sponsored, financed, recognized, supported, organized, or acknowledged by formal authorities (Scheinberg et al., 2010; Ezeah et

al., 2013). Actors within ISR extract recyclable and reusable materials from mixed waste including materials from gutters, street bins and piles, markets, transfer points, garbage trucks, and garbage dumps, both legal and illegal (Lardinois & Furedy, 1999). The commercialization of recycled materials is referred to as waste valorisation (Scheinberg, 2012). While there are different terms that can be used to refer to actors who work within ISR¹⁸, the term waste picker was adopted at the First World Conference of Waste Pickers in Colombia in 2008 to facilitate global networking and diminish any derogatory terms that had previously been used to refer to these workers (Sansom, 2009). Wilson et al. (2009) identify four different categories of ISR actors, depending on where and how material separation takes place. These groupings include (1) itinerant waste buyers (IWBs), (2) street waste picking, (3) municipal waste collection crew, and (4) waste picking from dumps. IWBs and street waste picking are of most relevance to this study and are defined as the following:

- IWB: "...waste collectors who often go from door-to-door, collecting specific recyclable materials and/or organic wastes from households, which they buy or barter... IWBs [tend] to specialize in one or two kinds of materials" (Wilson et al., 2009, pp. 630).
- Street picking: "Secondary raw materials are recovered from mixed waste found on streets or extracted from communal bins before collection..." (Wilson et al., 2009, pp. 630).

From collection to reprocessing, wastes go through several activities. This sector is arranged in a pyramid with waste pickers at the bottom rung and forming the backbone of waste recycling, as depicted in *Figure 4* below.

¹⁸ These terms include rag picker, reclaimer, recycler, salvager, and waste collector.

Figure 4: Informal Waste Sector Pyramid (Source: Sandhu et al., 2017)



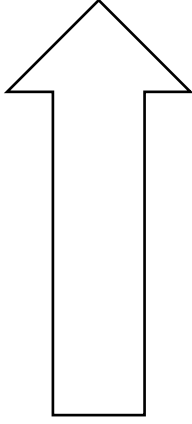
Table 2. Value Chain Actors Within IRS and the Value They Add (Source: Wilson et al., 2006)

Role	Description of Job & Added Value
Collection	Identification and picking of items or collecting mixed waste allows the sector to acquire the waste and turn it into a resource. Most primary materials recovered from refuse, such as paper, plastic, rags, metal, glass, and good leftovers, constitute a commodity as they all have a market price.
Sorting	Main process that increase the value of the waste recovered. The deeper the sorting differentiation, the higher the value of waste. For instance, if plastic is grouped into tone major category, its value is lower than when it is further separated into sub-categories of hard and soft, then HDPE, PET, LDPE, etc. Sorting according to colour, size, shape, and potential use or re-use of the materials so as to meet the end-users quality specifications.
Accumulation of volume	Additional volume adds value: larger volumes command higher per-unit prices. The greater the quantity, the better bargaining power the trader has. For small quantities, transactions costs, such as checking quality, arranging transport and paying the seller, reduce the profit margin. Industrial feedstocks are massive in volume. It follows that storage space is required.
Pre-processing	Washing, changing in shape, cutting, granulating, compacting, baling, pelletizing the material.
Small manufacturing craftsmanship	Creation of microenterprises that use the specific skills of informal recyclers to transform recyclables into articles traded directly to the community and being affordable by the poor.
Trading	In informal or formal markets, links to the secondary materials network are crucial. Traders should be financially capable to add and conserve value of recyclables. Differences between buying and selling should also provide buffer against risk.

Table 2 outlines the various actors involved with the ISR value chain and their associated roles, adapted from Wilson et al. (2006). Recycling enterprises and wholesalers supplying them usually operate on the formal side of the law, while waste pickers, IBWs, and scrap dealers operate informally (Baud & Post, 2003). The degree to which a particular material is recycled depends on income levels, the existence of local and national markets, the market for secondary raw materials, level of financial and regulatory governmental intervention, prices of virgin materials, and the international trade in secondary raw materials and relevant treaties (Wilson et al., 2006; Jaligot et al., 2016). Because industry demands large volumes of materials that are processed, meaning sorted, baled, crushed, or granulated, it does not buy directly from individual waste pickers. Instead, middlemen purchase recyclables recovered by waste pickers, then sell the materials, after sorting, cleaning, and processing, to scrap dealers, who then sell to regional traders and warehouse owners (Medina, 2008). The recycling network takes the form of a hierarchy. The higher a secondary raw material¹⁹ is traded, the greater the added value it possesses (Jaligot et al., 2016). As displayed in *Table 3*, informal recyclers tend to occupy, and are restricted to, the base of the secondary materials trade hierarchy and this significantly reduces their potential income (Wilson et al., 2006).

¹⁹ “Secondary raw materials” are recycled materials that can be used in manufacturing processes instead of or alongside virgin raw materials.

Table 3: Hierarchy of ISR (Source: Wilson et al., 2006, pp. 800)

 Highest value Lowest value	Manufacturing industries
	Brokers, wholesalers, and other processors
	Craftsmen, middlemen
	Recycling MSEs and scavenger co-operatives
	Family type unites involved in waste collection or scavenging/picking
	Individual waste scavengers/pickers

The factors that push people into waste picking are fundamentally economic (Medina, 2008). The activities of ISR are characterized as labour-intensive, low-technology, low-paid, unrecorded and unregulated work (Wilson et al., 2006). These actors work on the streets and in open dumps, where daily contact with waste, including hazardous and medical waste, pose serious risks to their health (Cointreau, 2006). Health and safety risks also include occupational health risks posed to waste pickers manually handling waste and while lacking protective clothing and equipment, resulting in direct contact with waste (Wilson et al., 2006). In developing countries, solid waste collectors lift heavier loads; often to higher loading positions and in traffic conditions with significantly more dust and diesel exhaust pollution, than their high-income counterparts (Cointreau, 2006). Thus, regardless of their formality or not, waste workers are at an elevated risk of health hazards. Informality is especially damaging when waste pickers work informally at open dumps, typically living close to the dumpsite in poor housing conditions, with minimal basic infrastructure for clean water and sanitation. Waste sorting and recycling activities are typically conducted manually in micro and small-scale enterprises, with

minimal washing and baling equipment and no dust control or worker protection (Cointreau, 2006).

ISR is argued to be critical to the functioning of modern cities and make important economic, social and environmental contributions (Wilson et al., 2006; Zia & Devadas, 2008; Dias, 2016). It has been recognized that their role in reducing wastes and providing resources for manufacturing, cannot be dismissed as unimportant (Furedy, 1999). Regarding their environmental impact, waste pickers protect the environment by enabling materials to be reused or reprocessed, and by providing valuable materials for global recycling industries (Dias, 2016). Additionally, the recovery and recycling of inorganic material by waste pickers saves energy. Waste pickers' composting activities also divert organic waste away from dumps and landfills, reducing the generation of methane (Medina, 2008). They contribute to increasing the lifespan of landfills by lowering the quantities of waste to be disposed of and are key economic actors in providing inputs to the recycling market with materials that would otherwise be dumped (Dias, 2016). Waste pickers reduce pollution, maintain city cleanliness, and prevent the spread of diseases (ibid). Regarding their economic impacts, Medina (2008) outlines three reasons why informal recycling improves industrial competitiveness: (1) materials recovered by waste pickers are generally cheaper than virgin materials, (2) recycling requires less energy than obtaining virgin raw materials, lowering industry's operating costs, and (3) recycling by waste pickers saves municipalities money by reducing the volume of waste that needs to be collected, transported, and disposed of. Wilson et al (2006) reveal additional economic impacts that ISR actors provide which include reliable supply of secondary raw materials for the local manufacturing industry which can replace more expensive imported raw materials. This stimulates the manufacturing of low-cost, affordable products made from recycled materials.

Additionally, the informal waste recycling systems that already exist in many developing countries reduce the cost of formal waste management systems as they reduce the quantity of waste for collection, resulting in less money and time spent on collection and transportation. These economic benefits are achieved at no direct cost to the tax payer. Regarding their social impacts, ISR provides employment and a livelihood for impoverished, marginalized and vulnerable individuals or social groups. Despite the adverse working conditions associated with informal picking, working in this sector allows those involved to gain employment in regions that often have little work opportunities (Wilson et al., 2006).

2.2 Perspectives and Approaches to ISR

Early approaches to confront ISR, and its associated issues, problematized the occupation, characterizing the sector as dirty, degrading, and the lowest possible form of labour (Furedy, 1999). This line of work was believed to objectify waste pickers as victims and identified lack of dignity, safety, formal work, power, rights, or proper salaries as the fundamental problems associated with the occupation (Gunn, 1992; Anschütz et al., 2004). Thus, efforts were focused on helping these actors leave the occupation. Within this movement, it was understood that while it was possible to improve the standards of living for individual pickers and their families, the activity of picking itself could not be made a healthy occupation (Furedy, 1999). Wilson et al. (2006) reveal that if pickers do find alternative employment in the formal sector, other individuals are highly likely to replace them so long as poverty continues and waste collection remains accessible and profitable. This concern is echoed by Furedy (1999) who asserts that pickers can be assisted to take up alternative work, but this does not have an impact on the phenomenon of the overall waste picking sector; for every picker who is assisted to move

into other work, there are likely to be other new rural arrivals or street families who take up the picking work which has been abandoned by those who have been supported to leave.

Thus, the shortcomings within this approach shifted the concern for waste pickers to a welfare approach (Lardinois & van der Klundert, 1993) which advocates for the need to integrate economic and social policy, and for social expenditures to contribute positively to economic development, be it through education, health, or other social expenditures (Midgley & Tang, 2001). Alleviating poverty became the primary focus of intervention. This approach was later supported by the overall aim of the Millennium Development Goals²⁰ which was to eradicate extreme poverty (Wilson et al., 2009). These approaches tended to objectify actors within the informal sector, who were not asked what they wanted and were not recognized as a legitimate or important stakeholder group (ibid.) Additionally, human concern for the welfare of pickers did not resolve basic dilemmas that existed within the informal waste sector (Furedy, 1999). Both of these approaches shared a failure to investigate the important role that waste pickers play in SWM systems.

In the late 1980s, the view that waste pickers save resources that would otherwise be disposed of was incorporated into discussions of the lives of pickers (Furedy, 1999). Subsequently, the global informal recycling sector was finally recognized as the base of the recycling value chain²¹ in 2000 (Scheinberg, 2012), and thus, was identified as a relevant and necessary occupation. This shifted the discourse with a change in thinking that a people-centered approach to development was key to supporting waste pickers and achieving the desired

²⁰ The Millennium Development Goals (MDGs), introduced in 2000 by the UN, was an international framework created to reduce extreme poverty rates by 50 percent by 2015. This was to be achieved by halting the spread of HIV/AIDS and providing universal primary education. This framework was later replaced with the SDGs (UN, 2023).

²¹ The MSW recycling value chain consists of, ordered from the bottom of the chain to the top, waste generators, collectors, sorting centers/small scrap dealers, brokers/large scrap dealers/semi-reprocessors, reprocessors, and manufacturers (Cano et al., 2022).

improvements in human wellbeing (Dias, 2012). From that point, extensive research and investigation has gone into better understanding this phenomenon and finding solutions to the exclusion of informal waste pickers from the larger waste management ecosystem. Activism for waste pickers has largely taken the form of advocating for the rights of these actors and asserting their role in MSW as fundamental, which will be detailed below. The literature reveals two highly effective and sought out approaches to supporting waste pickers, which include organizing and integration.

2.2.1 Organizing IRS Actors

There is a common narrative among scholars of waste management and ISR which suggests that when informal waste pickers are organized and supported, recycling becomes more efficient and poverty reduction becomes more effective (Medina, 2008; Wilson et al., 2009; Gunsilius, 2011; Aparcana, 2016; Dias, 2016;). There are various models for organizing waste pickers that have proven to be successful, namely micro-and small enterprises (MSE), cooperatives and associations, PPPs, unions, companies, community-based organizations, and membership-based organizations (MBOs) (Medina, 2008; Sansom, 2009; Aparcana, 2016; Dias, 2016; O'Neill, 2019).

Dias asserts that the first step to overcome poverty, secure the livelihoods of informal workers, and gain recognition of their work is to be organized, which includes mass mobilization, and the collaboration of strategic alliances at local, national, and international levels (2016). Chambers and Conway (1991) also stress the importance of organization to provide members with a sustainable livelihood²², which is defined as the following:

²² While a preliminary definition of sustainable livelihood is offered here, a more detailed account of the sustainable livelihood framework will be explored in further in the conceptual framework section of the literature review.

“a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term” (p. 6).

Medina (2008) reveals the many advantages that organizing can provide for waste pickers, one of which is strengthening bargaining power with industry and government. This allows them to enter into informal agreements and formal contracts with businesses, industry, and neighbourhood associations to gain access to recyclable materials or to sell materials or manufactured items. The agency and empowerment which organizing offers waste pickers allows them to become actors in the development process, creating jobs, reducing poverty through grassroots, gaining stability within the waste sector, achieving higher incomes, and legalizing their activities. Along similar lines, Dias (2016) expands on these benefits to include raising social status and self-esteem, improving quality of life, improving working conditions and thus health quality, preventing harassment and violence, and an avenue for political action that can lead to transformative change at a national level. Medina (2008) points out that the benefits of organizing extend outside of waste picker communities and saves municipalities money, improves industrial competitiveness, conserves natural resources, and protects the environment. While the benefits of organizing often outweigh any perceived challenges, it is important to be mindful that collectives can still reproduce existing inequalities (O'Neill, 2019) and the informal sector is often characterized by strong competition which creates mistrust between workers, and creates obstacles to organizing (Gunsilius, 2011). Additionally, in order to help waste pickers transition from independent informal sector workers to organized groups, technical assistance is needed. This can take the form of arranging access to credit to fund MSEs (Cointreau, 2006).

2.2.2 Integration of IRS into MSWM Systems

Gunsilius (2011) asserts that organizing and policy-making towards the recognition of informal activities are closely linked. Informal worker organizations can advocate for more inclusive policy frameworks while political regulations favouring integration and supporting informal stakeholders mostly apply to informal worker organizations rather than individual workers. Thus, organization is a crucial step towards achieving integration. Additionally, one step towards integration is to work with ISR actors to help them organize themselves and to aid in increasing the value of their recycled materials before selling them on, that is to move up the hierarchy shown in *Table 2* and to extract higher value from recovered materials as shown in *Table 3* (Wilson et al., 2006). Thus, the integration of ISR actors is crucial in offering more equitable outcomes for their livelihoods (Wilson et al., 2006; Scheinberg et al., 2006; Medina, 2008; Gunsilius, 2011; Mostafa, 2019).

Scheinberg et al. (2006) advocate for an alternative systems approach which analyses the informal sector as undertaking a range of economic activities within the overall waste management system, and looks at how modernization can develop and strengthen economic and operational niches. Four groups of positive interventions are identified which include: (1) supporting pickers to enter new service roles and niches in collection and recycling; (2) assuring pickers access to sorting space at transfer stations and landfills; (3) supporting better market leverage and/or diversification of activities through organization; and (4) opening channels of communication with formal stakeholders, decision-makers and those in charge of the planning process. Within this account, actionable steps are outlined which consider the ways in which modernization has changed waste management systems.

Gunsilius (2011) outlines the key factors that influence the integration of the informal sector within SWM. These factors include the internal organization and capacities of the informal sector, as it relates to their flexibility in transitioning from working for themselves to working under someone, the participation of NGOs in the integration process, social acceptance of informal sector workers, and the political will to integrate the informal sector. In this account, they point to two extremely important considerations; the willingness of the formal sector to let integration take place and the willingness of informal workers to integrate. While many ISR actors are not able to enter formal sector employment due to poor education or physical disability, those who are presented with the choice remain within the informal sector (Wilson et al., 2006). Where MSW collection has been contracted out to private entities, workers are typically paid less than what they earn working independently (O'Neill, 2019) and thus, will choose to remain within the informal economy even with formal employment as an option. Wilson et al. (2006) reveals that poor wages and low prices for products and services create viable profit margins for collecting and selling secondary raw materials (Wilson et al., 2006). If alternative employment opportunities and associated wages were higher, ISR would be less financially attractive (Porter, 2002, as cited in Wilson et al., 2006). Thus, it is not only the absence of real choice that needs to be recognized by interventions that attempt to change the role and working practices associated with informal recycling, but ensuring that the outcomes are more desirable than the alternative. Regarding the attitude of the formal waste management sector, IRS is often perceived very negatively, regarding it as backward, unhygienic, and incompatible with a modern waste management system (Wilson et al., 2006). Additionally, the relationship between the formal and informal sectors remains in tension; the official municipal perception of those who work in the informal waste sector is often negative, described as dirty

and unclean, and in some instances, where the city aspires for a modern waste management system, the relationship is openly hostile (Wilson et al., 2009). Thus, there is often state a reluctance to integrate informal systems into the modernized formal system administered by the state.

Dias (2016) argues that the conventional views of solid waste systems have been largely monofunctional as they rely exclusively on the use of capital-intensive technology and exclude the traditional practices of waste picking. These conventional models thus penalize informal waste pickers by creating obstacles to their access to waste and criminalizing the activity rather than building off of these existing systems. An alternative to this model is an inclusive solid waste management model called the pro-poor modernization solid waste model. This inclusive model is meant to be flexible and adaptable to any given context and has three main components: participatory governance (participatory management and education), the enabling policy and legal environment, and the technical components of the waste system. One of the main features of this model is that MBOs of waste pickers are integrated as part of the system. In this model, waste management is a municipal priority and concern, not only in terms of its technical dimensions but especially regarding the full, structural integration of waste pickers. The municipality ensures grassroots participation in the decision making around solid waste policies, programmes, and projects. Full structural integration of workers begins with a legal framework recognizing access to waste as a livelihood resource (Dias, 2016). This model is displayed in *Figure 5* below.

Figure 5: Inclusive Solid Waste Management Model (Source: Dias, 2016)



It should be recognized that formalization is not a one-time process involving a pre-specified set of steps. Rather, formalization should be seen as a gradual, iterative process involving a sequence of steps and different dimensions leading towards varying degrees and types of formality (Chen, 2012). The notion of upgrading informality encompasses a wide range of intertwined activities to integrate an informal area within the urban fabric along physical, social and legal dimensions (Gil & MacAulay, 2019). Considering the difficulties and vulnerability faced by informal sector workers, gradual integration into the formal economy may be achieved through a range of intermediate steps before full formalization is realized (UN-Habitat, 2015).

2.2.3 The Right to Waste

As previously established, in low-income countries where there is no sufficient waste governance and technological capabilities are limited, the informal sector is the major or sole provider of waste collection and recycling services (Wilson et al., 2009). Governments generally privatize SWM activities to large-scale, formal enterprises through contractual arrangements, which largely excludes informal businesses and communities from qualifying (Baud & Post, 2003). Thus, while the responsibility of waste remains within the state, within contexts where the informal sector plays a major role in MSWM, whether the state is absent or not, it becomes unclear where the burden of responsibility is borne.

Velis & Vrancken (2016) argue that a distinction must be made between the responsibility to manage waste and the right to waste. What now becomes contentious with the rethinking of waste from disposability to recyclability is who holds the right to waste. As value can now be extracted from waste, assigning rights to waste becomes more challenging due to its vast accessibility and profitability. Dias (2016) asserts that when considering who has the right to waste, waste is categorized within urban commons, which is defined as a resource that is not privately owned but rather is shared with society, much like water and air (Dias, 2016). Cavé (2012) has argued that clear property rights at the city scale cannot be defined for waste, but rather that “municipal authorities have the ‘responsibility’ to cope with garbage; they do not own garbage.” Thus, the value of the waste remains accessible and reclaimed by waste pickers (Velis & Vrancken, 2015).

Thus, when SWM is privatized, formal waste management systems extend into activities that were previously the domain of informal waste pickers (Sansom, 2009), ultimately threatening the livelihoods of these actors. Similarly, Dias (2012) argues that the vision of

modern SWM systems is very often associated with mechanization and the use of high technology. In this approach to waste management, waste picking is seen as outdated, traditional, and primitive work, ultimately compromising the human rights of waste pickers as workers. In extension, Dias (2016) argues that waste pickers should be granted access to waste as a common-pool resource. Thus, two common conflicts that pit governments and MNCs against informal waste workers are over who collects waste and over access to or displacement from garbage sites such as landfills and dumpsters, the source of livelihoods for workers (O'Neill, 2019). Scheinberg (2012) asserts that waste pickers become losers in the modernization process when their access to waste is denied as a result of modernization of the landfill, restricted gate access, or competition from formal recycling activities. Technological innovations, such as the automation of garbage collection and sorting, the use of drones to monitor landfill sites, and even driverless trucks, will shape employment trends throughout the industry (Rogoff and Spurlock, 2017, as cited in O'Neill, 2019) and threaten waste picker livelihoods. As these workers are active in informal physical and social spaces and survive on resources that are public, modernization processes, usually synonymous with privatization, tend to be a threat to informal waste pickers, resulting in the evacuation of spaces where the waste pickers work as they are often displaced to areas in the periphery, persecution by the authorities and the police, confiscation of material, and criminalization of the activity (Dias, 2009). The denial of the right to waste has become the largest threat to waste picker livelihoods.

2.2.4 Actors Facilitating Intervention

Informal waste picker organizations have placed their demands on the international stage and have collectivized at local levels to create more resilient, less exploitative networks and

stable livelihoods. Their interests are represented on an international level through NGOs like the Global Alliance of Waste Pickers and Women in Informal Employment: Globalizing and Organizing which is also a leading NGO in researching and advocating for informal workers. Grassroots organizations are also mobilizing at the local level to confront the most pressing challenges facing waste pickers. While civil society organizations are offering crucial intervention, Medina highlights the importance of government support in being fundamental in the process of formalization. A careful analysis of waste pickers' activities would provide reliable estimates of the number of people involved and their economic impact. A consultation process involving waste pickers and other key stakeholders could help design waste management systems that are inclusive, socially desirable, economically viable, and environmentally sound (2008). Governments can support this process of formalization. Legalizing waste picking activities, preferably at the National level, is usually a first significant step. This could be followed by a sequence of measures.

2.3 Conceptual Framework

This study invokes the sustainable livelihood framework, conceptualized by Chambers and Conway (1992), to understand the historical and current discourse on informal waste pickers and their livelihoods within the waste management system. This lens is pivotal to the analysis of change experienced by IRS actors in Manshiyat an-Naṣr and understanding not only how this community maintains resiliency within their occupation, but how their position can be strengthened, offering sustainable livelihoods. This framework will be described and illustrated below.

2.3.1 The Sustainable Livelihood Framework

For a people-centered approach to development, one important reference has been Amartya Sen's (1999) capability approach to poverty. Within Sen's approach, development is not conceptualized as the achievement of modernization, industrialization, and economic growth, which has previously guided conventional approaches to development, typically through the measure of national GDP growth. Instead, development is understood as the expansion of people's capabilities as well as functioning capabilities. Capabilities refer to what individuals can do or cannot do and functioning capabilities refer to what people actually do or do not do (Krishna, 2009). Quality of life is seen in terms of valued activities and the ability to choose and perform those activities and thus, capability has diverse meanings for different people, including the criteria of wellbeing of people living in poverty (Chambers & Conway, 1992). According to Sen, individuals might suffer deprivations in various areas of their lives, implying that poverty cannot be seen only through the lens of its material aspects. This approach is important because it allows for development to be discussed in relation to people's livelihoods as opposed to solely their financial wellbeing.

One of the analytical approaches and tools developed in the context of vulnerability research is the sustainable livelihood framework. The concept of social vulnerability was developed by Chambers (1989) as an attempt to replace the existing, dominant economic conceptions of poverty with a broader understanding of social inequality and insecurity (Kruger, 2003, Rakodi, 1999, as cited in Didero, 2012). The sustainable livelihood framework takes great inspiration from Sen's work and combines the concepts of capabilities, equality, and sustainability. The sustainable livelihood framework is a comprehensive approach that seeks to understand and improve the livelihoods of individuals and communities in a sustainable manner.

It recognizes that livelihoods are multi-dimensional and influenced by various factors. The framework services as a tool to analyze and address the complex interactions and dependencies within these different dimensions. This framework presents the main factors that affect people's livelihoods, and the typical relationships between them. As pointed out by Krishna (2007), livelihoods have been defined by Chambers as 'the means of gaining a living, including tangible assets (resources and stores), intangible assets (claims and access), and livelihoods capabilities' including coping abilities, opportunities, and freedoms. Livelihood, as a concept, is more than just income generation. It is "gaining and retaining access to resources and opportunities, dealing with risk, negotiating social relationships and managing social networks and institutions within households, communities and cities" (Beall, J., Kanji, N., 1999, as cited in Dias, 2016). A focus on livelihoods involves "highlighting the importance of human capabilities and agency" (Beall et al., 1999, as cited in Dias, 2016).

The livelihoods approach has been seconded in various UN conferences as a strategy in alleviating poverty (Dias, 2012). Additionally, this framework proves to be useful within the context of ISR. Focusing on livelihoods enables the conceptualization of different urban solid waste models that are more in line with addressing critical dilemmas of our times which include social inclusion and environmental protection (Dias, 2016). Rouse and Ali (2001) discuss the sustainable livelihoods approach in relation to waste collectors whose aspirations were ranked into four core concepts. First, "vulnerable context" which is related to environmental conditions affecting waste collectors' activities. Second, "asset profiles" which consist of various forms of capital: human capital, social capital, physical capital, and financial capital. Third, "transforming structures and processes" are related to government decisions on land which affect waste pickers

livelihoods and security of their homes. Fourth, “livelihood strategies and outcomes.” The following outlines the various forms of capital and how they relate to informal waste work:

- Human capital: informal waste workers possess skills and knowledge related to various waste-related works. Enhancing their human capital involves the provisioning of training and capacity-building programs to improve their technical skills, health, and safety practices. It also involves promoting awareness and education on waste management and recycling to empower them with updated knowledge.
- Social capital: informal waste workers often operate within social networks and relationships, collaborating with other waste pickers, local communities, and relevant stakeholders. Strengthening social capital involves fostering collaboration and networking opportunities among waste workers, providing them with platforms for collective actions, and promoting their integration into formal waste management systems. Building social cohesion and supportive networks can enhance their bargaining power, access to resources, and collective representation.
- Physical capital: Adequate physical infrastructure and equipment are essential for efficient waste collection, sorting, and recycling. Supporting informal waste workers’ physical capital involves providing them with necessary tools, protective gear, and transportation to perform their tasks safely and effectively. Additionally, investing in waste management infrastructure such as recycling facilities, waste collection centers, and material recovery facilities, can improve their working conditions and productivity.
- Financial capital: informal waste workers often face financial challenges, such as low and irregular income, limited access to credit, and lack of financial services. Strengthening their financial capital involves providing access to microfinance schemes, savings

programs, and insurance options tailored to their needs. Facilitating access to fair markets and value chains for recycled materials can also improve their income-generating opportunities.

As Chambers & Conway argue, a livelihood is considered as sustainable if it can cope and recover from stresses and shocks and maintain or enhance its capabilities and assets. This framework highlights the concept of social vulnerability which considers the factors that enable a household to withstand external shocks. In the case of informal waste workers, external shocks are related to institutions, organizations, politics, and legislation that shape livelihoods which this framework relates to as “transforming structures and processes.” This concept defines an individual or household as vulnerable if a worker is exposed to an external risk of shocks and crises without the sufficient capacity to cope with these risks. Thus, this framework offers a relevant and suitable framework for reference to understanding how the ISR community in Manshiyat an-Naşr is able to adapt to the stresses and shocks they experience.

CHAPTER 3: CONTEXT AND STUDY AREA

“I worked in the waste sector more than 60 years ago. Collecting waste was my first job when I came from Upper Egypt. There was no life back in the countryside. I came here to find a better life for my family and earn enough money.

I stopped working in the sector during the swine flu when I was forced to kill the pigs I raised.”

– 71 year-old male waste recycler from Manshiyat an-Naṣr Informal Recycling Community

3.1 Historical Trajectory of Waste Management in Cairo²³

In order to discuss subsequent themes of adaptation, it is important to analyze the historical evolution of the Manshiyat an-Naṣr informal recycling community and the intervention that has been facilitated on their behalf. The best way to understand the transformation of the settlement is through the analysis of their history and the various measures introduced which have enabled current conditions to exist and persist. The intervention that has taken place on the behalf of the Zabbālīn through the Egyptian government has been heavily guided by neoliberal ideologies which have pushed this community further out of their occupation and into chronic poverty and marginalization. This investigation will also locate the occupation of the Zabbālīn as waste collectors within the larger national framework and organization of waste management.

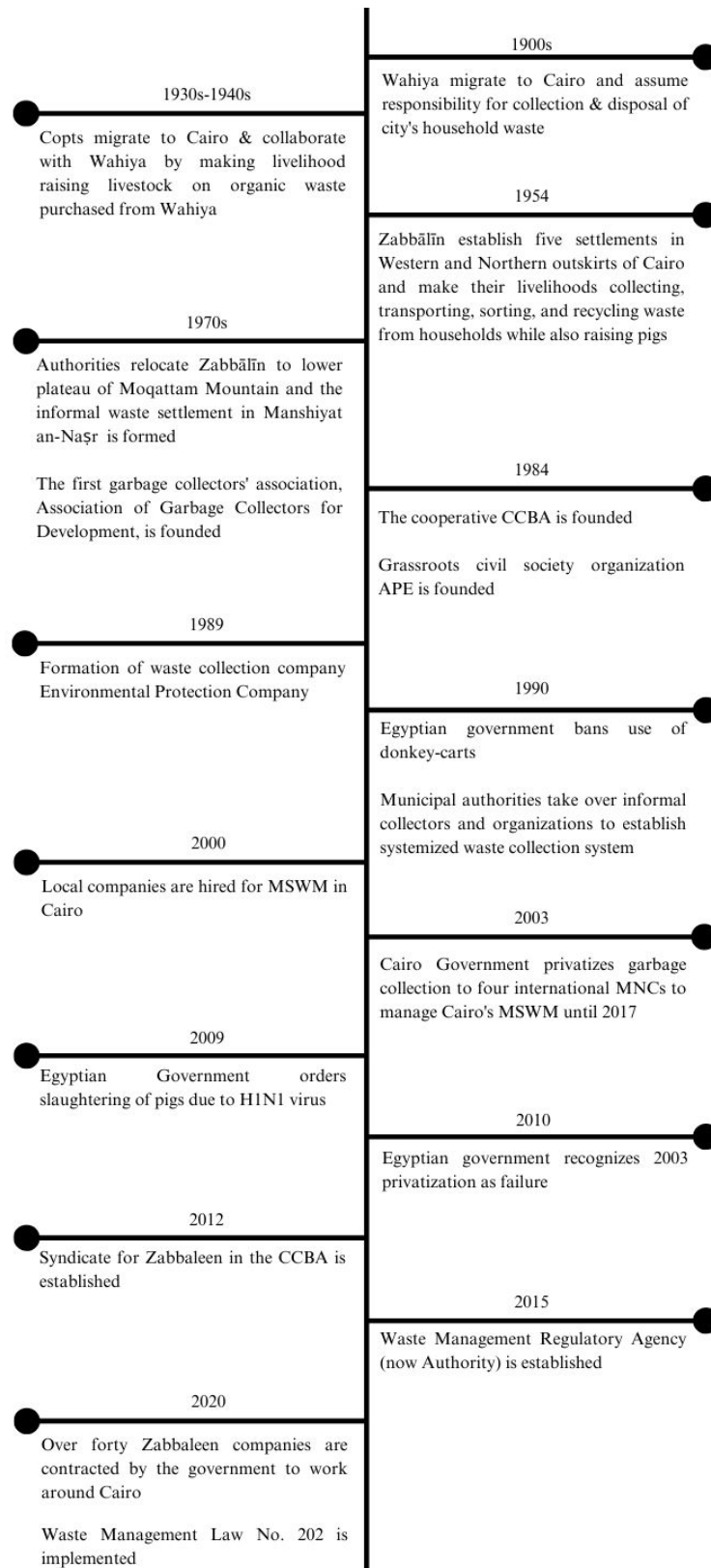
Both informality and waste management have long been major challenges facing Egypt (Mosfata, 2019; Gil & MacAulay, 2019). Egypt has maintained a hybrid economy that relies on a dominant informal economy (Soliman, 2020) which while reducing costs and maintain efficiency of the formal economy, is also troubling due to the direct correlation between informal employment and poverty. Dating back to the 1960s, MSWM has posed a problem in most

²³The primary and secondary research conducted by Fahmi (2005), Fahmi & Sutton (2006, 2010), Wilson et al., (2006), Didero (2011, 2012), Kuppinger (2014), Dias (2016), Gil & MacAulay (2019), O’Neill (2019) have been used to recount the history of waste management in Egypt in section 3.1 of this thesis.

Egyptian cities due to the serious imbalances between the solid waste generation rates and the capabilities of handling and disposal systems (El-Halwagi et al., 1987). Thus, ISR actors have been crucial in dealing with MSWM and averting public health crises. Cairo's informal solid waste collectors gather 50 to 60 percent of the city's waste, achieving a recycling rate of 85 percent (Wilson et al., 2009). To compare, Egypt's formal waste collection coverage rate is estimated at 40 percent with only about 2.5 percent of solid waste collection being recycled (MPED, 2021). Thus, these informal waste collections maintain an integral role in Cairo's collection and recycling sector by not only cleaning more than half of the city's accumulated waste, but doing so for over 80 years and in a way that is comparatively more sustainable than the alternative.

It is important to understand and analyze the history of waste management in Cairo in order to offer the necessary insights to reveal what the current challenges and adaptive strategies this ISR community is faced with today. *Figure 6* offers a brief synopsis of the most significant events within Cairo's waste management system, followed by a deeper dive into the evolution of Cairo's waste management, organized into three systems: informal, semi-formal, and private. This will contextualize the current system and the challenges it faces.

Figure 6. History of Zabbālīn & Major Events



3.1.1 Informal SWM System (1900s-1970s)

The history of waste management in Cairo can be traced back to the early 1900s when a group of migrants from the Dakhla Oasis in the Western Egyptian desert settled in downtown Cairo. This group, the Wahiya, assumed responsibility for the collection and disposal of the city's household waste. There was no MSWM system at the time; only public streets and parks were cleaned by municipal workers. Working under contracts directly with households, the Wahiya paid household owners a one-time payment to reserve the right to their waste, and charged monthly fees from tenants for collecting waste. In the 1930s-1940s, Copts who were from the El Badary District in Assiut, later named the Zabbālīn, migrated to Cairo in search of work from their prior occupation as farmers. The Zabbālīn began collaborating with the Wahiya within the waste trade they established. The Zabbālīn would purchase organic waste from the Wahiya to feed their pigs which they would raise to sell to tourist facilities, including hotels and resorts.

The Wahiya later sold the right to collect waste to the Zabbālīn, however, they remained as the intermediates between the Zabbālīn and Cairo's households. The Wahiya kept the garbage fees from households for themselves and required the Zabbālīn to pay them in order to collect household waste. The work of the Zabbālīn was entirely dependent on family labour and the collaboration of all members to perform waste-related activities. The men and boys of the family would go door-to-door collecting waste in donkey-pulled carts and transport it to their family homes. The women and girls would then sort the waste into different categories depending on type of disposed material. The Zabbālīn managed to secure their livelihoods by sorting the waste into marketable recyclable materials such as paper, metal, rags, glass, and plastics in order to sell them to buyers. At this point, the Wahiya and Zabbālīn were the primary waste actors operating

in Cairo's waste management system and collecting household waste, and did so in a completely informal manner outside of any state-organized entities.

Around the 1970s, authorities relocated several thousands of the Zabbālīn to the lower plateau of the Moqattam Mountains, which now houses the largest informal waste settlement in Cairo. With the help of the Coptic church, the Zabbālīn founded the first garbage collectors' association, Association of Garbage Collectors for Development which was registered with the Ministry of Social Affairs.

3.1.2 Semi-Formal SWM System (1980s-2000s)

In 1984, the Cairo Cleansing and Beautification Authority (CCBA) was founded to offer waste management solutions to the city. This cooperative was responsible for cleaning the streets and collecting the garbage in quarters that, at the time, were not serviced by the Zabbālīn. In an attempt to modernize the waste system, the CCBA issued licenses to officially registered private companies, which did not include the Zabbālīn. The Wahiya secured the majority of these licenses and continued to sell the right to collect waste to the Zabbālīn. The CCBA began to license garbage routes to the Zabbālīn, who now had to pay both the municipality and the Wahiya to access waste.

A critical change in 1989 transformed Cairo's waste management system. An agreement between the Wahiya and the Zabbālīn resulted in the establishment of a new mechanized waste collection company called the Environmental Protection Company. The formation of this company established the key role played by the Wahiya and the Zabbālīn in the local government's programme to upgrade SWM in Cairo. This agreement gave them the right to collect and recycle waste, further asserting their responsibility and livelihoods as waste workers.

The Wahiya were responsible for the administrative side of the operation, taking care of marketing the company's services, collecting household fees, and supervising service delivery. The Zabbālīn were responsible for collection and transportation of waste.

In 1990, authorities banned the use of donkey carts for garbage collection which was the primary mode of transportation used by collectors. This was strictly enforced in upper-class areas than elsewhere. The Zabbālīn, a majority of whom are illiterate and without driver's licenses, or lack the funds for pick-up trucks, were significantly impacted. By the early 1990s, municipal authorities had taken over from informal collectors and collection organizations to establish waste collection systems with the objective to improve public health. In this period, public authorities became responsible for waste collection and disposal, and benefited from the value extracted from these materials. The authorities introduced a new mechanization system to transport solid waste and with no governmental financial assistance being provided, the Zabbālīn resorted to selling small plots of land or houses in their ancestral villages, or getting credit loans in order to purchase vehicles to allow them to continue their work. NGOs started working with the Zabbālīn to enable the professionalization of their work through the establishment of recycling workshops.

At this time, there was a move towards modernization and neoliberal ideology that began to dominate the strategies implemented by the government. There was a push for the modernization of technology, thus, workshops were established which implemented newer technologies to replace the indigenous techniques of processing waste and recycling. Additionally, the government's ban of donkey carts for garbage collection in the 1990s (Kuppinger, 2014, p. 626) forced the Zabbālīn to move away, again, from traditional equipment, to increasingly modern implements, such as automobiles and trucks. The requirement of licenses

also indicated a push from the government to further regulate the process of waste collection. It is estimated that in 1997, the Zabbālīn informally handled one-third of the garbage of Cairo's 14 million people.

The work that they were doing came at a great human cost: in 1979, infant mortality among the community was at 40 percent and in 1983, garbage collectors ranked in the lowest 10 percent for urban incomes in Egypt. This initiated urgency to offer aid to the community which garnered the attention of international agencies and local grassroots organizations like the Association for the Protection of the Environment (APE).

3.1.3 Private SWM System (2000s-present)

Under pressure to follow the policies outlined in the Structural Adjustment Program from international financial institutions World Bank and International Monetary Fund, who advocated for privatization, in addition to the country's own desire for Cairo to be more attractive to tourists and business, the Egyptian government targeted the Zabbālīn's well established traditional livelihoods with the aim of revamping their waste management efforts. As a response to Cairo's exponential population growth, and in turn, increased waste generation, the state began to privatize waste management. This created an urgency to further modernize the system which compelled the government to contract MNCs to collect and dispose of waste. In 2000, local companies were hired to take the waste of poorer areas to public dumpsites where it was burned. This was followed by the contracting of international MNCs in 2003 to take over Cairo's waste collection routes, including the Egyptian Company for Garbage Collection, FCC, Urbaser, Enser, AMA, and International Environmental Service. This privatization reduced the role of municipalities to that of monitoring SWM and systematically excluded the Zabbālīn from

collection from Egypt's provision of contracts with private entities. The new contracts stipulated that there was to be no more door-to-door waste collection, as the Zabbālīn did. Instead, containers were placed on streets for households to deposit their waste.

The Wahiya lost their licensure as small registered waste companies which meant that the Zabbālīn were deprived of their previous entitlement to collect and recycle Cairo's garbage as their licenses were either revoked or not renewed. This was met with protests and strikes from the Zabbālīn community, however, they were unable to secure the support and influence needed to alter political decisions. Most of the Zabbālīn looked for opportunities of continued self-employment in the waste sector, however, their collection rates were significantly reduced. Due to high competition with MNCs, the Zabbālīn went from collecting 80 percent of municipal waste to 50 percent, drastically reducing their income. Facing a potential loss of three-quarters of their earnings, the Zabbālīn put even more emphasis on recycling, creating one of the world's most efficient SWM systems. By 2008, the Zabbālīn had regained much of their earlier central position in the city's waste management system. They continued to service about a third of Cairo's waste as they worked alongside private companies

Aside from this system offering inequitable outcomes from the Zabbālīn, privatization was also met with logistical problems and worsened ecological sustainability. By 2010, the state recognized that privatization had failed. Of over 20,000 tonnes of waste generated daily by the megacity, less than half was picked up for processing and disposal by the private contractors. Due to lack of local knowledge, the contractors overlooked the difficulties of serving Cairo's narrow streets and alleys with their modern trucks. They struggled to recruit staff because of the social stigma attached to garbage collectors. Municipalities struggled to pay the contractors and meet their contractual obligations. This made it hard for contractors to reach their performance

targets, triggering fees which the contractors subsequently refused to pay. In turn, residents preferred to bypass the new system and continued to pay their traditional waste collectors to collect their garbage from their doorsteps as opposed to taking the garbage out and putting it in the contractors and large bins. Residents were frustrated that they also had to pay a cleaning fee for the contractors' services. Attempts to extend contracts to hire the Zabbālīn as private workers were unsuccessful since most of them found it more lucrative to stay in the informal sector.

Another blow to the Zabbālīn was the Swine Flu (H1N1) crisis which took a major toll on their livelihoods. In 2009, after global outbreaks of H1N1, the Egyptian Ministry of Health announced that the Zabbālīn's pigs would be slaughtered, at first claiming that the move was to halt the spread of disease, then citing public sanitation and conditions in Zabbālīn communities. Carried out in the waning years of President Mubarak's rule, many suspected the move was made to appease Islamists and bolster the support of the sitting president, whilst further oppressing the Coptic community. Around 300,000 pigs were slaughtered, the Zabbālīn were unable to sell or make use of their carcasses and once again, Cairo's trash began to stock pile. The idea that the culling was pernicious and targeted is further supported by the issuing of an order by the World Health Organization, who discouraged the act and deemed it unnecessary. The government insisted on the cull as a precaution due to the outbreak of swine flu epidemic in Mexico and the United States. Before the cull, the Zabbālīn would bring the waste into their households to sort the organic waste to feed the pigs, which were then sold to meat processors. After the cull, the Zabbālīn started to perform preliminary sorting near the waste bins and illegal dump sites, leaving the organic waste to decompose on the streets.

3.2 Egypt's Current Waste Management Legislation

Egypt's waste management reform in 2020 can be seen as an extension of the private system. The issue of improper waste management in Egypt continues to plague the country with adverse environmental and health outcomes. Aligning with Egypt's *Vision 2030*, the governing framework that guides National development programs and projects implemented in Egypt until the year 2030, sectoral structural reform is identified as one of the five priorities in order for the country to achieve the SDGs (MPED, 2021, p. 8). Thus, we see the introduction of the Waste Management Law No. 202 in 2020 as a direct outcome of this National priority.

The current legal framework regulating SWM in Egypt is the Waste Management Law No. 202, which came into force on October 14, 2020. This law is Egypt's most recent attempt in creating a more efficient and effective national waste management plan. It was not until the Prime Minister Decree No. 3005 in 2015 that a new independent authority was established to oversee the nation's environmental policies and strategies through the establishment of the Waste Management Regulatory Authority (WMRA) (FAO, 2019). The WMRA is to oversee proper waste management and recycling practices, and develop a national strategy to improve waste disposal and recycling. Prior to this point, municipalities were responsible for SWM and the legal frameworks were scattered in different pieces of legislation (NSWMP, 2011).

The government has secured contracts with the private sector for the collection, transportation, treatment, recycling, and safe disposal of waste (FAO, 2020). Although evidence points to the failure of privatizing waste management in 2003, this is the government's second attempt in replacing informal garbage collector's for large corporations employing waged labour.

The Zabbālīn remain the only door-to-door waste collection service in Cairo; the remainder of waste is either collected by the waste companies contracted by the government from bins on the street or left to litter the streets.

Below, some key definitions from the Environmental Affairs Agency's Law No. 202 of 2020²⁴ (EEAA, 2020) have been outlined below to offer locally-specific definitions and meanings of waste and waste management:

Waste is “[d]amaged materials, items or movables that were abandoned by their holder whether they are recyclable or should be disposed of” (p. 3).

Municipal Waste is “[w]aste resulting from household activities and other waste that is similar by their nature or composition to household waste...” (p. 3).

Article 4 states that the Waste Management Regulatory Authority (WMRA) “aims to regulate, track, audit, evaluate and develop everything related to Integrated Management activities, attract and encourage investments in the field of Integrated Waste Management activities in a manner that guarantees achieving sustainable development and tracking the implementation of the plans required to regulate waste management in cooperation with government institutions, municipal governments, the private sector, NGOs and international organizations. The Authority also aims to enhance the relationships between the Arab Republic of Egypt, other countries and regional and international organizations in the field of waste management” (p. 7-8).

Waste Possessor is “[a]ny person who de facto or de jure possesses waste” (p. 4).

Article 34 states that “[a] monthly fee shall be collected for the provision of the Integrated Waste Management service, or any of these services...” (p. 22).

²⁴ A translated copy of Egypt's Waste Management Law No. 202 for the year 2020, from Arabic to English, was created by Adsero - Ragy Soliman & Partners and Moharram & Partners. This document was obtained through a contact on the field.

CHAPTER 4: RESEARCH METHODOLOGY

4.1. Justification for Selected Methodology

This study investigates the informal waste community in Manshiyat an-Naṣr and provides insight into the ways in which the livelihoods of its members are changing as a result of modernizing MSWM and increased environmental protection in Egypt. It explores the various factors that are contributing to this change and the adaptive measures implemented by community members to remain relevant within the context of a contemporary Egyptian society that is modernizing waste systems and increasing environmental awareness. The study reveals the challenges this community has encountered and the opportunities they have embraced to assert their position as indispensable actors within the waste management ecosystem in Cairo.

As a topic heavily informed by the personal and lived experiences of informal waste recyclers, this study adopts qualitative methods in both data collection and analysis stages of the research process. The qualitative approach relies on data that comes from words, experiences, and observations that cannot be quantified (Johnson, 2017). Qualitative research accepts several realities through the study of a small number of in-depth cases by rejecting objective and singular truths (O’Leary, 2017). My research aims to capture the lived-experiences of informal recyclers working in Manshiyat an-Naṣr to understand their livelihood experiences which are subjective and vary from person to person. Additionally, researchers find that people’s words provide greater access to their subjective meaning than do statistical trends (Spicer, 2017). By employing the method of semi-structured interviews, this research is primarily rooted in the participants’ authentic viewpoints. Qualitative research involves the study of people in naturally occurring settings (Spicer, 2017) which allows for more organic conversations and thus, data collection. This approach offers the most practical and compatible technique to undergo research

on a topic that investigates the changing nature of livelihoods, relationships, ideologies, and practices of waste workers. Moreover, extant works on IRS have also adopted qualitative methods to explore the topic of informal waste workers both globally and within the locality of Egypt²⁵. As such, qualitative methods have been identified as the most suitable methodology to investigate the following research question: *How has the right to waste of informal waste recyclers in Manshiyat an-Naşr been threatened by processes of modernization and greater environmental awareness and how have community members adapted to secure their livelihoods within the waste sector?*

4.2 Justification for Selected Study Area

My fieldwork took place in Manshiyat an-Naşr, an area located on Muqattam Mountain's lower plateau within Cairo's Eastern outskirts (Fahmi, 2005). This settlement houses Egypt's largest informal waste settlement and thus, its large population allowed me to gain access to a diverse and representative group of participants engaged in varying waste related activities. By visiting this single settlement in Cairo to conduct my fieldwork, I was able to gather crucial data, including qualitative accounts of the types of challenges members experiences and the adaptation strategies they employ, to inform my research without the need to travel to each settlement which would not align with the timeline of my fieldwork. This is important as the findings from my research will offer applicability to contexts outside of the selected study area. Additionally, members of this settlement offer a unique and historically-rich perspective of the informal waste trade as residents and ancestors of the first and largest informal waste settlement in Cairo, of whom are the key informants form the question that this thesis hopes to address.

²⁵ These studies include, but are not limited to, Didero & Eldefrawi (2017), Didero (2012), Fahmi (2005), and Fahmi & Sutton (2006, 2010).

Finally, as the largest and most popular informal waste settlement, Manshiyat an-Naṣr offered a convenient physical location for fieldwork activities. The majority of civil society organizations that work with informal waste workers are congregated in this area, providing me with the support and connections necessary to engage with community members and facilitate interviews. Additionally, the Coptic Orthodox St. Simon the Tanner Monastery can be found in Muqattam Mountain and seconds away from the informal settlement, offering many advantages. The close proximity of the Monastery to the informal settlement allows for greater accessibility to this informal settlement, which is otherwise difficult to locate. The Monastery offered a great location to informally socialize with members and also formally interview participants. It also offered me the opportunity to stay in the guest house at the Monastery for one week as I collected my data. This was advantageous as the Monastery acts as a community hub for members of the settlement. My stay at the Monastery overlapped with the Coptic Feast of St. Mary, attracting members of the community to the Monastery every day to attend church service, activities, or to socialize in the common spaces, including the cafeteria. This allowed for greater contextual understanding of the community, a greater opportunity to build relationships with community members, and more flexible working hours, as opposed to navigating to and from the settlement every day. Thus, considering its large population, historical significance, and convenient location, the informal waste settlement in Manshiyat an-Naṣr offers an appropriate area for a study which aims to understand how the relationships, livelihoods, and ideologies of informal waste workers are changing and the contemporary ISR trends that are emerging.

4.3 Data Collection & Analysis Process

Qualitative data was collected for a three week period in August and September of 2022 by conducting in-depth, semi-structured interviews. An open-ended and flexible interview style was adopted to provide greater access to the participants' views, interpretations of events, understandings, experiences, and opinions. This allows interviewees to speak in their own voices and with their own language (Byrne, 2017). As such, qualitative interviews have been referred to as 'conversations with a purpose' (Burgess, cited in Mason, 1996, cited in Byrne, 2017), which was the aim of my interactions with participants – an ongoing conversation which flowed organically and was guided by the topics presented by the participants. Thus, by employing the qualitative method of interviews, I was able to achieve a level of depth and complexity which is not guaranteed with other methods. Interviews were conducted with primary stakeholder households which included twenty (20) members of the Manshiyat an-Naṣr recycling community between the ages of 21 and 71. The criteria for those selected to participate was that they were previously or currently engaged in the informal waste trade in Manshiyat an-Naṣr, roles including collection, transporting, sorting, trading, and/or processing.

Interviewees were selected through non-probability (purposeful) snowball sampling. Snowball sampling is a technique in which the researcher begins with two participants and asks them to refer them to others who share characteristics with them (Laws et al., 2013). This is repeated, until saturation is reached, creating a snowball effect in which the sample size gets larger and larger with time. The snowball technique presented me with various challenges, one of which included respondents referring me to their family members. As described earlier, the work of this community is inherited through family lineage, and as such, interviewing family members would provide more homogenous accounts, where it is more desirable to gather as many unique

and differing perspectives as possible. As a result of this finding, a criterion for not being related to previous participants was added for this study. This encouraged me to employ convenience sampling, due to time constraints, in cases where the snowball technique was ineffective. However, the greatest limitation of convenience sampling is the risk that the sample will not fully represent the population being studied. In order to mitigate this methodological limitation, I collected as many diverse perspectives as possible to mitigate potential biases and generate a more representative sample. This included interviewees of varying roles and levels of seniority, including those who sort waste, who are predominately women and girls, and those who collect and transport waste, who are predominantly men and boys, to better understand the lived, anecdotal experiences of the diverse members that live and work within this community. Interviewing workers of varying roles offers different perspectives not only stratified by gender, but consideration for their length of engagement in the trade as those who have been working for a long time can speak on generational changes in the community as opposed to those who are relatively new to the profession and area and have a different viewpoint. Additionally, the snowball technique was primarily used, balancing the limitations of representativeness.

All participants were asked a uniform set of questions on the work they do, how their work has changed and the informal ecosystem in general, their strategies for coping with changes, the perceived opportunities and challenges they are confronted with, and how they are being integrated into the formal MSWM system²⁶. While the interviews were guided by the constructed interview guide, participants were encouraged to discuss unique issues that were most important in understanding their specific cases and thus, each interview contained varying questions and strayed from the initial guide that was created.

²⁶ The full interview guide utilized for this study can be found in Appendix A at the end of this thesis.

A total of twenty (20) in-depth semi-structured individual interviews were systematically analyzed. All interviews were facilitated in Colloquial Egyptian²⁷, the native language of this community, and then translated to English during the interview by the study's research assistant. While the interviewer possesses an intermediate comprehension of Colloquial Egyptian, a translator ensured greater accuracy. The interviews lasted for 30-80 minutes and were conducted in-person at the participants' preferred location, which all happened to be within the settlement and typically at their home, workplace, or in the common areas of the Monastery. With participants' verbal consent, the interviews were digitally recorded and then transcribed verbatim in the research assistant's English translation after leaving the field.

To undergo data analysis, transcribed interviews were thoroughly read through several times without making interpretations or taking notes as a means to become familiar with the data. The anonymity of respondents was also prioritized in the analysis process by discarding actual names and assigning identification codes.

Demographic features of the sample population are identified in *Table 4* below. It is important to have representation across multiple dimensions such as gender, age, nationality, marital status, family composition, educational qualifications, occupation, and waste trade inheritance as these different factors shape participants experiences and thus, viewpoints. The experiences of informal recyclers in Manshiyat an-Naṣr are not homogenous; the vulnerabilities, capabilities, opportunities, and ultimately livelihood options of members differ greatly based on a variety of factors, including gender, age, nationality, marital status, family composition, educational qualifications, occupation, and waste trade inheritance. These various factors make it extremely challenging to generalize the experiences of this diverse group as their lives and work

²⁷ Colloquial Egyptian, or Egyptian Arabic, is the dialect used most commonly in everyday conversations in Egypt.

are dynamic. *Table 4* details the demographics of the participants interviewed to offer greater context of the characteristics of those who were investigated. The full complement of data for study profiles can be found in Appendix A.

Table 4. Demographic Characteristics of Study Participants (Source: Fieldwork, 2022)

	Total Number	Percentage of Participants
Gender		
Male	15	75%
Female	5	25%
Age Range²⁸		
15-29	5	25%
30-59	12	60%
60+	2	10%
Undisclosed	1	5%
Nationality		
Egyptian	19	95%
Sudanese	1	5%
Marital Status		
Single	6	30%
Married	12	60%
Widowed	2	10%
Family Composition		
Children	13	65%
No Children	7	35%
Educational Qualifications (highest level completed)		
None	3	15%
Some Primary School	5	25%
Primary School Graduate / Obtained Literacy Certificate ²⁹	4	20%
Some Secondary School	2	10%
Secondary School Graduate / Technical School Graduate	3	15%
Undergraduate Degree Graduate	3	15%
Occupation³⁰		
Street Picker	2	8%
Collector	9	34%
Sorter	5	19%
Trader	6	23%
Factory Worker	1	4%
Factory Owner	3	11%
Waste Trade Inheritance		
Yes	16	80%
No	4	20%

²⁸ For the purposes of this study, the age ranges have been created based on widely used groupings in Egypt, where youth are between the ages of 15-29 and seniors are individuals aged 60 and over.

²⁹ Obtaining a literacy certificate is equivalent to finishing primary school and thus, these two educational levels have been grouped together.

³⁰ Some participants occupied two roles within the informal waste sector and for that reason, the total for this category equates to 26. Values have been rounded up or down to avoid the use of decimal values.

Each participant interviewed occupies one or more roles within the informal waste value chain. Only one participant has retired from the waste trade and has moved onto another line of work. While several of these roles have previously been described in *Table 2*, a more contextual definition with greater relevance and specification to the Manshiyat an-Naṣr community is provided in *Table 5* based on accounts provided during interviews.

Table 5. Value Chain Actors within Informal Waste Sector in Manshiyat an-Naṣr (Source: Fieldwork, 2022)

Role	Definition
Roamers	Scavengers are actors who collect recyclable or reusable materials directly from waste sources such as landfills, dumps, or streets. They often search through waste materials to find items like plastic bottles, paper, metal scraps, and other valuable recyclable materials that can be sold. They typically rely on manual labour and use basic tools such as sacs on their back or wagons to transport the recyclable material back to the settlement. They do not have arrangements with collection sources and gather recyclables sporadically from public spaces. They generate their income by accumulating large quantities of materials and selling them to sorters, collectors, or traders.
Collector	Waste collectors are actors who collect waste from various sources, typically households and commercial establishments. They operate within a higher level of organization compared to scavengers and have arrangements with local businesses and households to collect their waste on a regular basis. Similar to scavengers, they generate their income by accumulating large quantities of materials and providing it to sorters, who are often the female family members of the collector, or by selling them directly to traders. Depending on the arrangement agreed upon, collectors will either pay monthly fees to householders, establishments/businesses, or contractors to collect waste. In some cases, typically in older neighbourhoods, householders will actually pay monthly fees to collectors for their waste to be taken.
Contractor³¹	Contractors act as the middlemen between the formal waste management system and collectors. Waste companies are contracted by the government and assigned responsibility for waste collection in certain areas. Contractors employ informal waste collectors to work in the areas that they have been legally assigned. The arrangement between contractors and collectors are completely informal with no contract binding the agreement.
Sorter	Sorters are actors responsible for the sorting and segregation of waste materials based on type, quality, and potential for recycling or reuse. Sorters typically work at their households where the waste is delivered by collectors. Their main objective is to separate different types of waste materials and ensure that they are appropriately categorized for further sale to traders.

³¹ While none of the participants interviewed occupied the role of contractor, it is an important role to identify to grasp a comprehensive understanding of the informal waste value chain.

Trader	Traders are actors who purchase waste materials from scavengers, waste collectors, and/or sorters, and sell them to recycling companies or processors, both within and outside of the community. These traders act as middlemen, aggregating significant quantities of recyclable materials from various sources to meet the demand of recycling facilities. They often have an extensive network of contacts within the waste sector.
Factory Worker / Owner	Processors or factory workers/owners are actors who are involved in the recycling or processing of waste materials. They receive waste materials from traders or directly from waste collectors, and their main task is to transform these materials into reusable or recyclable forms. Processors can be engaged in different activities such as further sorting, cleaning, shredding, melting, or transforming waste materials into new products or raw materials for industries. These materials are then sold to larger-scale factories, often within the formal sector, for further recycling or selling.

4.4 Critical Reflections on Fieldwork

4.4.1. Reflexivity: Power and Representation

Holland and Ramazanoglu (1994: p. 132, as cited in Byrne, 2017) argue that “differences such as age, class, gender, ethnicity and religion impinge on the possibilities of interaction and interpretation, and so on how the social world is known.” Similarly, the constructionist tradition argues that the researcher’s own values, beliefs, and interests will always have an influence on their research (Laws et al., 2013). Thus, as a qualitative researcher, I understand that my position greatly influences what I bring to research encounters, the choices I make, and the interpretation of outcomes. One method of dealing with the inherent influence the researcher has on their work is through the process of reflexivity (Laws et al., 2013). Reflexivity is a widely employed methodological tool used as a measure of legitimacy and validity in qualitative research (Power, 2003). Reflexivity involves reflection on the impact of the researcher on the interaction with the interviewee (Byrne, 2017). Four reflexive strategies that are commonly used in qualitative research include reflexivity as recognition of self, reflexivity as recognition of other, reflexivity as truth, and reflexivity as transcendence (Pillow, 2003). I employed a reflexive approach to my research to minimize the potential that my positionality had on my research process and

outcomes, to ensure objectivity and to improve the internal validity of my work. I did this by identifying, constructing, critiquing, and articulating my positionality. The following outlines the ways in which I assessed the influence of my own background, perceptions, and interests on the qualitative research process (Funder, 2005).

I am an Coptic-Canadian who was born in Ireland. My parents were born in Egypt and immigrated to the United Kingdom for work and eventually to Canada where I have spent the majority of my life being raised and living. I was raised by, and accustomed to, the norms, values, and traditions of the Egyptian, particularly Coptic, culture from an early age through attending Coptic Orthodox churches, maintaining relationships with my relatives who live in Egypt, and my Egyptian parents everyday influences. The selection of the topic that informed this research was influenced by my Egyptian roots and deep connection to this particular community through shared language, culture, and religion. Coupled with my previous experience working on projects in Manshiyat an-Naşr, the work of this community and it's future in the waste management ecosystem grew extremely meaningful and close to me. The language used by local and international NGOs, the media, and Egyptians often describes members of this community as impoverished slum-dwellers, characterizing their work as primitive and practices as outdated. They are often perceived as victims of their circumstance with limited agency. I would like my research to reflect on the resilience of this community, how they are continually adapting their work, and their innovative strategies and indigenous knowledge which has sustained their involvement in the sector until today.

I entered the field with an open mind and tried to develop a close and personal relationship with participants. As discussed by Funder (2005), employing this two approach does not challenge the biases, power, and manipulation in the data generation process. It is also

recommended to reflect over the duration of your fieldwork, which is an activity I did through the active use of a fieldwork journal. My background as an Egyptian helped me to be more relatable with participants, but was also challenging to navigate as being an outsider conflicted with my relatability. Through a shared language, culture, and religion, I developed a deep connection to the informal waste workers in Manshiyat an-Naṣr. However, as someone who not only lives abroad but also outside of the informal recycling community, there is an insider-outsider dynamic that was uncomfortable and challenging to navigate. It created tension in this participant-researcher relationship. While some participants felt a sense of ease knowing I was a Coptic-Egyptian, this was not enough to ease the trust of others who were more skeptical of my presence. But as concluded by Merriam et al. (2001), the information collected by an insider is different from an outsider, but just as valid. Being able to identify as both an outsider and insider allowed me to have a unique perspective and one that is, regardless of how I am perceived by others, valid.

My research assistant's membership with the community helped to ease the tension of community members as a trusted member of the Manshiyat an-Naṣr community. Thus, having him with me was extremely helpful in employing reflexivity. Ongoing dialogue with my research assistant allowed me to reflect on how the interviews went, their interpretations of the answers offered, and the opportunity to challenge any bias within the research process. Another strategy that was used was reflective oversight which helps to continuously regulate, assess, and correct the processes we use. It consists of four steps, including self-regulation, self-reflection, self-assessment, and self-correction (Machi & McEvoy, 2022). It is here that I was able to write my thoughts and emotions as they related to how I felt in the field and interactions with participants. Some notes I jotted down include participants expressing confusion as to why I had travelled to

this area to undergo my research and fieldwork, community members staring at me, and a woman asking me for money, amongst other things. Writing these occurrences down allowed me to further understand the uncomfortable positionality I had as an Egyptian-Canadian living outside of Egypt and entering the community to conduct research, the implications of this power relations, and reflect on my presence in the field. These attributes and experiences have come to define me, a young, Middle-Eastern, middle-class, educated Egyptian woman going into the field from a Canadian university. As outlined above, these various identity categories overlapped and often shifted in meaning and influence throughout my fieldwork in Egypt.

4.4.2. Conducting Fieldwork

I was first introduced to the informal recycling communities of Cairo, particularly Manshiyat an-Naşr, through my work with the Canadian charitable organization Rising out of the Ashes (ROOTA) in 2020. ROOTA works in collaboration with APE, a grassroots organization in Egypt, to raise funds for various programs and projects to uplift informal waste recyclers and their families out of poverty. The work conducted by this group was my first introduction to the topic of ISR and the challenges those who work within the sector face. My curiosity grew deeper as I watched documentaries, read articles, and spoke with practitioners working with individuals from this community. I was intrigued by the adaptive capacity and strength of this community in continually maintaining an integral role in Cairo's waste collection, but also had questions that went unanswered. The media and literature seemed outdated and did not match conversations I had with practitioners, describing this community in a way in which they were victims of their circumstances. Thus, I became more interested in delving deeper into the complexities of this

community to better understanding what their livelihoods look like today as opposed to how they were portrayed years ago.

The preparatory work for my fieldwork included completing a comprehensive literature review for my research. I did so by identifying the key scholars in informal waste studies and identified the gap in which my research fills. I also connected with CID Consulting to ensure I had the necessary connections to facilitate my work. Finally, I created my interview guide which was continually evolving as I met with participants and heard the accounts they had to offer.

I entered the field as a student researcher from York University, where I served as an intern with CID Consulting, a firm which conducts various consulting work in project management, marketing and communications, stakeholder management, and other areas for local and international clientele. One of their areas of expertise is waste management which allowed me to immerse myself in the field and gain the necessary support, resources, and connections needed to be successful with my research. I interned in the Sustainability and Social Impact Department where I was responsible for managing one of their Extended Producer Responsibility (EPR) projects called DORNA³² in the 15th of May community, the smallest informal recycling settlement in Cairo. It was through working on this project that I was able to meet my research assistant who played a pivotal role in facilitating my fieldwork.

After thoughtful and thorough research, I decided to research how the Egyptian Government's implementation of Waste Management Law No, 202 of 2020 has impacted the livelihood options of informal waste workers in Cairo. Given the recency of this law, its

³² DORNA is an EPR project designed to provide beverage-bottling companies Nestle, Al Ahram Beverages, and Pepsi Co. the opportunity to achieve their EPR targets by taking responsibility for the proper disposal and treatment of their products post-consumption. This project has been implemented in three different informal waste settlements in Cairo, namely Mansheieyt Nasser, Ezbet El Neql, and 15th of May. This project has been designed to also provide economic opportunities for informal waste workers to collect and process PET plastic and cash it in for monthly financial payouts.

implications remained unexamined, along with the mechanisms used to formalize the work of informal waste collectors and their impact on the livelihoods of recipients. It was not long after entering the field that it was made apparent that the implications of this new policy had not reached the community or its members. Thus, my research aims and objectives changed as a result and were shaped by the new revelations that were being made during my conversations with participants.

4.4.3. Research Challenges and Limitations

The limitations of this study include sample size and limitations associated with qualitative research study design. While the revelations offered by this research will provide important insights into the lived-experiences of informal waste workers in navigating their place in Cairo's evolving waste system, having a sample size of 20 will not capture a comprehensive understanding of the experiences of a community with an estimated population of 50,000 to 70,000 (O'Neill, 2019, p. 148) and further research will be necessary. It is my hope that my findings will not only represent the group of informal waste collectors residing in Manshiyat Naser but will also be applicable to the Zabbālīn community living outside of Manshiyat Naser and speak on the larger theme of how informal waste workers are being integrated into formal organization of waste management systems and navigating their right to waste. Additionally, qualitative methods are often criticized as lacking credibility. Participants may offer inaccurate responses which would be a major concern for my work. I must work to strengthen the credibility of my research by engaging in peer review, broad representation, and prolonged engagement.

4.4.4. Ensuring Rigor in Research Process

To evaluate the integrity of my research and ensure that rigor is achieved at every stage of the process, I have employed Lincoln & Guba's (1985) model. While there are various models to evaluate the trustworthiness of qualitative research, this model has been chosen for what Krefting (1991) describes as the model with the more comparatively well-developed conceptualization and for its extensive use by qualitative researchers, thus offering a reliable and relevant framework of reference for my study. Lincoln & Guba's (1985) evaluation criteria is based on the principles of credibility, transferability, dependability, and confirmability. The following section outlines the strategies that have been utilized to achieve these four principles in my work.

- **Credibility** refers to the ability of the researcher to truthfully portray the findings gathered from their research participants (Lincoln & Guba, 1985). To ensure my work is credible, I have employed triangulation which is described by Krefting (1991) as a powerful strategy for enhancing the quality and credibility of research. Data source triangulation, one of the four types of triangulation identified by Knafl and Breitmayer (1989), was employed in which a variety of data were investigated to offer a more holistic and complete understanding of the concept. This was done by conducting interviews with different groupings of people from the same community with their characteristics varying in gender, age, occupation, seniority in the informal waste trade, and educational levels. Other strategies to achieve credibility include reflexivity and disciplined subjectivity, as described above, and the use of direct quotations from participants.

- **Transferability** refers to the extent in which research findings can be found relevant outside of the original context in which they were gathered (Lincoln & Guba, 1985). A sufficient amount of descriptive data has been provided within this thesis to ensure the transferability of my work and to allow others who wish to expand or replicate my work to do so. I have offered detailed descriptions of the study's context and process, including data collection, analysis, and interpretation.
- **Dependability** refers to the ability of research findings to remain consistent and durable over time and space (Lincoln & Guba, 1985). To ensure dependability in my work, I obtained feedback from community members, peers, and research professionals to assess my research plan and implementation. A code-recode procedure was also undergone to compare the same data after 3 weeks and identify any discrepancies in the results, in which none were found. Data triangulation also offered valuable insight into the weaknesses of one method of data collection over alternative methods.
- **Confirmability** refers to the extent in which research findings are a reflection of the respondents' data rather than the biases, motivations, and perspectives of the researcher (Lincoln & Guba, 1985). As discussed earlier in previous sections of this chapter, I have clearly outlined my positionality to this research by revealing my biases and interests in the research process, such as my nationality, gender, and religion. I also have audit trail products such as raw data in the form of audio recordings and interview transcriptions, along with data analysis descriptions, and process notes. To ensure rigor in the coding process, selected codes were those that occurred frequently within several participants' accounts. Additionally, I have presented data that contradicts my claims to ensure

neutrality on the topic and that data has not been skewed in favour of proving the research objectives I have outlined.

CHAPTER 5: CHALLENGES TO INFORMAL RECYCLER LIVELIHOODS

This chapter and the following display the data collected during fieldwork in Manshiyat an-Naşr. The most prominent themes discussed during participant interviews are analyzed as they relate to the current challenges experienced within the community and the subsequent adaptive strategies used to secure opportunities and relevance within the evolving waste sector. The informal waste recyclers in Manshiyat an-Naşr experience stresses they are forced to navigate and, as a result, are required to adapt their practices to strengthen their position within the waste sector. Based on participant accounts, the stresses and assets, as they relate to informal recycler livelihoods, have been explored and identified in this thesis. To begin, this chapter identifies the current challenges to informal recycling livelihoods, which are grouped into two main categories: increased competition and implications of formalization. The following section outlines these categories as they relate to the accounts presented by participants.

5.1 Increased Competition

The informal waste sector in Manshiyat an-Naşr is experiencing intensified competition, impacting the ability of participants to secure consistent opportunities and maintain routine income-generating activities. This increase in competition can be attributed to the internal population growth within the settlement, individuals from outside of the community entering the settlement to work, and actors from outside of the community interfering with the traditional informal waste value chain. The following outlines these new trends in greater detail as they are recounted by participants.

The internal population of this settlement continues to grow and community members remain engaged in their traditional roles passed down through generations. In fact, 80% of

participants claimed that their involvement in the informal waste sector was inherited from family members. One such individual is Participant 9 who revealed that the increasing population in the settlement has brought about significant changes and challenges to the community. He expressed:

[P9]: “Life is getting narrow because the number of people here in the community are growing, therefore they are working and competing with me. Now, sometimes, I lose money and have to pay money out of pocket not to lose my clients. 20 years ago, life was better and there were more opportunities. Now, every house has many families and each two kids can work in different careers or collect a different type of recyclable material. This is why it is getting tight. The community is growing. There are not as many opportunities as before.”

Participants revealed that while the physical space of the community cannot expand, additional units are added vertically to existing apartment buildings to accommodate the growing populations of families and residents. As a trader, Participant 9 went on to explain how competitors attempt to lure his clients by offering higher prices to purchase their materials, putting him in a difficult position where he must either pay more for the materials or risk losing his clients to other sellers who outbid him. Similarly, Participant 13 mentioned the difficulty of competing with traders who try to raise prices or take his clients. In contrast, Participant 2 had a more positive experience dealing with traders amid the heightened competition. She attributed this to her status as a widow, as actors tend to be more accommodating towards women who have lost their husbands as a cultural folkway.

Participant 19 observed that the recyclable materials in his collection area are limited, which he attributed to the competition among waste collectors for valuable materials. This sentiment is echoed by Participant 5 who noted increased competition from other factories in the area. As a result, he faced challenges in collecting sufficient quantities and experienced higher prices when purchasing recyclable materials. Participant 11, who entered the trade 60 years ago,

expressed that “[b]eing a garbage collector or sorter back in time was much better than these days. There was more money.” Similarly, Participant 10 also expressed “the amount of work has become less in the community.” Participant 4 discussed the increase in the number of roamers and collectors within the community, attributing it to more people owning cars and trucks, which are the only physical capital needed to undergo this type of work.

Contrasting these accounts, Participant 8, a factory owner, acknowledged that while the community was experiencing population growth, the waste industry was also expanding. This has generally created more opportunities for involvement. He explained:

[R8]: Everything we are recycling now has expanded in type. We have 30-40 different types of plastic. We have 100 different types of recyclable materials. All of these materials back in time used to be dumped in landfills. Once we learned how to do recycling, we started to develop it. Back in time, it was just collection and sorting.

Participant 4 also acknowledged the growth in the waste sector, stating that “the business has been growing, my business and those in waste management.” Despite this expansion, the majority of participants expressed a decline in real, tangible opportunities due to increased competition. Those with established factories, like Participants 8 and 4, have not been as negatively impacted by this competition as other participants who have less established work endeavours, particularly collectors, sorters, and traders.

In addition to the internal population growth experienced within Manshiyat an-Naṣr, individuals from outside of the settlement are increasingly entering the community to engage within the informal waste trade. There is a growing trend towards migrants from outside of Egypt and nationals from surrounding areas in Cairo seeking economic opportunities within the settlement. This is evident in the fact that 20% of study participants who indicated involvement in the waste trade in Manshiyat an-Naṣr do not have family inheritance or ties to the settlement,

with one individual coming as far as Sudan to work in the settlement. Participant 15 is a Sudanese male who immigrated to Egypt two years ago due to economic reasons. Although he lived outside of the Manshiyat an-Naṣr settlement, he worked at a factory in the settlement, operating a compressing machine that crushes polyethylene terephthalate (PET) bottles. He worked alongside two other individuals who also immigrated from Sudan. He shared:

[P15]: “When I came to Egypt, I had no plan of what kind of work I would do. I didn’t try to get work in other areas. This is the job I found in my face. I send my family back home money once every 3 months. It depends on the situation and how much money I’m making. Sometimes what I’m earning here is not enough.”

Participant 14 also noticed this trend, mentioning that “*there are people from African countries that are coming to Egypt to work with us here in the factory.*” This migration trend relates to a larger political and geographic dimension in which individuals from Sudan, a bordering country, are immigrating to Egypt to flee conflict, violence, and war, which continues to plague the country (IISS, 2021).

Participant 20, an Egyptian male who has no familial ties to the settlement or waste trade, started working in the area with his brother. He explained how he entered the community:

[P20]: When my mother passed away 7 years ago, my brother made me work with him. My brother bought a truck and bought the right to collect waste from compounds. People sell the apartments they have the right to collect from to others. I didn’t have enough capital to start something else. This was the cheapest option.

Participant 9 entered the informal waste trade 10 years ago, despite holding a University degree in Information Systems. He made the decision as he “*saw his field would not guarantee him the financial stability he desires,*” implying greater opportunity in the informal waste sector. He also mentioned that:

[P9]: There are highly educated people more than me that still can't find a job. Working with this degree will not help me to earn what I need.

Participant 14 revealed that he faced competition from both established factories and newcomers to the field. He expressed his frustration about working with inexperienced individuals who fail to grasp the costs and complexities of the waste trade, making it difficult to conduct business with them.

The final factor contributing to increased competition is the interference of actors outside of the Manshiyat an-Naṣr community on the traditional informal waste value chain. Unlike individuals from outside of the community entering the settlement to work, external actors do not associate with the settlement, operating outside of the value chain established within Manshiyat an-Naṣr. These actors disrupt the flow of materials from the collection level by taking away opportunities from waste recyclers from Manshiyat an-Naṣr, disrupting subsequent value chain roles. The following actors have been identified by participants as interfering with their work.

Robabekia: These individuals roam the streets with wagons, purchasing recyclable materials like scrap plastic, metal, and tin cans, from households and kiosks³³ on the street. This material would otherwise be collected by informal waste workers. Participant 1 explained that the Robabekia would collect the materials before he had the opportunity to do so, essentially taking away the materials that were once readily available to him. Consequently, he has to resort to buying the same materials from the Robabekia, which he used to obtain for free from the primary source. Participant 16 also expressed discontent with these actors in his experience with

³³ Kiosks are small stores that can be found in the streets of Egypt. They contain snack food items and everyday essentials.

them taking away economic opportunities and revealed that “*I see the Robabekia shouldn’t exist in the system.*”

Householders: Participant 6 explained that instead of leaving all of their waste to be collected, householders separate the recyclable material to sell for themselves and leave the non-recyclable material, which is not as valuable, for the collectors to take. When recounting the change seen within the community, she revealed that,

[P6]: There are a lot of changes. One of the changes that is most harmful to us is that when householders like to keep their recyclable materials aside in order to sell it. Kind of like source separation. This is harmful.

Doormen: The practice of source separation is also performed by the doormen of apartment buildings. As narrated by Participant 16,

[P16] The doorman will do the collection and bring it down to the lobby and take the recyclable materials and leave the organic waste and unvaluable material for me. I provide the service door to door. The doorman wouldn’t help me and bring the garbage down. He would just go up to each apartment and take the recyclable materials and leave the garbage bags.

Like householders, doormen will sift through the garbage bags of householders before the collectors come and gather the recyclable materials for themselves to sell, leaving the invaluable waste for collectors. When asked if doormen should be included in the informal waste value chain, participant 16 responded “*[n]o, everyone has their own job, everyone should be specialized,*” implying that informal waste recyclers are those responsible for this type of work and other actors should not be engaged.

NGOs: The fourth and final actor that was identified as interfering with the value chain are NGOs. Participant 13 recounted their experience with an NGO interfering with their work:

[P13]: There are people that shouldn't exist in the system. This includes NGOs like Resala. They have a campaign for awareness to tell people during Ramadan to donate their waste. Things like clothes, plastic and paper can be used as a donation.

He offered an example for this NGO in particular for directly threatening his opportunities. He expressed his disappointment with organizations that do this as this takes away from potential waste that community members could collect. He used NGO in the plural, implying that this is not an isolated occurrence and that the work of other organizations have previously impeded on his work.

Evidently, increased competition in the form of new actors entering and interfering with the informal value chain have been interpreted as challenges to participant livelihoods, greatly impacting opportunities, economic assets, and access to waste.

5.2 Implications of Formalization on Local Livelihoods

The second theme identified by participants as a challenge were the implications of formalization on their livelihood options. Within this context, formalization can be understood as registering with the WMRA and obtaining a license to operate within the waste management sector. The experiences of participants reveal that formalization does not necessarily mean an end to informality and that the benefits of this transition are not offering prosperous outcomes. There is a trend towards informal waste workers formalizing their work in order to grow their work endeavours. Participant 20 claimed “*I have noticed more people in the community are registering their companies.*” Participant 9 recounted how the privatization in 2003 was the initial push factor for formalization, stating that,

[P9]: People inherited the job from their parents. Some of the families are still doing the same and many were forced to formalize their companies in order to be permitted to work with the multinational companies and collect from households.

Participant 3, a collector, indicated that the entry of foreign companies into the waste collection market affected his work opportunities. He recounted his experience collecting from the neighbourhood Tagemwah and being displaced by foreign companies, forcing him to shift to a different area in Shoubra Masr that was less affluent and thus, less profitable for him.

Participant 2 also had a bad experience with foreign companies and explained that,

[P2]: During the government's privatization in 2000, I was working as a waste collector. The privatization had various impacts, primarily on the financial aspect of our work. Previously, my sons used to be paid directly by householders for waste collection. However, after privatization, they began working for companies that had formalized contracts with householders. The company owners received the payment from householders, and my sons no longer received direct payment. Instead, they collected waste for free to obtain the recyclable materials."

However, participants express that even with formalization, they are unable to integrate into the formal waste management system due to systemic barriers, including corruption. Thus, the positive outcomes of formalization are not always realized.

15% of study participants indicated that they registered their work and 5% were in the process. Expanding his business is reflected in Participant 3's decision to register his company. He did so to be able to be a freelancer with the government directly or the company contracted by the government. However, even after registering his work, he lacked the connections and financial resources to be able to secure work directly from big companies or the government. Instead, he is forced to work under the umbrella of a registered contractor where he pays a fee in order to gain access waste material. This is an arrangement he could have had without formalizing. Thus, while formalization is sought out as a means to securing opportunities and reassurance within the waste sector, it does not sufficiently ensure the advantages it was assumed

to. Participant 8 detailed that his motivation to formalize was, “*because [he] worked with people that wouldn’t accept [him] unless [he] was formalized.*” Participant 9 reflected on a similar experience in which his brother formalized his company in order to grow. While he admitted to the benefit that formalization allowed him to secure clients, the registration process was challenging and even with a formalized company, establishing connections remained difficult. He expressed,

[P9]: The reason I haven’t registered my work is because there will not be security. Even if there is a written agreement, no one will stick to their word in front of the money.

With this, Participant 9 expressed a general lack of faith and trust for the outcomes of formalization and the lack of power that written agreements possess.

Participant 5 is in the process of registering his work to formalize his semi-production line business. Because of the licensure requirements for collecting from new compounds, he was encouraged to register his work so he could work directly with compounds in New Cairo, a more affluent area. He expressed hopefulness that this formalization would be prosperous. Similarly, Participant 3 recounted his experience with formalizing his SME and what motivated him to do so. In order to collect from new areas, he had to pay the contracted individuals directly, and he lacked the resources and connections necessary to obtain direct work from larger companies or the government. Thus, registering would offer him the beneficial outcome of gaining access to new collection areas, expanding both the amount and value of waste he is able to collect.

Of the remaining participant pool that is not registered or currently in the process of registering (14 participants; 3 did not respond), 43% were open to registering their work if they had the means to do so, while 57% expressed disinterest.. Having the capacity to formalize was explained by participants in terms of financial ability, knowledge, and connections. While some

actors have the capabilities to register their work, others do not have the same resources. One of these participants is Participant 1 who expressed an openness to register his work as a collector and acknowledged the financial stability and growth it would allow, but is not aware of how to undergo the process. When asked if she has ever thought to register her work, Participant 7 stated,

[P6]: “No, I am poor. I am poor and my husband is poor so what we have is what we can do. I am not looking to grow, I just want to continue with what I have.”

With this account, we can see that there is a perceived correlation between the ability to formalize and having the monetary wealth to do so. Participant 20’s experience is similar in that he blamed lack of money for his inability to formalize. Participant 7 also indicated that in order to get permission to collect, you have to pay insurance, which he was not able to afford. Insurance must be paid annually and depends on how many households you want to collect from.

As revealed in Chapter 3, the introduction of waste management privatization in 2003 and the hiring of MNC’s drastically altered the landscape of the informal waste sector and subsequently the livelihoods of informal waste workers. Additionally, because waste collectors form the base of the informal waste value chain, this change has disrupted the entire system. With this new structure, the income and sourcing of waste has been negatively impacted, along with the right to waste being threatened by waste companies contracted to undergo this work. Participants of the study have recounted this change and explained the new system that has formed as a result. Informal collectors now have to make arrangements with license-holders to continue collecting from the households they traditionally inherited. These license-holders, known as subcontractors, act as intermediaries between informal workers and the formal waste management system and have contracts with waste companies that are licensed to collect in

specific areas by the Egyptian government. Subcontractors get paid by the WMRA and they often keep the money for themselves. Contractors employ informal waste collectors to work in their assigned areas without any legally binding contracts, typically not paying them and actually making them pay for the access to waste. This is a strategy used by informal workers to circumvent the rules and get around not being licensed, but still being able to tap into the waste management system, collecting recyclables, and maintaining their livelihoods. Participants revealed that the government has contracts with two waste companies in Cairo.

Additionally, in order to move up in the value chain, and experience greater economic prosperity, it is beneficial that members invest their money back into their work. However, participants expressed having lack of financial means to do so. Participants attributed this to two reasons: their money going towards investing in marriage-related expenses, and depleting their funds for day-to-day expenses.

The majority of participants expressed their inability to invest into their work due to the pressures of saving those funds for marriage preparation. Participant 1 expressed that he is currently investing in an apartment for him to get married. While he bought a truck for work after the Government's banning of donkey carts, he has been unable to invest in his work since. Participant 6 mentioned that they have two daughters who are ready to get married but he can't get them married because he can't help with building their house and getting the furniture. Participant 4 expressed that he purchased an apartment with his earnings to support his desire to marry. He expressed that getting married in Egypt is difficult because the man has to buy the wife gold, thus making the requirements to get married costly. Similarly, participant 12 revealed that her main goal was to help her siblings to get married. Participant 18 revealed that what he earns, he invests into his family. He did this by helping one of his daughters get married. Finally,

participant 17 revealed that he saved his money for his children to get ready for their marriage. He shared that *“one of the rules for marriage is that male and female share what they get inside the apartment. They have to furnish the entire apartment. I save this money for them.”* Based on these accounts, we see that investing for marriage is a priority for participants and supersedes investing to grow their work and takes precedence.

Another barrier to investing into their work is the inability to acquire enough funds to be able to open and maintain savings. Participant 2 expressed *“I have not used the money to develop or change my work. Only to maintain the house.”* Participant 3 expressed the difficulty of saving due to unforeseen circumstances. He mentioned that *“every time we save money, I either lose a job or something would happen that would take all of our savings.”*

Those that expressed they had the ability to invest were more affluent members of the community, particularly factory owners. Participant 14 indicated the following:

[P14]: At the beginning, I wasn't able to develop my work or invest in my business because I had other commitments like getting married and finish school. Later, I started to invest in this project. I have another compressor.

While not being to currently invest into their, participants expressed that growing their work is a desire they wish to do and thought how they will accomplish that by offering their aspirations. Participant 5 explained that he would invest in his work to address cash flow issues because he often does not receive the full payment for the materials he sells immediately. Participant 9 expressed his aspirations to acquire a pelletizer machine and establish a production line that he would register. He believes that such investments would provide more stability and increase his revenue. Participant 19 hoped to invest in a truck or purchase additional waste from sellers. Participant 20 expressed a desire to expand his business by acquiring a truck.

Another reason for the inability to formalize is due to corruption and lack of connections, as Participant 16 expressed were the reasons he was unable to register even though he had the desire to. Similarly, Participant 3 expressed that,

[P3]: The system is corrupted and the two companies are licensed because they have the connections and bribe. The entire system is completely wrong

Likewise, Participant 15 recounted his inability to register.

[P15]: I tried to apply for registration. One time I had a meeting with the VP of the WMRA and told him that I'd like to register my company and come to do the collection for a certain area, and after the meeting was finished, I realize that the VP was bribed to choose someone else to do the collection.

These accounts reveal the corruption embedded in the system, posing as a barrier to formalization. Participant 14 discussed his challenges with registering his factory due to difficulties meeting certain environmental and fire department requirements which are factors that are out of his control and a product of the physical environment in Manshiyat an-Naşr settlement. While he has registered one of his companies, his second company is still informal because he experienced many problems with the government. He voiced his frustrations by stating,

[P14]: We don't see anyone from the government come and put a plan for us that suites the recyclers here. I am waiting for people from the government to come and see the people and talk to use and understand the situation in order to put a plan for us that suites and fits the needs of recyclers.

Participant 4 expressed a reluctance to register his work because he believes it will not provide any benefits due to corruption and unnecessary taxes. Similarly, when asked about registering his work, Participant 9 mentioned that,

[P9]: I would register my company if I could get more jobs than what I'm getting right now. But it's more so about the connection and links with people that will help me get a job.

Participant 17 expressed disinterest due to the perceived complexities and requirements involved. He believes he lacks the education and knowledge of the procedures and requirements. Participant 13 offers a unique perspective on the motivation to formalization that comes from the social stigma associated with informal waste workers and desire to formalize to increase status and reputation. When formalization was discussed in a positive manner, it was about the perceived rise in status rather than any operational benefits accrued from the formal designation.

[P13]: I wish to be formalized because this will be better for my children. I want my kids, when they introduce themselves to others, I want them to be able to say my father owns a company instead of being a waste collector.

Evidently, this trend towards formalizing is jeopardizing the ability for informal waste recyclers to access their right to waste. Participants expressed the barriers in the way of them doing so. Even for those who have the means, they are unable to benefit from formalization due to corruption, lack of connections, and systemic barriers. Even for more financially stable and secure recyclers like Participant 14, the implications of formalization are negatively impacting their livelihood options by creating an additional burden they must overcome to expand their work.

CHAPTER 6: ADAPTIVE STRATEGIES OF INFORMAL RECYCLERS

As a means of coping with the challenges identified above, participants shared the strategies that they have utilized to remain relevant within the new landscape of the waste trade. These strategies fit into themes of diversification, social networks, and external support. These assets are explored in further detail below.

6.1 Diversification

As waste generation patterns evolve with modernization and urbanization, informal waste actors need to adapt to these changes to sustain their livelihoods. Diversifying both the sources of waste and income-generating activities have become popular strategies utilized by actors to tap into emerging waste streams and explore alternate opportunities for revenue generation.

6.1.1 New Sources of Waste

One way that participants have diversified their sources of waste is by expanding collection routes to new neighbourhoods that go beyond the informal recyclers traditionally inherited households. By expanding their collection sources, actors can target different sectors, such as commercial establishments or institutions, where waste volumes may be higher and more valuable. With increased urbanization, there has become an increase in economic opportunity through new collection sources. There is now a trend towards collecting from newer, more affluent, residential areas. Collection areas have evolved to include new compounds that are in wealthier areas and thus provide wealthier waste, that is, containing more recyclable materials such as PET from plastic water bottles. Prior to this, collectors would gather waste from households but are now encouraged to diversify the sources in which the waste comes from with

increased competition and the asset that urbanization has offered them. Of 11 collectors and sorters that inherited their sources of waste from their families, 55% have diversified from these sources and ventured into new areas. Participant 5 indicated that he inherited apartments from his father in the local area, but he wanted to collect from an area that is a “*higher standard of living*” so created a new partnership in that area to do so. Participant 20 and his brother created a partnership with a school, hospital, army training center, and pharmacy to diversify their collection area. This is in addition to the collection route they purchased the right to from a community member. Similarly, Participant 9 began collecting from the supermarket Carrefour as their means of generating new revenue. Participant 6 expressed the desire to sign an agreement with a hotel in New Cairo to collect their food waste. She applied to get the permission to collect from this hotel and, following approval, will use the food waste to feed the animals she raises and sells. Participant 18 described her agreement with a contractor from the community that provides collection privileges from EgyptAir at the Cairo International Airport. She pays for these privileges and brings the garbage to the community for her and her sons to sort. Thus, we see that actors, particularly collectors, are expanding their networks beyond their inherited household routes and into new partnerships including new compounds, commercial stores, educational institutions, military bases, medical facilities, airports, and hotels.

However, with the emergence of new collection streams, government enforcement and regulation has similarly intensified in new areas, while door-to-door collections in traditionally inherited areas are relatively more permissible, which has overall discouraged actors to tap into newer streams. This finding reveals that not all actors are able to diversify their sources of waste and enter newer areas due to higher regulation. Participant 3 expresses this by recounting his

experience trying to diversify his collection source but being confronted with barriers to entry in the form of registration:

[P3]: “The government doesn’t want what is happening in old cities, to work informally and individually with householders. The government is forcing law that collectors must be contracted, that is to have a tax ID and registration code. I have a registered SME but because I don’t have the enough money to pay insurance and I don’t have the connections, I can’t get a permit or permission to collect from new areas. I am registered from 2018...I can’t get direct work from big companies or the government directly. I go to someone who is registered and work under their umbrella. This person has the networking connections with other people.”

Securing these partnerships requires a high degree of connections and sometimes formalization, which is not feasible for all and thus, this option is not accessible for everyone.

These new collection sources are a direct product of modernization and urbanization, which have offered more diverse and extensive opportunities outside of the traditional spaces occupied by the informal waste workers, which included working solely with households. The creation of new areas and facilities in Egypt have expanded opportunities for this group and created economic opportunities that can strengthen their livelihood sustainability and position within the waste sector.

6.1.2 New Income-Generating Activities

Because these new collection streams are not accessible to all and can be challenging to penetrate without the necessary licensing or connections, a more simple and widely used method of diversification is engagement in other income-generating activities. This is done as a means for supplementing existing streams of income. Participants 1 and 19 not only collect from inherited collection routes, but also scavenge on the street to increase the quantity of material to in order to sell in bulk. Participant 2 sells bread alongside sorting, stating that “[w]hat I make

from sorting is not enough. This other work allows me to make more money.” Participant 17 buys mixed waste and delivers it to pig sties which is an additional source of income. Another common income-generating activity among community members is raising animals and sells them as a supplementary revenue stream alongside sorting. Participant 6 indicated that she raises animals and sells them to make more money alongside sorting. She uses the funds she makes from sorting to undergo this work. She also bakes bread and uses cow to make milk and cheese, which she then sells. She explained that *“the money I earn now is not the same. Even for the same amount of work. The money to buy the motorcycle came from raising the animals,”* indicating that supplementary revenue streams are displacing sorting and selling as the primary means of generating income for waste pickers. Alongside sorting, Participant 10 works with APE making loom products while also selling bread every day.

6.2.1 Social Networks

The expansion and use of social networks is another strategy that has been used since the inception of this community, and still remains extremely relevant and. Verbal negotiations have been one of the most dominant pillars guiding the work of this community and continues to be a relevant element of maintain social networks within the community. Even with formalization becoming increasingly prevalent, as noted in the Chapter 5, the outcomes of registering and licensing your work are rarely realized. Thus, relationship building and networking remain the most prominent means of securing opportunities. As the capacity to obtain opportunities and partnerships is often a direct outcome of one’s social network, it remains extremely important that actors engage in relationship building.

For instance, Participant 6 learned about the opportunity to collect waste from a hotel through her brother-in-law who is friends with the hotel manager. Similarly, Participant 10

revealed that she secured the opportunity to work with APE through her neighbour who was working there and introduced her to the organization. Participant 9 revealed that he used to work for a contractor who collected the recyclable materials from supermarkets and he met with him to discuss how he could get involved. He expressed “*We trust each other so we never signed an agreement, just by words.*” Participant 17 was able to obtain work through two contracted people he was connected with in the community. Similarly, Participant 1 indicated that he was able to get involved with Plastic Bank’s EPR project through his trader who introduced him to the project. Participant 15 expressed that he was working at a different factory outside of the community and his supervisor knew the owner of the factory he worked at now and decided to come and work with him.

One of the most significant contributors to the strength of one’s social network is an individual’s familial upbringing and inheritance. Participant 2 expressed that “everyone here knows each other and the type of work we do. Thus, their membership with the community largely shapes their capacity to network. Participant 12 expressed that “*I inherited a good reputation from my father,*” making it easy to deal with traders and clients. Evidently, social networks and social capital play an important role in securing economic opportunities and confronting challenges.

6.2.2 External Support

Finally, support from civil society, the government, EPR initiatives, and religious institutions have been indicated as assets that participants have benefited from receiving and have helped them to counter the challenges they face.

Government: 10% of participants indicated that they received support from the government. The support offered by the government centers around social benefits for vulnerable

individuals, including widows and orphans. Participants 2, 7 and 10 mentioned receiving funding from this initiative as widows or family members of widows, while participant 16 indicated receiving funds as an orphan. While the government supports a small portion of those most vulnerable, participants expressed their discontent with the governments lack of concern for their community. Participants expressed his dissatisfaction with the lack of government support, which can be found below:

[P8]: To live your life here is difficult but the solution has to be suitable for everyone. These people have done something good for the people of Egypt. These people worked, they didn't rebel against the government, they didn't stand against the government, they came here to work and they didn't ask for any penny from the government and have been doing this for years to help clean the country. I think these people should be appreciated. Appreciate and give the people acknowledgement. Help them do their jobs in a better way. The government should support us in the ways we want to be supported.

[P14]: We don't see anyone from the government come and put a plan for us that suites the recyclers here. I am waiting for people from the government to come and to see the people and talk to use and understand the situation in order to put a plan for us that suites and fits the recyclers.

[P13]: We only know about the government when they come to arrest people.

Through these accounts, it is evident that participants feel that the government has an obligation to enhance conditions in the community but are not fulfilling their role.

Religious Institutions: 15% of participants expressed receiving support from religious institutions, particularly Coptic Orthodox Churches in the area. Similar to the government funding, the church limits their support to those most vulnerable, including widows. The same participants receiving support from the government are receiving support from the church for being a widow. Participant 7 expressed dissatisfaction with the money they received, claiming *"the money we receive from the two places (government and church) for my mother is not enough."* He indicates that his mother has a surgical operation coming up that they are trying to

gather money for but are not currently able to afford it. Additionally, Participant 13 expressed receiving support from the church during COVID in that they provided him with a few meals. Finally, Participant 12 indicated she was able to receive her literacy certificate by attending classes facilitated by the church.

NGOs: 35% of participants received support from NGOs. These organizations include, and are not limited to, Spirit of the Youth and APE. Through the Spirit of the Youths Recycling School for Boys initiative, several participants revealed that they academically benefited from this NGO, some even obtaining their literacy certificates. However, Participant 4 expressed his dissatisfaction for the organization and claimed their work was more so performative than genuine. He stated:

[P4]: The employees of the NGO weren't nice or honest. They used to collect donations from outside and they didn't support the people and didn't spread the donation with the people. They used us for commercial as a poor. This is the reality. They post online of the things they do but in reality nothing is happening. When foreigners come to visit NGOs, they just laugh on the people and show them that they are giving them, for example juice to drink, which only happens then the foreigners are there.

The primary form of external support from APE is health-related. Participant 12 received support for anemia treatments, and Participants 6 and 7 received the Hepatitis C vaccine. Additionally, APE has several income-generating programs targeting women, of which, Participant 10 is participating in. Speaking about her experience receiving income-generating support from APE, participant 10 expressed, *"I thank God because somehow I feel lucky because there are people like me that don't have the opportunity to do what I do."* Although she believed that the money she makes from APE is not as substantial as she would like it to be, she acknowledged the privilege she has in even having it as an option.

EPR Initiatives: 20% of participants indicated involvement with an EPR project in which they are able to earn an income by recycling PET plastic. The EPR initiatives identified by participants were DORNA and Plastic Bank. As a result of earning additional income through this program, Participant 2 indicated that:

[P2]: My son joined a group of people where 10 members gather and each pay a certain amount of money and divide it. It is a savings group to help people invest.

Thus, with this additional income earned through DORNA, he is able to invest his income, an opportunity he wouldn't otherwise have. However, Participant 2 indicated that they received support from Plastic Bank every two or three months. However, she also expressed that the money she earns from this initiative has decreased, indicating that it *"it used to help but now they decreased the money that I am paid and I feel sad about it."* Participant 16 is engaged with this program and revealed that *"The money I've earned has helped me to cover the expenses of my kids school."* Participant 12 also expressed engagement with the DORNA EPR initiative, and revealed that *"even if it's a little but, it still helps and supports."*

It is evident that the diverse streams of support for members in this community extend beyond strictly monetary and encompass health, financial, and educational. While these external supports are aiding this community in providing necessary and relevant services, there is considerable space for their impact to be strengthened, as indicated by participants. While there is an evident mismatch between the needs and support received, it is evident that these various streams of external support are providing positive outcomes that would otherwise be inaccessible waste recyclers.

These findings collectively reveal that despite the external factors negatively impacting the livelihoods of informal waste recyclers, the resourcefulness of this community aids

individuals in their ability to adapt to these challenges and maintain their work and right to waste within the sector.

CHAPTER 7: DISCUSSION

***“I need work that I feel comfortable with.
I need work that makes me feel safe and secure financially.***

If there is another job with less salary but it would make me comfortable and happy and psychologically satisfied, I would take it because it is better than this.

This work is tiring and endangered.”

– 27 year-old male plastic trader from Manshiyat an-Naṣr Informal Recycling Community

The purpose of this thesis is to investigate how the right to waste of traditional informal recyclers in Manshiyat an-Naṣr is threatened by processes of modernization and greater environmental awareness in Egypt. It seeks to understand how these actors are adapting their livelihoods to better integrate within the contemporary waste ecosystem in Egypt in order to assert their role within the waste sector that has evolved since the community’s inception. Through interviewing 20 members engaged in the informal waste trade, it was found that the most prominent challenge to securing economic opportunities is the increased competition experienced within the community. In addition to this challenge, the growing trend towards formalization has adverse implications on local livelihoods, forcing informal recyclers to adapt their operations to circumvent rules. In addition to this agency displayed by community members, actors are also adapting to societal changes through the diversification of sources and types of waste collected. Finally, it is revealed that social capital has enabled informal recyclers to maintain their livelihoods, however, greater financial and physical capital are needed to strengthen livelihood outcomes in becoming more sustainable. The following explores the importance of these findings in greater detail. Finally, it is suggested that the involvement of

religious institutions be introduced in further enabling traditional informal waste recyclers in attaining sustainable livelihoods.

This study reveals that the right to waste of informal waste recyclers in Manshiyat an-Naṣr is under increasing threat by competition. What was once an inherited right to waste for community members has become less accessible due to internal population growth within the Manshiyat an-Naṣr settlement, individuals from outside of the community entering the settlement to work, and actors from outside of the community interfering with the traditional informal waste value chain. The results indicate that 80 percent of participants engage in this work as a result of inheritance while the remaining 20 percent have joined the community and waste trade without familial ties. These accounts reveal that what began as an inherited livelihood option has now expanded to attract new individuals who do not have familial ties to those who traditionally migrated to the Manshiyat an-Naṣr settlement. Extant literature homogenizes the Zabbālīn community and does not differentiate between actors that have inherited the trade from family and those who have entered the occupation without ties. Thus, it is difficult to know when this trend of new members entering the informal value chain began, however, making this distinction is important as each group has inherently different bargaining rights when it comes to accessing waste. The fundamental justification made by traditional informal recyclers is based on their historical engagement within the trade and traditional ownership of waste. As outlined in Chapter 4, this traditional group migrated to the outskirts of Cairo in the 1930s and purchased the right to waste from the Wahiya. From this point, they have been in a constant battle with external entities, often the government, in securing their traditional waste routes. This cannot be said for individuals who are newly entering the community to live and work. Thus, a distinction ought to be made between these subsets of actors who are grouped into one. However, because the

process is now less based on inheritance, it can also be argued to be more equitable in that others have the same opportunity to obtain the right to waste.

Additionally, Robabekia, doormen, households, and NGOs have been identified by participants as actors from outside of the community interfering with the traditional informal waste value chain. These actors are impacting the work that those within the Manshiyat an-Naṣr community can complete by taking away opportunities and valuable resources. These findings complement the work of Didero & Eldefrawi (2019) whose research identified Robabekia and doormen as competitors. This thesis makes an addition to the existing literature by identifying households and NGOs as external actors in competition with the community, and the implications that increased knowledge of source separation has on traditional informal recyclers. While NGOs have also been identified as actors facilitating external support for community members, it is important to identify that the work of NGOs are not homogenous and that adverse outcomes can come about even if they are not intended. The interference of these two actors can be attributed to increased environmental awareness and subsequently, knowledge of source segregation. Many cities aspiring for a more modern waste management system look to Europe and North America, where separation at source for recycling has become an encouraged part of the formal system (Wilson et al., 2009). The IWBs, being the traditional informal waste recyclers, represent the existing source separation system in Egypt, however, this is changing as it is becoming more accessible and financially lucrative for the ordinary individual to practice source separation and recycle. One such recycling initiative is *Sell Your Garbage*³⁴, a government project encouraging residents to sort their recyclables themselves and drop them off

³⁴ *Sell Your Garbage* is a project launched by the Cairo Governorate in March 2017. Kiosks are established in varying various neighbourhoods within Cairo where individuals can trade in their recyclable material for a financial incentive.

at designated kiosks throughout Cairo (Hassan, 2017). Resala, an Egyptian NGO, implements various recycling initiatives for the purpose of using donations as a fundraising activity for their organization (UNDP, 2014). The introduction of these recycling initiatives jeopardizes the informal waste value chain, omitting the need for collectors and sorters who establish the base of the system. The practice of source segregation, while an encouraged practice and has a positive impact on the environment, is negatively impacting the livelihoods of informal waste recyclers and will continue to do so with increased awareness and limited action to secure the rights of informal waste recyclers.

This increased competition and the entrance and/or interference of actors is a direct outcome of the Egyptian economy, which is characterized by high percentages of unemployment, poverty, and informal employment (Didero & Eldefrawi, 2019). This increased competition can also be attributed to urbanization and changing waste management practices. Urbanization, the process of changing socio-economic conditions which lead to transformations of land use to fulfill basic human needs (Yehya et al., 2023), has increasingly urged populations to relocate from rural to urban regions. Within the MENA region, fast-paced urbanization is coupled with population growth in cities and in-migration of people searching for work or fleeing crises and violence in rural areas (Serageldin et al., 2016). Cairo has experienced the most significant urban expansion since the Egyptian revolution in 2011 (Yehya et al., 2023). Additionally, as cities expand and urban areas become more densely populated, the amount of waste generated also increases. This leads to greater demand for waste management services with more people attracted to the potential economic opportunities in the waste management sector. Consequently, the number of individuals involved in informal waste collection and recycling has risen, intensifying competition.

While there was no mention of the pandemic during participant responses, indicating its lack of substantial impact on day-to-day practices, there are evident macroeconomic outcomes that impact work within this sector and can reveal why increased competition has emerged as a challenge. As outlined by Soliman (2020), COVID-19 spurred a decline in the tourism, service, and aviation industries. The economic consequence from COVID-19 have manifested in the loss of 4 million jobs in the tourism industry alone. Despite efforts to promote growth in the formal sector, the informal economy was the only option for the millions who have lost their jobs inside Egypt because of the informal economy's size and responsiveness. Thus, informal employment offers a solution to unemployment. Additionally, participant accounts reveal this occupation's relatively low barriers to entry, making it a viable economic option for those seeking employment due to lack of better alternatives.

Overall, the findings reveal an underlying belief that members of this community have an inherent right to waste and that increased competition restricts their ability to access this deep-rooted right that has been passed through familial inheritance as their main source of livelihood. However, this perceived right to waste does not coincide with Egypt's National Waste Management Law No. 202 and is becoming increasingly challenged with new actors entering the sector and threatening their economic assets.

In addition to the challenge of increased competition, participants revealed their struggle in maintaining their right to waste due to the implications of formalization. Within the Egyptian context, integration is encouraged through the formalization of work with the WMRA in which actors register and obtain a license to operate within the sector. Alternatively, waste pickers are encouraged to work as employees at waste companies that have been contracted by the government to undergo MSWM. Participant accounts reveal that the push for formalization of

their work restricts them from accessing waste. The entire waste collection landscape has changed drastically due to the emerging trend towards the formalization of waste and the privatization of waste management, influenced by Law No. 202. If one wishes to move up the value chain within the informal waste trade, which ultimately strengthens livelihood outcomes, formalizing becomes increasingly necessary. Not having the proper licenses and registration can limit one's ability to continue with their current work or expand and grow their endeavours.

As outlined by the Egyptian Ministry of Environment's Law No. 202,

Waste Management is "[t]he management of any of the phases of the Integrated Waste Management" (p. 5).

Integrated Waste Management is defined as "[t]he integration between the different activities related to waste, including the process of limiting its generation, reuse, collection, storage, sorting and transport to the sites or facilities designed for the foregoing; in addition to its treatment, development, recycling, and final disposal thereof in an environmentally safe manner" (p. 5).

Article 29 states that "[p]racticing any activities of Integrated Management of Non-Hazardous Waste without obtaining a license issued by the Authority is not allowed."

Additionally, there are consequences to defiance of these regulations. Article 67 states that,

"[a]nyone who breaches the provisions of Articles 29...of this law shall be punished by a fine that is not less than one hundred thousand pounds and not more than one million pounds" (p. 35).

Thus, while complying to the mandatory licensing imposed by Law No. 202 is motivation in itself to formalize, an underlying desire for informal recyclers is the perceived growth that is associated with this transition from informality to formality that would ultimately secure their right to waste. It also has the capacity to expand the network of potential partners and collaborates that actors can engage with. Thus, it becomes advantageous for informal

recyclers to formalize their work for the perceived economic growth they could achieve.

However, corruption and lack of financial capacity create barriers for participants to grow their endeavours and formalize their work. Therefore, these barriers impede the ability for workers to formalize, ultimately limiting workers' right to waste. Article 33 of Egypt's National Waste Management Law No. 202 indicates that:

“[t]he ownership of Municipal Waste is transferred to the Competent Administrative Entity as soon as it is abandoned by its possessor in the places designated for that or as soon as it is handed to the persons licensed to do so...The possessor of Municipal Waste is not allowed to abandon it or deliver it except in the places designated for the foregoing or to the persons licensed to do so” (p. 22).

Competent Administrative Entity refers to [t]he entity in charge of managing waste, namely the governorate with its administrative scope of the agencies of the New Urban Communities Authority, as the case may be, with regards to non-hazardous waste...” (p. 3).

Within this regulation, waste is the possession of the governorate to which it was abandoned and the entities it is in partnership with. Because informal recyclers do not have legal contracts with waste companies and use subcontractors to work under their legal umbrella on an informal basis, they do not retain the official right to waste. Depending on the subcontractor and associated waste company they work for, some informal recyclers are unable to even bring what they collect back to the settlement for further trade and processing, which is where the majority of their income comes from. Thus, formalization, which was initially introduced in the 2000s but is becoming more widespread and compulsory, further marginalizes informal recyclers, displacing their “de jure” right to waste, although they maintain their own practice and self-proclaimed responsibility to collect, sort, trade, and processes waste “de facto”. The encroachment of the rights of waste pickers over their practice by means of formalization creates livelihood

vulnerability and instability. As a result, actors have found ways to work around these restrictive structures and circumvent the rules, displaying agency for livelihood outcomes.

While licensing is mandatory, participants did not recount facing any legal repercussions for their informal status when asked. Rather, they expressed a common disadvantage in missed opportunities, in which they are systematically excluded, due to increasing pressures of formalization to collaborate and form partnerships outside of the community and grow their endeavours. The findings indicate that while the majority of informal recyclers are receptive to integration, they are unable to do so due to systemic barriers, corruption, and lacking financial capacity. The experiences of participants reveal that formalization does not necessarily mean an end to informal partnerships, regardless of obtaining the necessary licenses and registration to undergo work within the waste sector. In response to the impact of formalization on informal recycler livelihoods, social networks, a form of social capital, remain pivotal in securing opportunities.

In addition to this adaptive strategy to maintain their right to waste, informal waste recyclers have also utilized diversification of waste sources and income-generating activities, a form of financial capital. While modernization has negatively impacted informal recyclers in creating more barriers to their entry into the formal waste management ecosystem, it has allowed for the diversification of economic opportunities through urbanization. Modernization has offered more diverse and extensive opportunities outside of the traditional roles occupied by the informal waste workers, which previously included working solely with inherited households, often in less affluent neighbourhoods. The creation of new areas in Egypt have expanded the partnership opportunities for this group, offering greater diversity in both income-generating activities and collection sources. Combined, this diversification has ultimately strengthen the

position of community members. Informal waste recyclers have historically collected from householders but have expanded their collection routes to include a variety of MSW-producing buildings, including hospitals, airports, supermarkets. They have also strayed from the collection routes they traditionally inherited from family to newer, more affluent areas. This diversification offers a new discovery within the literature on this community as extant research does not indicate the transition of collecting from inherited households to new neighbourhoods and other MSW sources, including supermarkets, hospitals, airports, and educational buildings. As farmers before migrating to Cairo, the raising of livestock has been a known source of income for community members for years.

A strategy which has become increasingly popular for waste recovery and the integration of informal waste recyclers are EPR initiatives, as displayed through the membership of four (4) participants in such programs. As identified by Velis & Vracken (2015), a move towards the ‘servitisation’ of products proves to be in alignment with circular economy objectives. Servitisation refers to the idea that consumers do not own the products, but instead they receive the service that accompanies them. This kind of consumption model is extremely compatible with the requirement for EPR, which extends the responsibility of product manufacturers and distributors to the end-of-life stage. Additionally, there are related rights on physical items and the components and materials contained in these products. This constitutes a fundamental change to waste ownership and a feasible way of increasingly integrating informal recyclers into waste recovery in a way that their income-generating opportunities can be more consistent, reliable and secured by their associated right to waste through involvement with EPR initiatives. In this way, the question of who owns the right to waste is clear and informal recyclers can benefit from such ownership via partnerships with companies engaged in EPR initiatives. This program transfers

the responsibility and costs of managing products which enter the municipal waste stream, at the end of their life from local authorities back to the producers of those products (Cahill et al., 2011).

As an initiative to help companies reach their annual targets, EPR initiatives increase environmental wellness by also providing economic opportunities for informal waste recyclers. As discussed by participants, projects like DORNA and Plastic Bank integrate informal recyclers at all levels of the value chain into this income-generating scheme, offering an additional stream of revenue and a diverse economic stream for waste workers to diversify their sources of income and become more financially stable. EPR is a direct outcome of environmental awareness and the push for companies to take ownership for their contribution to environmental wellbeing. The OECD (2016) indicates the benefit of including the informal sector in EPR systems, including effective waste management operations, achieving recovery targets, and facilitating affordable and sustainable financing in middle-income countries where waste management systems are limited. Inclusion also provides opportunities for providing informal workers with sustainable livelihoods. In this way, greater environmental awareness has created this opportunity for informal workers and the continued pressure for companies to adhere to EPR will further the potential and reach of such initiatives.

As revealed previously, integration has been identified by scholars Wilson et al., 2006; Scheinberg et al., 2006; Medina, 2008; Gunsilius, 2011; and Mostafa, 2019 as the most effective strategy for addressing the issues and needs of informal waste recyclers. While EPR was the only initiative identified by participants as an integration strategy, this research suggests the potential of religious institutions in facilitating intervention towards the community achieving more sustainable livelihoods. While support for religious institutions was claimed by only 15 percent

of participants, there is great potential for this civil society actor to facilitate integration. Coptic has come to refer to something related to the church and religion, however, those who do not practice the religion of Christianity are still identified as Coptic and are associated with this identity by birth (Guirguis, 2012). In addition, the capacity for individuals to exercise their agency and participate in society is largely shaped by religious identity and affiliation. Egyptian Copts relate to the state through their religious identity (McCallum, 2012). Subsequently, anyone outside the Church hierarchy finds it difficult to assert their autonomy with the state (Pizzo, 2015). Thus, greater religious intervention could merge this growing divide between the state and the Coptic community, including the informal recycling community in Manshiyat an-Naṣr. All participants mention some form of spiritual commentary during interviews, alluding to their membership to the Coptic faith and involvement with the Coptic Church. Thus, there is potential for greater intervention from the church to advocate for this community as they have in the past. This has largely slowed in recent times as recounted in interviews.

In accordance with the sustainable livelihood framework, the livelihoods of traditional waste recyclers in Manshiyat an-Naṣr can be strengthened by enhancing their human capabilities and agency. Community members have demonstrated a great capacity to attain and maintain social capital amid the changing landscape of waste management in Egypt. From the time they migrated to the settlement until now, this remains the most consistent and impactful asset used by members to strengthen their livelihoods. However, as revealed during fieldwork, members struggle to maintain financial and physical capital due to increasing competition and the inability to assert their right to waste. Thus, efforts to support this community must consider how this group can maintain sustainable livelihoods in the midst of a continually changing structures and ideologies within the waste management sector and environment. Thus, it is evident that within

the current waste management ecosystem, community members still require greater support to cope with the challenges they encounter. This emphasizes the need for continued support on behalf of the community. The current support community members are receiving, as described by participants, has a minimal impact on their livelihoods.

Thus, while this community's adaptive capacity suggests a strong sense of community resilience and agency for livelihood outcomes, the study reveals that lack of integration remains the greatest threat to their right to waste and subsequently, the achievement of sustainable livelihoods. Through this discussion, it is evident that informal recyclers in Manshiyat an-Naşr have been able to adapt their livelihoods to cope with societal changes occurring outside of their community, however, their livelihoods remain vulnerable due to their right to waste being threatened.

CHAPTER 8: CONCLUSION

“To live your life here is difficult and the solution has to be suitable for everyone.

These people have done something good for the country.

We worked hard, didn't rebel against the government, didn't ask for a penny from the government, and have been doing this for years to help clean the country.

I think we should be appreciated. Appreciated and given acknowledgement.”

– 45 year-old male waste recycler from the Manshiyat an-Naṣr Informal Recycling Community

In this thesis, I have examined how traditional waste recyclers in Manshiyat an-Naṣr are adapting to contemporary Egyptian society and are navigating increased modernization and environmental awareness. Through this analysis, the community's current income generating activities have been examined to identify the challenges they encounter and the assets they have embraced. Additionally, how this community is being integrated into the formal waste management system has been identified. The research utilizes Conway & Chambers' conceptualization of sustainable livelihoods to frame the study and understand the vulnerabilities experienced by this group within the new waste management landscape in Egypt. This thesis contributes to empirical knowledge on how informal recyclers can be better supported in achieving sustainable livelihoods and informing policy around integration.

The livelihoods of informal recyclers in Manshiyet Nasser have historically rested on a foundation of intergenerational inheritance of the right to waste, family labour, and verbal negotiations. Together, these pillars have sustained this community and their integral involvement in the city's waste trade since their migration to Cairo 80 years ago. However, their system has evolved to be much more complex and dynamic than previously understood, with new actors, regulations, and pressures disrupting their informal value chain and impacting their capacity to carry out their traditional work. Thus, the right to waste in particular is becoming

weakened and challenged by emerging societal trends that are trickling their way into this community. This community is not operating within an isolated network as they once were. The activities of the community are evolving as a result, straying away from traditional practices that once shaped their livelihoods. This can be attributed to increased competition due to new actors entering and interfering with the community, and the implications of formalization on livelihood outcomes. These challenges are direct outcomes of the contemporary social, economic, and political landscape of the country. The community has, however, developed strategies to cope with these challenges, namely through embracing various forms of financial and social capital, which include the diversification of waste sources and income-generating activities, maintaining strong social networks, and embracing external support.

The common narrative that frames the challenges and assets identified by participants is the community's right to waste. The challenges identified by participants encompass the ways in which it has become more challenging for community members to engage with, and collect, waste. Likewise, the assets identified by participants encompass strategies they utilize to assert their right to waste. It is identified that the fundamental vulnerability experienced by this community is their right to waste being taken away. This has forced them to shift their practices in a way that is more suitable in adhering to the current waste management legislation in Egypt.

What is evident is the continued support required to uplift this community and enhance their attainment of sustainable livelihoods. While the community has managed to sustain their work by utilizing various forms of capital, their livelihoods can be strengthened and more sustainable with further external support which better secures this community's right to waste in a way that protects their occupation within the waste sector. While integration is sought out, effective plans in doing so must be conceptualized within the current context. What has proven

to be successful is the EPR model. Opportunities to replicate and expand this system would greatly enhance the economic opportunities and right to waste of community members.

This thesis suggests future research considerations on EPR and its effectiveness in securing opportunities for waste recyclers. As the only integration approach participants claimed membership with, EPR represents an opportunity for informal recyclers to gain the right to waste while making income through initiatives. While its introduction to the community is relatively new, it would be beneficial to explore the perception of this initiative within the community and how its outcomes can be strengthened for informal recyclers.

BIBLIOGRAPHY

- Aparcana, S. (2017). Approaches to formalization of the informal waste sector into municipal solid waste management systems in low- and middle-income countries: Review of barriers and success factors. *Waste Management* 61, 593-607.
- Anschütz, J., IJgosse, J., Scheinberg, A. (2004). Putting Integrated Sustainable Waste Management into Practice. Gouda: WASTE.
- Baud, I., Post, J. (2003). Between markets and partnerships: Urban solid waste management and contributions to sustainable development. *Global Built Environment Review* 3 (1), 46-65.
- Bajdor, P., Starostka-Patyk, M., Lis, T. (2016). The Analysis of Waste Management in Czestochhowa City for the years 2011-2014. *Transportation Research Procedia* 16.
- Brozus, L., Roll, S. (2021). Five years after the murder of Giulio Regeni: Europe's dangerous Egypt policy. German Institute for International and Security Affairs. <https://www.swp-berlin.org/en/publication/five-years-after-the-murder-of-giulio-regeni-europes-dangerous-egypt-policy>
- Byrne, B. (2017). Chapter 12 Qualitative Interviewing. *Researching Society and Culture*. Fourth Edition. Edited by Clive Seale.
- Cahill, R., Grimes, S., Wilson, D. (2011). Extended producer responsibility for packaging wastes and WEEE – a comparison of implementation and the role of local authorities across Europe. *Waste Management Res.* 9(5), 455-479.
- Cavatorta, F. (2012). Arab Spring: The Awakening of Civil Society. A General Overview. *The Awakening of the Civil Society in the Mediterranean*, 75-81.
- Cavé, J. (2012). Urban solid wastes in southern countries: from blurred object to common pool resources, Paper presented at the ISWA World Congress 2012, Sept 2012, Florence, Italy. <https://hal-enpc.archives-ouvertes.fr/hal-00737461>
- Cano, N., Iacovidou, E., Rutkowski, E. (2022). Typology of municipal solid waste recycling value chains: A global Perspective. *Journal of Cleaner Production*.
- Chambers, R., Conway, G. (1991). Sustainable rural livelihoods: practical concepts for the 21st century. Institute of Development Studies. Discussion Paper 296. ISBN 0 903715 58 9.
- Chen, M. (2012). The Informal Economy: Definitions, Theories and Policies. WIEGO Working Paper No. 1.

- Council Directive 91/156/EEC of 15 July 1975 on Waste. Official Journal of the European Communities. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31975L0442>
- Council Directive 74/422/EEC of 24 September 1991 on Waste. Official Journal of the European Communities. <https://eur-lex.europa.eu/legal-content/CS/ALL/?uri=OJ:L:1991:268:TOC>
- Cointreau, S. (2006). Occupational and Environmental Health Issues of Solid Waste Management: Special Emphasis on Middle and Lower-Income Countries. Urban Papers 2, World Bank, Washington, DC.
- Dias, S. (2012). Waste and Development – Perspectives from the Ground. Field Actions Science Reports, Special Issue 6.
- Dias, S. (2016). Waste pickers and cities. *Environment & Urbanization*, 28(2), 75-390. <https://doi.org/10.1177/0956247816657302>
- Didero, M. (2012). Cairo's Informal Waste Collectors: A Multi-scale and Conflict Sensitive Perspective on Sustainable Livelihoods. *Archive for scientific geography*, 66(1) pp. 27-44.
- Didero, M., Eldefrawi, S. (2019). Cairo's Zabbaleen. (Dis-)entangling the urban and social geography of informal livelihoods in a globalized megacity, *égypte/Monde arabe*, 19
- Egyptian Environmental Affairs Agency [EEAA]. (2020). *Waste Management Law No. 202 of 2020*. <https://www.eeaa.gov.eg/Laws/56/index>
- El-Halwagi, M., Tewfik, S., Sorour, M., Abulnour, A. (1987). Solid waste management in Egypt. Problems, planning and national trends. *Waste Management & Research*, 5(1), pp. 75-83.
- Ezeah, C., Fazakerley, J., Roberts, C. (2013). Emerging trends in informal sector recycling in developing and transition countries. *Waste Manag.* 33(11), pp. 2509-2519.
- FAO. (2019). FAOLEX Database. Good and Agriculture Organization of the United States. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC152213>
- Fahmi, W. (2005). The impact of privatization of solid waste management on the Zabaleen garbage collectors of Cairo. *Environment & Urbanization*, 17 (2), pp.155-170.
- Fahmi, W., Sutton, K. (2006). Cairo's Zabbaleen garbage recyclers : Multi-nationals' takeover and state relocation plans. *Habitat International*, 30(4), 806-837.
- Fahmi, W., Sutton, K. (2010). Cairo's Contested Garbage: Sustainable Solid Waste Management and the Zabaleen's Right to the City. *Sustainability*, 2, 1765-1783.

- Furedy, (1999). Reflections on some dilemmas concerning waste pickers and waste recovery. UWEP Policy Meeting 1997. Revised April 1999.
- Funder, M. (2005). Bias, Intimacy and Power in Qualitative Fieldwork Strategies. *The Journal of Transdisciplinary Studies*, 4(1), 1-9.
- Guirguis, M. (2012). The Copts and the Egyptian Revolution: Various Attitudes and Dreams. *Egypt in Transition*, 79(2), 551-530.
- Gunn, S. (1992). Dilemmas in tackling child labour: the case of scavenger children in the Philippines. *International Labour Review*, 131(6), pp. 629-646.
- Gunsilius, E. (2011). Role of the Informal Sector in Solid Waste Management and Enabling Conditions for its Integration. Experiences from GTZ. Gesellschaft für Technische Zusammenarbeit GmbH (GTZ).
- Gil, N., MacAulay, S. (2019). Collective Action under the Shadow of Contractual Governance: The Case of a Participatory Approach to Upgrade Cairo's 'Garbage Cities.' In N. Gil, A. Strafford & I. Musonda (Eds.), *Duality by Design: The Global Race to Build Africa's Infrastructure* (pp. 284-312). Cambridge University Press.
<https://doi.org/10.1017/9781108562492.011>
- Hassan, Y. (2017). From trash to treasure: Egypt's new recycling initiative triggers dispute with millions of garbage collectors. *Egypt Today*.
<https://www.egypttoday.com/Article/1/4027/From-trash-to-treasure-Egypt%E2%80%99s-new-recycling-initiative-triggers-dispute>
- The International Institute for Strategic Studies [IISS]. (2021). *The Armed Conflict Survey 2021*. Routledge. London.
- Jaligot, R., Wilson, D., Cheeseman, C., Shaker, B. (2016). Applying value chain analysis to informal sector recycling: A case study of the Zabaleen. *Resources, Conservation and Recycling*, 114, 80-91.
- Johnson, A. (2017). *Understanding Methodologies: Quantitative and Qualitative Approaches in The Essential Guide to Doing Your Research Project*.
- Krefting, L. (1991). Rigor in Qualitative Research: The Assessment of Trustworthiness. *The American Journal of Occupational Therapy*, 43(3), 214-222.
- Kuppinger, P. (2014). Crushed? Cairo's garbage collectors and neoliberal urban politics. *Journal of Urban Affairs*, 36(S2), 621-633.
- Lardinois, I., van der Klundert, A. (1993). *Organic Waste: Options for small-scale resource. Technology Transfer for Development*

- Lardinois, I., Christine, F. (Eds.). (1999). *Separation of Household Materials and Wastes: Experiences in Pakistan, Philippines India, Brazil, Argentina and Netherlands*. Gouda: WASTE
- Laws, S., Harper, C., Jones, N., Marcus, R. (2013). *Research for Development: A Practical Guide*, Second Edition. Sage Publications Ltd.
- Lincoln, Y., Guba, E. (1985). *Naturalistic inquiry*. Sage Publications Ltd. Beverly Hills, CA.
- Machi, L., McEvoy B. (2022). *Literature Review: Six Steps to Success*. Introduction: Doing and producing a literature review, 1-22.
- Marshall, R., Farahbakhsh, K. (2013). Systems approaches to integrated solid waste management in developing countries. *Waste Management* 33, 988-1003.
- Masood, M., Barlow, C. (2013). Framework for integration of informal waste management sector with the formal sector in Pakistan. *Waste Management Res*, 31, 93-105.
- McCallum, M. (2012). Christian political participation in the Arabi World. *Islam and Christian-Muslim Relations*, 23(1), 3-18.
- Medina, M. (2007). *The World's Scavengers: Salvaging for Sustainable Consumption and Production*. AltaMira Press, Lanham
- Medina, M. (2008). The informal recycling sector in developing countries: organizing waste pickers to enhance their impact. *Gridines*, 44. Washington, DC.: World Bank Group. <http://documents.worldbank.org/curated/en/227581468156575228/The-informal-recycling-sector-in-developing-countries-organizing-waste-pickers-to-enhance-their-impact>
- Merriam, S. Johnson-Bailey, J., Lee, M., Kee, Y., Ntseane, G., Muhamad, M. (2001). Power and Positionality: Negotiating insider/outsider status and across cultures. *International Journal of Lifelong Education*, 20(5), 405-416.
- Midgley, J., Tang, K. (2001). Social policy, economic growth and development welfare. *International Journal of Social Welfare*, 10, 244-252.
- Ministry of Planning and Economic Development [MPED]. (2021). *Egypt's 2021 Voluntary National Review*. <https://mped.gov.eg/DynamicPage?id=80&lang=en>
- Mostafa, N. (2019). Logistics of Waste Management with Perspectives from Egypt. In A. Negm & N. Shareef (Eds.), *Waste Management in MENA Regions* (pp. 171-186). Springer Water. <https://doi.org/10.1007/978-3-030-18350-9>

- Negm, A., Shareef, N. (2019). Introduction to the “Waste Management in MENA Regions.” In A. Negm & N. Shareef (Eds.), *Waste Management in MENA Regions* (pp. 1-11). Springer Water. <https://doi.org/10.1007/978-3-030-18350-9>
- NSWMP. (2011). *National Solid Waste Management Programme (NSWMP) Egypt – Working Document: ESIA Standards*. Cairo, Egypt: Ministry of Environment. <https://www.ecaa.gov.eg/Uploads/Project/Files/20221119135000850.pdf>
- O’Leary, Z. (2017). *The Essential Guide to Doing Your Research Project*. Third Edition. Sage Publications Ltd.
- O’Neill, K. (2019). *Waste. Polity*.
- Pillow, W. (2003). Confession, catharsis, or curse? Rethinking the uses of reflexivity as methodological power in qualitative research. *Qualitative Studies in Education*, 16(2): 175-196. <https://doi.org/10.1080/0951839032000060635>
- Pizzo, P. (2015). The ‘Coptic question’ in post-revolutionary Egypt: citizenship, democracy, religion. *Ethnic and Racial Studies*, 38(14), 2598-2613.
- Rouse, J., Ali, M. (2001). *Waste pickers in Dhaka: Using the sustainable livelihoods approach – Key findings and field notes*. Loughborough University. <https://hdl.handle.net/2134/30851>
- Rowe, P. (2020). The church and the street: Copts and interest representation from Mubarak to Sisi. *Religion, State and Society*, 48, pp. 343-360.
- Sandhu, K., Burton, P., Dedekorkut-Howes, A. (2017). Between hype and veracity; privatization of municipal solid waste management and its impacts on the informal waste sector. *Waste Management*, 59, 545-556.
- Sansom, M. (ed). (2009). *Refusing to be Cast Aside: Waste Pickers Organizing Around the World*, WIEGO, Cambridge, Massachusetts.
- Scheinberg, M., Anshutz, J., van de Kludert, A. (2006). Waste pickers: poor victims or waste management professionals? In: *Solid Waste, Health and the Millennium Development Goals*, CWG-WASH Workshop 2006, 1-5 February, Kolkata, India.
- Scheinberg, A., Simpson, M., Gupt, Y., et al. (2010). *Economic aspects of the informal sector in solid waste management*. GIZ CWG, Eschborn, Germany.
- Scheinberg, A. (2012). *Informal Sector Integration and High Performance Recycling: Evidence from 20 Cities*. WIEGO Working Paper (Urban Policies) N. 23.
- Serageldin, M., Larsen, M., Vigier, F., Summers, B. (2016). *Habitat III Regional Report for the Arab Region* 81.

- Soliman, M. (2020). Egypt's Informal Economy: An Ongoing Cause of Unrest. *Journal of International Affairs*, 73 (2), 185-194
- Spicer, N. (2017). Combining qualitative and quantitative methods. Chapter 17 in Clive Seale (Ed.), *Researching Society and Culture* (Fourth Edition) (pp. X-X). Sage Publications Ltd.
- TIMEP. (2019, August 21). *Law No. 149 of 2019 (NGO Law)*. Timep.org. Retrieved November 28, 2022, from <https://timep.org/2019/08/21/ngo-law-of-2019/>
- United Nations [UN]. (2012). UN Geospatial. Retrieved July 1, 2023, from <https://www.un.org/geospatial/content/egypt>
- United Nations [UN]. (2023). The Sustainable Development Goals Report 2023, Special edition. Retrieved July 1, 2023, from <https://unstats.un.org/sdgs/report/2023/>
- United Nations Development Programme [UNDP]. (2014). Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience. <https://www.undp.org/sites/g/files/zskgke326/files/migration/tr/2014-Human-Development-Report---English.pdf>
- United Nations Development Programme [UNDP]. (2020). Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care and electronic waste. <https://greenhealthcarewaste.org/wp-content/uploads/2020/12/Egypt-UNDP-GEF-Medical-Waste-and-E-Waste-Project-Document.pdf>
- UN-Habitat. (2015). *Habitat III issue papers. 22 – Informal settlements*. United Nations Conference on Housing and Sustainable Urban Development, New York, 31 May. <https://unhabitat.org/habitat-iii-issue-papers-22-informal-settlements>
- Velis, C., Vrancken, K. (2015). Which material ownership and responsibility in a circular economy? *Waste Management & Research*, 33(9), 773-774.
- Wilson, D., Velis, C., Cheeseman, C. (2006). Role of Informal Sector Recycling in Waste Management in Developing Countries. *Habitat International* 30(4): 797-808
- Wilson, D., Araba, A., Chinwah, K., Cheeseman, C. (2009). Building recycling rates through the informal sector. *Waste Management* 29, 629-635.
- Yehya, A., Nguyen, T., Wiehle, M. Buerkert, A. (2023). Urbanization Effects and its Drivers in Five Countries of the MENA Region – a Review. Available at SSRN: <https://ssrn.com/abstract=4484462>
- Zia, H., Devadas, V. (2008). Assessing informal waste recycling in Kanpur City, India. *Management of Environmental Quality: An International Journal*, 19 (5).

APPENDICES

Appendix A: Participant Profiles

Participant 1 is a 35-year-old male collector and scavenger who has been working in the sector for 22 years. He obtained his literacy certificate through NGO Spirit of the Youth's Recycling School for Boys. His family migrated to this community from the countryside 45 years ago. He inherited the collection routes from his family and currently works with his brother who does the driving, while he goes door-to-door collecting waste that is later sorted by his sister and sister-in-law. He collects waste from households and scavenges for recyclables on the street. He sells transparent polyproline, metal cans, PET plastic, dry plastics, books, cardboard, soles of shoes, and waste bread.

Participant 2 is a female sorter and trader. She dropped out of school after the second grade. She has been working in the waste sector for over 20 years and inherited the occupation from her family. Her sons do collection from Nasr City and Ambaseya and she later sorts the material and accumulates quantities to later be sold. She sells waste bread, yogurt cups, and PET plastic

Participant 3 is a 32-year-old male collector who has been engaged in the sector for more than 20 years. He completed secondary school but was unable to continue his education due to societal circumstances and lack of interest. His involvement with the waste sector was inherited from his family, but he started his own company in 2018. He currently collects waste under a subcontract with a licensed contractor.

Participant 4 is a 26-year-old trader who inherited his involvement in the sector from his father who collected waste. He obtained his literacy certificate through Spirit of the Youth's Recycling School for Boys. He worked in RDF (refuse dry fuel) before becoming a trader in 2019. He buys different types of plastics through sellers on Facebook. He sorts the material by type and colour, cleans it, and then sells to a trader who then processes the material for further trade.

Participant 5 is a 41-year-old male who has been involved in the trade for over 30 years. He obtained his literacy certificate. He owns a semi-production line where waste materials are sorted, crushed, and then packaged to be sent out to factories outside of the community. He inherited collection routes from his father which he now pays individuals to perform collection for him while he manages his business.

Participant 6 is a 60-year-old female sorter who has been involved in the waste trade for 40 years. She inherited collection routes from her family and currently works with her two daughters to sort waste, and son and husband who do the collection. She has never attended school. She supplements her income by raising animals that she sells, making and selling milk, cheese, and bread.

Participant 7 is a 35-year-old male who works as a collector for a waste company. He inherited his involvement in the informal waste sector from his uncle. He has had various jobs throughout his life, including working for an MNC in 2003. He faced obstacles in continuing his education, dropping out at a very young age.

Participant 8 is a 45-year-old male who owns his own factory. His family was involved in the waste sector since 1976, where they engaged in garbage collection and sorting. He started working in the sector during his summer breaks while pursuing his education. He graduated from University with a Degree in Law, after which he decided not to continue a his career in that profession and came back to the community. He owns two businesses; one which was formalized in 2012 and focuses on plastic recycling, the second supply's RDF to cement factories. He uses his families inherited collection routes to employ individuals to collect from them.

Participant 9 is a 27-year-old male who workers as a trader, specifically collecting and trading plastic gathered from the supermarket Carrefour. He has been involved in this occupation for 10 years. He holds a University Degree in Information Systems.

Participant 10 is a 35-year-old female sorter who also works at APE creating loom products. She has been involved in the waste trade for 19 years. She did not receive any formal education and has been working at APE and doing other odd jobs to support herself and her children.

Participant 11 is a 71-year-old male who currently owns a bakery and was formerly a collector. He came to the community 60 years ago from the countryside in search for a better life and financial stability. While his parents didn't work in the waste sector, his wife and children assisted him in this work. He has passed on his inheritance to his children. He stopped working within the sector after the ban of donkey carts and the swine flu outbreak.

Participant 12 is a 24-year-old female trader who inherited her father's business when he passed away a few years ago. She buys and sells plastic and paper waste. She has been working in the trade for 12 years, supporting her siblings. She has not pursued formal education beyond the 4th grade but has obtained a literacy certificate by attending literacy classes through a church.

Participant 13 is a 38-year-old trader who buys dry plastic materials from small traders outside of the community and other waste settlements. His wife assists with the sorting of materials. Previously, he worked as a collector but found it to be tiring, transitioning to becoming a trader. He inherited the collection route from his father.

Participant 14 is a 39-year-old male recycler. He inherited collection route from his family and has been involved in the trade since he was a child. In 2006, he started his own waste collection company, and in 2014, he established a recycling company. He holds a Bachelor's Degree in Administrative Science.

Participant 15 is a 21-year old male working in a factory. He was born in Sudan and moved to Egypt two years ago. He finished secondary school and wishes to continue his education in information systems and computer science but does not have the financial capacity to do so at this time. He works at a factory where he operates a compressing machine.

Participant 16 is a 33-year-old collector who inherited collection routes from his father and has been working the trade for 15 years. He works with his brother who sells plastic, cardboard, and aluminum to different treaders. He graduated from secondary school and attended a technical school specializing in Mechanics.

Participant 17 is a 40-year-old male who has been involved in the waste trade from childhood. He inherited the work from his father and has continued the family's involvement in informal waste management. He and his siblings collect garbage from apartments, both for a formal waste company and through their familial inheritance. He left school after one year and has not returned.

Participant 18 is a 47-year-old female sorter who has been involved in this trade since she was 5, helping her father and grandfather with collection and sorting. She now primarily buys her waste from the Airport, particularly EgyptAir, and sells the recyclable materials like yogurt cups, polypropylene, and plastic. She does not have any formal education.

Participant 19 is a 34-year-old male collector and scavenger. He inherited his occupation from his father and has been engaged in collection for a significant period of time. He has never received formal education.

Participant 20 is a 22-year-old male who works as a trader. He purchases plastic bags from collectors and his wife assists with sorting. His involvement in the informal waste trade began after his mother's passing when his brother bought the right to collect waste from households. He researched high school and specialized in tourism and hotels but didn't finish or graduate.

Appendix B: Interview Guide for Informal Waste Workers

Date:

Consent:

Name of Participant:

Gender:

Age:

General Background of Informal Waste Recyclers

- 1. Tell me about yourself and the work you do.**
- 2. What is the highest level of education you achieved? Would you continue if you had the chance?**
- 3. Was this occupation the only option of work you had?**
- 4. How long have you been engaged with your occupation?**
- 5. How did you get started in your occupation?**
- 6. Is the work you do part of a family business?**
- 7. Do you have children?**
- 8. What are your aspirations for your children?**
- 9. How many people do you work with? What are the roles of the people you work with?**
- 10. Tell me about how you secure opportunities and partnerships with the people you work with**
 - a. Have you encountered any situations where having verbal agreements without a contract have had a positive impact?**
 - b. Have you encountered any situations where having verbal agreements without a contract have had a negative impact?**
- 11. How has your work changed throughout the years?**
 - a. Have your responsibilities changed? Have the areas you work in changed? Have the people you work with changed?**
 - b. What is the reason behind this change?**

12. Do you ever use the money you earn to improve your work? (safety equipment, technology, machines)

13. Are you happy with your work? Why or why not?

Informal Nature of Work

14. Have you ever thought to formalize/register your work? Why or why not?

15. If you wanted to formalize your work, do you know how?

16. Does being an informal worker negatively impact your work?

17. Do you face police harassment for being informal? Have you ever been asked to present a license?

18. Do you understand the benefits of being in the formal sector?

19. How has the Egyptian government integrated your work into society?

National Waste Management Laws

20. Were you working during the government's privatization of waste collection in 2003-2017?

a. Did this impact your work?

21. Do you know about the new waste management policy that was introduced in 2020 in Egypt?

22. If you answered yes to number 5, how has the government's new waste management policy impacted your work?

a. In particular, the privatization and outsourcing of waste collection?

b. In particular, the mandatory licensing to collect waste and operate processing technology?

c. Are there other aspects of the new policy that has impacted your work or you foresee impacting your work?

23. If you answered no to number 5, how do you think the government's new waste management policy will impact your work?

a. In particular, the privatization and outsourcing of waste collection?

b. In particular, the mandatory licensing to collect waste and operate processing technology?

c. Are there other aspects of the new policy that you think may impact your work?

Support Received

24. What are your most urgent needs?

25. What are the biggest challenges you face?

26. Have you received support from the Egyptian government?

- **What subsidies or social benefits does the Egyptian government provide?**
- **Is the government's support enough?**
- **Has their support helped you overcome or improve your occupational conditions?**

27. Have you received support from civil society organizations like APE? How has their support helped you overcome or improve your occupational conditions?

28. Have you received support from other actors?

29. Is there other support you wish to receive?

Other Questions

30. Is there anything else you would like to discuss during this interview?

Appendix C: Verbal Consent Script

My name is Maria Malik and I am a Masters in Development Studies student at York University.

The name of the study is “Securing Opportunities for Informal Garbage Workers in Cairo”

The purpose of my research will study the work of informal garbage workers in Manshiyat Nasser and how their livelihood opportunities and the organization of their work has been altered due to the Egyptian government’s implementation of a new municipal waste management system. This will be done through flexible semi-structured interviews with informal waste workers and members of the Association for the Protection of the Environment, a civil society organization that supports this community of informal waste workers. I will then use the data collected to write my Master’s thesis.

Research participants will be asked a series of questions relating to their work or participation in programs of the civil society organizations. Interviews will take 45 minutes to 1 hours.

We do not foresee any risks or discomfort from your participation in the research.

A potential benefit of this research is to give individuals a space to reflect on the work their doing in the organization and to frame participation in these programs. Therefore, it will help explore what programs and approaches are most effective to address the integration of informal garbage workers into the formal system.

Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participation, or to refuse to answer particular questions will not influence the nature of the ongoing relationships you may have with the researcher or study staff, or the nature of your relationship with York University either now, or in the future.

In the event that you withdraw from the study, all associated data collected will be immediately destroyed wherever possible. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the analysis is complete.

- Unless you choose otherwise, all information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research
- Data will be collected in the form of handwritten notes, and audio tapes. Your data will be safely stored on a secured laptop and locked filing cabinet. Only myself, the researcher, and my supervisor Nathanael Ojong will have access to this information.
- The data will be stored for up to five years in order for me to have time to write my thesis (September 1, 2027). After that, all paper files will be shredded and electronic copies deleted. Confidentiality will be provided to the fullest extent possible by law
- The data collected in this research project will not be used for any additional purposes than the one of writing my Master’s thesis.

- If in-person fieldwork is not permitted, this study will use Zoom and Whatsapp to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Further, while York University researchers will not collect or use IP addresses or other information which could link your participation to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the research team. If you are concerned about this, we would be happy to make alternative arrangements (where possible) for you to participate, perhaps via telephone. Please contact the researcher for further information.
- Recordings (audio/video) will be saved in a password protected file to research team members' local computer, not the cloud based service
- Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting / data collection session.

If you have any questions about the research team in general or about your role in the study, please feel free to contact me at malikmar@yorku.ca, or my supervisor, Nathanael Ojong at nojong@yorku.ca. You may also contact the Graduate Program in Development Studies at dsgrads@yorku.ca and/or 416-736-2100 ext. 20979.

This research has received ethics review and approval by the Delegated Ethics Review Committee, which is delegated authority to review research ethics protocols by the Human Participants Review Sub-Committee, York University's Ethics Review Board, and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Legal Rights and Verbal Consent

Do you consent to participate in Securing Opportunities for Informal Garbage Workers in Cairo, conducted by Maria Malik. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My verbal agreement indicates my consent.

Additional consent (where applicable)

1. Audio recording

Do you consent to the audio-recording of your interview(s)?

Would you like to waive your anonymity?

2. Video recording or use of photographs

Do you consent to the use of images of me (including photographs, video and other moving images), my environment and property in the following ways:

- In academic articles?
- In print, digital and slide form?
- In academic presentations?
- In media?
- In thesis materials?