صندوق تطوير وإقراض الهيئات المحلية

Municipal Development & Lending Fund

BENEFICIARY IMPACT ASSESSMENT OF GAZA SOLID WASTE MANAGEMENT PROJECT

END-LINE ASSESSMENT REPORT

Assignment No. 4.1.5.2

RIYADA CONSULTING AND TRAINING

August, 2021

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ACKNOWLEDGEMENTS

Riyada's research team would like to thank the MDLF for their professional support and facilitation of the process of conducting the End-Line for the Beneficiary Impact Assessment. Special thanks to Eng. Nouredding Al Madhoun, Director, Project Development & Safeguards Unit (PDSU), Gaza Solid Waste Management Project; Eng. Samir Matar, Environmental Specialist; Ms. Haya Al-Agha, Social Specialist; and Eng. Osama El Agha, Procurement Officer. Our thanks and appreciation are also extended to JSC for their active participation in the study: Dr. Ali Barhoum, Manager of technical operations unit at JSC; the JSC's technical staff, environmental specialists and social awareness staff. Alongside their professionalism in supporting the research process, they ensured timely, quality facilitation and input on coordination meetings and surveys, as well as provided the documentation needed, and made themselves available to Riyada Consultants and researchers throughout the process.

We would like to thank the 17 JSC-member municipalities represented by the Mayors, technical, financial and environmental staff for their welcoming and active participation that ensured that this study is completed in a timely and qualitative manner. Our thanks and acknowledgments to the following people, with our apologies for not mentioning each individual: The Four Hundred and Twenty beneficiary household respondents who participated in the Midline survey, the social committee members, health educators, waste pickers and the residents near the project area who participated in the focus groups conducted. Their input, insights and expectations helped shape the findings and analysis included in the current report.

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ACRONYMS

ARAP	Abbreviated Resettlement Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GSWMP	Gaza Solid Waste Management Project
JSC	Joint Services Council
JSC-KRM	Joint Services Council in Khan Younis, Rafah, and the Middle Governorates
LGU	Local government unit
MDLF	Municipal Development and Lending Fund
MDLF-PDSU	Municipal Development and Lending Fund – Project Development and Safeguards Unit
NGO(s)	Non-governmental organization(s)
NIS	New Israeli Shekels
SPSS	Statistical Package for the Social Sciences
SWM	Solid waste management
UNDP	United Nations Development Programme

EXECUTIVE SUMMARY

The Gaza Solid Waste Management Project (GSWMP) was designed to improve solid waste management services in the Gaza Strip through the provision of efficient environmentally and socially sound waste management schemes. The objective of this Beneficiary Impact Assessment (BIA) report is to assess the satisfaction of the served communities and stakeholders and extract their perceptions during three stages of the project 1) **Baseline** at the beginning of the project implementation; 2) **Mid-line** during the implementation of the different activities; and 3) **End-line** at the end of the project implementation.

The Consulting firm (Riyada Consulting and Training) applied a mixed-methodology approach consisting of both quantitative and qualitative data collection to evaluate the perception of the project and its impact across the various project beneficiaries, municipal representatives, technical staff and environmental specialists, as they relate to the institutional, environmental, social and financial effects of the project. Through the implementation of a holistic/comparative analysis, the research team took a mixed-methods approach which included an intensive desk review of previous reporting, as well as the distribution of household and municipality quantitative surveys and key informant interviews and focus groups.

Satisfaction of Served Communities: Generally, there is a significant increase of satisfaction of local community throughout the project phases in terms of removal of the environmental threats such as random waste piles, and increase the number of containers. More than two third of people reported that their SW collection needs were met at the End-line phase.

Satisfaction of Joint Service Council (JSC): JSC-KRM staff reported that they were "very satisfied" with the level of coordination with MDLF. MDLF managers similarly reported being "satisfied" with the working relationship with the JSC. As well technical staff reported that they were satisfied with their contribution to the Solid Waste Management project in the southern Gaza Strip, noting that JSC had a prominent role even in the design stages of the project.

Satisfaction of JSC' Member Municipalities: At the End-line phase, 82.4% of municipal representatives reported they were satisfied with the level of coordination between themselves, the Joint Services Council, and the project team regarding project activities, higher than the 73.3% who reported being satisfied in the Baseline phase. 70% of municipal representatives reported they were happy with their contribution to the solid waste management project.

Knowledge about the Project: Resident's knowledge of the project and its benefits had tripled since the baseline. The end-line results showed that 33.1% of beneficiaries reported having any information about the GSWMP, which is a considerable increase from the 8.1% of beneficiaries who were aware of the project during the Baseline phase. In another hand, 90% of municipal representatives reported at the End-line phase that they were aware of the activities of the solid waste management project, had knowledge of its donors and service providers, and participated in solid waste management project activities.

Beneficiary participation and Awareness of SWM Public Campaigns: 16.9% of beneficiaries reported being aware of public campaigns of the project at the End-line phase, an increase from the 4.6% which reported so in the Baseline phase. Most of beneficiaries identified the Municipality as the organizer of the SW campaigns followed by NGOs and followed by JSC.

Availability of Complaining Channel at the JSC Member Municipalities: All surveyed municipalities reported having a complaints mechanism, but only 76% of member municipalities

have Local service center. In another hand, most of participants who attended the different focus groups informed that there is a failure in the dealing with complaints in most of member municipalities. JSC technical staff informed that they have their own complaining channels including the E-Complaint channel, and they receive an average of 6-10 complaints monthly; more than 80% of them are associated to waste collection activities.

Willing to sort solid waste: 63.6% of the End-line respondents reported their household would be willing to sort solid waste. Further, most of municipal representatives noted that these initiatives are "non-existent" due to citizens' non-response and a lack of plans or programs to encourage it. However, there are some recycling initiatives done at the manufacturing level (private sector) to produce recycled plastic products.

Beneficiary willingness to pay: The survey revealed that 30.3% of beneficiaries at End-line phase indicated that they are not satisfied with the cost of solid waste management services which is less than the percentages in Midline phase. At the same time, there was an increase in satisfaction and decrease in dissatisfaction with solid waste management cost in the End-line phase compared to the Midline results. 21.4% of respondents reported that they are willing to take on additional costs in return for better service provision in the end-line phase, in comparison with 38.8% who reported they would in the Baseline phase. The consultant noted the decrease of the willingness to pay additional costs for better services, this can be explained that the SWM service at the End-line phase was better than the previous two phases due to the projects improvements and thus people felt they are not willingness to pay more for improving the service.

The Cost Recovery rate: When examining the cost recovery rates of the 17 member municipalities at the End-line phase; the total cost recovery rate is still very low of 22.38%, despite a slight total decrease compared to the Baseline of 23%. Municipal representatives informed that low-cost recovery rate is due to the deteriorating economic situation in the Gaza Strip which causes unprecedented unemployment rates, increasing residents' inabilities to pay their dues, including for solid waste management. In another hand, the JSC-KRM fee collection rate is increased at the End-line up to 75% comparing to 66% in the baseline, but it decreased during the COVID-19 period to be 67%. Although the collection rate is increased, the JSC' cost recovery rate is the same at both Baseline and End-line phases; this can be explained that in time the fee collection rate was increased, also the cost of the service was increased.

This report also presented some of successful stories which were reported during the project implementation such as dealing with waste pickers and how their lifestyle was changed. More details and more results and discussion can be found in the sections of this report.

1. INTRODUCTION

The Gaza Solid Waste Management Project (GSWMP) was designed to improve solid waste management services in the Gaza Strip through the provision of efficient environmentally and socially sound waste management schemes through four components: (i) Construction of solid Waste Transfer and Disposal Facilities, (ii) Institutional Strengthening, (iii) Waste Collection, and (iv) Project Management. Under component one, a new sanitary landfill and its access road were constructed in the southern region of Gaza Strip with a capacity to serve three out of Gaza's five governorates until year 2027, in addition to construction of two transfer stations, one in Khan Younis and the other one in Rafah.

The objective of the Beneficiary Impact Assessment (BIA) assignment is to provide the Municipal Development and Lending Fund – Project Development and Safeguards Unit (MDLF-PDSU) with the Beneficiary impact assessment report for GSWMP which addresses the following issues during three different stages (Baseline, Mid-line, and End-line):

- Identifying the local concerns and attitudes towards the project.
- Evaluating the added value of the project on the life quality of the served communities.
- Exploring the Local Government Units (LGUs) satisfaction towards the project.
- Identifying to what extent the beneficiaries are aware of the project.

The Baseline for Beneficiary Impact Assessment (BIA) was conducted by The Consultant (Riyada Consulting and Training) in late 2017 and early 2018. The midterm survey took place in September 2019, and in December 2020, the consultant team started the preparations for conducting the End-line Beneficiary Impact Assessment. The consultant team applied a mixed-methodology approach consisting of both quantitative and qualitative data collection to evaluate the perception of the project and its impact across the various project beneficiaries, municipal representatives, technical staff and environmental specialists, as they relate to the institutional, environmental, social and financial effects of the project. Through the implementation of a holistic/comparative analysis, the research team took a mixed methods approach which included an intensive desk review of previous reporting, as well as the distribution of household and municipality quantitative surveys and key informant interviews and focus groups.

1.1 Methods and Tools

Through the implementation of a holistic and comparative analysis, the research team took a mixed methods approach which included an intensive desk review of previous reporting, as well as the distribution of household and municipality quantitative surveys and key informant interviews and focus groups. Table (1) presents the number, and description of the qualitative and quantitative methods which were used during the assignment at the End-line stage.

Table 1. Number of People targeted by End-line Qualitative and Quantitative Assessment Tools

Method	Number of Respondents	Description
Qualitative Interviews	13	Conducted with representatives from MDLF, JSC, Municipalities of (Al Fukhari, Deir El Balah, Khan Younia, Rafah), and Al Fukhari Association of Rural Development (NGO).
Surveys for JSC-KRM Member Municipalities	17	Filled by representatives of the 17 JSC-KRM member municipalities (Environmental and Health Department & Financial Department).
Focus Groups and Group Interviews	10	Conducted with Social Committee Members, JSC Health Educators, Beneficiaries in Al Fukhari area, Direct beneficiaries near the transfer station, Waste Pickers, 2 groups of Students & Teachers, CBOs, and NGOs in Khan Younis, Rafah and Deir El Balah.
Household Survey	420	For this assignment, the consultants applied a stratified systematic random sample of (420) beneficiary households, with a **95% confidence interval** and a **margin of error of roughly 4.8%.** 201 of these respondents are repeated and participated either in the Midline or Baseline assessments, constituting almost half of the Baseline sample, 102 households out of them, participated in Baseline and Midline, in addition to the 219 who are new respondents.

Additionally, wherever relevant data was disaggregated by sex and qualitative approaches were considerate of providing an inclusive space for the voices of both women and men to be incorporated into the analysis. Furthermore, as the project began prior to the COVID-19 pandemic, attention was given to changes that may have occurred as a result of the lockdown and implementation of pandemic related restrictions. Further detailed information is provided in **Annex I: Approach and Methodology**).

1.2 Context Analysis

Movement restrictions were imposed on the Gaza Strip since the early 1990's by Israel.[1] Restrictions intensified in June 2007, following the internal Palestinian divide, when Israel imposed a land, sea and air blockade on Gaza, citing security concerns.[2] Despite relaxation of some blockade-related

1 OCHA. (n.d.). Movement and Access. OCHA. https://www.ochaopt.org/theme/movement-and-access
2 OCHA. (n.d.). Gaza Strip. OCHA. https://www.ochaopt.org/location/gaza-strip

restrictions in recent years, 1.8 million Palestinians in Gaza remain 'locked in', denied free access to the remainder of the territory and the outside world. The blockade has undermined the living conditions in the coastal enclave and fragmented the oPt and its economic and social fabric. The isolation of Gaza has been exacerbated by restrictions imposed by the Egyptian authorities on Rafah, its single passenger crossing.[3] The year 2020 marks the 13th consecutive year that the Israeli government enforced a generalized travel ban on Palestinians in the occupied Gaza Strip and sharply restricted the entry and exit of goods. These restrictions, not based on an individualized assessment of security risk, denied the 2 million Palestinians living there their right to freedom of movement, limited their access to electricity and water, and devastated the economy. Eighty percent of Gaza's residents depend on humanitarian aid.[4] According to figures by the Palestinian Central Bureau of Statistics, the unemployment rate in Gaza increased by 3.6% in the second quarter of 2020 compared to the previous quarter, and by 2.4% compared to the second quarter of 2019, now standing at 49.1%.[5] Restrictions on movement, gender inequality, and lack of labour market opportunities contribute to this high unemployment rate.

- ***Effects of Covid-19***

The COVID-19 crisis impacted the economy in Gaza which was already weakened by three years of low economic growth, high unemployment, and persistent fiscal deficits, resulting in a sharp decline in economic activity in Palestinian territories in 2020.[6] Despite taking early necessary measures to contain the spread of the pandemic, including the introduction in March of a full lockdown that lasted until the end of May, a second wave of the epidemic returned by the beginning of July, forcing partial reintroduction of measures to restrict movement. Necessary measures to contain the COVID-19 crisis have contributed to sharp declines in activity for an economy already facing constraints on movements and access that left it operating well below potential. The constraints have been hollowing out the productive sectors and left the economy reliant on consumption-driven growth. In 2019 this situation was compounded by the liquidity crisis that faced the PA following the clearance revenue standoff. As a result, real growth in the Palestinian territories in 2019 was a mere 1 percent, with Gaza registering minimal growth following a steep recession in 2018, and growth in the West Bank reaching 1.2 percent - the lowest level since 2003.[7]

The outlook for the Palestinian economy looks grim especially after the second wave of the COVID-19 outbreak. For 2020, it was projected that the COVID-19 crisis will have a substantial negative impact on the economy and Palestinian people. The GDP for the entire year is expected to contract by about 8 percent.[8] Recovery is expected to be gradual and modest in 2021, with growth returning to about 2.5 percent, as full normalization of activity is not expected to occur before the second half of 2021. The economic decline is expected to have a negative impact on standards of living and wellbeing of Palestinians. The unemployment rate in the Palestinian territories has increased further

3 OCHA. (n.d.). Gaza Blockade. OCHA. https://www.ochaopt.org/location/gaza-blockade

4 Human Rights Watch. (n.d.). *Israel and Palestine: Events of 2020*. Human Rights Watch. https://www.hrw.org/world-report/2021/country-chapters/israel/palestine#

5 Palestinian Central Bureau of Statistics. (2020, October 3). Gaza unemployment rate in the second quarter of 2020: 49.1%. Reliefweb. https://reliefweb.int/report/occupied-palestinian-territory/gaza-unemployment-rate-second-quarter-2020-491#:~:text=September%2021%2C%202020.,%2C%20now%20standing%20at%2049.1%25.

6 Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

7 Economic Monitoring Report to the Ad Hoc Liaison Committee, World Bank Group, June 02, 2020.

8 Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

as a result of COVID-19. The unemployment rate stood at 28.8 percent at the end of the third quarter of 2020, with some 121,000 employees losing their jobs in the second quarter alone.[9] Of this, some 96,000 people have lost jobs in the Palestinian territories, especially in sectors that have been affected by social distancing measures, such as tourism, restaurants and construction. Some 25,000 Palestinian workers that regularly cross to Israel for work lost their jobs in the second quarter of 2020.

To deal with the immediate crisis and with further domestic borrowing running into limits, grants from the donor community remain the most viable source of additional finance. Moreover, Palestinian Local Government Units (LGUs) are at the forefront of combating the COVID-19 pandemic, thus additional funds and support to LGUs is critical at this juncture. Local governments have functional assignment of responsibilities in service delivery and thus are at the forefront of combating the COVID-19 pandemic, due to their proximity to affected communities, emergency management responsibilities at the local level and local prerogatives in managing public space.[10]

- ***Effects of Covid-19 on Solid Waste Management***:

A study on the role of authorities in the context of the Corona pandemic[11] shows that there is a marked increase in the amount of financial hardship faced by local authorities (municipalities), as a result of the large difference between actual revenues and operational and commercial expenditures; where revenues decreased and expenditures increased, and authorities were unable to collect their dues from subscribers. Approximately eighty percent (80%) of municipalities accumulated salary dues to their employees, and the number of months to be paid ranged from fifteen (15) months to three (3) months. The study shows that local revenues decreased significantly comparing the first quarter of 2017 to the first quarter of 2020; Gaza City Municipality – fifty-three percent (53%), Khan Younis Municipality – sixty six percent (66%), Rafah Municipality – twenty-five percent (25%), Deir al-Balah Municipality – thirty percent (30%), and Jabalia Municipality – fourteen percent (14%).[12] These authorities had an active role in the interventions during the pandemic, including directly linked to quarantine centers, particularly the collection, relay and treatment of solid waste, the sterilization of these centers, as well as carrying out related health and environmental controls, and the purchase of tools and materials for sterilization and prevention and safety.

When taking into consideration the high rate of poverty within the oPt, particularly in the Gaza Strip, it is important to note that SWM services are known to consume a large portion of the budgets of the municipalities. It is also widely recognized that the service fees collected from the beneficiaries of the service (local communities) is in general small and marginal and varies widely from one place to the other. According to Habitat, the percentage of the monthly household income that can be freed for SWM in the developing world is 1.0 - 1.5% of the family income and according to some World Bank studies, this could even reach 1 - 3%. No accurate figures were found for the average family income in Gaza Strip. Under the assumption that a large portion of the population is making a living

9 Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020

10 COVID-19: Safeguarding Lives and Livelihoods- A Checklist Guide for Local Governments, World Bank Group.

11 Abu Rukba, Talal, June 2020, "The Reality of Local Authorities in Light of Corona Pandemic, (Service Levels and the Most Prominent Challenges)", Al Meezan Center for Human Rights. https://bit.ly/32bXy1d

12 Abu Rukba, Talal, June 2020, "The Reality of Local Authorities in Light of Corona Pandemic, (Service Levels and the Most Prominent Challenges)", Al Meezan Center for Human Rights. https://bit.ly/32bXy1d

from daily wages and assuming that only one person per family is working on a daily wage basis, it could be argued that an average payment of NIS 15/household/month is regarded as a relatively high payment. Although the figure still falls within the World Bank suggested percentage of income, Gaza Strip case should be dealt with very carefully. The large portion of population living below the poverty line, the fact that most income sources are insecure and of temporary nature add venerability to the households' income and make it possible to suggest that local population might be unable to afford these service fees.

- ***Impact of Covid-19 on SWM Services***

Through the conducted focus groups, participants stated that the municipalities did excellent efforts and solid waste services improved after the spread of the Coronavirus. However, the Environment health department heads at Deir Al-Balah, Khanyoiuns, and Rafah municipality stated that they were under alot of pressure when dealing with the COVID-19 Pandemic. As the municipality was required to allocate a special collection vehicle to collect Corona waste only. Also, the workers team must be equipped with preventive measures such as masks, gloves, alcohol and sterilizers. All that added a new financial burden on the municipality. Municipalities have also faced challenges from the behavior of some citizens who are careless regarding following COVID-19 protocols and are not committed to their given times of exit the waste and how to sterilize it and put it in an airtight bag.

- ***Gender aspects-impact of waste management within Gaza***

When considering the Gender aspects-impact of waste management within Gaza, it is important to recognize the structural challenges facing women in the labor market, particularly since the 2020 Covid-19 crisis. Job losses come on the heels of stubbornly high unemployment rates that existed well before the crisis and are likely to mostly affect those groups with higher than average unemployment rates, among them women (41 percent compared to 21 percent among men). Gazan women are particularly affected with a 64 percent unemployment rate compared to 40 percent of men in Gaza and 25 percent of women in the West Bank.[13] Women are first to lose their jobs or to have to give up their jobs to take on full-time care and household responsibilities with school closures. According to polls, 76 percent of women reported lost incomes due to COVID-19 compared to 65 percent of men.[14] Furthermore, women who exit the labor force have experienced great difficulty in returning to work, especially when supply of jobs is limited and preferences go to hiring men. Much of this is due to social norms and stereotypes surrounding women and men's role: over 65 percent of respondents felt that "when jobs are scarce men should have priority".[15]

Within this pandemic context, it is important to also note that limited access to drinking water, domestic use of water and wastewater and solid waste management in the Gaza Strip have significant impact on household spending, health and hygiene, and school attendance. Inadequate

13 UN Women, 2020 COVID-19: Gendered Impacts of the Pandemic in Palestine and Implications for Policy and Programming. Survey was carried out by the Arab World Research and Development Poll sample covering 800 economically and socially active Palestinian men and women in the West Bank and Gaza. *Skilled young women carry the burden of unemployment. For example, female graduates in engineering are much less likely to find work in Gaza than male graduates (39 percent versus 16 percent unemployed, respectively).

14 Ibid.

15 World Values Survey 2010-2014.

WASH facilities expose women and girls to threats and burdens associated with meeting their personal hygiene needs, undertaking basic domestic chores, managing household water needs, and securing the needs of children, people with disabilities, the elderly and the chronically ill.[16] In a focus group held with Gazan women who live in areas served by the project, the respondents confirmed that the collection service is very organized in their areas. When asked about the quality of the service, the women were not suffering from coverage issues, but they complained from the process of compacting the waste in the vehicle did leave behind leachate leakage on the road, as well as expressed concerns regarding the littering around the containers and in some cases, they worried about the burning of waste and the potential impact this may have on their family's health.

Furthermore, the Social committee and JSC Health educators' members highlighted that though all segments of society are affected by poor solid waste management practices, children, the elderly, and vulnerable groups, such as sick people, are the most affected by burning waste. Recently MDLF with cooperation with municipalities formed women's committees in municipalities in order to enhance women's role in solid waste awareness. The reason behind expanding the community committee and increasing the percentage of women is enhancing the participation of women in the JSC service area. And achieving the concept of stakeholder engagement and contains many categories. Among these groups, of course, is the category of women. Additionally, the JSC formed the Women's Group in November 2020 containing women employees from 7 municipalities (Khan Younis, Rafah, Deir Al-Balah, Al-Nusierat, Abasan Al-Kabeera, Bani Suhaila, Al-Fukhary) and each municipality formed a separate Women's group of about 10 influential women. The formation of the Women's Group aims also at sharing information about the solid waste sector and participating in decision-making. Women's Group is also a tool for environmental awareness and working on a Stakeholder Engagement plan include awareness plans for each month, plans to strengthen complaints systems, plans for field visits, and coordinate visits to the sanitary landfill. **ANNEX II provides more details of the context analysis.**

1.3 Composition of the Report

This End-Line BIA Report is presented in five sections as the following:

Section I: provides a and introduction of the methodology and approach used during the assignment and brief context analysis; designed to provide an overview of the economic, political and social issues within the targeted project areas.

Sections II: provides an overview of the project beneficiaries' perceptions of and level of satisfaction with the project.

Section III: provides an overview of the targeted municipal representatives' perceptions of and level of satisfaction with the project.

Section IV: provides an overview of the project's technical staff and environmentalist's perceptions of and level of satisfaction with the project.

Section V: provides some of successful stories during the GSWMP implementation.

16 UN Women - UN OCHA: Needs of women and girls in humanitarian action in Gaza: Gender Alert for the 2016 Response Plan.

Section VI: provides conclusions, lessons learnt and recommendations.

Annex I: explains the approach and methodology used in the implementation of the assessment, **Annex II**: provides an extended Context analysis,

Annex III provide Financial Data (MSW Cost Recovery and Collection Rate (Municipalities and JSC) and JSC Expenses & Due Loans.

ANNEX IV: Public Hearing Summary

2. BENEFICIARIES' PERCEPTIONS OF AND SATISFACTION

This section presents the perceptions and satisfaction of the ***local community beneficiaries*** regarding to the GSWMP. The local community beneficiaries can be defined as people who live in the JSC-KRM service area (Khan Younis, Rafah, and Middle Area). The consultant targeted a representative sample of people by using different tools with more focus on some specific/affected groups such as people who live around the landfill or the waste transfer station, or people who affected directly by the project such as the waste pickers.

2.1 Methods and Tools

The level of satisfaction was concluded by using different tools as the following:

- **Household Survey:** The Consultant surveyed 420 beneficiary households living in the governorates directly surrounding the project areas, who are broken down according to the following demographic variables including; gender, age, relation to head of family, education, marital status, location, employment status, source of income, and average monthly income.
- **Focus Groups:** The consultant conducted **9** of focus groups in the end-line phase with Social Committee Members, Beneficiaries in Al Fukhari area, Direct beneficiaries near Rafah transfer station, Waste Pickers, two groups of Students & Teachers in Khan Younis and Middle Area, CBOs, and NGOs in Khan Younis, Rafah and Deir El Balah. The Discussion was managed by the consultant staff.

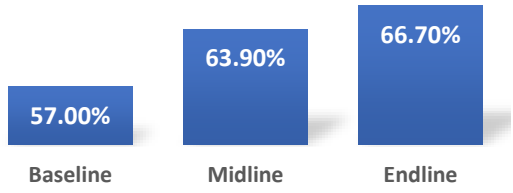
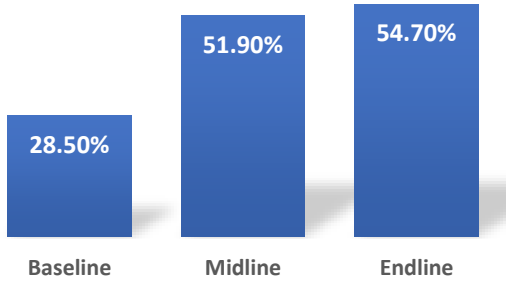
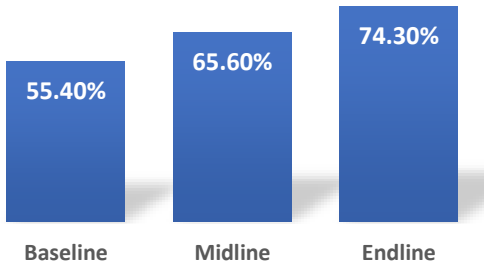
Figure 1 Different Focus groups – End-line phase

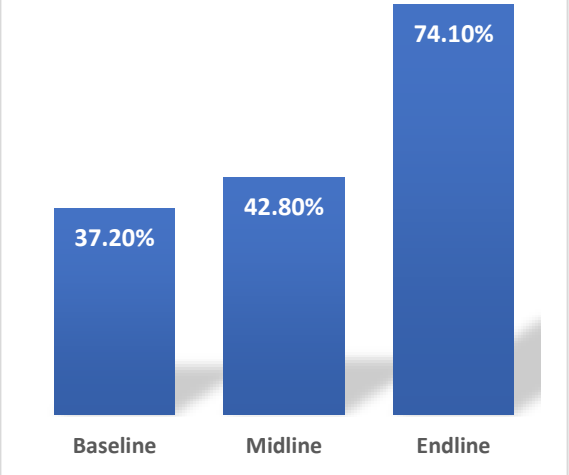
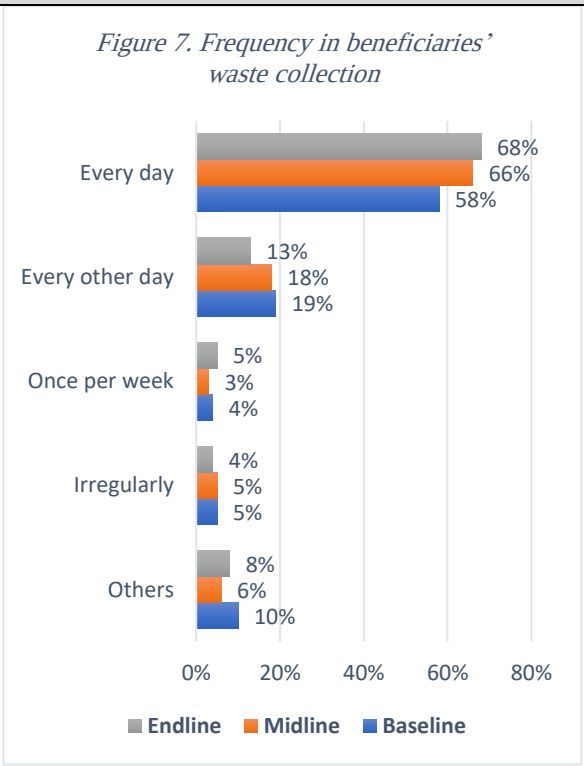
Figure 2. Different Focus groups – End-line phase

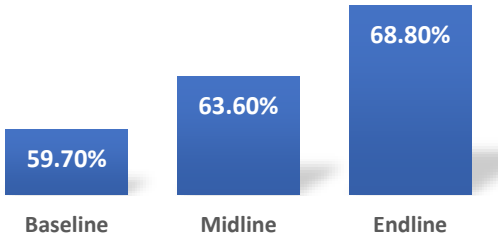
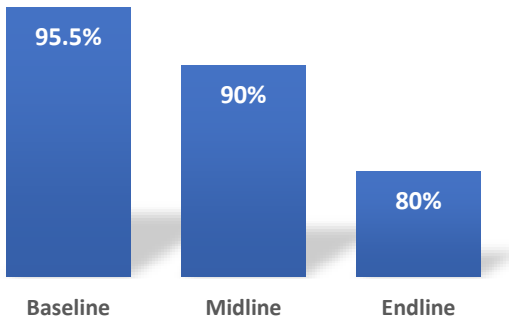
2.2 Perception and Satisfaction Results

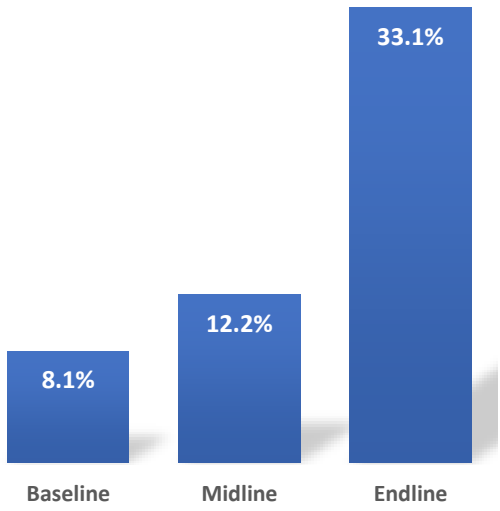
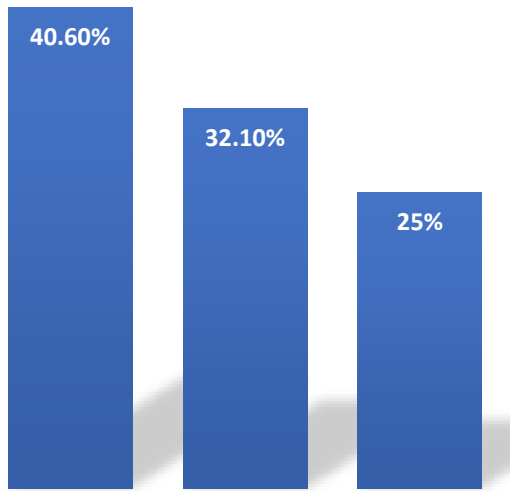
The following presented indicators in Table (2) were extracted from the analysis of the collected data through the household survey and the focus groups:

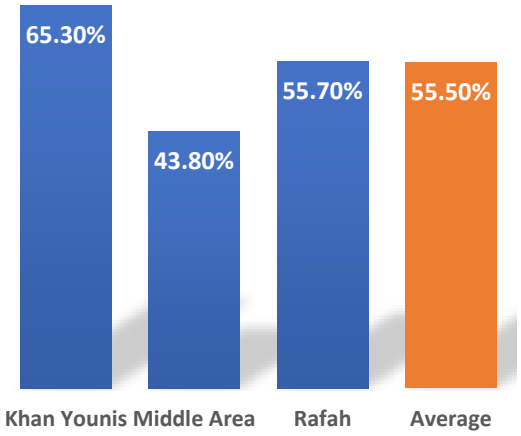
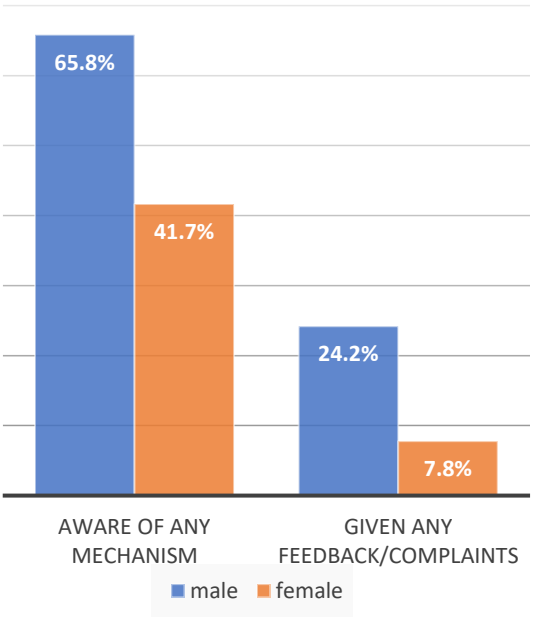
Table 2. Local community beneficiaries' perceptions and satisfaction

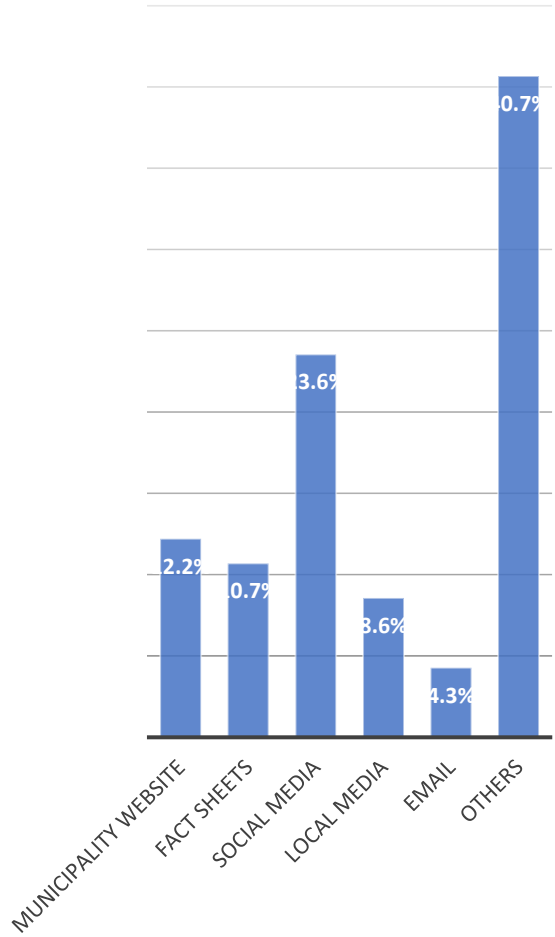
<table>
<tr><th></th><th>Indicator /Sub-indicators</th><th>Analytical graph (Household survey)</th></tr>
<tr><td>1</td><td colspan="2">Beneficiary satisfaction with SWM services (reliability of primary and secondary collection)</td></tr>
<tr><td></td><td>Results and discussion (Survey)
- Satisfaction - SWM: 66.7% of beneficiaries reported they were satisfied with their current situation regarding solid waste management in their community, showing around a 10% increase from the Baseline BIA and a 3% increase since the Midline BIA.
- Satisfaction - Availability of Street containers: 54.7% of beneficiaries expressed an increase in satisfaction in terms of availability and sufficiency of street containers, which is a notable increase compared to the Baseline (28.5%) and a slight improvement from the Midline (51.9%).
- Satisfaction – System of collection and disposal: In terms of the system of collecting and disposing of solid waste, 74.3% of beneficiaries were satisfied, which represents an almost 20% improvement from the Baseline, and 10% improvement from the Midline BIA's results.
- Satisfaction – Removal of public health threats: Perhaps the largest gain in terms of satisfaction was found in terms of the removal of public health threats, specifically random dump sites and waste piles, which by the end of the project 74.1% of beneficiaries felt satisfied, which is particularly remarkable when considering that at the start of the project only 37.2% were satisfied, and 42.8% were satisfied at the Midline assessment.
- Notably, respondents living in Rafah had significantly different levels of satisfaction with the availability and sufficiency of street containers, and the removal of public health threats such as random dumping sites and waste piles compared to baseline and midline. During the End-line BIA, there are</td><td>Figure 3. Satisfacgtion of current situation regarding SWM
 
Figure 4. Availability and sufficiency of street containers
 
Figure 5. System of collecting and disposing of solid waste
  </td></tr>
</table>

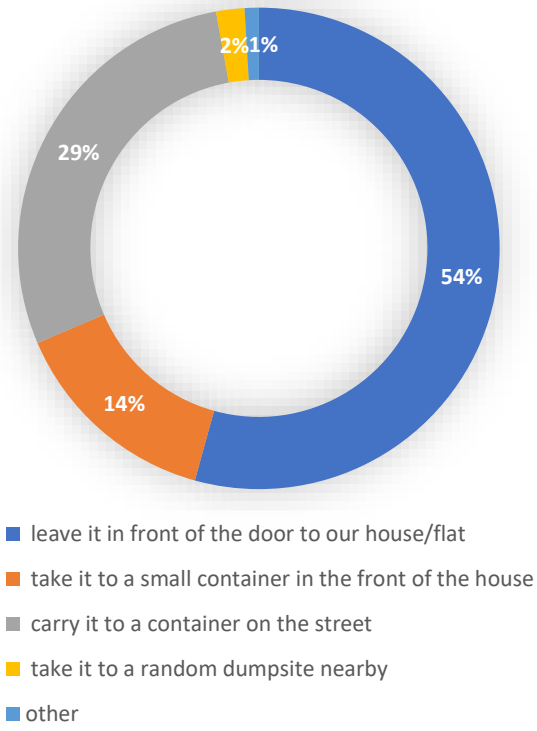
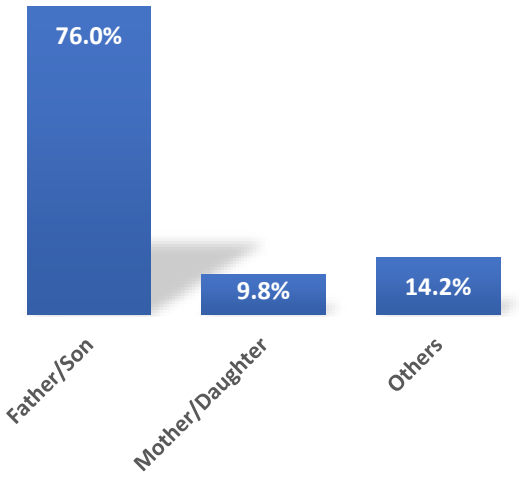
	Indicator /Sub-indicators	Analytical graph (Household survey)
	62.3% of beneficiaries living in Rafah, which responded that the question was not applicable to them compared to 33.3% in Midline assessment, demonstrating that there has been a noted increase in street containers. The results can be attributed to the fact that the Municipality of Rafah has changed the waste collection method by launching a new campaign called “Rafah: A City without Containers" and by increasing its door-to-door waste management services.	*Figure 6. Removal of public health threats (random dump sites)* 
	Focus Group Perceptions The high level of satisfaction was further supported by similar feedback in the conducted focus groups with Household and CBOs members. While there were some minor comments and notes, especially in the Middle area on primary and secondary collection in their neighborhoods. It was unanimously agreed that there is an excellent improvement in solid waste management in Khan youins city and Middle area	
2	**Beneficiary interaction with municipality services (primary collection)**	
	Results and discussion (Survey) - **Frequency of waste collection**: 68% of beneficiaries living around the project implementation sites noted that their solid waste is collected every day, which is more than the reported during the Midline (66.0%), and during the Baseline assessment (58.0%). - Additionally, of those beneficiaries that noted daily collection, 2% stated it was more than once per day during the End-line, as compared to the reported 3% during the Midline and the 4% during the Baseline phases. It is important to note that roughly about 8% of “other” responses received during the End-line, including those that stated SW was collected in their area twice a week. These results point to an overall increase in the SWM collection since the beginning of the project. - **If community’s solid waste collection needs were being met**, 68.8% of beneficiaries reported their community’s needs were “completely” or “somewhat”	*Figure 7. Frequency in beneficiaries’ waste collection* 

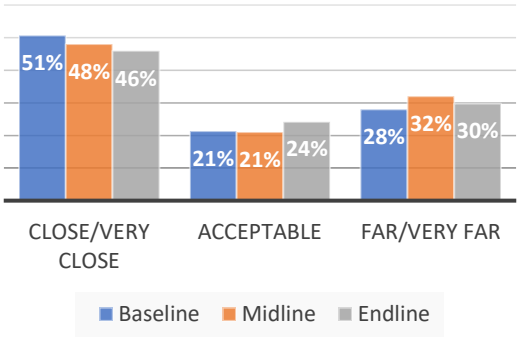
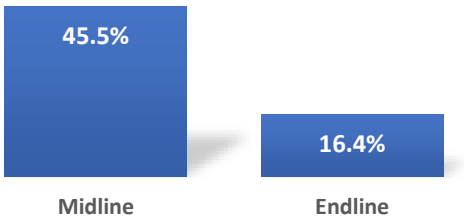
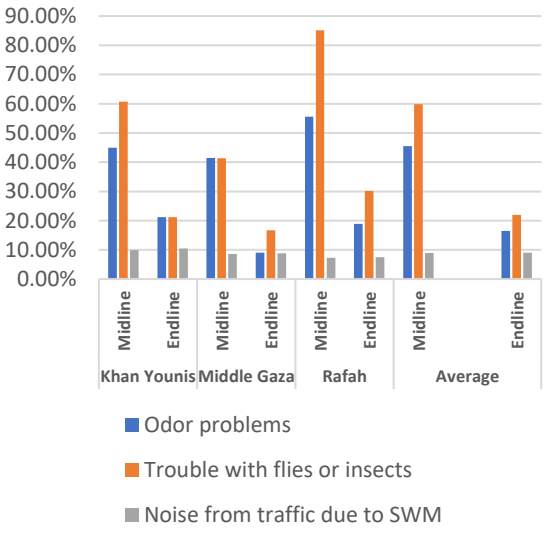
	Indicator /Sub-indicators	Analytical graph (Household survey)
	being met, a slight increase to the 63.6% and 59.7% who answered similarly during the Midline and Baseline BIAs respectively. - Only 34.8% of the beneficiaries reported that the solid waste was collected through the holidays, of which the majority of them were in Khan Younis (65.9%), which represents a large contrast to 20.8% in the Middle, and 3.8% in Rafah governorates respectively. - **Knowledge of the service provider**: 95.5% of the beneficiaries reported knowing who their service provider is, which represents an increase from about 90% and 80% who reported knowing their service provider in the Midline and Baseline BIAs respectively.	*Figure 8. If community's solid waste collection needs were being met*  *Figure 9. Knowledge of the service provider* 
	Focus Group Perceptions - These survey results were further supported by the feedback provided in the focus groups, where beneficiaries from various areas expressed different levels of satisfaction with their waste collection services. It is also significant to point out that while most agreed they would benefit from increased collections, beneficiaries mentioned that once they understood the collection schedule, it was easier for them to adjust and be more organized when they placed their waste in the available containers. - Specifically, beneficiaries located in the Al Fukhari area noted that even though waste is only collected twice a week, they began also to adapt to this collection time table, while at the same time increasing their own understanding of the limitations that existed on the municipal level due to the lack of needed funds to increase collection services.	
3	**Beneficiary awareness of project supported activities**	
	Results and discussion (Survey) - **Resident's knowledge of the project and its benefits**: have tripled since the baseline. The end-line results show that 33.1% of beneficiaries reported having any	

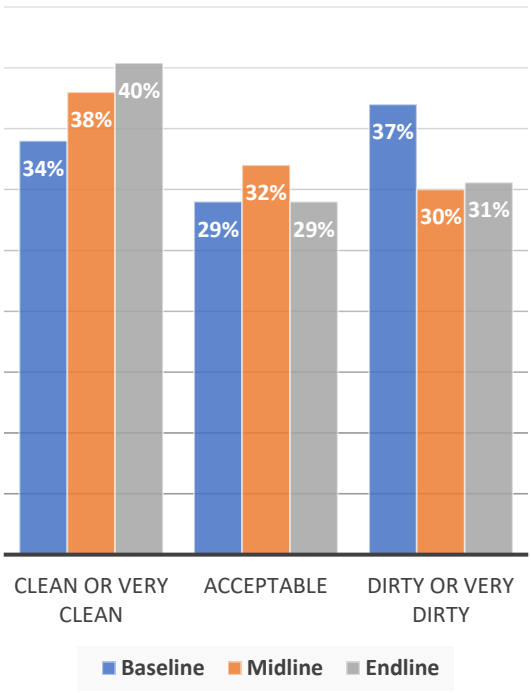
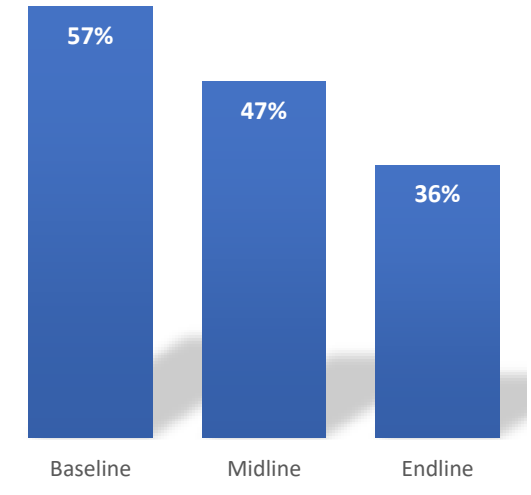
	Indicator /Sub-indicators	Analytical graph (Household survey)
	information about the GSWMP, which is a considerable increase from the 12.2% and 8.1% of beneficiaries who were aware of the project during the Midline and Baseline BIAs respectively. - It should be noted that this is considered a high percentage given that the BIA has collected surveys from randomly selected households living in the area who are usually not very aware of the general services provided by public institutions such as infrastructure, water, electricity and in the current case the solid waste management in their area. - **Knowledge of the project based on governorate**: Beneficiaries living in Khan Younis were more likely to have information (40.6%) about the project in comparison with those living in the Middle Area or Rafah (32.1% and 25.0%, respectively). - **Beneficiaries' sources of information about the project**: Most beneficiaries heard about the project through social media and "other" sources, which includes from neighbors, school administrators, local cooperative, and previous researchers conducting the Baseline and Midline BIAs. - **Awareness of mechanisms to communicate feedback or complaints to the municipality / project team*:*** More than half of all surveyed beneficiaries in the end-line noted they knew how to communicate feedback or complaints to the municipality/JSC or the project team, and 17.1% of which reported doing so. - **By Gender: I**nterestingly, there is a difference based on gender related to the feedback and complaints system, specifically it is notable that the 65.8% of men were much more likely to have been aware of feedback mechanisms versus 41.7% of women. This gender difference is also present when asked whether they have used these mechanisms, with 24.2% of men versus only 7.8% of women. - In the household survey, respondents who said they had made a complaint, were	*Figure 10. Resident's knowledge of the project and its benefits*  *Figure 11. Knowledge of the project based on governorate* 

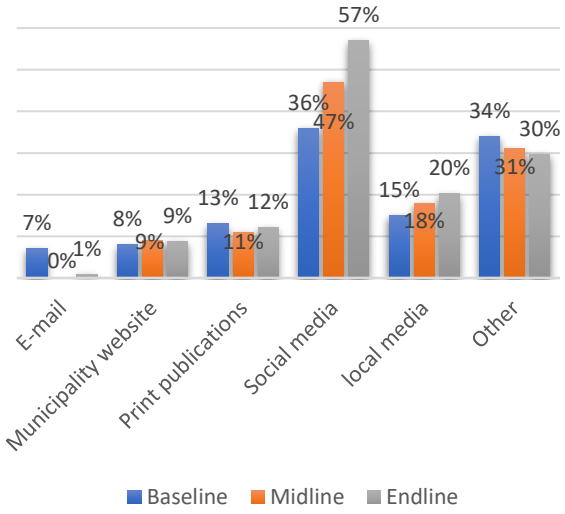
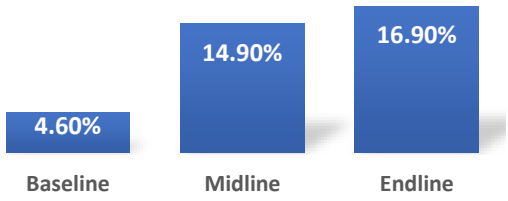
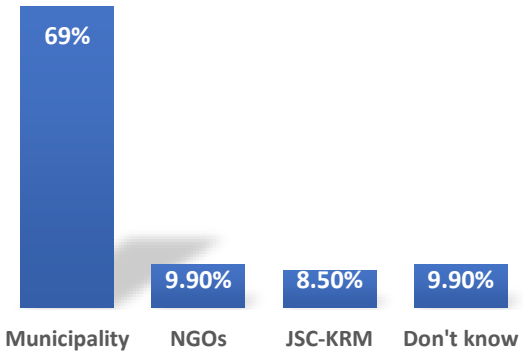
	Indicator /Sub-indicators	Analytical graph (Household survey)
	asked a follow up question about how these complaints has been treated, the overall result across all areas was that 54.1% said that their complaints were treated effectively and seriously.	
	Focus Group Perceptions - In different focus group discussions held with school students, residents, and CBOs, participants verified that they learned about how the landfill works, SWM processes related to collection and final disposal, better understood the role they and the municipality can play in ensuring safe SWM. Furthermore, it was noted that after participating in awareness workshops, beneficiaries were eager to cooperate with the municipality efforts to improve SWM in their area, and increased their interest in implementing sustainable methods like recycling in order to increase the life of the landfill. *"Previously, I used to take out the solid waste at any time convenient for me. I noticed that rodents and cats scattered the solid waste. I blamed the municipality and the cleaners. After I participated in the awareness workshops, I became aware of the waste collection time and started taking out the waste according to cleaning worker appointment and work Schedule".* *Resident - Khan Younis city* - During the focus groups, beneficiaries confirmed that accessing the municipality of Khan younis representatives is easy and stated that when they place their complaint there is a fee of 5 NIS. Despite this accessibility and low cost, when asked about the outcome of submitting their complaints, the feedback from different locations varied. - Beneficiaries living in Rafah (around the Tel Al Sultan transfer station) noted that their complaints in the municipality are dealt with seriously and effectively even if they introduce it face to face to the cleaning employees. This is in contrast to respondents from certain areas such as the Middle area, Al-Holindy neighborhood,	*Figure 12. Awareness of mechanisms to communicate feedback or complaints to the municipality / project team*  *Figure 13. Beneficiaries' knowledge and use of feedback mechanisms, by gender* 

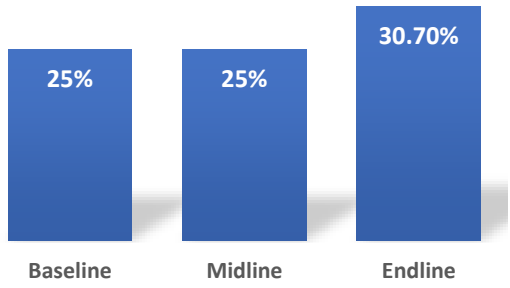
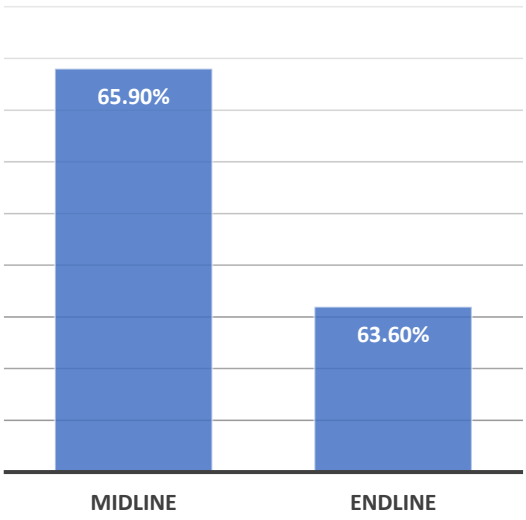
	Indicator /Sub-indicators	Analytical graph (Household survey)
	Wadi Al-Salqa, Abasan, and Al-Qarara; all noted that they felt that the response to their complaints were generally negative—either the complaint was not followed up, rejected, or that there were promises to address the complaint, but no changes implemented. - The main reason for these negative responses has been attributed to the lack of resources and the financial situation of the municipalities. *"I have an agricultural land with an area of eight Dounms located in Abasan Al Kabeerah that I am not able to utilize because of the spread of the solid waste from the accumulation of waste that has existed in front of my land from 3-4 years ago, as well as due to destruction my cultivated crops by stray dogs that spread in the evening"* Resident – Abasan Al Kabeerah *"I own a kindergarten in the Al-Holindy neighborhood. For many years I have been cleaning the street and the area around the kindergarten on my own and transporting its waste. I submitted many complaints to the Complaints Unit in the municipality (every complaint with 5 NIS fee), and until now the municipality has not provided the sweeping, and cleaning service in my area. ''* Resident – Al-Holindy neighborhood - Beneficiaries in Al Fukhari reported during focus groups that they stopped sending complaints because they became aware that their complaints will not be solved because of the weak financial capabilities and resources at Al Fukhari municipality.	*Figure 14. Source of information about the project* 
4	**Beneficiary experience of potential environmental issues**	
	Results and discussion (Survey) - **Method of getting the waste from houses**: at the end-line, the majority of beneficiaries (54%) reported disposing of solid waste by leaving it in front of the door to their house or apartment, or carrying it to a container either in front of their house or on the street. - **How to get the waste out**: When asked who is responsible for taking out the	

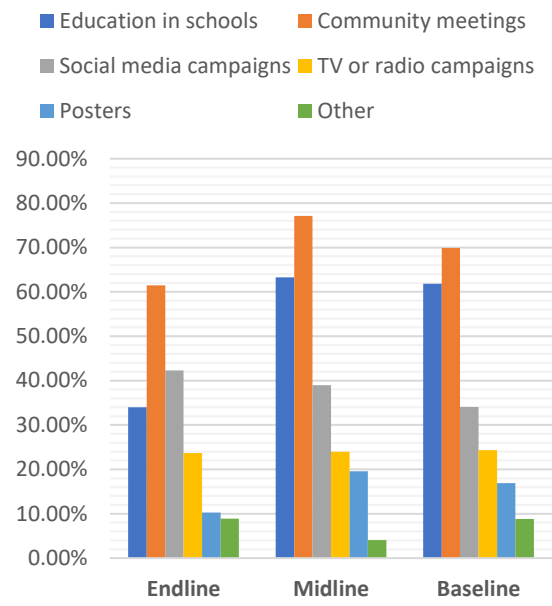
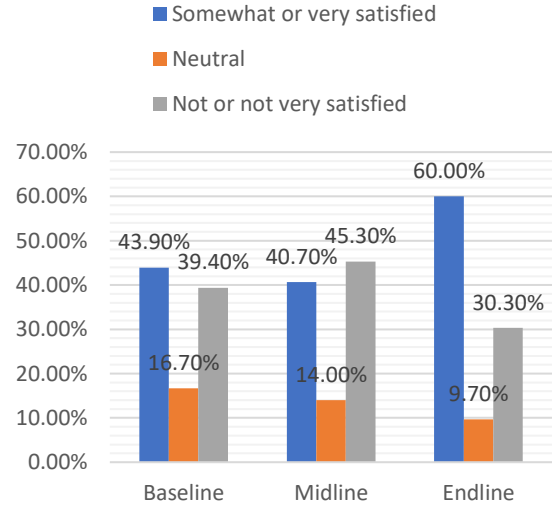
	Indicator /Sub-indicators	Analytical graph (Household survey)
	garbage in your home the results of the End-line were similar to the Baseline and Midline BIAs, 9 out of 10 beneficiaries noted that they use plastic bags to dispose of their waste in containers, most of which are unloaded onto a truck that passes through. - **Who get the waste out**: at end-line when asked who in their family takes the waste out, about 76.0% reported a male in their family—either the father or son—takes the waste out, while only 9.8% reported a female (mother or daughter) in their family did. - **Distance to waste collection container**: On average, there is no significant difference in answers of project beneficiaries in reporting that the waste collection containers were "close / very close" or "acceptable," or "far /very far" in the Baseline, Midline and End-line assessments. - However, there was a noticeable discrepancy when analyzing the data by governorate, as beneficiaries living in Rafah were the highest percentage to report that the containers were "somewhat or very far" than the distance for beneficiaries living in Khan Younis or Middle Gaza. - **Suffering from odor problems and flies or insects due to SWM practices**: Only a low percentage (16.43%) in the End-line BIA reported suffering from odor problems and flies or insects due to SWM practices, which is a positive change as compared to high percentages in Midline (45.5%). - **Beneficiaries reporting different forms of pollution in their area**: In general, in the End-line BIA in addition to the low levels of pollution reported, there also no significant difference between the experiences of male and female beneficiaries regarding who suffered from any types of pollution in their area, which is interesting considering that the Mid-line BIA reported that male beneficiaries were more likely to report suffering from any types of pollution in their area. Comparison with Baseline data shows a significant decrease in odor problems	*Figure 15. Beneficiaries reporting how they dispose of solid waste in their households*  *Figure 16. Who get the waste out of house* 

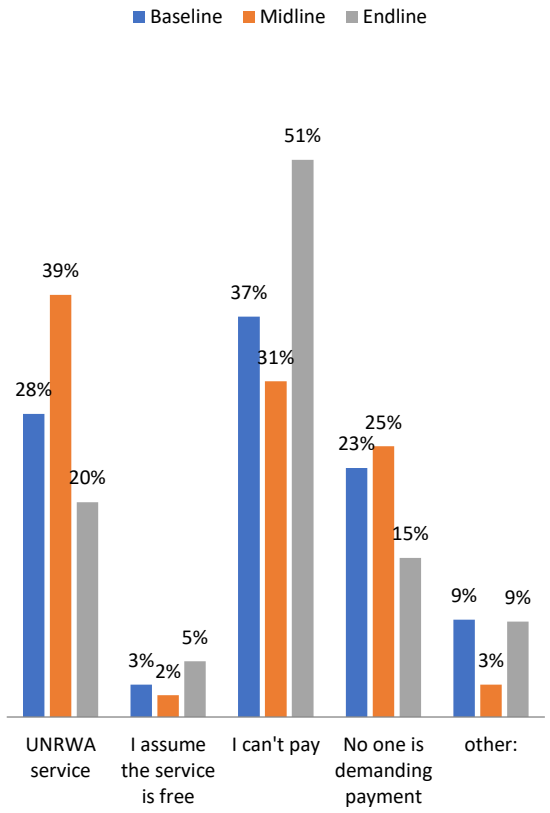
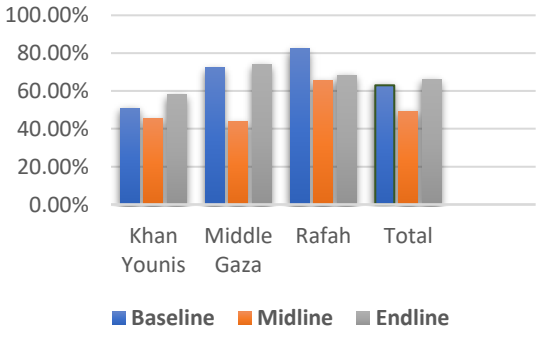
	Indicator /Sub-indicators	Analytical graph (Household survey)
	(from 64.2% in the Baseline to 45.5% in the Midline). - In the End-line BIA, only 1 in 10 beneficiaries reported that people burned solid waste in the waste collection containers in their area compared, which is an improvement from the 3 in 10 beneficiaries in the Mid-line BIA, while the rate in the Baseline BIA was 2 in 10 who reported so. - **Distance of waste containers**: 68.8% of beneficiaries reported that the waste collection containers in their area are in good condition compared to 61.8% of beneficiaries in the Mid-line BIA, a significant increase from the 43.8% in the Baseline BIA. Beneficiaries were more likely to rate the area around the containers as clean in the End-line BIA.	*Figure 17. Distance to trash collection container* 
	Focus Group Perceptions - During the Mid-line BIA, beneficiaries living in Rafah expressed in focus group discussions that they would need to wait for the Tel Al Sultan transfer station to be completed and opened, before being able to effectively assess the project's environmental impact. At the End-line BIA, they now all agreed they are satisfied. - During the baseline focus group discussions held with residents in Al Fukhari, three main issues were reported, these include: • Spread of flies, which caused harm to livestock for some farmers. • Lack of lighting on Sofa access road, which affects their movement and reduces their safety level. • Rapid solid wastes collection vehicles traffic, which may expose their children to traffic accidents. *"The project will achieve its success if the problem of spread flies is eliminated. We fear also from mosquitoes spread in the future in hot climate!"* Resident – Al-Fukhari	*Figure 18. Suffering from odor problems and flies or insects due to SWM practices*  *Figure 19. Beneficiaries reporting different forms of pollution in their area* 

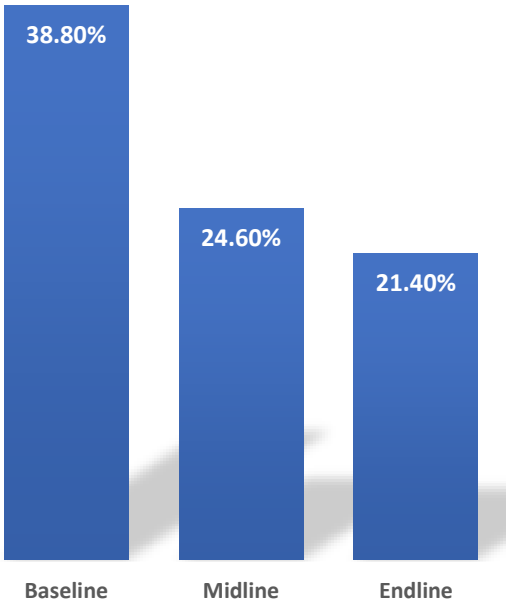
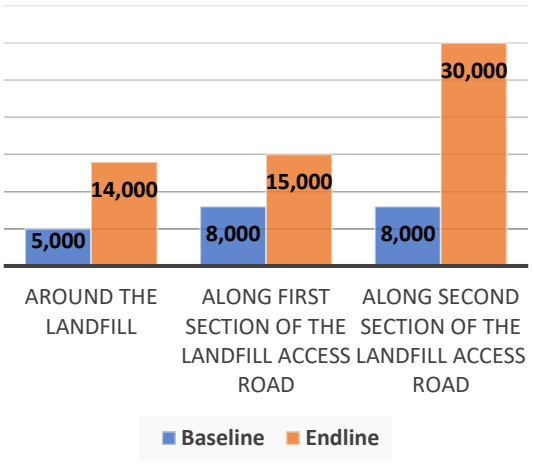
	Indicator /Sub-indicators	Analytical graph (Household survey)
	- It should be noted that the residents around Al-Fukhari landfill also live near a wastewater treatment plant, which not only makes the environment more challenging for those living in this area, but also means that their environmental concerns are not solely related to the Landfill. - The consultant noticed at the end-line phase that farmers and land owners around the landfill are experiencing a better environmental conditions and better accessibility to their lands. Cultivation of the surrounding lands were noticed although these lands located near the border of Gaza Strip (less than 1,000 m from the border line). Odors, Flies and smoke were reported during the baseline phase, but it seems people are satisfied at the end-line phase after reshaping and closing the old dump site (the source of the environmental problems), as well the operation of the new landfill is following a good environmental procedure such as applying a layer of clay at the end of each day over the waste in order to decrease any environmental impacts.	*Figure 20. Cleanliness of the area around the containers* 
5	**Beneficiary participation**	
	Results and discussion (Survey) - **Hearing of projects in the community through social media**: 57% of beneficiaries in the End-line BIA, reported hearing of projects in their community through social media, and this percentage is more than the reported percentage in the Midline (47%) and Baseline (36%) surveys. - Only respondents living in the Middle Area and Rafah reported "email" as a source of information in low percentage. "Other" sources were also reported including friends, family, neighbors, taxi drivers, people from the mosque, seminars, some institutions, and from attending municipal meetings. - **Awareness of SWM Public Campaigns**: 16.9% of beneficiaries reported being aware of public campaigns for the project, an increase from the 14.9% and 4.6% who	*Figure 21. Hearing of projects in the community through social media* 

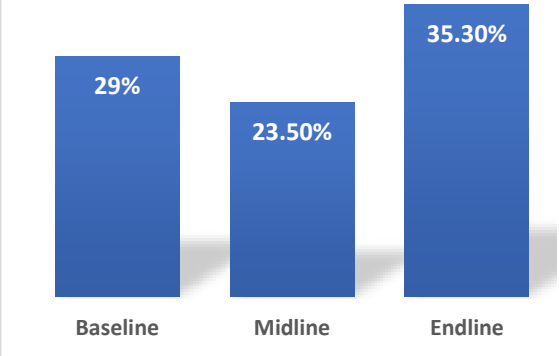
	Indicator /Sub-indicators	Analytical graph (Household survey)
	reported so in the Midline and Baseline respectively. - When asked to elaborate, most noted they only knew of the project through the social researcher during the Baseline and Midline data collection, awareness campaigns, street cleaning campaigns and some through workshops held at local associations. - **Organizer of the campaign (related to SWM)**: Beneficiaries identified the Municipality as the organizer of the campaigns (69.0%), followed by NGOs (9.9%), they didn't know (9.9%) and the JSC (8.5%). - At the end-line phase, there are 9.8% of project beneficiaries (or 41 in total) reported they were aware of jobs created by JSC-KRM during and after the implementation of the project, as cleaners, drivers, and administrative jobs. - **Willingness to join social committee**: 26 respondents or 6.2%, reported being part of a community-based monitoring committee that follows up with the community and provides feedback to the municipality or project team. However, 45.2% of surveyed beneficiaries reported they would be willing to join such a committee, a 1.5% and 5% increase from the Baseline and Midline respectively.	*Figure 22. Beneficiaries' sources of knowledge of projects in the community* 
	Focus Group Perceptions - It is noted that male respondents were more likely to be willing to join a committee than female respondents. When asked why, women participants in the focus groups indicated: *Many women do not have the time to join because they were too busy taking care of other family members, that they saw no need due to the municipality already having good communication mechanisms with the community. Also, they couldn't work outside the home because of their old age or their family members wouldn't accept it, particularly husbands. Some of the positive benefits included increased understanding and a sense*	*Figure 23. Awareness of SWM Public Campaigns*  *Figure 24. Organizer of the campaign (related to SWM)* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	that they were empowered to have an impact in the solid waste management and hygiene within their communities through changing their own behavior. *Women Participants in Focus Groups*	
6	**Beneficiaries' awareness of hygiene and SWM practices**	
	Results and discussion (Survey) - **Knowledge of hygiene and public health issues related to SWM**: 30.7% of End-line respondents reported that their community has an adequate knowledge of hygiene and public health issues related to solid waste management. This is a noticeable increase with about 25% in Midline and Baseline data. - Respondents in Rafah were the most likely to report that their communities have adequate knowledge, while respondents in Khan Younis were the least likely. - **Willing to sort solid waste**: 63.6% of the End-line respondents reported their household would be willing to sort solid waste, such as composting and recycling specific materials, before disposal, which is less than the 65.9% of respondents in the Midline. The reason given by those End-line respondents who would be willing to sort their waste included the positive benefit sorting provides for the community and the environment as a motivator, while those that wouldn't be willing to sort their waste cited the high cost, not having enough time, the effort it would take, as well as claimed it to be a burden on the household, that was too difficult and simply not seeing the need. - Regarding preferences of where they would most like to receive SWM awareness raising, End-line respondents were most likely to report wanting to receive this information through community meetings (61.5%), in-school education (34.0%), as compared to social media (42.3%). - These reported preferences in the End-line, were particularly different from the results of the Midline and Baseline Assessments in regarding in-school awareness raising. This	*Figure 25. Knowledge of hygiene and public health issues related to SWM*  *Figure 26. Willing to sort solid waste* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	difference can be attributed to the impact of Covid-19 on the education system, which resulted in school closures, making this a less desirable option for respondents in the End-line, then the other previous assessment periods. - Similarly, there was a reduction in the stated preference to receive awareness raising in community meetings in the End-line, which is also likely to do with the social distancing and movement restrictions related to COVID-19 that influenced the Endline results.	*Figure 27. Beneficiaries awareness channels (Respondents has the choice to choose more than a choice)* 
	Focus Group Perceptions - Findings regarding the level of awareness among beneficiaries was discovered in the focus group discussions, in which the consultant team noticed that all participants, including school students who received awareness sessions from the JSC team, had a high level of hygiene awareness and knowledge in SWM practices, project components, and landfilling mechanisms.	
7	**Beneficiary satisfaction with the affordability of SWM services**	
	Results and discussion (Survey) - **Satisfaction with the SWM cost**: The survey revealed that 30.3% of beneficiaries indicated that they are not satisfied with the cost of solid waste management services which is less than the percentages in Midline BIA. At the same time, there was an increase in satisfaction and decrease in dissatisfaction with solid waste management cost in the End-line BIA compared to the Midline results. - On average, beneficiaries pay between 10 to 13 NIS for solid waste management services. - At the end-line phase, 74.3% of people reported that their income is less than USD 500. Noticeably higher numbers of beneficiaries (51%) do not pay-because they can't pay, while another 5% assume that the service is free, indicating poor management of the solid waste management projects in the municipalities,	*Figure 28. Satisfaction with the SWM cost* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	particular regarding the communication about and collection of costs. - Furthermore, the validation visits showed that the collection and public relation departments are inactive in collection and informing people that they have to pay for the solid waste management service and the service itself is not free. Specifically, it is clear that the recovery and collection rates can be improved by municipalities sending separate bills for the SWM service, which it is supported by the finding in the household survey that 15% of respondents stated that the reason for not paying for their SWM service was because they are not receiving any payment/bills from the municipality. Therefore, it is logical by simply developing the billing for the service would help with recovery and collection rates.	*Figure 29. Beneficiaries reporting why they do not pay for solid waste management services* 
	Focus Group perceptions - Municipalities should consider increasing the tariff rates in association with the increasing services provided. Furthermore, the collection frequency at some neighborhoods at Al Fukhari is two times per week while it is one time per week in other neighborhoods, so they were resented paying the same fees amount to the municipality while not all of them received the same service with the same frequency.	
8	**Beneficiary willingness to pay more for more frequent and/or reliable services**	
	Results and discussion (Survey) - **Reasonableness of the SWM fees**: 66.2% considered the solid waste management fees to be reasonable of respondents compared to 49.4% in the Midline and 63% in the Baseline. - **Willingness to pay additional cost for better service**: When asked if they would be willing to take on additional costs in return for better service provision, 21.4% in the end-line phase respondents said they would, in comparison with 24.6% and 38.8% who reported they would in the Mid-line and Baseline respectively.	*Figure 30. Reasonableness of the SWM fees* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	- The consultant noted the decrease of the willingness to pay additional costs for better services, this can be explained that the SWM service at the end-line phase was better than the previous two phases due to the projects improvements and thus people felt they are not willingness to pay more for improving the service.	*Figure 31. Willingness to pay additional cost for better service* 
	Focus Group perceptions - Those who found the costs reasonable cited the small amount of the costs and its reasonableness for all levels of the residents, while those who found the costs unreasonable cited the bad services provided by the municipalities and the overall bad economic situation in the Gaza Strip. This result can be an additional motivation for the municipalities to improve the solid waste management operations. In addition, the percentage of respondents who consider the fees are not reasonable can be attributed to the deteriorating economic situation in the Gaza Strip. - Focus groups confirmed it, as all participants reported being willing to pay more if the economic situation and solid waste services in the Gaza Strip improves.	
9	**Impact on Land Prices**	
	Results and discussion (Survey) - In the Baseline BIA, the evaluated land price per square donum in the area around the landfill was JOD 5,000, and the price per square donum along the road leading up to the landfill was JOD 8,000. - By the time of the End-line BIA data collection, the road leading up to the landfill was divided into two sections. The first begins on Salah Al-Din Street and ends halfway down the road leading up to the landfill. - According to interviews with the Mayor of Al Fukhari, the Head of Al Fukhari Association, and site validation visits, the land prices on **the first half** of the road have risen since the Baseline assessment. However, land prices around the **second half of the road**,	*Figure 32. Price of lands around Al-Fukhary Landfill (JOD/Dunum)* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	which leads directly to the landfill, have also risen compared with the Baseline and Midline assessments. - In the End-line BIA, the evaluated land price per square donum along **the first section of the landfill access road** increased to be in average JOD 15,000, and the price per square donum along the second section of the landfill access road increased to be in average JOD 30,000.	
10	**Employment opportunities**	
	- in terms of employment opportunities available to residents living around the Tel Al Sultan transfer station and those living near Al Fukhari landfill similarly noted that the operation transfer station did not create any new job opportunities, but some jobs were created in the landfill during both stages of construction and operation. - Technical members confirmed that all workers at the transfer station are from the municipality, stating that "All workers at the transfer station are from the municipality already." – Environment and Health Department Head at Rafah Municipality. - Hundreds of indirect jobs were created during the construction of both the landfill and the transfer station.	
11	**Opportunities for recycling initiatives**	
	Results and discussion (Survey) - **Willing to implement environmental initiatives:** 35.3% of respondents reported that they are "willing" or "very willing" to implement environmental initiatives such as waste separation and recycling. This is noticeably higher than the 23.5% and 29% in the Midline and Baseline respectively. - Further, when asked about the types of waste utilization and recycling in their jurisdiction, most municipal representatives noted that these initiatives are "non-existent" due to citizens' non-response and a lack of plans or programs to encourage it. However, there are some recycling initiatives done at the manufacturing level	*Figure 33. Willing to implement environmental initiatives* 

	Indicator /Sub-indicators	Analytical graph (Household survey)
	(private sector) to produce recycled plastic products. - A representative of the Municipality of Rafah noted that they were the first municipality to operate a waste sorting and reuse plant in cooperation with the Friends of the Environment Association, which has not been successful and will be replaced by a new compost production plant.	

3. SATISFACTION OF THE MUNICIPAL REPRESENTATIVES

This section presents the perceptions and satisfaction of the ***representatives from the municipalities*** regarding to the GSWMP. The municipal representatives can be defined as representatives from ***Health and Environment Department & Financial Department*** in the 17 of JSC-KRM member municipalities.

3.1 Methods and Tools

The level of satisfaction was concluded by using different tools as the following:

- **Structural Interviews:** The consultant interviewed the head of health and environment departments of (Khan Younis, Rafah, Deir Al-Balah, and Al-Fukhary) to represent the municipal field satisfaction, the selected municipalities located over the three governorates served by JSC-KRM.
- **Survey for JSC-KRM Member Municipalities**: The consultant distributed the survey for the 17 member municipalities. The survey has two main sections which can be filled by the health and environment department and financial department respectively. Please see Table (3) below for a full description of the Municipal Representatives Survey Demographics.

Table 3. Municipal Representatives Survey Demographics

Indicator	Count	Value
Average geographical area (km^2)	17	9.83 km^2
Total geographical area (km^2)	17	167.1 km^2
Average percentage rural areas		49.3%
Average percentage urban areas		51.7%
Total population	17	1,016,100
Average total population	17	59,771 people
Average total number of residents covered by cleaning and solid waste management services provided by the local authority		52,300 people
Average quantity of solid waste produced daily in the local authority's areas (July-December) 2019		30.1 tons
Average quantity of solid waste produced daily in the local authority's areas (January-July) 2020		32.6 tons

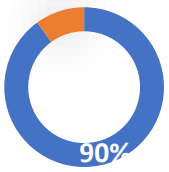
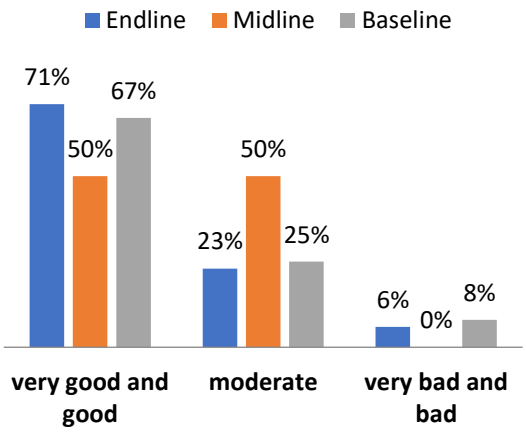
Indicator	Count		Value
Average amount of solid waste collected daily in the area of the local authority (July-December) 2019			28.6 tons
Average amount of solid waste collected daily in the area of the local authority (January-July) 2020			30.8 tons
Average amount of solid waste collected in the area of the local authority (July-December) 2019			5,265.9 tons
Average amount of solid waste collected in the area of the local authority ((January-July) 2020			5,315.5 tons
Type of collection services conducted by Municipalities	Primary	17	100.0%
	Primary and secondary	9	52.9%
Percentages of beneficiaries reporting that solid waste was regularly transferred from this area, in average number of solid waste collected			76.9%
			8.6 monthly
Percentages of beneficiaries reporting that the random dumpsites have been closed,			91.7%
Average number of employees at the municipality			98.7 people
			(15 minimum and 533 maximum)
Average number of employees at the Department of Cleaning and Environmental Health			25.8 people
			(3 minimum and 142 maximum)
Average number of solid waste collection vehicles			3.4 vehicles
			(0 minimum and 10 maximum)
			12.9 karts

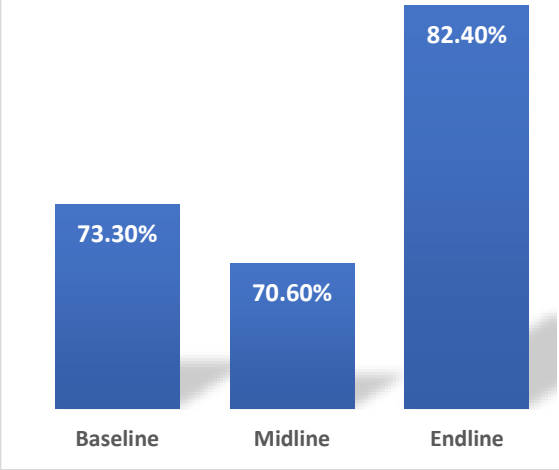
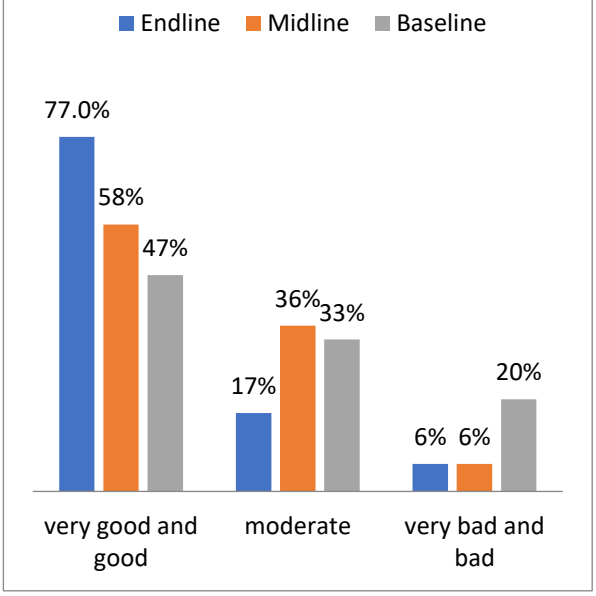
Indicator	Count	Value
Average number of animal karts used for solid waste collection		(0 minimum and 70 maximum)
Are there any plans for upgrading the solid waste management services in the local authority		76.5% have plans

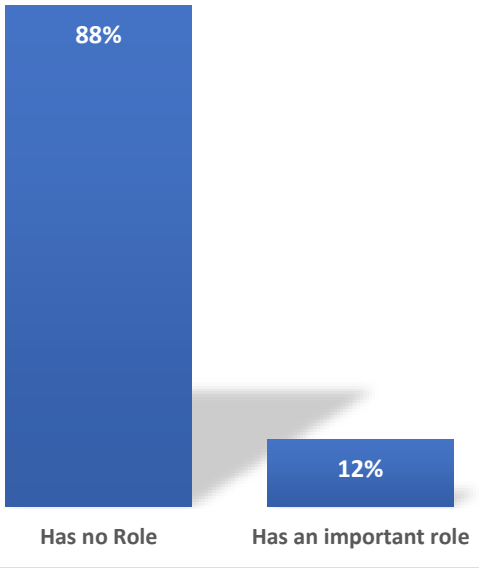
3.2 Perception and Satisfaction Results

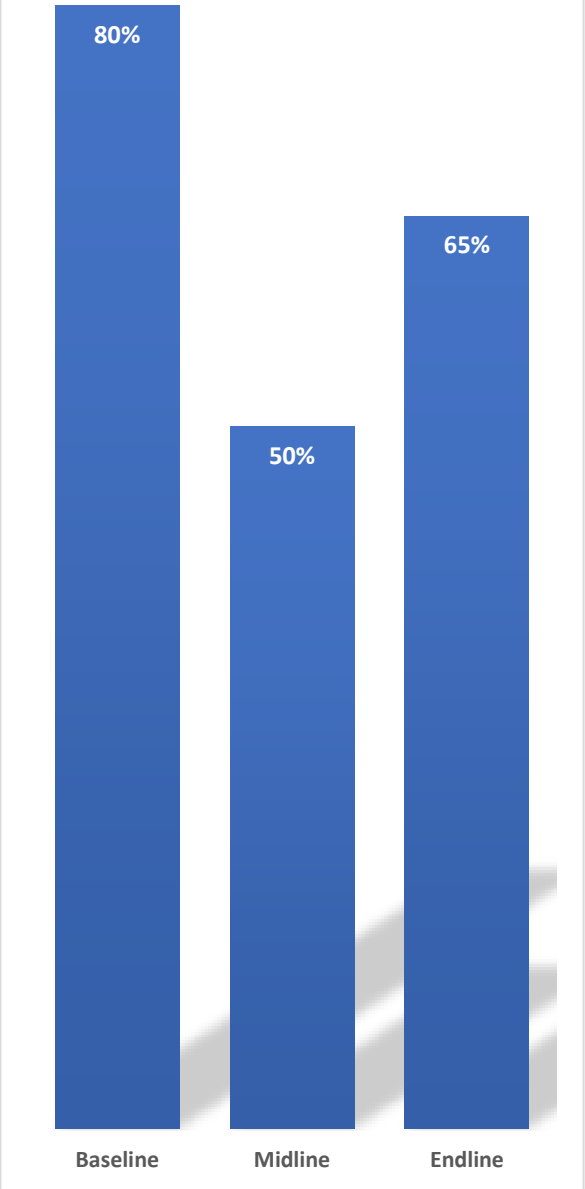
The following presented indicators in Table (4) were extracted from the analysis of the collected data through the municipal survey and the structural interviews.

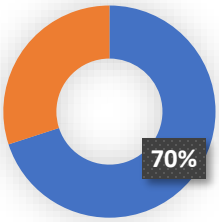
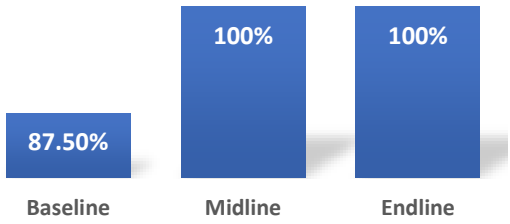
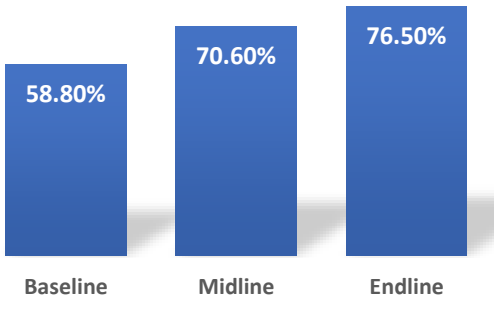
Table 4. Municipal perceptions and satisfaction

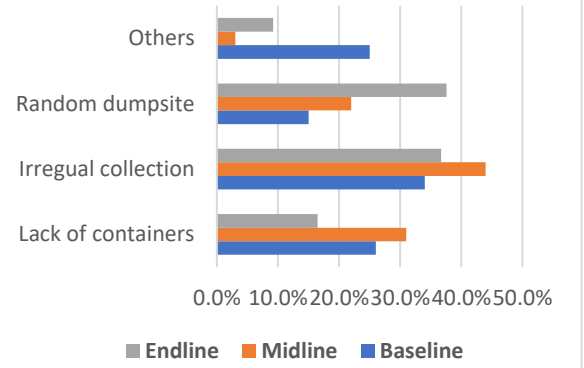
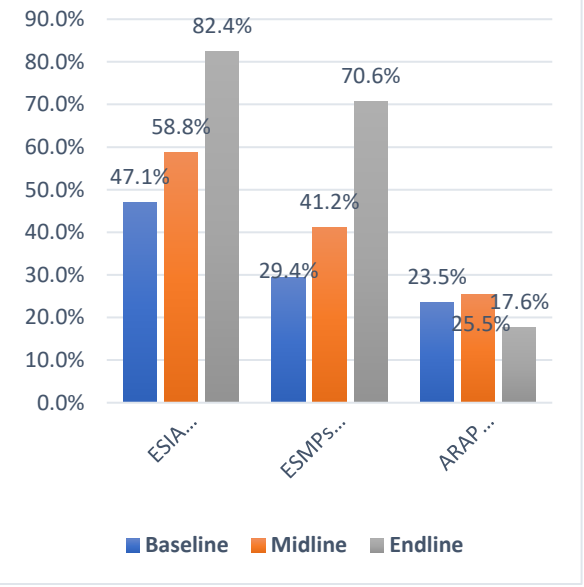
	Indicator /Sub-indicators	Analytical graph (survey)
1	**Municipality awareness of project supported activities**	
	Results and discussion (Survey) - **Knowledge of GSWMP activities**: 9 in 10 municipal representatives reported at the End-line phase that they were aware of the activities of the solid waste management project, had knowledge of its donors and service providers, and participated in solid waste management project activities. - **LGUs' satisfaction with the project's expected outcomes**: 76.5% noted being aware of the project's outputs in the southern governorate. More representatives rated the project's outcomes as "very good" or "good" in the End-line than Midline and the Baseline BIAs. - **Effectiveness of outcomes**: When asked to elaborate on the effectiveness of the outcomes or expected results of the SWM project, most of the representatives rated it between "moderate" and "excellent," reporting that the project is vital, that it has improved service provision to civilians, has helped eliminate open random dumpsites in the towns, and has helped improve public health and environmental safety.	*Figure 34. Knowledge of Municipalities about GSWMP activities*  *Figure 35. LGUs' satisfaction with the project's expected outcomes* 

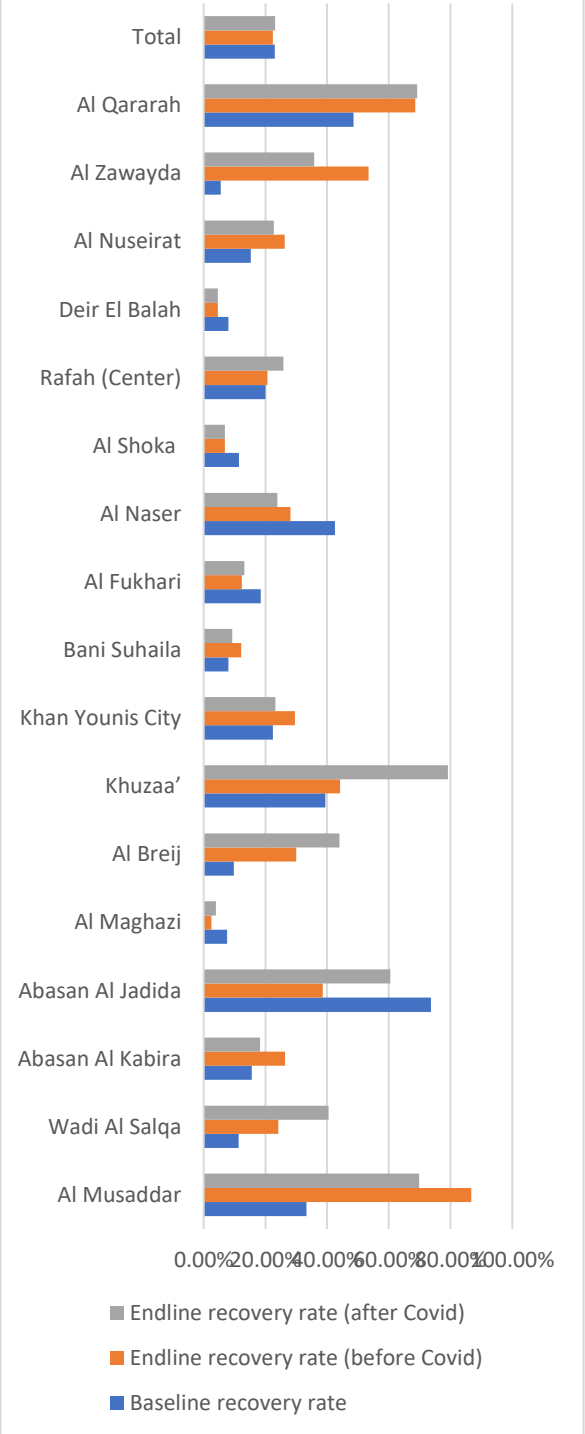
	Indicator /Sub-indicators	Analytical graph (survey)
2	**Municipality satisfaction with coordination and capacity building received from the Project**	
	- **Municipality satisfaction with coordination and capacity building received from the Project**: At the End-line phase, 82.4% of representatives reported they were satisfied with the level of coordination between themselves, the Joint Services Council, and the project team regarding project activities, higher than the 70.6% and 73.3% who reported being satisfied in the Midline and Baseline respectively.	*Figure 36. Municipality satisfaction with coordination and capacity building received from the Project* 
3	**Municipality satisfaction with coordination with JSC (secondary collection)**	
	- MDLF representatives explained that the relationship between the JSC and municipalities is complementary; if one of them stops functioning, problems occur in the waste management process. - **Municipality satisfaction with coordination with JSC (secondary collection):** At the End-line phase, 77% of municipal representatives reported they had "good" or "very good" level of coordination between the municipality and the Joint Services Council, an increase from the Midline and Baseline BIAs. - However, in qualitative interviews some municipal representatives noted that they recommend more cooperation between the municipality and JSC, as they found that the JSC procedures can be quite time consuming, as well as there being in many cases outstanding issues raised by the municipal representatives that remain unanswered.	*Figure 37. Municipality satisfaction with coordination with JSC (secondary collection)* 

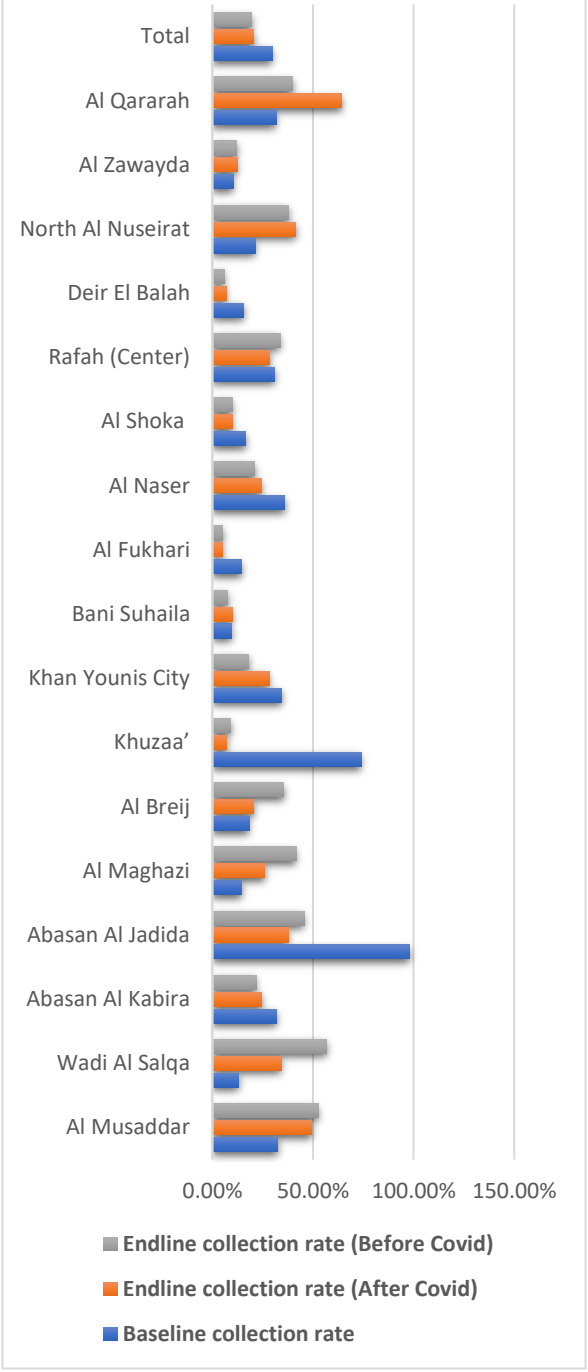
	Indicator /Sub-indicators	Analytical graph (survey)
	- According to representatives of the Rafah Municipality, the JSC consulted them for six months during the design stage of Rafah transfer station, and the project was implemented as planned with full coordination and in agreement with the municipality representatives. - Additionally, there was some concerns expressed about the recent decision by the Ministry of Local Government, that all projects related to solid waste management must pass through the JSC, which has created some concerns that this may slow down activities and might negatively affect solid waste management. - However, there is evidence that the JSC is very proactive in their engagement the municipality, which does provide support for this arrangement.	
4	**Municipality satisfaction with SWM services in their community**	
	- When asked to assess the solid waste management practices provided by the municipality in their own community, municipal representatives' responses ranged from "very good" to "unsatisfactory," consistent with the Baseline and Midline assessment. Some representatives positively characterized the effort that municipal authorities take to provide SWM services and noted that citizens were satisfied with the services, while others characterized the municipal services as unsatisfactory given their lack of overall financial and technical resources. - When asked about the role of the private sector in providing solid waste management services, 15 out of 17 municipal representatives reported that the private sector plays no role in solid waste management service provision, consistent with the Baseline and Midline findings. Two respondents highly praised the role of the private sector in SWM, particularly noting the private sector's quick response in emergency situations and their helpful role in secondary service provision.	*Figure 38. The role of private sector in the municipal SWM* 

	Indicator /Sub-indicators	Analytical graph (survey)
	- JSC technical staff further confirmed that the private sector has a limited role, however that some municipalities use it to transport rivets, manufacture containers, provide spare parts, maintain machinery, and sometimes perform sorting and recycling activities. - The Head of the Environmental Health Department at the Khan Younis Municipality reported that the Municipality has started using the private sector to collect waste from some areas in Khan Younis, particularly from the narrow streets where the Municipality currently serves with a tractor. - According to the representative, the monthly cost of running one municipal collection vehicle is 4,500 to 5,000 NIS, due to the costs of wages, insurance, gas, and procuring a license, in comparison to 3,400 for a privately hired collection vehicle. He informed "*If this pilot phase goes well, the Municipality will expand it all over Khan Younis*". - A representative of the Municipality of Rafah noted that even though they don't outsource to the private sector in Rafah, private sector companies are less expensive. - **Receiving a capacity development in SWM: Further**: about 65% reported they received or participated in some sort of capacity development in solid waste management over the past five years, compared to about 50% and 80% who reported so in the Midline and Baseline assessment respectively. - A representative of the Environmental Health Department in Khan Younis reported that they have also worked independently to increase their capacities. - Similarly, the Municipality of Rafah announced a new campaign in 2019 called "Rafah: A City without Containers" which resulted in the elimination of random dump sites in Rafah.	*Figure 39. Receiving a capacity development in SWM: Further* 

	Indicator /Sub-indicators	Analytical graph (survey)
5	**Municipality satisfaction with project participation and feedback**	
	- **Municipality satisfaction with project participation and feedback**: 7 in 10 municipal representatives reported they were happy with their contribution to the solid waste management project. When asked to elaborate, some representatives noted they participated in project workshops, while others said there was no direct participation, that services are more likely to be offered to the Joint Council, and that they would like to further increase the municipality's involvement in implementing the solid waste management project.	*Figure 40. Municipality satisfaction with project participation and feedback* 
6	**Mechanisms for end beneficiary feedback to municipality**	
	- **Availability of complaining channel at the JSC member municipalities**: All surveyed municipalities reported having a complaints mechanism, it is the same as the Midline survey, and a significant increase from the 87.5% of municipalities who did during the Baseline survey. - When asked how they preferred the public to make complaints regarding solid waste collection, municipal representatives noted social media, in-person communication, submitting written complaints, contacting the Municipality through the website, or through the public registry. - **Availability of Local service center in the municipality**: at the End-line phase, 76.5% of municipal representatives noted there was a public service center in the local municipality, an increase from the 70.6% and 58.8% of municipalities with public service centers in the Baseline and Mid-line BIAs, respectively. - **Complaints related to containers**: Data shows that there have been decreased complaints relating to a lack of containers, containers that aren't emptied, and increased for irregular collection processes, and random dumpsites. - Moreover, representatives of the Municipality of Rafah reported implementing a new plan to more efficiently receive and	*Figure 41. Availability of complaining channel at member municiplaities*  *Figure 42. Availability of Local service center in the municipality* 

	Indicator /Sub-indicators	Analytical graph (survey)
	respond to complaints from citizens. Additionally, citizens have waste cleaners' phone numbers and can communicate with them directly at any time.	*Figure 43.Complaints related to containers* 
7	**Municipality awareness of environmental safeguards**	
	- **Municipalities' awareness of environmental and social documents:** Longitudinal analysis shows that municipal representatives' knowledge of various environmental safeguard documents has risen since the Midline and Baseline except in ARAP, which dropped from 23.5% in the Baseline and 25.5% in the Midline BIAs, to 17.6% in the End-line. The knowledge of the ESIA of the parent project and the updated ESIA was increased from 47.1% at the baseline phase to 82.4% at the End-line phase. Likewise, knowledge of ESMPs "Environmental and Social Management Plans" for different waste facilities e.g transfer stations was increased from 29.4% at the baseline phase to 70.6% at the End-line phase. - Furthermore, three representatives noted they had plans to follow-up and evaluate these documents more seriously as part of their work.	*Figure 44. Municipal awareness of safeguard documents* 
8	**Level of cost recovery in the municipality**	
	- **The cost recovery rate** represents the percentage of collected amounts from citizens compared to cost of operating the solid waste management project.	

	Indicator /Sub-indicators	Analytical graph (survey)
	- When examining the cost recovery rates of the 17 municipalities for the period from July to December 2019 and from Jan. to June 2020 during the coronavirus, it is clear that the total cost recovery rate is still very low of 22.38%, despite a slight total decrease compared to the Baseline of 23%. - The number of municipalities with enhanced coverage rate is 12 municipalities compared with five municipalities with diminished recovery rate which is considered to be a positive effect of the project. - The low level of low-cost recovery indicates the following: • Inefficiency in managing the municipality's solid waste management projects as most of them are still using a cash basis of accounting to record the solid waste management cost and revenue transaction. • The deteriorating economic situation in the Gaza Strip which causes unprecedented unemployment rates, increasing residents' inabilities to pay their dues, including for solid waste management. - Furthermore, it is clear the coronavirus pandemic has no major negative effect on the cost recovery rate which can be related to the fact that before and after coronavirus the economic situation is very bad, in addition, the interference of local government and other international organizations has alleviated the coronavirus negative effect.	*Figure 45. SWM Cost Recovery* 

	Indicator /Sub-indicators	Analytical graph (survey)
9	**Collection Rates**	
	- **The collection rate** represents the percentage of collected amounts to billed amounts. - The collection rates for the 17 municipalities for the period from July to December 2019 before the coronavirus pandemic. - By looking at the End-line collection rate of about 20.72%, before coronavirus and 19.58% during coronavirus it is still overall low and even lower than the Baseline of 29.68% while the coronavirus pandemic has slightly decreased the level of collection rate. - The reasons for this decreased rate compared to the Baseline are primarily due to the exacerbated economic situation and the low standard of living in the Gaza Strip, especially after the eruption of coronavirus. This led the municipalities to: • Provide low quality of solid waste management services. • Reduce efforts invested in collecting the solid waste dues.	*Figure 46. Fee Collection Rate* 

4. SATISFACTION OF JSC TECHNICAL STAFF AND ENVIRONMENTAL SPECIALISTS

This section presents the perceptions and satisfaction of the ***JSC-KRM technical staff*** regarding to the GSWMP. The targeted JSC technical staff are Executive director, operation engineers, landfill manger, Financial officer, Environmental and Social Staff, and Public awareness team.

4.1 Methods and Tools

The level of satisfaction was concluded by using different tools as the following:

- **Structural Interviews:** The consultant interviewed the JSC-KRM technical staff.
- **Focus Group**: The consultant conducted a focus group with the public awareness team consists of 7 environmental educators.

4.2 Perception and Satisfaction Results

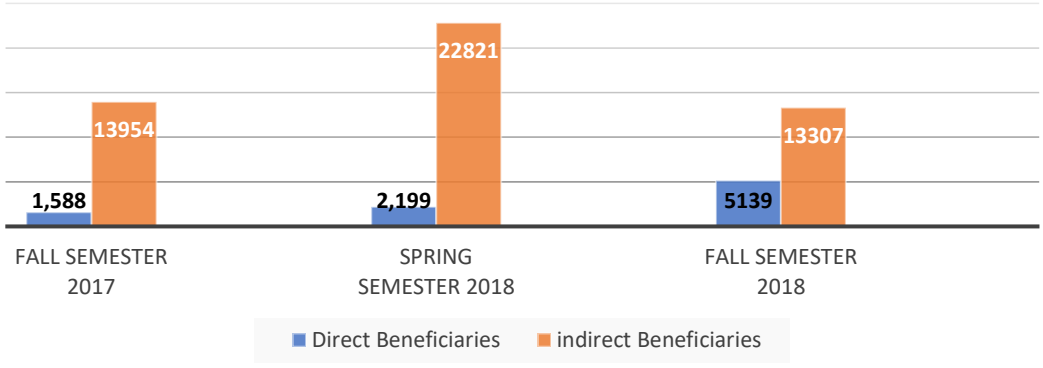
The following presented indicators in Table (5) were extracted from the analysis of the collected data through the focus group and the structural interviews.

Table 5. JSC Technical staff perceptions and satisfaction

	Indicator /Sub-indicators	Analytical graph (survey)
1	**Municipality awareness of project supported activities**	
	- The health educators' members defined their activities as holding awareness workshops/sessions/household visits/schools' visits …etc to increase community awareness of how to dispose of solid waste and the negative impacts of waste burning. - Additionally, different Committees are holding training sessions to teach children and parents how to reuse waste. The School Outreach Program has been implemented across three stages, including in both semesters of the 2017 – 2018, 2019 school years and the first semester of the 2019 – 2020 school year. It was stopped in 2020 due to the COVID-19 pandemic disease. - The targeted schools in the three stages are more than 100 schools (66% girls' schools, 34% boys' schools) or (29%, 48%, 23% in Middle area, Khan Younis, and Rafah governorates respectively). Some of UNRWA schools were also targeted in the outreach program (45 UNRWA schools in the three governorates). - The School Outreach Program included multiple different in-person and awareness activities, which included JSC guides giving lectures in different classrooms directly to students in the southern governorates, conducting a student competitions in the schools to promote environmental awareness, conducting awareness workshops with parents, performing skits and plays about environmental awareness, and recruiting university graduates with scientific and technical backgrounds to carry out activities in elementary schools.	

	Indicator /Sub-indicators	Analytical graph (survey)

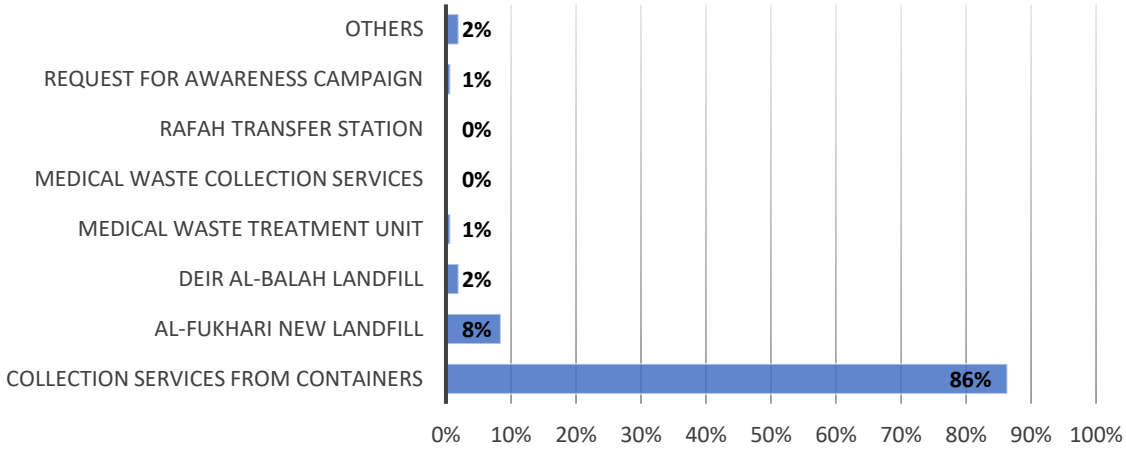
Figure 47. .School Outreach Program beneficiaries in some selected semesters

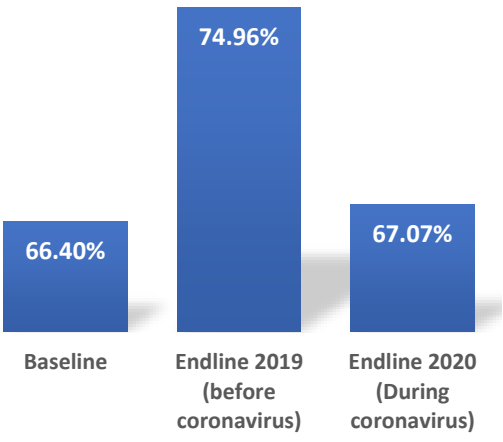


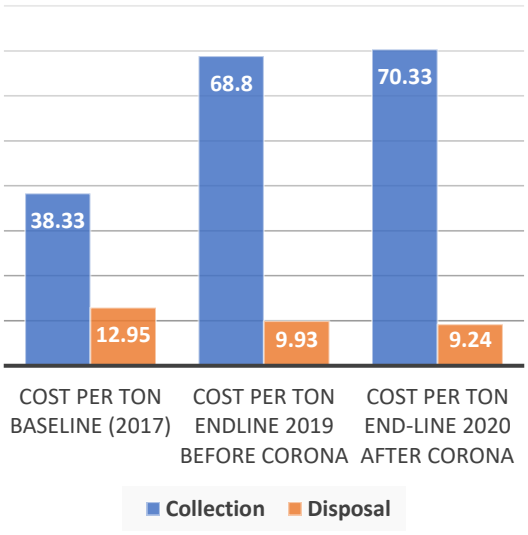
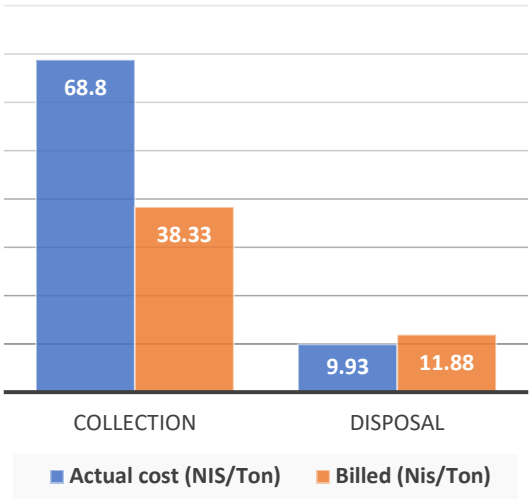
- Members of both the Social and Health Committees reported having basic information about the project and its details, while Health Committee members have good environmental knowledge of the adverse impacts of the project construction activities and how to mitigate them.
- JSC technical specialists reported being familiar with project's donors, implementing agencies, and outputs. They rated their satisfaction with these expected outcomes as *"very high"*. Technical specialists also reported participating in solid waste management project activities, including studies and workshops.
- When asked about their current assessment of the project, members reported that the project was successful and operated in accordance with international standards and regulations. Participants noted that there is an observable improvement in waste management services due to increased number of waste vehicles and containers, and environmental awareness activities, resulting in:
  - Less random dump sites
  - Frequent solid waste collection
  - Clean streets
  - Decrease the spread of insects, rodents, and odors
  - Citizens are showing better waste disposal practices
  - Municipalities' services have improved
  - Less complaints due to burning waste, bad odors, or insects

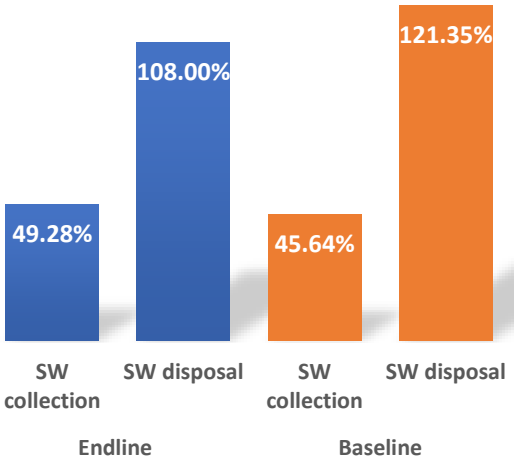
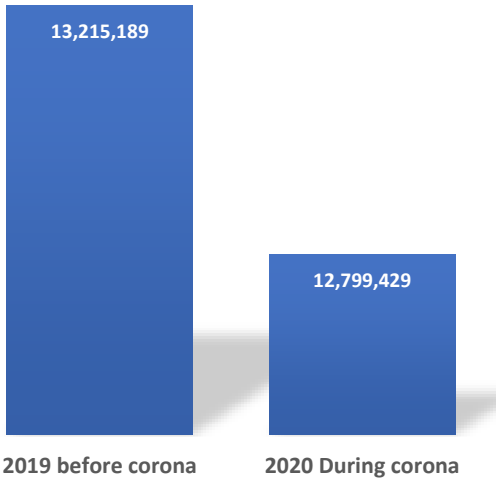
2	**Satisfaction with Coordination with MDLF Management**
	- During group interviews, JSC technical employees noted they were "very satisfied" with the level of coordination with MDLF. MDLF managers similarly reported being "satisfied" with the working relationship with the JSC.
3	**Satisfaction with coordination with municipalities (primary collection)**
	- Technical specialists reported that level of coordination with municipalities is excellent, periodic, and straight-forward without the need for long approval times or overly complicated procedures. - JSC technical staff noted that even though many municipalities are facing increasing debt, the municipality continues to provide services. - JSC technical staff reported: communication about the daily SWM operations is proceeded directly with the municipality via phone. In case that the municipality asks for an official letter to

	Indicator /Sub-indicators	Analytical graph (survey)
	describe the problem or complaint; then JSC submits the complaint according to the municipality's request. - When the public awareness team submit a complaint to the JSC management that isn't under the JSC responsibility, JSC forward the complaint to the municipalities.	
4	**Satisfaction with SWM services in their community**	
	- Health Educators in JSC members' document problems and complaints in the daily reports, then submit them to the JSC management. Most of the problems and complaints are collected by the drivers of waste collection vehicles. Educators reported that all complaints were responded to immediately. - Social Committee members reported that waste is collected once a day in their community, and sometimes twice a day in neighborhoods located in the city center or in a refugee camp. - Focus group participants (JSC technical staff) reported this frequency was very suitable and helped to control pollution and health problems. When asked what their communities' needs are regarding solid waste management, Social Committee members noted the following: • Smaller containers should be placed at closer distances (between 50 and 100 meters apart), as larger containers placed far apart cause random waste disposal. • Put a piece of marble under the container wheels, particularly when the container is used in a sandy area to facilitate movement and avoid damaging the wheels. • Apply a system to distribute plastic bags for waste collection. Social Committee members and focus groups with households and CBOs stressed that appropriate bags can help them dispose of solid waste properly, such as bags that are too thick for rodents to tear through. However, the Health Committee members noted that they educate people to reuse their own plastic bags in collecting their solid waste. • Put cover for solid waste containers especially around schools. • JSC social specialists reported that the main obstacles to improving solid waste collection and disposal services included; a lack of financial resources, weak technical capabilities in terms of supplying machinery and spare parts and low awareness, particularly in rural areas. In terms of building technical capacity, technical specialists all noted that they had received a new training program with municipality's staff.	
5.	**Satisfaction with project participation and feedback**	
	- During group interviews, technical employees working at the JSC reported they were satisfied with their contribution to the Solid Waste Management project in the southern Gaza Strip, noting that JSC had a prominent role even in the design stages of the project.	
6.	**Mechanisms for end beneficiary feedback to JSC**	
	- Focus group participants from the social and women Committee reported that the municipality followed up immediately on their complaints, but then would fail to take action because the issue raised was beyond the municipality's control, or they lacked the resources to address it due their limited economic capacity. - The JSC created a new electronic complaints system in mid-2018 in addition to the old channels (phone, Facebook page, workers, awareness team, complaint boxes). Implementation of the new system was initiated through an external consultant chosen in October 2018 to design and program it. During the first months of 2019, JSC began receiving complaints through the new system.	

	Indicator /Sub-indicators	Analytical graph (survey)
	- Furthermore, the types and number of complaints submitted to JSC after opening the Al-Fukhari landfill were at a rate of 6-10 complaints per month, most of which were received through the daily reports of the JSC workers. - During the period (July 2019 – July 2021), JSC received 175 complaints through different channels; where 21 of complaints were invalid and forwarded to the municipality. - Most of received complaints are related to the secondary collection service, whereas the complaints related to landfill, transfer station, or the medical waste treatment facility are very limited. *Figure 48. Complaints received by JSC through different channels (July 2019 - July 2021)* 	
7.	**Awareness of environmental safeguards**	
	- JSC social specialists reported being aware of multiple safeguard documents, including the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plans (ESMPs), or the Abbreviated Resettlement Action Plan – Waste Pickers and Landowners (ARAP).	
8.	**Environmental impacts of SWM practices**	
	- During group interviews, environmental and social specialists reported multiple follow-up measures to mitigate the environmental impacts during the construction and operation activities of the project. - For example, and as a monitoring tool for the groundwater around the landfill, monitoring wells were constructed to be used for water quality testing around the landfill. Other measures were also implemented such as applying the bottom liner and the leachate collection system in order not to pollute the soil and groundwater. The technical staff informed that the design of the landfill followed international design criteria with minimum environmental impacts. - ESMP for each component of the project were prepared and followed during construction and operation phases; it contained all the required measures to mitigate the expected environmental and social impacts of the project.	

	Indicator /Sub-indicators	Analytical graph (survey)
	- When asked whether the project has environmental impacts on various aspects, the JSC technical specialists informed that the project did not have any direct impacts on agriculture, water sources, air pollution or historical / heritage sites.	
9.	**Mechanisms for information sharing with end beneficiaries**	
	- JSC social specialist reported providing citizens with information about solid waste management and services via printed publications, social media, local media (television and radio), and through community meetings and publishing reports on municipalities' and JSC websites. - Social specialists reported these campaigns were "very effective" in increasing public awareness about solid waste management and influencing community practices. - It was noticed that percentage of people who know about the project were tripled between 2017 and 2021.	
10	**Opportunities for recycling initiatives**	
	- During a group interview, JSC technical specialists reported they believe that local communities are "very willing" to implement environmental initiatives for waste separation and recycling in the future. - All participants in the focus group noted they are very ready to begin source separation and waiting for municipalities to begin distributing separation bins, school students noted they need to learn more about how to recycle their waste. - Any separation at source campaigns should be coordinated with municipalities as they are responsible on the primary collection, whereas JSC can manage a joint facility which serve more than one municipality for recycling or composting.	
11	**Level of cost recovery in the JSC**	
	- The percentage of quantities transferred by the JSC in the End-line is higher than that of the Baseline (old dumpsite), indicating that the JSC's role has enhanced in solid waste management compared to the municipalities' roles. ***JSC Collection Rates:*** - The average End-line JSC collection rate in 2019 (before coronavirus) was 75%. It is clear that it is higher than the Baseline stage which was 66.4%, in addition to being higher than 2020 (during coronavirus), which indicates that the impact of the project on collection rates is generally positive, however it went down in 2020 due to coronavirus impact. More details in Annex III.	*Figure 49. JSC fees collection rate* 

	Indicator /Sub-indicators	Analytical graph (survey)
	- The billed amounts were recorded as received from the JSC and verified by the consultant. - The JSC usually settles the current billed amounts from the current collections first and any additional amounts settle the accumulated arrears. This was applied to Al Maghazi and Breij municipalities (in other words they both settled 100% of their 2019 bills). ***JSC Operational Expenses:*** - The total quantities of solid waste transferred by JSC and municipalities trucks in 2020 were 136,951 tons compared to 64,208 tons in the Baseline stage (old dump site) which represent a major increase by 113% which indicating the importance of the project. Refer to ANNIX III for more information about the operational expenses of waste collection and disposal: • **82,132** tons transferred by JSC trucks, whereas the municipalities have been billed total of NIS 49.28 per ton (NIS 37.4 for collection services and NIS 11.88 for disposable services) • **54,820** tons transferred by municipality's trucks whereas the municipalities billed NIS11.88 per ton for disposable only services. - By comparing the Baseline and End-line 2019 and 2020, we notice that the tariff per ton in 2019 continued to be the same, however starting from January 2020 the tariff has increased by 10% to be NIS 37.4 for the collection service and NIS 11.88 for the disposal despite being less than the cost per ton. It is worth mentioning that we (the consultant) have suggested increasing the tariff rate in our previous two stages reports. ***Cost Recovery:*** - The cost per ton has radically increased, for the collection services which have been	*Figure 50. Cost of waste collection and disposal (NIS/ton)*  *Figure 51. Actual cost vs billed costs of wate collection and disposal* 

	Indicator /Sub-indicators	Analytical graph (survey)
	raised in 2019 to NIS 68.8 compared to NIS 38.33 in the Baseline stage. - This change mainly occurred due to the recent use of new larger equipment for waste collection and use of additional techniques in the landfill in order to prevent any environmental impacts e.g. applying the compaction by heavy equipment and applying the daily cover on a daily basis. - The tariff / billed amount for collection services represent 54.36% of the cost per ton, which indicates that the JSC has to incur 45.64% (NIS 31.4) for each collected ton which indicates unsustainability of the JSC operations especially for the collection component .These results indicate a need for the fees structure is reevaluated by increasing the fee rate, especially for the collection services, as well as an increase the collection rate by putting pressure on the municipalities to pay for the disposal and collection services in due time and restructuring the accumulated loans (arrears) of NIS 12,799,429 (breakdown in the following point). Tariff/increase in service charge fee should be considered in JSC business line development. ***JSC Due Loans:*** - As it was presented in the previous section, JSC's collection rate is 74.96% in the End-line 2020, compared to 66% in the Baseline. This caused the accumulation of loans on the municipalities. - The total amount of accumulated loans for the period from January 2020 to December 2020 is NIS 1,445,492 despite the decrease in the loans amount in 2020 by NIS 415,760 as presented in ANNEX III, the reason for the decrease is due to cancelling loans of 4 municipalities for the total amount of NIS 1,861,492, the reason for loan cancellation has conducted because of the commitment of the following municipalities to pay their new dues on time.	*Figure 52. Cost Recovery rate*  *Figure 53. .due loans on the municipalities as of December 31, 2019 and 2020* 

	Indicator /Sub-indicators	Analytical graph (survey)
	- The accumulated amount since inception (1995) is NIS 12,799,429. This indicates that the JSC is indirectly financing the municipalities' operations. This indicates the need to invest the additional efforts into collecting loans from municipalities, since the accumulation of loans might negatively impact the JSC operations.	

5. SUCCESSFUL STORIES

This section presents some of successful stories which were reported during the implementation of the Gaza Solid Waste Management Project.

5.1 Cultivation of Lands Around Al-Fukhary Landfill

Farmers around Al-Fukhari landfill have shared during the focus groups that this landfill made a qualitative change in their lives. In the past, the old landfill was open, had no clear boundaries, and had bad odors and smoke. Flies, mosquitoes and other insects would often spread from it, and the stray dogs were attracted to the site, making it difficult for the farmers to protect their crops, as well as made it unsafe to be outside at night. Furthermore, the unofficial landfill also encouraged many waste pickers to gather in the area, which was hazardous, particularly in the winter months when they would light fires to stay warm.

"*Now, the landfill is operating in a neat and modern system and has known boundaries. The waste is buried and covered with a clayey layer on a daily basis, which prevents the spread of flies and insects. Also, the landfill is closed at night, which prevents the entry and spread of stray dogs, as well as prevents waste pickers from entering to pick up plastic and others, and saboteurs from burning the waste*". Farmer around Al-Fukhary landfill

"Now we are able to go to our lands very early in the morning because the lighting provided by the landfill building illuminates the whole area, in addition to we feel safe from the sudden attacks from the Israeli occupation authorities. The landfill had clear boundaries, which made us able to control our agricultural lands in terms of area and increase in yield. Also, the paving of Sofa Street improved access to the agricultural lands, which encouraged investors to buy land. Despite all these advantages, we still fear a decrease in the price of the land, because the existence of a landfill in the area may psychologically harm any investor and decrease their motivation to invest in this area."
Farmer around Al-Fukhary landfill

Figure 54. Lands around the old dumpsite (2016)

Figure 55. Lands around Al-Fukhary Landfill (2020)


Figure 56. Focus groups with farmers around Al-Fukhary landfill

5.2 Improved Livelihoods of Waste Pickers

17 waste pickers were reported picking waste in the old sofa dumpsite. Waste pickers were required to leave the site in order to construct the new sanitary landfill and close the old dumpsite, knowing that both sites (the old dumpsite and the new landfill site) are adjacent.

The 17 waste pickers were targeted by a capacity building program and then they were hired to work in JSC-KRM and member municipalities for 11 months. Finally, they were merged in the UNDP DEEP small grants program; each of them received a small grant and started his/her small business as an alternative livelihood source.

Waste Picker success stories were found among the group of 17 waste pickers, who were prevented from entering the al-Fukhari landfill after working for nearly nine years. During that time these waste pickers made their income by picking up waste, especially plastic, to sell it to factories in Gaza Strip with an average daily income of 30 shekels. The 17 waste pickers who merged in a program managed by UNDP DEEP, received an amount of money to open his/her own small business as an alternative livelihood source.

At the End-line, the research team interviewed three former waste pickers. These included, ***Zuhair Jawdat Al-Najjar***, who is running his own shop, ***Suleiman Mahmoud Al-Najjar***, who is working in a Livestock Breeding Project, as well as ***Fadi Ibrahim Al-Najjar***, who was working on a Detergents Project.

"*I moved from a waste picker to a store owner who sells household items. I helped my two brothers in their marriage and built apartments for them. Now I get an income of 900 shekels per month. I felt a slight drop in income as a result of the closure imposed by the spread of the Coronavirus in Gaza*."
Zuhair Jawdat al-Najjar

Whereas, ***Fadi Al-Najjar***, who works as a detergent's seller, said "*I get an income of about 900 shekels per month from selling detergents, sterilizers, and chlorine in Rafah and Khan Yunis governorate. I am very happy to be working on this project, which improved my health and social level*."

Figure 57. Zuhair Jawdat Al-Najjar in his shop

Figure 58. Fadi Al-Najjar selling detergents

Suliman Al-Najjar shared with the research team that after he received his qualification by the JSC to manage small projects, he was further supported through the provision of sheep in 2018. *"I now have sheep, two cows, as well as a horse. I work with my father and brother on this project, which*

provides me with a monthly income of 1,200 shekels in addition to, every around 4 months we can sell a lamb for about 1,000 shekels." *Suliman Al-Najjar*

Figure 59. Suliman Al-Najjar in his small business place

These beneficiaries made it clear that waste picking was just a means of attaining their livelihood, and with the right support each were able to redirect their livelihood efforts to safer and more sustainable opportunities. Furthermore, each expressed their happiness and satisfaction with their current projects and the hope they feel for future opportunities to expand their commercial projects and achieve even larger success.

5.3 Capacity Building for Municipalities

The consultant was informed during the structural interviews with municipalities representatives and Focus group with JSC technical staff that 17 municipalities of the middle and southern governorates and JSC have received training on SWM projects through the institutional support program as part of the GSWMP project implementation. The training was provided for 10 full days by the consortium of Egyptian Ecoconserv consulting firm and the Universal Group consulting firm in Gaza (UG). Also, the remaining 8 municipalities in Gaza Strip attended this training including Gaza Municipality.

This training was the only training of its type to be conducted in more than 15 years. The focus of the training was on the management of SW projects in the municipality's urban areas, including the development of further initiatives to help with waste collection, improve efficiency in utilizing resources, create SW recycling opportunities, as well as addressing other environmental, social, institutional, financial and managerial issues.

Capacity building for JSC-KRM staff was also achieved through the professionalization assignment which at first prepared list of Standard Operation Procedures (SOPs) and then a training was conducting in order to practice them on land. SOPs were targeting mainly the operation of Landfill, Transfer station, Medical Waste Treatment Facility, and Secondary collection. Hence, the professionalization assignment was carried out by an international consulting firm Geotest with a local consulting firm RAI Consult.

Other small trainings were carried out through the implementation of the GSWMP targeting mainly workers such as First Aid training, Safety at the site training, Dealing with UXO training, and finally COVID-19 measures training.

Figure 60. Different capacity building activities during the GSWMP

5.4 JSC's Handling of The Coronavirus Pandemic

The new supplied waste vehicles (7 compactors and 3 roll on/off vehicles) are covering 78% of the JSC-KRM service area, whereas the old trucks (tipper cranes) are still covering the remaining 22% of the service area. Table (6) shows the capacities of the new waste vehicles.

Table 6. Capacities of the new waste trucks supplied under GSWMP

Truck type	Production Year	Collection waste ton / day	Condition according to consultant	Note
Equipment Serving Middle Area Governorate				
Compactor	2017	25	100%	New
Compactor	2017	25	100%	New
Compactor	2017	25	100%	New
Roll on/of	2017	40	100%	New
Tipper Crane	1995	10		Old
Tipper Crane	1995	10		Old
Tipper Crane	2008	15		Old
Tipper Crane	1997	15		Old
Equipment Serving Khan Younis Governorate				
Compactor	2017	25	100%	New
Compactor	2017	25	100%	New
Compactor	2017	25	100%	New
Compactor	2017	15	100%	New
Tipper Crane	2008	7		Old
Tipper Crane	2008	8.5		Old
Tipper Crane	1997	7		Old
Equipment Serving Rafah Governorate				
Roll on/of	2017	40	100%	New
Stand By				
Roll on/off	2017		100%	New

Waste containers were also supplied to the JSC-KRM service area. The supplied waste containers were in different sizes i.e. 1, 4, 40 m3. The new containers are compatible with the new supplied waste trucks. The new containers were distributed in Khan Younis, Rafah, and Middle Area governorates. Containers with volume 4 m3 was used for the first time in JSC service area. New areas were also added to the service of JSC-KRM due to the availability of waste containers. Tables (7 & 8) indicate that about 70% of the container capacities were replaced by new containers comparing to the total containers' capacities in 2015.

Hence, Supply of waste vehicles and containers helped in providing better serves with regular frequency of collection, in addition to decrease the random illegal dumping in open areas.

Table 7. JSC-KRM waste containers (2015 – 2017)

(JSC annual report, 2017)

#	Municipality	2015	2016	2017
1	Khan Younis	894	870	850
2	Bani Suhaila	169	148	140
3	Abasan Kabeera	265	248	0
4	Khuzaa	162	97	90
5	Abasan Gadeda	120	130	110
1	Nusierate	315	220	220
2	Deir Al-Balah	395	488	485
3	Qarara	380	385	375
4	Zawayda	235	185	185
5	Wadi Salqa	65	78	73
Total		**3,000**[17]	2,849	2,528

Table 8. Supplied waste containers under GSWMP

	Volume		
	1m3	**4 m3**	**40 m3**
Number of supplied containers	385	245	18
Total Capacity	**2,085 m3**		

Figure 61. Old JSC-KRM waste vehicles

Figure 62. New supplied waste vehicles

[17] All containers capacity (1 m3)

The impact of the Coronavirus pandemic hit the world at the start of 2020, disrupting economic, political and social systems around the world. This was also true in the Gaza Strip, however as a result of the already high levels of vulnerability and limited resources within the area, dealing with such disease had a particularly devastating effect. For a population who was already experiencing limited economic opportunities, the lockdown and restrictions on movement hurt people's ability to earn a living. Which not only manifested in an economic challenge, but also created increased protection concerns, such as food security, health and well-being. Within such a fragile environment, the JSC took on a very significant role in working to mitigate the negative impact of the pandemic effect. It is worth noting that the JSC was responsible for collecting SW from quarantine centers and from the infected houses for about 2 months from the beginning of the pandemic eruption, however, in later stage the municipalities took the responsibility of collecting SW from the infected peoples" houses while the JSC continues to be responsible for collecting solid waste from the quarantine centers only. However, since the start of the pandemic, the JSC promptly implemented the Ministry of Health special waste collection protocol, which necessitated spraying the waste with chlorine substance, putting the waste in strictly closed plastic bags and spraying the bags again with chlorine, as well as transporting the waste bags with special trucks, reserving the waste for 24 hours before disposal and covering with soil.

Figure 63. Collection of waste from quarantine centers and houses under quarantine by JSC workers

The waste collection timing was coordinated with the emergency committee in each governorate regardless of ordinary collection timing. The collection workers were provided with safety clothes and tools to protect themselves and others including special plastic whole body covers, masks, gloves, sanitizers and tools. Even during the curfew imposed on the Gaza strip to eliminate the spread of the virus, the waste collectors were issued special permits to be able to collect the waste on time. This effort was essential in order to promote and protect the public health, and can be considered a great success. Which remains remarkable, even when taking into consideration an overall decrease in the quantity of the waste collected, a decrease from 15 to 10%. This reduction was not a sign of a lack of effort on the part of the JSC, but rather the result of the ban placed on temporary markets and the closures of Fridays and Saturdays markets each week.

For all of the mentioned steps taken, the JSC role was very important in enhancing the public health of the southern and middle governorates alongside with the Ministry of health and other concerning parties. Their ability to deal with the new and unknown pandemic was further enhanced as a result of the JSC staff receiving the required training and knowledge remaining safe while continuing their work. Additionally, the Palestinian Red Crescent provided the JSC staff with the first aid training, the UNMAS organization, which is part of the UN, provided the staff with the safety protection training to protect themselves and the residents, and the Japanese International Cooperation Agency (JICA) provided training to the JSC staff about the use of the safety tools such as sanitizers, masks, gloves and other tools. The training contributed a great deal to increasing the safety awareness and how to protect themselves and others.

Figure 64. Disinfection of the waste collection vehicles

In addition, the JSC staff have received training on the Standard Operating Procedure (SOP). The training focus was on using indicators to enhance the JSC technical performance related to spreading, compacting, and covering of the waste to prevent the bad odors, and to fight the insects and rodents. The SOP training was very beneficial for the JSC staff since they were able to conduct analytical studies concerning the cost analysis for each service, business plans, operational gap between revenue and cost

6. LESSONS LEARNT AND RECOMMENDATIONS

6.1 Lessons Learnt

Overall:

- **Importance of innovative approach to SW:** Referring to the results of surveying the municipal representatives and JSC staff; the project contributed to prevention of environmental and health problems compared to the previous dumpsite by using scientific approaches in managing the SW to eliminate the risks of smoke, odors, insects and rodents, as well to prevent or mitigate any other environmental impacts such as the impact of leachate on soil and groundwater. The ecological/environmental balance has been enhanced and preserved to some extent as a result of the work done to fix the isolation sheets (liner) and establish a leachate collection network that are located at the bottom of the landfill. These additions help to contain the liquid produced by the collected solid waste (leachate) and remove it from the landfill site by disposing of this liquid waste appropriately and safely. This is a marked improvement and made clear the importance of these enhancements for any further similar projects as a means to avoid waste being absorbed into the land and contaminating the groundwater.

- **Significance of Waste Pickers initiative:** Referring to the conclusion of waste pickers focus group and the results of the JSC technical staff questionnaires; the initiative to redirect waste pickers and standardizing the solid waste disposal process, not only showed promising results in terms of enhancing the environmental and public health within the communities, but also by discouraging waste picking through financial and livelihood support also created an improvement for the targeted communities. The life of previous waste pickers was improved socially; they created a new relationships and networks due to their work requirements, and it can be noted that they were merged also in the community better than in the past once they were picking the waste. It is also noted that they have better and cleaner houses now, knowing that they used their houses in the past as a storge of picked waste which let their houses not clean. It was clear the waste picking was a choice being made out of economic need for those engaged, therefore this activity was available to be redirected to other economic activities if alternatives were economically beneficial. That said, it was also apparent that as Gaza continues to face economic challenges, waste picking would continue to be an option in the absence of other opportunities. Despite this reality facing individuals, there was a positive impact identified on the community level. As waste pickers present a serious risk for community well-being, which was illustrated last winter in another landfill in Gaza Strip, when waste pickers let fires to keep warm, leading to an accidental fire caused by the methane gas produced by SW, and resulted in a huge fire that lasted for five days. The harm of this event resulted in smoke to spread across Gaza city, as well as created an additional economic strain as it was highly expensive to put out the fire. Therefore, continued work with waste pickers is needed, despite the complexity of the issue.

On the beneficiary level:

- **Information sharing, taking the consistent and long-term approach:** It was clear that throughout this initiative there needed to be clearer and widely shared information about the project with beneficiaries. While some efforts were made, this communication at times was slow and in some cases beneficiaries claimed that they only knew about the implementation of the project during implementation phase. It is important to note, however, that beneficiaries also lacked clear understanding of the benefits of the project and reported not being that overly interested in the project initially. However, as the project progressed, so did the level of awareness among beneficiaries, which can possibly attributed to consistent social media posts and updates about the project being shared among the beneficiaries, as well as the power of seeing the solid waste facilities being built and utilized naturally increased interest and awareness. The lesson being that the communication plans need to be made with long-term goals in mind as it takes time for the population to engage fully and understand such projects.

- **Importance of local meetings and local employment:** It was concluded from the household questionnaires and the focus groups that beneficiaries in the project implementation areas asked for continuous and frequent community meetings and workshops to increase awareness of the project activities and developments. This feedback points to the importance of localized engagement to be factored into the project communications and implementation planning. Furthermore, beneficiaries also raised concerns over their incorporation in the employment opportunities and work of the project, which is particularly important when implementing in economically vulnerable communities and contexts. This particularly relevant in the landfill located in Al fukhary area, as many beneficiaries in this area feel that more workers from Alfukhary area need to be employed in the landfill, but the operation of the landfill is not requiring large number of workers.

On the municipal level:

- **It is essential to use accessible and familiar communication pathways and grievance redress mechanism to engage with beneficiaries in feedback regarding the project**: It was clear from focus group conclusions that there is unsatisfaction of people regarding to feedback and complain system and the follow up in municipalities. These include in-person communication, phone calls, and holding more workshops and meetings with community members. These communication and feedback methodologies provide more information to beneficiaries regarding the cost of collection, which was a concern in this project as many beneficiaries reported that they had assumed that the waste management services were free, and others informed that they are not receiving bills anymore. This attention to communication processes and approaches between the municipalities and beneficiaries reinforces local support, as well as increases transparency.

- **Considering the high levels of vulnerability, more is needed beyond the scope of the project:** Despite the success in the project, it was clear that the need for proper waste containers remains a concern for the beneficiaries. This result helped to inform future strategies, as well as made clear the extent of the ongoing issues that exist regarding waste management. In particular, more conveniently placed containers with lids need to be

prioritized, with particular attention given to the regular waste collection. This is clearly the key to ensure that unauthorized dumping sites do not develop and beneficiaries continue to rely on the official waste removal systems.

- **Municipal representatives report desire increased cooperation with the JSC:** Much like the need for clear communication between the municipalities and beneficiaries, there is a need for strong communication and coordination between municipal representatives and the JSC. When the coordination is strong regarding project decisions, particularly those that directly affect beneficiaries living directly around the project implementation sites, municipal representatives can better engage with the beneficiaries, safeguard their well-being and support the overall success of the project by helping with communication. This also helps build the capacity of municipalities to launch their own initiatives for recycling or environmental awareness. Furthermore, in general enhanced coordination creates better and more efficient workflows.

On the JSC/technical staff level:

- **An accessible and easy to use Grievance Redress Mechanism (GRM) is essential in order to clearly address beneficiary concerns:** Throughout the implementation of this project, the JSC and the technical staff utilized an electronic GRM. However, in many cases the complaints were about the mess associated with solid waste around the containers, which was the responsibility of the municipalities and not the JSC. As well, most of beneficiaries don't prefer to submit a complaint to the municipality or to the JSC. Therefore, a more developed monitoring and feedback system is required in anticipation of the different responsibilities of each stakeholder, and awareness complain is also required for better engaging the local community and enhance people to share their feedback and submit complaints.

6.2 Recommendations

For future similar SW projects and initiatives:

- **Set realistic project objectives that are aligned with economic realities within targeted areas:** When examining the overall impact of the project and developing recommendations that would be relevant to future similar projects, it is first important to note that throughout the surveys, interviews and focus groups, an improvement of the overall economic situation within Gaza was identified as paramount. Therefore, economic assessments and investment in cost saving processes remain a key recommendation. Additionally, due to the direct correlation that was identified between the improvement of solid waste services and the overall health of the economy, it is recommended that all project planning pay particular attention to economic forecasts in order to ensure the development of realistic project benchmarks and goals.
- **Social Committee members and health educators call for increased local engagement and coordination across actors:** When asked about the best way to increase the impact of this project or improve implementation of future projects, these members and educators emphasized the importance of increased engagement and coordination. Some of their key

recommendations to achieve this include conducting peer-to-peer knowledge exchanges, such as work visits to the West Bank and other locations to benefit from others' experiences, and increasing citizens' environmental awareness through workshops and campaigns, which would require an increase in the allocated budget for such activities in order to provide citizens' with incentives. Additionally, they suggested an increased meeting be held between the Social Committee and citizens, as well as between JSC and the municipalities, in order to be able to immediately respond to challenges, and address concerns. This increased engagement and coordination would allow members and educators to as one focus group participant stated, "To be there before the issue, not after."

- **Environmental Specialist call for environmental awareness raising and capacity building, as well as enhanced laws/policies and land rehabilitation:** When asked to consider the best ways to increase the impact of the project, Technical specialists pointed out the need for the municipalities to adopt an uniform law/policy to deter people who do not comply with SW management hygiene and cleanliness protocols. This suggestion was made recognizing the challenge of appropriately applying such rules in light of the economic limitations in Gaza, however despite these challenges the lack of unified deterrence measure need to be addressed is systemic change is ever to be achieved. Furthermore, technical specialists agreed that SW management personnel and municipal employees of the project would benefit from capacity building and awareness raising.

To the municipalities:

- **Increase tariffs for solid waste collection across all targeted municipalities:** Following the recommendation to increase the tariffs for solid waste collection in the Midline assessment, only Maghazi, Khusaa, Nusirat and Qarrarafour municipalities increased their tariff at the time of this Endline assessment. Therefore, it is recommended that those remaining municipalities that still have the same tariff level as the Baseline move toward increasing their tariffs. This recommendation is made in the interest of increasing the efficiency of provided solid waste management services, however it is important to recognize that even in the municipalities where the tariff was increased it remains lower than their solid waste project cost per subscriber. Therefore, the increase in tariffs for solid waste will not cover the cost of these services, but will provide the opportunity to at least provide some additional resources to offset the costs. Making it possible to work toward increasing collection rates and provide awareness campaigns that promote the importance of solid waste dues and their positive impact on the level of services provided. It is also important that all municipalities to have a good follow up system and to be sure that all served residential units to receive a bill. It is also the time to start innovative systems that consider the cost of the service based on the amount of generated waste for each beneficiary.
- **Increase efficiency as a means to decrease solid waste management costs:** Recognizing that the management cost of municipal SW projects remains higher than the collected amounts on a monthly and yearly basis, it is critical that municipalities continue to work to increase their efficiency. This is particularly important considering the dire economic context and financial challenges that face beneficiaries and municipalities throughout Gaza. This could be achieved by re-examining the cash-based approach to accounting used to record the costs, which resulted in variations between the cost per household in the Baseline and Endline assessments.

- **Increase collection rates:** One of the most successful aspects of this project was the improvement in the satisfaction of beneficiaries in the SW services they received, however it is critical that municipalities continue to increase their collection rates. This can be achieved by launching awareness campaigns targeting targeted beneficiaries, with a particular focus on the importance of paying SW dues and their impact on SW service quality. This is a particularly complex issue as many people commonly pay in installments because some municipalities settle the water payments before all other dues, including those related to solid waste, it is essential that the municipalities establish a system of billing that includes the cost of SW at the same time as the water payment is due. This will ensure that the payments are correctly calculated and collected.

To JSC/technical staff:

- **Increase attention given to the people living directly around the project implementation sites:** Beyond just making the nearby population aware of the project, it is critical that there is particular attention given to how the lives of these individuals can be improved. These areas should be prioritized when it comes to engagement with local neighborhood committees, and employment opportunities created by the project. These efforts will not only help to serve the project in the short-term, but also work to increase local buy-in and acceptance of the project's long-term goals.
- **Involve municipal representatives, Social / Health Committee members, and local organizations:** Similar to the considerations given to local communities, it is also essential the JSC and Technical staff work to coordinate with municipal representatives, social/health committee members and local organizations in order to ensure sustainability of the progress made in the project. The more inclusive the approach taken, the more likely a sense of ownership will develop, as well as help to increase capacity of these actors to develop further SW projects. This will create an opportunity for further local engagement of the targeted population and incorporate more essential voices in project planning, decision-making and implementation. A prime example of where the coordination has broken down can be seen in the fact that two municipalities, who are members of JSC, are not transferring their SW to the new landfill since it is far away from their area, and instead they transfer their SW to the Gaza city landfill due to its proximity and lower disposal fees. JSC management must take action in order to ensure that members of the JSC are incentivized and supported in their use of the landfill.

Annex I: Approach and Methodology

The objective of End-line analysis was to provide the Municipal Development and Lending Fund – Project Development and Safeguards Unit (MDLF-PDSU) and the Joint Service Council in Khan Younis, Rafah and Middle Governorates (JSC-KRM) with an End-line Beneficiary Impact Assessment. This final was designed to provide not only End-line data, which was then compared against the Baseline and Midline assessment results.
Through the process of gathering the results at the close of the project, as well as examining how these results compare to previous results, the consulting team aimed to provide a holistic overview of the progress made, remaining challenges and barriers and most importantly a deep understanding of the perspective of beneficiaries regarding the project.

Preparatory Discussions

As part of the preparatory phase, MDLF and Riyada's project teams held discussions to prepare for the BIA End-line assignment in November and December 2020. During the preparatory discussions, it was agreed that the timing for the BIA Final Report would be submitted in March 2021. In addition, during these discussions the MDLF team provided Riyada's research team with an overview of the project activities from the Baseline. Following these discussions, the MDLF team shared relevant program documentation that was developed since conducting the Baseline and Mid-line surveys. Riyada's team also shared the Mid-line Arabic and English questionnaires for MDLF's review and confirmation prior to the field work for the End-line.

Document Review

Riyada consultants have thoroughly reviewed a number of relevant project documents in order to gain a solid understanding of the project's expected results and activities, as well as the overall context of the beneficiaries and their needs. Project documentation reviewed during the *Baseline* included the following:

- Project's Results Monitoring Framework
- Project's Environmental and Social Impact Assessment (ESIA) – 2012
- Methodology applied during the ESIA.
- Project annual report 2014 - 2015
- Feasibility Study on Solid Waste Management in the Gaza Strip
- Environmental and Social Management Plan (ESMP)
- Abbreviated Resettlement Action Plan (ARAP) Waste Pickers Sofa Landfill
- Abbreviated Resettlement Action Plan (ARAP) Waste Pickers Al Fukhari
- Abbreviated Resettlement Action Plan (ARAP) Landowners Al Fukhari

In addition, the following documents were reviewed for the *mid-line*:

- Mid Term review report including the Revised Results Framework, November 2018
- Aide Memoire of the Implementation Supervision Mission: October 1-5, 2018 of the Gaza Solid Waste Management Project (P121648)
- Semi-annual report 2018

- Monitoring report of the livelihood of the waste pickers, April 2018

Moreover, the following documents were reviewed for the *End-line*:

- GSWMP Annual Report, 2019.
- GSWMP Semi Annual and Annual Report, 2020.
- Updated ESIA 2020.
- PCBS Results of Impact of COVID-19 Pandemic on the Socio-economic Conditions of Palestinian Households Survey (March – May), 2020.
- Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report.
- State of Palestine Ministry of Social Development. (2020). Study of the Social Impacts of the COVID-19 Pandemic in Palestine and its Implications on Policies and Future Governmental and Non-Governmental Interventions (For a Resilient Society that Leaves no one Behind).
- Economic Forecasts for the Year 2020, in Light of the Current Coronavirus Pandemic

The preparatory meetings and discussions with MDLF and the document review informed the update and further development of the End-Line assessment tools that are listed in the following sections.

Finalization and Assigning the Research Team

Based on the discussions with MDLF, Riyada Consulting finalized the research team to be assigned for the MDLF Mid Term BIA. The final research team included the following:

1. Shuaa Marrar, Senior Researcher and Team Leader
2. Elaine, Reporting Officer/Researcher
3. Haneen Al Sbaihi, Environmental and Public Health Specialists/Researcher
4. Nayif Abed, Head Statistician/Researcher
5. Ali Sunallah , Assistant Statistician/Data Entry Specialist
6. Mohammad Moheisen, Financial Consultant
7. Jameel Masri, Financial Analyst
8. 7 Field Researchers/Enumerators

An extensive training session for the field researchers was held on December 31, 2020. The Head Statistician and the Assistant Statistician assigned to the BIA trained the field researchers on the updated detailed field methodology for the data collection from the households for the End-Line. The training covered the updated sample distribution, selection of households, and procedure for dealing with non-response.

Qualitative Research

- **Interviews**

The following interviews were conducted for the End-line phase

End-line Qualitative Interviews conducted				
Name	**Org**	**Title**	**Location**	**Researcher**
Eng. Nour Al Madhoun	MDLF	Director, Project Development and Safeguards Unit (PDSU), GSWMP	MDLF Office	Mohammad Moheisen and Haneen Al Sbaihi
Eng. Samir Matar	MDLF	Environmental Specialist	MDLF Office	Haneen Al Sbaihi
Dr. Ali Barhoum / JSC Management	JSC	Manager, Technical Operations Unit	JSC	Mohammad Moheisen
Eng. Yaser Al-bohaisy	JSC	IT Specialist	JSC	Mohammad Moheisen and Haneen Al Sbaihi
Waste Pickers	MDLF	Select a sample of 3 case studies documenting the impact before and after project support.	Individual Interviews / visits	Haneen Al Sbaihi
Eng. Mohammed Syiam	JSC	Technical Staff	JSC	Mohammad Moheisen
Eng. Wesam Abu Jalambo	JSC	Technical Staff	JSC	Mohammad Moheisen
Haya Al-Agha	JSC	Social Specialist	JSC	Haneen Al Sbaihi
Dr. Salman E l Emour	Municipality of Al Fukhari	Mayor of Al Fukhari	Municipality of Al Fukhari	Mohammad Moheisen
Nael Al Amour	Al Fukhari Association for Rural Development	Executive Director	Al Fukhari Association	Haneen Al Sbaih Mohammed Mohaisen
Mohsen Abu Mairy	Municipality of Deir El Balah	Head of Environmental Health Departments	Municipality of Deir El Balah	Haneen Al Sbaihi
Yousef Shbair	Municipality of Khan Younis	Head of Environmental Health Departments	Municipality of Khan Younis	Haneen Al Sbaihi
Mohand Moamer	Municipality of Rafah	Head of Environmental Health Departments	Municipality of Rafah	Haneen Al Sbaihi

- **Focus Groups / Group Interviews**

The following focus groups were conducted for the End-line phase

End line Focus Groups / Group Interviews				
Category	**Location**	**Number of Participants**	**Description**	**Date**
Social Committee Members	Zoom meeting	7 (0 males and 7 females)	Social Committee Members of JSC from the governorates of Rafah, Khan Younis, and Middle Gaza	Feb. 11, 2021
JSC Health Educators	JSC	6 (0 male and 6 females)	JSC Health Educators	Feb. 13, 2021
Beneficiaries in Al Fukhari area	JSC	7 (7 males and 0 females)	Participants who are farmers, landowners, and residents in the vicinity of the landfill and its access roads	Feb. 13, 2021
Direct beneficiaries near the transfer station	Municipality of Rafah	11 (6 males and 5 females)	Residents in the vicinity of the transfer station and its access roads in Tel Al Sultan (Rafah)	Feb. 13, 2021
Representative of previous Waste Pickers	Their projects' location	3 (3 males and 0 females)	The waste pickers' have been succeeded in change their livelihoods as a result of the DEEP project from UNDP	Feb. 20, 2021
Student	School	15 (0 males and 15 females)	Participants who are female students from …. School in Middle area received an awareness session from the JSC team.	Jan. 28, 2021
Students	School	18 (18 males and 0 females)	Participants who are males' students from …. School in Khanyouins city received an awareness session from JSC team.	Jan. 28, 2021
Teachers	Zoom meeting	(males and females)	Participants who are teachers from Khanyouins city and Middle area	-
Households, CBOs, and NGOs	Municipality of Khanyouins	21 (4 males and 17 females)	Participants who are residents and CBOs members from Khanyouins city	Feb. 20, 2021
Households, CBOs, and NGOs	Municipality of Deir El-Balah	16 (3 males and 13 females)	Participants who are residents and CBOs members from Middle area	Feb. 20, 2021

Quantitative Research – Household Survey

The following is the detailed sampling approach that the consultants applied for the BIA final phase:

- **Target Population:** The target population for the End-line BIA are all the potential beneficiaries from the Gaza Solid Waste Management Project in three governorates: Khan Younis, **Middle** and Rafah.
- **Sampling Frame**: The sampling frame consists of all the households who are residing in the target locations where the project is being implemented. The below table shows the total population of project locations, updated based on the Palestinian Central Bureau of Statistics (PCBS) 2017 Census:

Distribution of Gaza Strip Population, 2017

Community	Governorates	Population in 2017
Jabalia	North Gaza	172,704
Beit Lahia	North Gaza	89,838
Beit Hanon	North Gaza	52,237
Om al Nasr	North Gaza	4,737
Gaza	Gaza	590,481
Almoghraqa	Gaza	11,458
Alzahraa	Gaza	5,338
Wadi Gaza (Juhor ad Dik)	Gaza	4,586
Deir al Balah	Middle	75,132
An Nuseirat	Middle	54,851
Al Bureij	Middle	15,491
Az Zawayda	Middle	23,841
Al Maghazi	Middle	9,670
Wadi as Salqa	Middle	6,715
Al Musaddar	Middle	2,587
Khan Younis	Khan Younis	205,125
Al Qarara	Khan Younis	29,004
Bani Suheila	Khan Younis	41,439
Abasan al Kabira	Khan Younis	26,767

Distribution of Gaza Strip Population, 2017		
Community	**Governorates**	**Population in 2017**
Abasan al Jadida	Khan Younis	9,290
Khuza'a	Khan Younis	11,388
Al Fukhari	Khan Younis	6,443
Rafah	Rafah	171,899
Shokat as Sufi	Rafah	16,445
Al-Nnaser (Al Bayuk)	Rafah	8,984
Total		**1,646,450**

- **Sample Size and Type:** For this assignment, the consultants applied a **stratified systematic random sample of (420) beneficiary households**, with a 95% confidence interval and a margin of error of roughly 4.8%. **201 of these respondents are repeated and participated either in the Midline or Baseline assessments, constituting almost half of the Baseline sample**, 102 households out of them, participated in Baseline and Midline, in addition to the **219 who are new respondents.** This sample type was used instead of cluster sampling to ensure representation of the beneficiary communities from the project composed of those residing in the 17 target communities. It should be noted that the research team faced many challenges reaching out to the old sample or those who were surveyed during the Baseline and Midline to ensure sufficient representation of the Baseline and Midline respondents in the End-line assessment. Asking about specific names; especially if the respondents were females, in the remote areas in Gaza proved to be highly sensitive. During the Baseline and Midline surveys, some respondents (both male and female) preferred not to give their contact details, which made it difficult for the researchers to reach the intended respondents. To mitigate this challenge, the research team slightly increased the estimated sample size and conducted a third round of field work to increase the representation of the Midline and Baseline respondents in the sample ensuring a statistically representative sample allowed the consultants to compare the Baseline, Midline and End-Line results as elaborated in the Findings sections.
- **Coverage of the sample:** The sample covered all localities where the project is implemented and taking into account the economic status, refugee status, population density, urbanization, and remoteness of targeted areas.
- **Sample Strata**: to make the sample more representative, the sample covered all the locations of the projects. For this survey, the sample strata are the 17 communities located in the three target governorates.

The below table shows the total percentages of refugees (both registered and non-registered with UNRWA) living in the targeted communities in the Gaza Strip, indicating the Midline BIA's representativeness to refugee status:

Distribution of Refugees in Targeted Communities, 2017

Community	Governorates	Percentage of Population Refugees
Jabalia	North Gaza	62.0%
Beit Lahia	North Gaza	58.1%
Beit Hanon	North Gaza	98.7%
Om al Nasr	North Gaza	98.2%
Gaza	Gaza	47.8%
Almoghraqa	Gaza	72.6%
Alzahraa	Gaza	83.0%
Wadi Gaza (Juhor ad Dik)	Gaza	67.9%
Deir al Balah	Middle	65.8%
An Nuseirat	Middle	92.9%
Al Bureij	Middle	94.0%
Az Zawayda	Middle	84.3%
Al Maghazi	Middle	96.3%
Wadi as Salqa	Middle	83.7%
Al Musaddar	Middle	60.5%
Khan Younis	Khan Younis	55.2%
Al Qarara	Khan Younis	47.3%
Bani Suheila	Khan Younis	50.6%
'Abasan al Kabira	Khan Younis	33.7%
'Abasan al Jadida	Khan Younis	41.5%
Khuza'a	Khan Younis	90.2%
Al Fukhari	Khan Younis	97.1%
Rafah	Rafah	80.4%
Shokat as Sufi	Rafah	98.5%
Al-Nnaser (Al Bayuk)	Rafah	90.2%

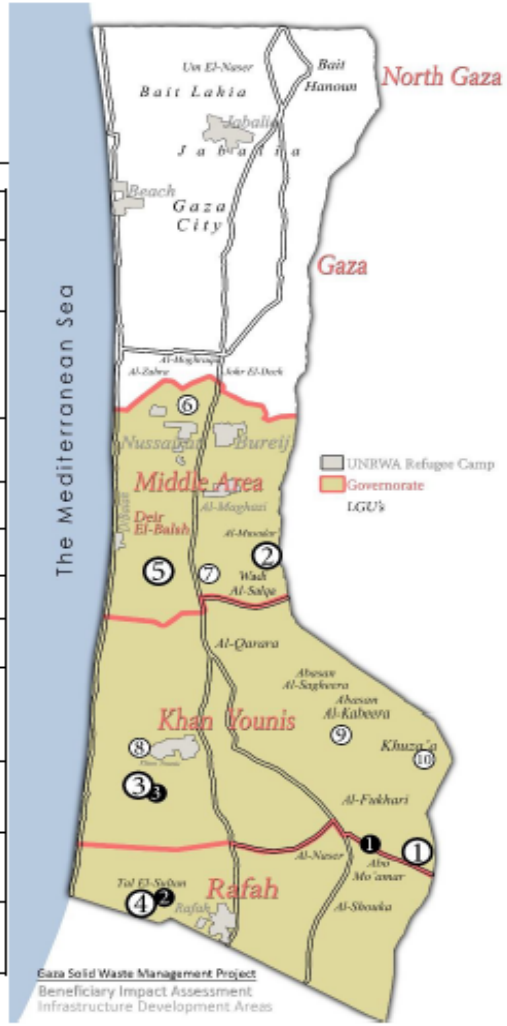
Map of Beneficiary Distribution

Gaza Solid Waste Management Project

Assignment 4.1.5.2 | Beneficiary Impact Assessment

Overview on Project Area, Interventions, and Specific Target Groups as directly related to Project Activities

Project Component	Intervention	Location or Locality	Map Ref.	Specific Target Group (PAPs)
Comp. 1 Infrastructure Development	Construction of Sanitary Landfill	Al-Fukhari, Al-Naser, Abo Moamar	①	Landowner, farmers, & residents in vicinity, Waste Pickers in existing landfill
	Closure of Dumpsites	Al-Musaddar, Wadi Salqa, N. Nussairat, W. Wadi Salqa, Abasan, Khuza'a, Khan Younis (Al-Namsawi), Tal Al-Sultan	② ④ ⑥ ⑦ ⑧ ⑨ ⑩	*Population in vicinity* ② *Refers to Dair El-Balah Sanitary Landfill due for closure when the new LF is operational.*
	Construction of Transfer Stations	West Khan Younis (Al-Namsawi), Tal El-Sultan, Southern Dair El-Balah	③ ④ ⑤	*Population in the vicinity, JSC/LGU workers & DM*
	Rehabilitation of Access Road to Landfill & TS	Al-Fukhari, Al-Naser, Al-Shouka	❶ ❷ ❸	*Population in the vicinity*
	Supply of Equipment: (Landfill and Transfer Stations' Equip.)	-	① ③ ④ ⑤	JSC/LGU workers &DM
Comp. 2 Institutional Strengthening	Capacity Building for JSC	-		JSC/LGU workers &DM
	Capacity Building for Member Municipalities	-		JSC/LGU workers &DM.
	Citizen Engagement & Public Awareness	All		Social Committees, *entire population*, JSC/LGU workers and decision makers.
Comp. 3 Primary Collection & Resource Recovery	Optimizing Waste Collection (Study/Pilot/New Schemes)	All		JSC/LGU workers and decision makers, *entire population.*
	Waste Recovery (Study/Proposal/Initiatives)	All		JSC/LGU workers and decision makers, private sector, *entire population.*
	Supply of Equipment: (MSW Collection Equipment)	All		JSC/LGU workers and decision makers, *entire population.*



Data Collection from the Households

The following is the distribution of the sample allocations of the quantitative data that were collected. The detailed distribution was decided based on extensive discussions and review of the project's **site maps** ensuring the coverage of the communities in the **vicinity of the landfill, access roads and transfer station as well as representation of all locations in the 17 target municipalities**.

Sampling Distribution for Baseline and Midline Impact Assessments

Location	Baseline			Midline			End-line			Sampling Interval
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Al Musaddar	6	6	12	10	7	17	7	5	12	12
East Wadi Al Salqa	6	1	7	3	1	4	4	2	6	6
West Wadi Al Salqa	4	3	7	2	2	4	4	2	6	6
Abasan Al Kabira	14	4	18	14	2	16	13	5	18	18
Abasan Al Jadida	9	5	14	13	7	20	8	4	12	12
Al Maghazi	7	14	21	11	10	21	12	8	20	20
Al Breij	7	9	16	6	7	13	9	8	17	16
Khuzaa'	11	3	14	9	8	17	9	3	12	12
West Khan Younis	13	7	20	5	7	12	10	8	18	18
Al Nimsawi	12	8	20	20	9	29	10	10	20	20
Hamad City	8	6	14	7	10	17	8	6	14	14
Khan Younis City	12	9	21	18	14	32	13	7	20	20
Bani Suhaila	11	12	23	12	12	24	18	9	27	22
Al Fukhari	7	7	14	6	10	16	5	7	12	12
Al Naser	7	7	14	6	10	16	6	6	12	12
Al Shoka and Abu Muammar	8	8	16	8	10	18	8	8	16	16
Tal Al Sultan	27	25	52	20	29	49	23	17	40	52
Rafah (Center)	0	0	0	11	7	18	19	19	38	19
Deir El Balah	15	15	30	9	26	35	10	18	28	28
North Al Nuseirat	12	12	24	21	2	23	17	8	25	24
Al Zawayda	8	10	18	21	10	31	9	9	18	18
Al Qararah	10	8	18	13	6	19	10	7	17	16
Al Nuseirat	0	0	0	0	0	0	8	4	12	24
Total	**214**	**179**	**393**	**245**	**206**	**451**	**240**	**180**	**420**	

Data Entry and Quantitative Analysis

The Statistician prepared separate SPSS files for data entry including the coding of the semi-structured questionnaires directed to 1) Household Survey; 2) LGUs; and 3) Waste Pickers. After the data entry was completed, the Statistician reviewed and cleaned the files and disaggregated quantitative data by gender, governorate, and old and new respondents.

- **Semi-Structured Data Collection from Municipalities: Qualitative, Quantitative and Financial**

A semi-structured questionnaire was distributed to the 17 municipalities who are members of the JSC. As some email communication difficulties were faced during the Baseline and Midline BIAs, the consultant relied on MDLF and JSC to assist in confirming that all municipalities receive the questionnaire during the End-line BIA assessment. The financial data collected from the municipalities was verified through site visits by the financial consultants after the municipalities returned the questionnaire. In addition to the semi-structured questionnaires, the research team conducted Key Informant Interviews with Mayors and Technical Staff in the four key municipalities (Al Fukhari, Rafah, Deir Al Balah, and Khan Younis).

The below table summarizes the validation visits that were conducted:

End-line Validation Visits			
Entity/Organization Name	**Visit Date**	**Interviewee**	**Purpose of the visit**
Municipality of Al Fukhari **Al Fukhari Association**	Jan. 7, 2021 Jan. 7, 2021	Saleem Al Amoor, Mayor of Al Fukhari Nael Al Amour, Manager of Al Fukhari Association	To discuss the overall impact of the project including economic, financial, health, environment and other and to fill the financial section of the questionnaire
MDLF	Jan. 3, 2021	Nour Madhoun, Project Manager	To receive information about the project components, stakeholders, progress and other
The Joint Services Council	Feb 22, 2021	Hazem Madhoun, Accountant	Discussion of the financial section of the questionnaire and explaining the required data to be filled
The Joint Services Council	Feb 22, 2021 March 10, 2021 distance discussion	Social Committee members, including Dr. Ali Barhoum Hazem Madhoun, Accountant	Conduct the financial part of the focus group with the 16 waste pickers, meet the social committee of the project, to receive and discuss the filled questionnaire from the JSC accountant

End-line Validation Visits			
Entity/Organization Name	**Visit Date**	**Interviewee**	**Purpose of the visit**
MDLF	March 6, 2021	Nour Madhoun – Project Manager	Discuss the project financials
Rafah Municipality **Al Shouka Municipality**	Mar. 1, 2021 March 5,2021	Mr. Mohammed Zourob – Finance Manager and Mr. Mohanned Abu Moamer, Solid Waste Head, Rafah Municipality Mr. Saleh Abu Braik – Health Department Head, Al Shoka	To validate the financial data of the questionnaire and to interview the solid waste and health specialists about the project
Solid waste landfill location (Sofa)	April 11, 2019 April 3, 2019	10 neighboring inhabitants of the landfill	To conduct the focus group with the neighboring inhabitants of the landfill
Al Nasser Municipality **Al Fukhari Municipality**	Feb. 16, 2021 Feb, 17, 2021	Mohanned Masri – Solid Waste Department, Al Nasser Amer Wadi – Engineering Department Head, Al Fukhari	To validate the financial data of the questionnaire and to interview the solid waste and health specialists about the project

- **Semi-Structured Surveys with the Waste Pickers:**

17 waste pickers were provided with income generation projects through the "Waste Pickers of Al-Fukhary old dumpsite Livelihood Program." The research team conducted individual home visits to interview three waste pickers. As based on discussions with the MDLF team, since the project support to the Waste Pickers has actually ended since around one year, for the final assessment, the consultants select a sample of three cases for in-depth assessment of the impact of the project.

The selection of the sample of cases enabled the consultants to better assess the qualitative impact of the project on the waste pickers, their families, wellbeing and livelihoods. The questionnaire for the Waste Pickers who were included in the Abbreviated Resettlement Action Plan (ARAP) was updated in close consultation with MDLF staff to reflect the potential changes to waste picker's livelihoods since the Baseline assessment and document their success stories.

Annex II: Detailed Context Analysis

Overview of the Political, Economic and Social Situation in Gaza:

Movement restrictions were imposed on the Gaza Strip since the early 1990's by Israel.[18] Restrictions intensified in June 2007, following the internal Palestinian divide, when Israel imposed a land, sea and air blockade on Gaza, citing security concerns.[19] Despite relaxation of some blockade-related restrictions in recent years, 1.8 million Palestinians in Gaza remain 'locked in', denied free access to the remainder of the territory and the outside world. The blockade has undermined the living conditions in the coastal enclave and fragmented the oPt and its economic and social fabric. The isolation of Gaza has been exacerbated by restrictions imposed by the Egyptian authorities on Rafah, its single passengers crossing.[20]

The year 2020 marks the 13th consecutive year that the Israeli government enforced a generalized travel ban on Palestinians in the occupied Gaza Strip and sharply restricted the entry and exit of goods. These restrictions, not based on an individualized assessment of security risk, denied with rare exceptions the 2 million Palestinians living there of their right to freedom of movement, limited their access to electricity and water, and devastated the economy. Eighty percent of Gaza's residents depend on humanitarian aid.[21]

According to figures by the Palestinian Central Bureau of Statistics, the unemployment rate in Gaza increased by 3.6% in the second quarter of 2020 compared to the previous quarter, and by 2.4% compared to the second quarter of 2019, now standing at 49.1%.[22] Restrictions on movement, gender inequality, and lack of labour market opportunities contribute to this high unemployment rate. Youth unemployment continues to be a major concern, particularly in the Gaza Strip where more than half of those aged between 15 and 29 are out of work. Despite high educational attainment rates, women's access to employment remains severely restricted.

Palestinian women's labour force participation remains among the lowest in the world. Some 70 percent of all women in Gaza are unemployed, resulting in female-headed households being more likely to face poverty and food insecurity.[23] Poverty and a lack of economic opportunities also remain key factors behind violence against women in Gaza,

[18] OCHA. (n.d.). *Movement and Access*. OCHA. https://www.ochaopt.org/theme/movement-and-access

[19] OCHA. (n.d.). *Gaza Strip*. OCHA. https://www.ochaopt.org/location/gaza-strip

[20] OCHA. (n.d.). *Gaza Blockade*. OCHA. https://www.ochaopt.org/location/gaza-blockade

[21] Human Rights Watch. (n.d.). *Israel and Palestine: Events of 2020*. Human Rights Watch. https://www.hrw.org/world-report/2021/country-chapters/israel/palestine#

[22] Palestinian Central Bureau of Statistics. (2020, October 3). *Gaza unemployment rate in the second quarter of 2020: 49.1%*. Reliefweb. https://reliefweb.int/report/occupied-palestinian-territory/gaza-unemployment-rate-second-quarter-2020-491#:~:text=September%2021%2C%202020.,%2C%20now%20standing%20at%2049.1%25.

[23] WFP. (2020, August). *WFP Palestine Country Brief August 2020*. Relief Web. https://reliefweb.int/sites/reliefweb.int/files/resources/2020%2008%20Palestine%20Country%20Brief.pdf

while the humanitarian crisis has resulted in a large number of health issues for women.[24] The World Bank reports that the Palestinian labour market suffers from structural problems of inclusion particularly for women, and that social norms and mobility restrictions play a key a role in keeping women outside the labour market. Young people are also affected by very high unemployment (World Bank, 2017).

In the Gaza Strip, waste systems are affected by the general political context. In particular, the frequent roadblocks and curfews imposed resulting in the creation of several alternative routes and temporary and emergency disposal sites within urban areas.[25] The location of these transfer stations near residential areas also result in multiple social implications on the local communities including direct negative impacts on health, hygiene and negative visual impacts.

- ***Solid Waste Management within Gaza***

The political situation limits the policy space for sound environmental governance, and impedes the use of best practice solutions to address natural resource scarcity and urbanization challenges. When taking these political limitations into consideration regarding environmental governance, it is clear that these constraints not only drive environmental change, but also further complicate solid waste management effort. Perhaps the most obvious limitation that Palestinian governmental bodies to contend with is the lack of autonomy they have over their land as a result of the numerous restrictions on movement and access to land as a result of the ongoing Israeli occupation and blockade. This leads to high population density, poorly planned urbanization, stresses on infrastructure, and degradation of accessible agricultural and rangeland. Furthermore, Palestinian policymakers and professionals cannot employ best practice environment management solutions. In Gaza, management of freshwater, wastewater, and solid waste is impacted by the closure, as well as by the intra-Palestinian divide which impedes environmental governance by the Palestinian Authority.[26] Insufficient waste management capabilities and energy supplies have led to the contamination of soil and groundwater, and the discharge of sewage and wastewater into the Mediterranean Sea. Restrictions on the use of water and land, and on the import of materials and technologies, have affected farming practices: use of irrigation is limited, and farmers use excessive chemical fertilizers and pesticides to increase crop yield. Additionally the lack of political progress has led to unclear and overlapping environmental governance arrangements.[27] The

[24] OCHA. (2019, December). *HUMANITARIAN NEEDS OVERVIEW OPT*. OCHA. https://www.ochaopt.org/sites/default/files/hno_2020-final.pdf

[25] EcoConServ Environmental Solutions. (2012, January). *Environmental and Social Impact Assessment for Gaza Solid Waste Management Project*. World Bank. http://documents1.worldbank.org/curated/pt/940241468149954757/pdf/E29440v20REPLA01023020120Box365787B.pdf

[26] United Nations Environment Programme, Sellwood, E., & Thummarukudyil, M. (2020). *State of Environment and Outlook Report for the oPt 2020 – UN Environmental Program Report*. United Nations: The Question of Palestine. https://www.un.org/unispal/document/state-of-environment-and-outlook-report-for-the-opt-2020-un-environmental-program-report/

[27] Ibid

Palestinian Authority faces difficulties in applying Palestinian laws in Areas A and B, and is unable to apply these laws in Area C, or – due to the intra-Palestinian division – in Gaza. Israel applies separate sets of laws to Israeli individuals in the occupied Palestinian territory, and to Israeli settlements, industrial installations and closed military areas. The joint environmental management arrangements that were established as part of the 1995 Interim Agreement[28] are only partly functional. The simultaneous application of different sets of laws, and law enforcement capabilities, in the same territory, leads to data and enforcement gaps.

- ***Environmental Aspects of Solid Waste Management within Gaza***

Ground water is the most precious natural resource in the Gaza governorates as it is the only source of water supply for domestic and agricultural use. Under natural conditions, groundwater flow in the Gaza Strip is towards the Mediterranean Sea, where it discharges to the sea. However, pumping over 50 years has significantly disturbed natural flow patterns. Large cone of depression was formed in the south where water levels reach 18 m below mean sea level near Khan Younis Transfer Station as shown in the following figure. The groundwater level at Rafah Transfer Station is between 11 to 12 m below the mean sea level, whereas it is 10 m below the mean sea level at Khan Younis Transfer Station. On the other hand, the groundwater level at Al-Fukhary Landfill is 50 m below the ground level, which is approaches to be the same as the mean sea level.[29] The nearest groundwater well is located 800 m far from Al-Fukhary landfill, and it is not used for agriculture or drinking purposes due to its high salinity of water, whereas the nearest municipal well from Khan Younis and Rafah transfer stations are 1,300 m and 750 m consequently.[30]

The proximity of the Mediterranean Sea has a moderating effect on temperatures and promotes high humidity throughout the year. There are two well defined seasons: the wet season starting from October to April, and the dry season starting from May to September. Peak months for rainfall are December and January. There is an abundance of sunshine in Khan Younis governorate with an average radiation of 5000 – 7500 kcal/m2 /day in the summer. The mean annual solar radiation amounts to 2200 J/cm2 /day.[31] The average daily mean temperature in Gaza Strip ranges from 25 0C in summer to 13 0C in winter, with the average daily maximum temperature range from 29 0C to 17 0C and the minimum

[28] Israel Ministry of Foreign Affairs. (n.d.). *THE ISRAELI-PALESTINIAN INTERIM AGREEMENT ON THE WEST BANK AND THE GAZA STRIP Annex III Protocol Concerning Civil Affairs*. Israel Ministry of Foreign Affairs. https://mfa.gov.il/mfa/foreignpolicy/peace/guide/pages/the%20israeli-palestinian%20interim%20agreement%20-%20annex%20iii.aspx

[29] Environmental and Social impact assessment (ESIA) for Gaza Solid Waste Management Project: http://www.mdlf.org.ps/Files/Docs/GSWM%20ESIA_FINAL_19sep2012.pdf

[30] *Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

[31] PCBS, 2019

temperature from 210C to 9 0C, in summer and winter respectively.[32] The daily relative humidity fluctuates between 65% in daytime and 85% at night in summer and between 60% and 80% respectively in winter.[33]

In 2018, the estimation of the total solid waste generated in Palestine is still challenging, due to the lack of available or consistent data. For 2012, GIZ-SWEEPNET (2014) estimated that 1.387 million tons of municipal solid waste were generated in a year by the Palestinians (population of 4.29 Million in 2012),[34] with a per capita generation of 0.94 kg/day and a municipal solid waste growth of 4 % per year.[35] Based on this calculation, SW total amount would be in 2017 and 2018, respectively 1.687 and 1.755 million tons in 2018. MoLG-JICA Databook report estimates that 4,333 tons/day or 1.58 M tons/year are generated in the OPT (2,622 in the WB and 1,330 in the GS), with a daily SW generation per capita of 0.9 for the WB and 0.7 for the GS kg/day in 2019 (MoLG-JICA, 2019).[36]

Currently, there are three solid waste management service providers in the Gaza Strip: Joint Service Councils for Solid Waste Management; and 25 municipalities. In addition to the above, UNRWA provides solid waste management services free of charge in the 8 refugee camps located throughout the Gaza Strip. Primary collection is applied with street sweepers with wheelbarrows or donkey carts in Gaza; and rear-loading compactors and tipper crane trucks which empty wheeled waste containers with a capacity of about 1 m3, are most commonly used. Hook-lift (also called Roll-on Roll-off – RoRo) containers are also found in most cities. Crane-tippers/skip loaders were mostly designed as part of the German Technical Cooperation/SWM council (GTZ/SWMC project); each truck has a hydraulically-operated truck-mounted crane which lifts and empties containers into a large body which can be closed at the top by pivoted flaps, and is emptied by tipping. The bodies of these trucks, like the containers they use, were fabricated in Gaza.[37] A crew of two - one driver and one assistant operate the trucks. A new system, which is used in conjunction with crane tipper trucks, is house-to-house collection using a small agricultural tractor, which has a trailer at the rear to enable it to carry 1 m3 container. When full, the container can be left at the roadside for a crane tipper to pick up and empty. Another basic tool in primary collection is donkey carts which started since the fuel crisis in 2008, and it continued and grew up for more than 10 years. This tool collects waste from households to large street bins (Roll on/off containers). Donkey carts collect more than third of the primary collection in Gaza Strip, and about half of Gaza City waste.[38]

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[32] Ibid.

[33] PCBS, 2016

[34] https://www.pcbs.gov.ps/Portals/_Rainbow/Documents/gover_e.htm

[35] GIZ-SWEEPNET, 2014, page 15-16

[36] *Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

[37] Ibid

[38] Ecoconserv & Universal Group. (2017). Studies for optimizing waste collection (Consultancy service to MDLF)

Disposal methods are mainly landfilling and dumping (random or controlled). It is estimated that about 30-35% of municipal waste is illegally dumped and 65-70% is disposed of in one of the six operational landfills existing in Palestine. These landfills face the risk of over-capacity in the short term, due to land restrictions, low primary separation and an increased trend in waste quantities. The use of solid waste transfer stations (TS – a place where solid waste is temporarily deposited and often separated to be later transferred to the final disposal site) is a relatively new approach in the OPT. There are currently 12 operational Palestinian TS (11 in West Bank; 1 in Gaza Strip) and 3 newly constructed (in WB and GS). These TS have a good potential for waste segregation and recycling activities, thus helping to reduce the amount of waste finally disposed of in landfills; however, their use is still underdeveloped.[39]

Random dumping is still a practice in the OPT, especially for special waste, such as construction and demolition debris, used tires or agricultural waste for example, are disposed of along roads or in empty plots, with burning in some places. It is difficult to have an up-to-date list of all the uncontrolled dumpsites. In the last few years, thanks to the opening of sanitary landfills and several rehabilitation efforts, many illegal dumpsites could be closed. In 2019, it is estimated that about 343 tons/day in the WB and 443 tons/day in the GS are disposed of in dumpsites.[40]

Waste pickers are people who illegally collect some types of wastes such as plastics and sell it to sub-contractors/waste recovery factories. They don't have any workers rights, are not vaccinated against disease, nor use any Personal Protective Equipment (PPE). They are usually very organized, but the people are always changing, so it remains challenging to conduct long-term studies, define their numbers, and working conditions. They can be noticed in dumpsites and near street waste containers. There are two types of waste pickers:

Waste pickers in landfills/random dump sites: While most of the time it is difficult for these waste pickers to gain access to official landfill sites, such as those located in Al-Minya, Deir Al-Balah, and Al-Fukhary, it remains difficult to prevent them from picking in the random dumpsites. This is highly dangerous work and their presence in the landfills is not safe, not only due to collecting waste without protective tools, but also due to the heavy machinery activities in landfill sites.

Waste pickers in streets: These waste pickers are found in both the Gaza Governorates and in the West Bank. Often they can be noticed collecting some materials such as plastics, metals and anything that could be traded for money. Sometimes they also collect food waste to meet the needs of themselves and their families. These waste pickers often

[39] *Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

[40] MoLG-JICA, 2019. JSC Ramallah informed that 2 of their LGUs split in two, thus there are now 70 LGUS and not 68 in Ramallah Governorate (interview on 6.2.2019).*Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

target rigger areas where the waste is more likely to contain valuable materials. There are a variety of individuals that conduct such waste picking, including men, women, youth and children.[41]

Gender aspects-impact of waste management within Gaza

Even prior to the COVID-19 pandemic, around a quarter of Palestinians lived below the poverty line: 53 percent in Gaza, and 14 percent in the West Bank. According to preliminary estimates, it is expected that the share of poor households will increase to 30 percent in the West Bank and to 64 percent in Gaza. The impact is expected to be larger in the West Bank due to a substantial reduction in the wage income of workers that can no longer travel to Israel.[42] Also, in the West Bank, the share of households that hold public jobs and whose income is not expected to be affected is lower than in Gaza. Finally, the West Bank has a lower share of non-labor income, in particular aid, among the poorest. Vulnerable groups affected by COVID-19 include the following: (i) daily workers and informal workers without written long-term contracts; (ii) workers that need to travel to Israel and to other governorates; (iii) daily workers, formal and informal, in the hospitality and services sectors, including tourism; (iv) small/family business owners, especially women-owned, that have been forced to close their businesses[43]; (v) the chronic poor and vulnerable who are least equipped to cope with the impact of general economic contraction; and (vi) households with demographic groups most likely to be affected by the disease, such as the elderly and disabled. Moreover, female-headed households which comprise 11 percent of the population are more prone to poverty (54 per cent in Gaza and 19 per cent in the West Bank).

The impact of the health crisis has brought to light the deep, structural challenges facing women in the labor market. Job losses come on the heels of stubbornly high unemployment rates that existed well before the crisis and are likely to mostly affect those groups with higher than average unemployment rates, among them women (41 percent compared to 21 percent among men). Gazan women are particularly affected with a 64 percent unemployment rate compared to 40 percent of men in Gaza and 25 percent of women in the West Bank.[44] Women are first to lose their jobs or to have to give up their jobs to take on full-time care and household responsibilities with school closures. According to polls, 76 percent of women reported lost incomes due to COVID-19

[41] Ibid.

[42] Notably, cooperation between the GoI and the PA has succeeded in allowing some Palestinian workers to continue working in Israel during the outbreak. The overall number, however, was much less than in previous months.

[43] According to UN Women (2020), 95 percent of Palestinian women reported their businesses were affected by the impact of the COVID-19 crisis and 27 percent of women-owned businesses shut down. Additionally, seventy percent of businesses owned by women are in the service sector which was heavily impacted by the lockdowns (women owned businesses are more likely to be home-based and informal).

[44] Skilled young women carry the burden of unemployment. For example, female graduates in engineering are much less likely to find work in Gaza than male graduates (39 percent versus 16 percent unemployed, respectively).

compared to 65 percent of men.[45] Furthermore, women who exit the labor force have experienced great difficulty in returning to work, especially when supply of jobs is limited and preferences go to hiring men. Much of this is due to social norms and stereotypes surrounding women and men's role: over 65 percent of respondents felt that "when jobs are scarce men should have priority".[46]

Within this pandemic context, it is important to also note that limited access to drinking water, domestic use of water and wastewater and solid waste management in the Gaza Strip, Area C and East Jerusalem have significant impact on household spending, health and hygiene, and school attendance. Inadequate WASH facilities expose women and girls to threats and burdens associated with meeting their personal hygiene needs, undertaking basic domestic chores, managing household water needs, and securing the needs of children, people with disabilities, the elderly and the chronically ill.[47]

In a focus group held with Gazan women who live in areas served by the project, the respondents confirmed that the collection service is very organized in their areas. When asked about the quality of the service, the women were not suffering from coverage issues, but they complained from the process of compacting the waste in the vehicle did leave behind leachate leakage on the road, as well as expressed concerns regarding the littering around the containers and in some cases they worried about the burning of waste and the potential impact this may have on their family's health.[48]

Furthermore, the social committee and JSC Health educators' members highlighted that though all segments of society are affected by poor solid waste management practices, children, the elderly, and vulnerable groups, such as sick people, are the most affected by burning waste. Recently MDLF with cooperation with municipalities formed women's committees in municipalities in order to enhance women's role in solid waste awareness. The reason behind expanding the community committee and increasing the percentage of women is enhancing the participation of women in the JSC service area. And achieving the concept of stakeholder engagement and contains many categories. Among these groups, of course, is the category of women. Additionally, the JSC formed the Women's Group in November 2020 from 7 municipalities and each municipality formed a separate Women's group of about 10 influential women. Women's Group goals are sharing information about the solid waste sector and participating in decision-making. Women's Group is also a tool for environmental awareness and working on a Stakeholder

[45] UN Women, 2020 COVID-19: Gendered Impacts of the Pandemic in Palestine and Implications for Policy and Programming. Survey was carried out by the Arab World Research and Development Poll sample covering 800 economically and socially active Palestinian men and women in the West Bank and Gaza.

[46] World Values Survey 2010-2014.

[47] UN Women - UN OCHA: Needs of women and girls in humanitarian action in Gaza: Gender Alert for the 2016 Response Plan.

[48] *Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

Engagement plan include awareness plans for each month, plans to strengthen complaints systems, plans for field visits, and coordinate visits to landfill.

Effects of Covid-19

The COVID-19 crisis impacted an economy already weakened by three years of low economic growth, high unemployment, and persistent fiscal deficits, resulting in a sharp decline in economic activity in Palestinian territories in 2020.[49] Despite taking early necessary measures to contain the spread of the pandemic, including the introduction in March of a full lockdown that lasted until the end of May, a second wave of the epidemic returned by the beginning of July, forcing partial reintroduction of measures to restrict movement. Necessary measures to contain the COVID-19 crisis have contributed to sharp declines in activity for an economy already facing constraints on movements and access that left it operating well below potential. The constraints have been hollowing out the productive sectors and left the economy reliant on consumption-driven growth. In 2019 this situation was compounded by the liquidity crisis that faced the PA following the clearance revenue standoff. As a result, real growth in the Palestinian territories in 2019 was a mere 1 percent, with Gaza registering minimal growth following a steep recession in 2018, and growth in the West Bank reaching 1.2 percent - the lowest level since 2003.[50] The Palestinian economy is in a very difficult situation as it faces triple crises that are reinforcing each other: i) a resurgent COVID-19 outbreak, ii) a severe economic slowdown, and iii) a political standoff with the Government of Israel (GoI) that disrupted clearance revenues for over six months (May-November 2020).[51]

Despite taking early measures to respond to the pandemic, a second wave surged by the end of June forcing reintroduction of partial movement restrictions.[52] Since March 5, 2020, when the first cases of COVID-19 were confirmed, the PA had acted decisively to stem its spread. It announced a state of emergency, initially for a period of one month,[53] closing all schools, universities and colleges. A decision was also taken to close off a number of major Palestinian cities where the highest numbers of infections occurred, and instructions were issued to shut down all economic activities in the West Bank. Further, the PA had restricted movement between governorates in the West Bank, while Gaza crossings were completely closed for people, except humanitarian cases. The full lockdown and closures were effectively ended on May 25, 2020. However, by the end of June, the second wave of the epidemic surged. By beginning of July, new limited measures restricting movement and activity were reintroduced. Nonetheless, the cases again peaked mid-September and have been increasing in October and November, necessitating recent new measures to limit the spread. As of December 3, 2020, there are 103,574 confirmed cases in the West Bank and Gaza, with 79,384 recovered and 854 deaths.

[49] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

[50] Economic Monitoring Report to the Ad Hoc Liaison Committee, World Bank Group, June 02, 2020.

[51] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

[52] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

[53] The state of emergency has been extended for eight (8) months

The outlook for the Palestinian economy looks grim especially after the second wave of the COVID-19 outbreak. Following three consecutive years of economic growth below 2 percent, 2020 is proving to be an exceptionally difficult year. For 2020, it is projected that the COVID-19 crisis will have a substantial negative impact on the economy and Palestinian people. The GDP for the entire year is expected to contract by about 8 percent.[54] Recovery is expected to be gradual and modest in 2021, with growth returning to about 2.5 percent, as full normalization of activity is not expected to occur before the second half of 2021. The economic decline is expected to have a negative impact on standards of living and wellbeing of Palestinians. The unemployment rate in the Palestinian territories has increased further as a result of COVID-19. The unemployment rate stood at 28.8 percent at the end of the third quarter of 2020, with some 121,000 employees losing their jobs in the second quarter alone.[55] Of this, some 96,000 people have lost jobs in the Palestinian territories, especially in sectors that have been affected by social distancing measures, such as tourism, restaurants and construction. Some 25,000 Palestinian workers that regularly cross to Israel for work lost their jobs in the second quarter of 2020. This headline story, however, masks a regional divergence. In Gaza, 48.5 percent of those in the labor force were unemployed in the third quarter of 2020, while the West Bank recorded an unemployment rate of 18.2 percent during the same time.

The COVID-19 crisis is expected to continue to weigh heavily on the PA's finances for the remainder of the year as a large financing gap is expected. Starting mid-May 2020, the PA has significantly eased lockdowns related to COVID-19, with the exception of limited sectors, enabling economic activity to start recovering. Assuming that the lockdowns remain limited for the rest of the year, allowing domestic revenues to slowly recover, the year-on-year decline in the PA's revenues is expected to be limited to about 7 percent in 2020, especially given the resumption of clearance revenue transfers.[56] Public expenditure is expected to decline by 4 percent as the PA continues to ration non-essential spending including on minor capital, development projects, and some spending on goods and services, while increasing unemployment benefits and social support to needy households. Under these assumptions, the PA's deficit is expected to reach US$1.23 billion, on a commitment basis.[57] The PA has worked diligently with development partners to secure additional external financing in 2020. In fact, aid through the budget is now projected at US$470 million. Despite these successful efforts, the amount pledged so far is the lowest in decades. Hence, it will not be enough to cover the deficit, leaving the PA with a large financing gap of about US$760 million in 2020.

In the short term, PA efforts alone will not be enough to close the gap, thus increased support from the international community is vital. To deal with the immediate crisis and with further domestic borrowing running into limits, grants from the donor community remain the most viable source of additional finance. If the GoI and the donor community cannot collectively provide the needed resources, the PA will be forced to severely cut

[54] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

[55] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020

[56] The 2019 clearance revenue figure that was used to calculate the year-on-year change excludes the additional unilateral deductions by the GoI that took place during that year.

[57] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

spending impacting basic service delivery and resulting in a much deeper economic contraction. Lack of additional financing would also force the PA to scale back medical and social expenditures in response to the crisis increasing the hardship. Neither option is desirable and will have severe implications for both the livelihood of vulnerable households, the depth of the recession, and the speed with which the economy will emerge from the Covid-19 impact. The extent of the economic malaise that results would increase the demands for future support but could also raise broader security and operational challenges.[58]

Palestinian Local Government Units (LGUs) are at the forefront of combating the COVID-19 pandemic, thus additional funds and support to LGUs is critical at this juncture. Local governments have functional assignment of responsibilities in service delivery and thus are at the forefront of combating the COVID-19 pandemic, due to their proximity to affected communities, emergency management responsibilities at the local level and local prerogatives in managing public space.[59] Local governments have important responsibilities carrying out: (i) city-wide emergency actions to prevent transmission and care for the affected, (ii) targeted emergency support to the most vulnerable people from a health and livelihood perspective, and (iii) recovery efforts through implementation of economic recovery programs and investments targeted at firms, communities and livelihoods.[60] In WB&G, the Prime Minister has mobilized the LGUs to help respond to the pandemic by assembling local emergency committees to deal with relief and response. LGUs are responsible for managing local public services and facilities which are essential in the COVID-19 crisis, including: sanitation and public health (hygiene); sanitization and cleaning of public roads and facilities; maintenance of solid waste collection, transport, and disposal; mandating social distancing and rudimentary contact tracing, and in some localities hosting quarantine locations.

Given the scarce resources and weaker economic activity as a result of the intermittent lockdowns and restrictions on movement, municipalities have been challenged to finance emerging needs due to the pandemic. In an attempt to assess the impact of COVID-19 on LGUs, the MOLG carried out an online survey of all LGUs in WB&G to gather insight about the impact of the pandemic on LGU budgets, function and service provision.[61] The survey aimed to identify the key challenges facing LGUs and prioritize key actions and policies to inform the emergency response and recovery at the local level. The main results of the survey showed that 67 percent of the respondents were forced to stop at least one function as a result of the pandemic, 69 percent expects a significant decrease in the revenues, 80 percent had to reallocate resources to cover emergency expenses to respond to COVID-19 needs while all LGUs reported difficulties in financing immediate response due to the lack of financial resources coupled with capacity constraints and week coordination. On another similar front, the MDLF carried out a detailed survey of all municipalities to assess

[58] Economic Developments in the Palestinian territories, World Bank Group, November 24, 2020.

[59] COVID-19: Safeguarding Lives and Livelihoods- A Checklist Guide for Local Governments, World Bank Group.

[60] CDD operations in COVID-19, Operational Guidance Note, June 2, 2020, World Bank Group.

[61] A total of 286 LGUs across the West Bank, East Jerusalem, and Gaza responded to the online survey, including 130 Municipalities (23 from the Gaza Strip), 134 Village Councils, and 22 Joint Service Councils

the financial implication of the COVID-19 on municipal budgets.[62] The results showed a significant reduction in revenues on a year-on-year basis. Municipalities reported a decline by 17 percent in gross revenues and 39 percent in own-source revenues due to the pandemic. Moreover, municipalities on average were able to generate only 23 percent of planned revenues during the first five months of 2020 and spent a mere 17 percent of planned capital expenditures over the same period. As a result, basic local services are starting to deteriorate even as households struggle with a loss of income resulting from prolonged spells of lockdowns. Transfers from the center are precarious with the PA continuing to face revenue shortfalls.

Using a Computable General Equilibrium Model (CGE), the Palestine Economic Policy Research Institute (MAS) foresees a decline of 20.3% in GDP compared to 2019, and more if a longer lockdown were to occur.[63] The Palestinian Central Bureau of Statistics (PCBS) expects a $2.5 billion (13.5%) decrease in GDP compared to its Baseline 2020 projection, assuming the closure impacts continue until end of May.[64] The Palestine Monetary Authority (PMA) foresees a less severe decline in GDP, between 1.8% and 3.8%.[65] The large disparities reflect the speculative nature of these studies at this stage, as it is still too early to measure the full impact of the pandemic. By any account though, the Palestinian economy has already entered a recession, and the only question is how long it might last and how deep its impacts will be.

The Palestinian Government (GOP) estimates that economic losses due to the COVID-19 crisis will severely limit its ability to maintain existing public services, and will make the need for immediate economic support more urgent. As a result, the GOP predicts a 40% drop in government revenues, increasing the public deficit from its current level of $800m to $1.8-2.4 billion.[66] All available estimates show that the services sector will be the most affected by the crisis. Activities in tourism and related sectors (accommodation and food service), as well as in transport services, are expected to be severely disrupted.

In terms of food security, the Food and Agriculture Organization of the United Nations (FAO) confirms that Palestinian herders are facing problems due to increases of input prices, particularly since they lack liquidity and suppliers are only accepting cash payments.[67] Pesticide, fertilizer, and seed prices have been increasing for several consecutive weeks and farmers are concerned about their capacity to control pests during the upcoming season. Fear of contagion and uncertainty in market demand are affecting

[62] 92 municipalities provided financial data for the year 2019, the planned budget for 2020, and the actual financial figures covering the period (January -May) 2020.

[63] Hinn, H. (2020, June). *COVID-19 in Palestine: Economic Slump, Rising Vulnerability and Limited Policy Response*. Euromesco. https://www.mas.ps/files/server/20202204173236-1.pdf

[64] Palestinian Central Bureau of Statistics (PCBS). (2020, April 23). *Economic Forecasts for the Year 2020, in Light of the Current Coronavirus Pandemic*. Palestinian Central Bureau of Statistics (PCBS). http://www.pcbs.gov.ps/portals/_pcbs/PressRelease/Press_En_23-4-2020-forc-en.pdf

[65] Hinn, H. (2020, June). *COVID-19 in Palestine: Economic Slump, Rising Vulnerability and Limited Policy Response*. Euromesco. https://www.mas.ps/files/server/20202204173236-1.pdf

[66] Aliqtisadi. (2020, March 30). *The Palestinian government is requesting a combined loan of 1.4 million sheckles*.

[67] *COVID-19 impacts on the Palestinian food system*. (2020, March 28). Food and Agriculture Organization of the United Nations. http://www.fao.org/3/ca8714en/CA8714EN.pdf

production decisions, and some producers reported producing only for household consumption due to the reduced market demand, and many have reported profit losses and a widening gap between wholesale and retail prices. As for food consumption, Palestinians are facing poor/borderline food consumption levels and adopting negative coping strategies. Many families are skipping meals, eating cheaper food, or borrowing food from friends because stores no longer sell on credit.

- ***Effects of Covid-19 on Solid Waste Management***

A study on the role of authorities in the context of the Corona pandemic[68] shows that there is a marked increase in the amount of financial hardship faced by local authorities (municipalities), as a result of the large difference between actual revenues and operational and commercial expenditures; where revenues decreased and expenditures increased, and authorities were unable to collect their dues from subscribers. Approximately eighty percent (80%) of municipalities accumulated salary dues to their employees, and the number of months to be paid ranged from fifteen (15) months to three (3) months. The study shows that local revenues decreased significantly comparing the first quarter of 2017 to the first quarter of 2020; Gaza City Municipality – fifty-three percent (53%), Khan Younis Municipality – sixty six percent (66%), Rafah Municipality – twenty-five percent (25%), Deir al-Balah Municipality – thirty percent (30%), and Jabalia Municipality – fourteen percent (14%).[69] These authorities had an active role in the interventions during the pandemic, including directly linked to quarantine centers, particularly the collection, relay and treatment of solid waste, the sterilization of these centers, as well as carrying out related health and environmental controls, and the purchase of tools and materials for sterilization and prevention and safety. The study confirms that the Corona pandemic increases the pressure and responsibilities on local authorities, where the pandemic reflected negatively on the level of services provided by municipalities, and prompted some of them to reduce some of their services, which requires rapid intervention by the relevant authorities, to save them and work to protect citizens and their basic rights.[70]

When taking into consideration the high rate of poverty within the oPt, particularly in the Gaza Strip, it is important to note that SWM services are known to consume a large portion of the budgets of the municipalities. It is also widely recognized that the service fees collected from the beneficiaries of the service (local communities) is in general small and marginal and varies widely from one place to the other. In the Palestinian Territories, there

[68] Abu Rukba, Talal, June 2020, "The Reality of Local Authorities in Light of Corona Pandemic, (Service Levels and the Most Prominent Challenges)", Al Meezan Center for Human Rights. https://bit.ly/32bXy1d

[69] Abu Rukba, Talal, June 2020, "The Reality of Local Authorities in Light of Corona Pandemic, (Service Levels and the Most Prominent Challenges)", Al Meezan Center for Human Rights. https://bit.ly/32bXy1d

[70] State of Palestine Ministry of Social Development. (2020). *Study of the Social Impacts of the COVID-19 Pandemic in Palestine and its Implications on Policies and Future Governmental and Non-Governmental Interventions (For a Resilient Society that Leaves no one Behind)*.

is no adequate legal enforcement system.[71] If bills for SWM services are sent by an entity but not paid, courts will not accept the case made by the local government or private enterprise because of the relatively small amount. Moreover, courts might well decide the defaulter is not able to pay.[72] This is creating a serious challenge for the service operators who are not able to meet the financial demands of operating the system. Waste fee collection efficiency is, generally speaking, rather low. It is reported to vary between less than 10%, and around 60% being the most optimistic estimate.[73]

According to Habitat, the percentage of the monthly household income that can be freed for SWM in the developing world is 1.0 - 1.5% of the family income and according to some World Bank studies, this could even reach 1 - 3%. No accurate figures were found for the average family income in Gaza Strip. Under the assumption that a large portion of the population is making a living from daily wages and assuming that only one person per family is working on a daily wage basis, it could be argued that an average payment of NIS 15/household/month is regarded as a relatively high payment. Although the figure still falls within the World Bank suggested percentage of income, Gaza Strip case should be dealt with very carefully. The large portion of population living below the poverty line, the fact that most income sources are insecure and of temporary nature add venerability to the households' income and make it possible to suggest that local population might be unable to afford these service fees.

- ***Impact of Covid-19 on SWM Services***

Through the conducted focus groups participants noted the municipalities did excellent efforts and solid waste services improved after the spread of the Coronavirus. However, the Environment health department heads at Deir Al-Balah, Khanyoiuns, and Rafah municipality noted they were faced with high pressure in dealing with this crisis as the mu people behaviors. As the municipality was required to allocate a special collection vehicle to collect Corona waste only. Also, the workers team must be equipped with preventive measures such as masks, gloves, alcohol and sterilizers. All that added a new financial burden on the municipality. Municipalities have also faced challenges from the behavior of some citizens who are careless regarding following COVID-19 protocols and are not committed to their given times of exit the waste and how to sterilize it and put it in an airtight bag.

[71] *Updated Environmental and Social Impact Assessment (ESIA) for Gaza Solid Waste Management Project- P121648 Additional Financing P171328 Final Report*. (2020, March). Municipal Development and Lending Fund. https://www.mdlf.org.ps/Files/Docs/GSWMP_AF_Final%20Version%20-%20March%202020.pdf

[72] Ibid.

[73] Ibid.

ANNEX III: Financial Data

MSW Cost Recovery and Collection Rate (Municipalities and JSC)
JSC Expenses & Due Loans

Cost recovery rate of MSW (Municipalities)

Municipality	Collected amount (NIS)	Cost amount	Baseline recovery rate	End-line recovery rate (before Covid)	End-line recovery rate (after Covid)
Al Musaddar	11,650	13,440	33.30%	86.68%	69.79%
Wadi Al Salqa	7,418	30,650	11.30%	24.20%	40.43%
Abasan Al Kabira	66,061	250,352	15.60%	26.39%	18.32%
Abasan Al Jadida	38,617	100,047	73.70%	38.60%	60.53%
Al Maghazi	26,748	1,075,680	7.60%	2.49%	3.97%
Al Breij	38,971	129,949	9.80%	29.99%	44.03%
Khuzaa'	236,027	533,336	39.40%	44.25%	79.20%
Khan Younis City	766,686	2,587,999	22.40%	29.62%	23.30%
Bani Suhaila	66,295	546,866	8.00%	12.12%	9.27%
Al Fukhari	2,850	23,000	18.50%	12.39%	13.20%
Al Naser	18,487	65,675	42.50%	28.15%	23.92%
Al Shoka	9,000	131,800	11.40%	6.83%	6.83%
Rafah (Center)	587,037	2,842,509	20.00%	20.65%	25.85%
Deir El Balah	40,617	883,490	8.00%	4.60%	4.59%
Al Nuseirat	228,695	872,190	15.30%	26.22%	22.69%
Al Zawayda	29,190	54,660	5.50%	53.40%	35.79%
Al Qararah	141,353	206,117	48.60%	68.58%	69.19%
Total	**2,315,702**	**10,347,760**	**23%**	**22.38%**	**23.11%**

Fee collection rate of SWM (Municipalities)

Municipality	Collected amount (NIS)	Billed amount	Baseline collection rate	End-line collection rate (After Covid)	End-line collection rate (Before Covid)
Al Musaddar	11,650	23,520	32.57%	49.53%	52.63%
Wadi Al Salqa	7,418	21,600	13.20%	34.34%	56.98%
Abasan Al Kabira	66,061	269,086	31.98%	24.55%	21.88%
Abasan Al Jadida	38,617	102,085	98.03%	37.83%	45.59%
Al Maghazi	26,748	102,924	14.67%	25.99%	41.77%
Al Breij	38,971	189,376	18.32%	20.58%	35.39%
Khuzaa'	236,027	3,227,400	73.90%	7.31%	9.12%

Municipality	Collected amount (NIS)	Billed amount	Baseline collection rate	End-line collection rate (After Covid)	End-line collection rate (Before Covid)
Khan Younis City	766,686	2,701,000	34.60%	28.39%	18.23%
Bani Suhaila	66,295	660,772	9.61%	10.03%	7.72%
Al Fukhari	2,850	55,520	14.63%	5.13%	5.26%
Al Naser	18,487	75,452	36.07%	24.50%	21.04%
Al Shoka	9,000	90,000	16.67%	10.00%	10.00%
Rafah (Center)	587,037	2,060,860	31.10%	28.49%	33.81%
Deir El Balah	40,617	593,978	15.55%	6.84%	6.00%
North Al Nuseirat	228,695	552,406	21.40%	41.40%	37.92%
Al Zawayda	29,190	233,492	10.40%	12.50%	12.28%
Al Qararah	141,353	219,360	31.83%	64.44%	39.93%
Total	**2,315,702**	**11,178,831**	**29.68%**	**20.72%**	**19.58%**

JSC Collection Rates in NIS, 2019

Municipality	Billed amounts	Collection	Collection Percentage
Al Musaddar	12,511	2795	22.34%
Wadi Al Salqa	41,208	11,137	27.03%
Abasan Al Kabira	2,814	2,814	100.00%
Abasan Al Jadida	54,849	54,274	98.95%
Al Maghazi	15,727	41,300	0.00%
Al Breij	6,069	22,569	0.00%
Khuzaa'	29,320	9,526	32.49%
Khan Younis City	1,217,416	1,149,746	94.44%
Bani Suhaila	335,044	135,878	40.56%
Al Fukhari	2,986	0	0.00%
Al Naser	6,250	1,000	16.00%
Al Shoka	10,396	0	0.00%
Rafah (Center)	372,248	134,221	36.06%
Deir El Balah	753,252	466,255	61.90%
North Al Nuseirat	200,542	184,613	92.06%
Al Zawayda	113,697	29,628	26.06%
Al Qararah	117,051	221,338	189.10%
Total	**3,291,380**	**2,467,094**	
End-line 2019 (before coronavirus)			**74.96%**
End-line 2020 (During coronavirus)			**67.07%**
Baseline			**66.40%**

JSC Collection and Disposal Expenses in NIS, 2019 (Before COVID-19)

Collection		Disposal	
Expense Type	**Amount**	**Expense Type**	**Amount**
Salaries		**Salaries**	
Wages and Salaries	1,068,832	Wages and Salaries	198,602
Extra work hours	106,966	Extra work hours	16,124
Assignees salaries	311,071	End of service reserve	61,297
Social activities	1,050	Vacation allowance	3,000
End of service benefits	88,437		
Temporary workers wages	53,035		
Total salaries	**1,629,391**	**Total salaries**	**279,023**
Collection Expenses		**Disposal Expenses**	
Fuel	849,690	Oils and lubricants	-
Cars maintenance	249,490	Insurance and registration	2,100
Oils and lubricants	24,187	Fuels	170,296
Cars insurance and registration	43,237	Treatment plant maintenance	2,002
Work tools	6,483	Equipment maintenance	4,500
buildings and equipment maintenance	-	Equipment rent	254,126
Electricity and generator fuel	41,105	land rent	26,596
Health protection and sterilization expenses	63,457	Water and electricity	3,682
SW containers maintenance	1,310	landfill coverage and adjustment (old)	101,118
Compensations	-	Sofa landfill expenses	6,698
Depreciation	1,031,250	Autoclave maintenance	297,461
		Depreciation expenses	279,157
Collection expenses	**3,939,600**	**Disposal expenses**	**1,426,759**
Allocated costs	393,055	**Allocated costs**	**196,528**
		Currency conversion expenses	**5,273**
Total collection expenses	**4,332,655**	**Total disposal costs**	**1,628,560**
Quantities of SW collected / ton	62,971	Quantity of solid waste disposed only	164,020
Cost per ton End-line 2019 before Corona	**68.80**	**Cost per ton 2019 (before coronavirus)**	**9.93**

Cost per ton End-line 2020 after Corona	**70.33**	**Cost per ton 2020 after Corona**	**9.24**
Cost per ton Baseline	**38.33**	**Cost per ton Baseline**	**12.95**

JSC cost recovery rate as of December 31,2019 comparing with the Baseline

Stage	Service	Tariff per ton	Cost per ton	Total cost	Cost recovery rate
End-line	**SW collection**	34	68.8	4,345,068	49.28%
	SW disposal	10.8	9.93	1,640,200	108.00%
	Total			**5,985,268**	**65.37%**
Baseline	**SW collection**	34	38.33	4,017,487	45.64%
	SW disposal	10.8	12.95	1,298,813	121.35%
	Total			**5,316,300**	**64.13%**

Breakdown of the due loans on the municipalities as of December 31, 2019 and 2020

Municipality	Amount Due	
	2019 before corona	**2020 during corona**
Al Musaddar	19,375	23,697
Wadi Al Salqa	257,322	298,479
Abasan Al Kabira	909,758	916,309
Abasan Al Jadida	105,105	29,009
Al Maghazi	56,998	56,998
Al Breij	209,835	209,835
Khuzaa’	370,146	387,473
Khan Younis City	3,948,153	2,742,670
Bani Suhaila	2,191,491	2,472,475
Al Fukhari	2,986	10,659
Al Naser	5,250	20,158
Al Shoka	10,396	33,662
Rafah (Center)	253,833	625,490
Deir El Balah	3,498,729	3,809,269
North Al Nuseirat	384,372	426,450
Al Zawayda	562,403	615,659
Al Qararah	429,037	121,137
Total	**13,215,189**	**12,799,429**

ANNEX IV: Public Hearing Summary

The consultant conducted a public hearing session on August 4th, 2021. The session was carried out in the JSC admin building where 24 of stakeholders (6 women and 18 men) from different organizations (Municipalities, JSC, social committee, women committee …etc) were attended.

A presentation was presented for attendees which include the main results of the assignment comparing the three stages. The results including the satisfaction rates, knowledge rates, and other environmental and social results. It also includes financial data which compare the cost recovery and collection rates in the three stages (baseline, Mid-line, and End-line). Hence, Financial managers from different selected municipalities were also invited and participated in the public hearing.

Public hearing session (August 4th, 2021)

Attendance Sheet – Public hearing session (August 4th, 2021)

اللقاء التشاوري النهائي حول دراسة الأثر المنفعي لمشروع إدارة النفايات الصلبة في قطاع غزة

04/ أغسطس/ 2021

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