"Delivering Climate-Resilient Solid Waste Management Services in Greater Monrovia, Liberia through CBEs"

MID-TERM EVALUATION REPORT

APRIL, 2020

Acronyms and Abbreviations:

CA	-	Cities Alliance
CBEs	-	Community Based Enterprises
CDS	-	City Development Strategy
CMTs	-	Community Management Teams
DFID	-	Department for International Development
EU	-	European Union
EMUS	-	Emergency Monrovia Urban Sanitation (EMUS) Project
EPA	-	Environmental Protection Agency
FGDs	-	Focus Group Discussions
GM	-	Greater Monrovia
GoL	-	Government of Liberia
IMPAC	-	Improved Primary Waste Collection in Poor Communities Project
KII	-	Key Informant Interviews
LCP	-	Liberia Country Programme
LGA	-	Local Government Authorities
LOP	-	Life of Project
LRTF	-	Liberia Reconstruction Trust Fund
M&E	-	Monitoring and Evaluation
MCC	-	Monrovia City Corporation
MDC	-	Mobile Data Collection
MIS	-	Management Information System
NACOBE	-	National Association of Community Based Enterprises
NAP	-	National Adaptation Planning
NDC	-	Nationally Determined Contribution
PCC	-	Paynesville City Corporation
PPS	-	Probability Proportionate to Size
PSWM	-	Primary Solid Waste Management
SDG	-	Sustainable Development Goals
SMEs	-	Small and Medium Enterprises
SOW	-	Scope of Work
SSWM	-	Secondary Solid Waste Management
SWM	-	Solid Waste Management
TOR	-	Terms of Reference
WASH	-	Water Sanitation and Hygiene
UK	-	United Kingdom
UN	-	United Nations
UNFCCC	-	UN Framework Convention on Climate Change
UNOPS	-	United Nations Office of Project Services

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The Mid-Term Evaluation process was participatory and consultative in nature, covering a wide range of stakeholders at national and sub-national levels. The consultations covered Cities Alliance's Liberia Country Office Staff, Government Ministries, Agencies and Departments, Partners, Local Governments, National Association of Community Based Enterprises (NACOBE), Community Based Enterprises (CBEs) and Community members among others.

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Executive Summary:

Introduction:

This Report presents findings from the Mid-term Evaluation of Cities Alliance's European Union (EU) funded Project "Delivering Climate-Resilient Solid Waste Management Services in Greater Monrovia (GM), Liberia through Community-Based Enterprises". This is a 4-year Project (2018-2021) that aims to; improve access to sanitation through more sustainable and efficient solid waste collection, reduce greenhouse gas emission through improving extracting, sorting and re-use of solid waste, improve awareness of Climate Change and climate-resilient Solid Waste Management (SWM) with a focus on youth, and Improving and integrating plans and capacity to manage and fund SWM for GM.

The purpose of the Evaluation was to provide a strategic review of the performance of the Project, assess results achieved, lessons learnt and the extent to which the Project is delivering on its objectives. The Evaluation adopted a cross-sectional descriptive design, utilizing mixed methods approach i.e. qualitative and quantitative. Data collection took place in March 2020. Quantitatively, target respondents were heads of households or their spouse, and CBEs proprietors. Households were systematically selected at Block level, from the 12 LGAs of the Country Programme. Qualitatively, the Evaluation targeted stakeholders such MIA, EPA, Wash Commission, City Corporations, Township Commissioners, NACOBE and Community members among others.

Results from the Mid-Term Evaluation:

The Solid Waste Sector in Greater Monrovia

Solid Waste disposal has become an overwhelming task for municipal authorities, who face severe constraints in tackling the mounting waste situation. Within Greater Monrovia, Solid Waste Management is vested within city corporations, however the Government of Liberia (GoL) has established agencies such EPA and the WASH Commission to enhance Solid Waste Management efforts. However, mandates for these agencies seem to cross cut resulting into duplication of activities and resources in terms of monitoring, supervision, regulation and enforcement.

Currently, municipal authorities are largely using land filling to solve the solid waste problem. Liberia lacks capacity to adequately utilize other options such as recycling or energy recovery. This option, however, is down the waste hierarchy which prioritizes environmental friendliness with waste prevention at the top, followed by minimization, reuse, recycling, energy recovery, and disposal.

Despite efforts by GoL and City Governments in enhancing SWM, challenges remain. Inadequate sites for landfill disposal is a major challenge. Due to inadequate sites for waste disposal, wetlands and rivers streams are being used to dump waste. Poor public attitude towards waste disposal, coupled with the non-enforcement of existing laws on waste disposal affects efforts towards improving Solid Waste Management. Skip buckets are not regularly emptied due to lack of fuel for waste collection trucks and frequent breakdown of machinery, while the lack of up to-date data also presents challenges to municipal authorities in planning and organization of waste management.

Project's Response to Sector challenges in Greater Monrovia

The Project is enhancing access to sanitation through more sustainable and efficient Solid Waste collection. Working closely with City Corporations, Cities Alliance has revamped and built on successes of the CBE model following closure of the EMUS Project. The Project has provided tools and equipment to CBEs, built their capacity in SWM, Financial and Record Management among others. In the next phase of implementation, the Project intends to provide Loan and Grant facilities to enable CBEs address challenges around inadequate tools and equipment.

The Loans and Grants will further enable CBEs to generate value added services such as sorting, compositing and recycling to improve livelihoods and reduce the quantity of recyclable waste dumped at landfills. The Project established a Solid Waste Technical Working Group (TWG) to strengthen coordination of sector players and conducted feasibility studies to understand the viability of recycling and compositing interventions in Liberia.

The Project is further enhancing awareness of Climate Change and climate Resilient SWM through developing and implementing School and Community awareness campaigns that promote climate change awareness and promote 4R awareness. The Project supports the development of an Integrated SWM system as a guiding framework for city corporations in the implementation of SWM services, development of a costed Solid Waste strategy for the Greater Monrovia and is building capacity of local leaders to create awareness & sensitize communities on proper SWM.

Waste Sector Challenges that need to be addressed

Despite the Project's efforts and commitment to support Greater Monrovia in addressing the mounting waste sector challenges, a number of gaps that impact delivery of project outcomes remain. These include;

- Inability to regularly and frequently empty Skip buckets by municipal authorities.
- Lack of a National Solid Waste Management Policy.
- Lack of enforcement of existing laws and ordinances on waste management at Municipal level.
- Limited availability and use of data in Solid Waste Management and Planning.
- Inadequate funding for agencies responsible for waste management
- Inadequate Land space: Land is scarce and finding suitable sites for waste disposal is an overwhelming task. This has affected interventions around constructing sorting, compositing and recycling stations.

Environment within which the Project is Implemented:

- ### Current Economic Situation in Liberia

The administration of President George M. Weah clocked two years in January 2020. He inherited an economy badly hit by a slump in global prices of rubber and iron ore - Liberia's key export commodities. The Ebola crisis exacerbated the economic stagnation in the Country.

Two years into office, the country's economy has been challenged with rising inflation as a result of significant depreciation of the Liberian dollar against the United States dollar. Inflation reached 31.3% by August 2019, up from 26.1% the previous year. The economy has fallen further into the repressed category since 2019, while GDP growth has recorded a weak performance over the last couple of years. This has hampered Government's ability to fully deliver services and meet other obligations, with 80% of the population said to live on less than $1.25 a day.

As the economy worsened with civil servants reporting months-long delays to salary payments, thousands of people took to the streets in protest. The domestic macroeconomic environment has been challenging, characterized by low economic growth which has hampered Government's ability to fully deliver services and meet other obligations. The business environment also remains difficult, affecting people's earnings.

- ### Emergence of Private Individual Waste Collectors (Zogos)

The CBE Model faces competition from Private individuals (Zogos) and illegal waste collectors. MCC piloted a 3-4 months Project where Zogos were recruited by the city corporation to engage in waste collection, particularly street cleaning. While the mandate of the Zogos was initially limited to street cleaning, many have now penetrated primary waste collection, duplicating CBE activities. According to NACOBE, more than half of the CBEs nearly closed operations due to a decline in clientele, which led to a drop-in revenue collection, making it hard for CBEs to sustain their operations.

Zogos go into households to collect garbage and get paid from households mandated towards CBEs, thus taking away their business. They are paid between LRD 10-15 every time they pick waste. Because they are cheaper, the majority of the households have now resorted to their services. However, the Zogos are neither registered nor regulated, and their operations not monitored and supervised. According to NACOBE and Township Commissioners, they lack basic training in SWM and dump garbage in open space, streets corners, highways and in residents' compounds in the night.

Analysis shows that the Zogos have not increased access to primary waste collection services but rather created a transfer or shift of clients from CBEs to Zogos. Households previously subscribed to CBEs have shifted allegiance to Zogos. These individuals lack basic waste collection tools, equipment and protective gear to ensure safety during waste collection. They carry garbage on their heads and when the weight becomes unbearable, they dump anywhere.

Progress towards attainment of Project Objectives:

Outcome: Greater Monrovia is serviced by a citywide Integrated SWM system that reduces greenhouse gas emission and enhances the city's resilience against climate change and disease.

The Project has contributed to an increase in the proportion of households with planned forms of garbage disposal in Greater Monrovia. The percentage increased from 36% at baseline to 83% at mid-term, surpassing the 45% Life of Project (LOP) target, attributed to the awareness creation campaigns on waste collection and disposal. The Project's contribution towards reducing the quantity

of recyclable waste going to the landfill remains low. The percentage (33%) remains unchanged from the baseline, majorly due to activities supporting this outcome lagging behind schedule.

Intermediate Outcomes 1: Improved access to sanitation through more sustainable and efficient solid waste collection in Greater Monrovia

Overall, attainment of results under this intermediate outcome is relatively low at the mid-term. Critical activities for the outcome lag behind schedule, CBEs face stiff competition from Zogos, while the inefficiencies within the public system have not helped address issues of access. Delays in signing an MOU with ECO Bank to manage the Loan and Grant facility has affected provision of loan and grant support to CBEs, yet this critical in attainment of results under component 1. The process took 6-8 months.

The percentage of households receiving PSW collection services in Greater Monrovia increased from 36% at Baseline to 37% at Mid-Term. The progress is low compared to the Life of Project (LOP) target of 45%. The Evaluation observes that performance of the indicator is lower, compared to what is reported in the 2019 Comic Relief Mid-term Evaluation at 52%. The drop in the indicator is attributed to the following:

i. From the qualitative Interviews, the Evaluation found that households were using the waste generated to reclaim land. Owing to the imminent rainy season, communities are distressed of their homes being washed away, consequently resorting to using the garbage generated to reclaim land. This is aimed at lengthening the distance of the houses from the wetlands and river stream, and in some instances creating more space for settlement. This implies that even where access to waste collection services is increased, household use of the services is affected by other considerations, such as using waste to reclaim land.

ii. Reduction in levels of trust by citizens in waste collection service providers. City Corporations have been ineffective in emptying skip buckets, CBEs are unreliable, while the Zogo approach was suspended shortly after it had started. This has compelled citizens to devise other waste disposal methods such as dumping in wetland and rivers streams and burning waste.

iii. Low willingness by households to pay for waste collection services - 42% of the Households were found to have refused to pay for the service in the past 6 months preceding the Evaluation, while half (50%) reported that the economic situation in the Country affected their ability to pay for waste collection services. The unwillingness for households to pay for waste collection coupled with the economic situation in the country has compelled them to resort to disposal methods that do not involve costs such as open dumping, dumping in wetlands and river streams and burning.

Intermediate Outcome 2: Reduced greenhouse gas emission through improving extracting, sorting and re-use of solid waste in Greater Monrovia

Overall, progress at the mid-term for this outcome is low. Owing to the interrelatedness and interlinkage of Component 1&2, the low performance in Component 1 has affected attainment of

results for this component. The Project envisaged that if Loan and Grant facilities are provided to CBEs to engage in Composting and Recycling, this will reduce the amount of recyclable waste dumped at landfills, eventually reducing green gas emission. Delays in functionalizing the Loan and Grant facility has had a toll on the attainment of results for this intermediate outcome.

The proportion of solid waste sorted and recycled for re-use at collection remains unchanged from the baseline (0%), with the LOP target of 5%. Only one percent (1%) of the households was found to engage in waste sorting, while 16% of CBEs engaged in some kind of sorting although on a small scale. While knowledge on Recycling was found to be high among CBEs (91%), non is engaged in Recycling activities due to lack of appropriate tools, equipment, technology and resources.

As with Intermediate Outcome 1, critical activities lag behind schedule while securing land for construction of sorting and recycling stations remains another challenge.

Intermediate outcome 3: Improved awareness of Climate Change and climate resilient Solid Waste Management in the Greater Monrovia Population with a focus on youth

Overall, attainment of this intermediate outcome is well on track. The proportion of households in Greater Monrovia reached by awareness campaigns on SWM improved from 0% at baseline to 15% at Mid-Term, surpassing the LOP Target of 10%. The substantial investments in awareness creation around Climate-Smart SWM, urban health and environmental protection has led to corresponding level of results with 87% of the households sensitized reporting to have found the sensitization campaigns beneficial and have made changes in Solid Waste Management at household level as a result.

Regarding outcome 4: Improved and integrated plans and capacity to manage and fund SWM for Greater Monrovia

Overall, attainment of this intermediate outcome is within the control of the Project. The outcome indicator is qualitative; *"Integrated Solid Waste Management small initiatives/best practices have been included at community level planning"* Analysis from the Project Management Information System (MIS), there is "No integrated solid waste management small initiatives/lessons learnt included at community level planning".

In order to address capacity issues, Cities Alliance has partnered with the Institute of Housing and Development Studies (Erasmus University of Rotterdam) to conduct trainings locally in Liberia. Training courses will be developed for Municipal SWM Officials and LGA staff, to be conducted by the University and certificates awarded locally. Several Technical Committee meetings have been held and SWM partnerships developed i.e. the partnership with HFHI. Focus should be on fast tracking the development of the Solid Waste Strategy which is part of the City Development Strategy.

Results from the Quantitative and Qualitative Surveys:

The Proportion of Households without access to PSW collection services (either Public or Private)[1] in Greater Monrovia was found to be 63%. These households mainly dispose of waste in wetlands and river streams to reclaim land, and therefore need to be targeted.

All CBEs were found to be legally operational and registered, and the majority (89%) had permanent offices for transacting business. Payments for staff employed by CBEs remains low, the average monthly salary was found to be LRD 8,150 (USD 41). While labor laws in Liberia require a minimum wage of USD 125 is paid to workers, CBEs cannot manage to pay this rate. Profitability of the CBE business was found to be low. Within the past 12 Months, 71% of the CBEs report a decline in profits registered, attributed to the economic situation in the Country, the failure of households to pay for Waste Collections Services, and the reduction in the number of clients served due to Zogos. The average monthly profits registered by CBEs is LRD 12,000 (USD 60).

The profits are higher among newly established CBEs compared to CBEs that have been in Business longer. This is partly attributed to the trainings in Financial Management and Business Development. Newly established CBEs were more likely to implement lessons learnt from the training compared to CBEs that have been in business longer. Availability of transport means fully dedicated for Waste Collection remains a big challenge for CBEs, with 47% of the CBEs not having vehicle or transport means fully dedicated to Waste Collection and disposal.

The main transport means used by CBEs are Push Carts, Tri-cycles and Wheelbarrows. The cost of fuel and repairs was found to limit the use of tricycles in waste collection. On average, a CBE has three (3) Tricycles, four (4) Push Carts and five (5) Wheelbarrows, which is not sufficient for waste collection. From the CBE Survey, 82% of the CBEs reported lack of adequate tools and equipment to effectively conduct their operations. The major problems encountered in expanding the size of the CBE are; lack of capital, inadequate access to finance and credit and, lack of appropriate tools and equipment. The lack of adequate tools and equipment is further complicated by theft of the available tools.

The number of wheelbarrows of wastes collected from each household per week ranged from 1-4, with an average of 3. The total number of wheelbarrows of waste collected by a CBE per day ranged from 15-231, with an average of 101 wheelbarrows. From these wheelbarrows collected per day, <1% (i.e. 0.7%) is sorted. CBEs were found to engage in open dumping (37%) when skips are full, while others resort to forceful use of transfer stations (16%) and landfills (13%) since access is restricted. A few (3%) opt to dump in the Water bodies and wetlands. From the Household Survey, 75% of the households with waste collection services reported that waste collection was conducted three (3) or less time from their homes in a week.

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[1] *% of households with regular access to PSW collection"* Measures the percentage of households that have access to either PUBLIC or PRIVATE waste collection services. Private services included CBEs or private individuals (Zogos), while public included Gov't/City Authorities or household direct disposal to skips"

On satisfaction with Waste collection services, 45% of the households were satisfied with waste collection services. Satisfaction was higher among households using private individuals (Zogos), at 47% compared to those using CBEs, at 36%. Major reasons for dissatisfaction with Waste Collection Service providers are improper waste collection raised by 64% of unsatisfied Households. This relates to improper removal of wastes from the storage or disposal facilities, where part of the waste drops or remains around the storage or disposal facility, leaving the place untidy. Other issues include high waste collection costs charged by CBEs (49%), and the unreliability of CBEs.

The average amount incurred by household for waste collection was found to be LRD 130 per week, while CBEs reported to charge an average of LRD 80 per week.

Separation and sorting of wastes remains a big challenge among CBEs & Households. Sensitization of Households on waste separation is found to be moderate, 55% of the CBEs tell their clients to separate wastes. From the household Survey, 99% of the households did not separate waste. Neither CBEs nor households were found to engage in compositing or recycling activities. While the willingness for CBEs to engage in Recycling and Compositing is high (87%), they lack appropriate tools, equipment and resources to engage in these activities.

Regarding Cities Alliance visibility, all CBEs have heard about Cities Alliance, while only 50% fully understand what the organization does. CBEs who have been in business longer were twice likely to understand what Cities Alliance does compared to newly established CBEs. Twenty-two percent (22%) of households have heard about Cities Alliance, while 13% fully understand what it does.

Conclusion Regarding the Evaluation Questions:

Relevance
There is unanimous acknowledgement from stakeholders that the Project provides an important and significant contribution to the waste sector in Greater Monrovia, and is widely considered to be connected to the 2030 agenda, NDC and the NAP. The Project's contribution towards NDC and NAP results at this stage is moderate, demonstrable results so far observed with the awareness and sensitization on climate smart SWM. Efforts to reduce emissions from SWM services are affected by delays in activities under component 1&2. The Project has built capacity of Local Government and Private Sector players on SWM, EPA compliance mechanisms regarding Environmental Protection, 4R and the benefits of proper waste disposal and the adverse effects of improper disposal of Waste on the environment.

Effectiveness:
Overall, efforts need to be stepped-up to attain project objectives. Attainment of Intermediate outcomes 1&2 requires rethinking and coming up with modalities that will address the implementation bottlenecks highlighted. Efforts in attainment of Intermediate outcome 3 are commendable, the Project is well on track towards attaining this result, while attainment of intermediate outcome 4 is within the control of the project. While the Model is to a large extent effective, and can lead to attainment of deliverables, its effectiveness is directly linked with designed interventions being implemented on

schedule and according to plan, and is subject to risks beyond the control of the Programme, for instance the Zogos and the deteriorating economic situation.

Several factors explain the low progress towards attainment of Project Results. The waste sector in Greater Monrovia generally faces several mounting constraints that need to be addressed by the GoL and municipal authorities. These affect implementation and attainment of results. The CBE Model faces stiff competition from the Zogos, there is minimal recognition of CBEs by municipal authorities (particularly MCC) as vital players within the waste sector. The current economic situation in the Country has affected progress, while the resignation of the Solid Waste Specialist also created vacuum in the technical team.

Despite the above challenges, several factors have facilitated attainment of successes so far registered. The Project leverages the Country Programme which has established sustainable relationships with GoL, City Governments, Local Governments and communities, adopts Community-led implementation approach to ensure community inclusiveness, and has a strong Programme Steering Committee. Strengthening the platform that brings together all players in the waste sector to deliberate on issues that affect the sector has greatly contributed to the observed successes. The Project found an organized CBE network, with an umbrella association, NACOBE. Because CBEs were already organized, this enabled an easy entry to working with them. Enhanced communication and visibility by Cities Alliance has been central in awareness and sensitization interventions.

In addition, the Project has a well-structured log frame that provides a streamlined linear interpretation of the Project's planned use of resources and its desired ends. It clearly highlights the logical linkages between intended inputs, planned activities and expected results.

Efficiency

The Project has conducted training in financial management for NACOBE, partly aimed at ensuring that resources advanced to CBEs are used optimally. The Project put in place robust financial management and accountability systems to ensure that resources are being used economically during Project implementation. The robustness has however created some delays and slowed down the pace of activity implementation. Point in case, the process of bringing ECO Bank on board took 6-8 months

With all activities the Project implements, Cities Alliance goes through rigorous UNOPS procurement processes to ensure competent contractors are hired at reasonable costs. Value for money clauses are included in all Contractor contracts, prioritizing value for money. In construction Projects that will be undertaken, all processes MUST conform to, and should be compliant with the UNOPS engineering standards, which provide for high quality construction and value for money. In addition, the Project is routinely audited to ensure compliance with controls instilled by Cities Alliance and EU.

Impact

The capacity building and training conducted for CBEs on Record Management has greatly improved Records Management Practices. All CBEs were found to maintain records of business transactions, and

records for 87% of the CBEs could be accessed. The Project has contributed to an increase in the proportion of households with planned forms of garbage disposal in Greater Monrovia, attributed to the awareness and sensitization campaigns.

Substantial investments in awareness creation around Climate-Smart solid waste management through radio talk shows, community clean-up and education campaigns targeting schools, has led to corresponding level of results - 87% of the households sensitized found the sensitization campaigns beneficial, and have made changes in SWM at household level. Best practices adopted include adopting waste reduction practices and improving storage of wastes at Household. Working with school age children as agents of change in their communities is a long-term investment in changing behavior of individuals and communities.

Sustainability

The programme implementation approach, has been documented to improve primary waste collection in a sustainable manner. It is a good example of how city-community partnerships can deliver essential services to poor communities in resource poor situations, including informal high-density townships. CBEs are locally established and employ workers from within local communities. CBEs through their umbrella organization NACOBE, are part of the Waste Sector Technical Working Group which provides a platform for sustaining their operations and advancing their interests.

The Model is scalable, evident from the fact that PCC has adopted and replicated it within the city. However, the emergence of Zogos within the waste sector not only provides stiff competition to the CBE Model but threatens its survival. To enhance institutional sustainability of CBEs, there is need to recognize CBEs as vital players within the Waste Sector in Liberia, address challenges that constrain their operations, but also putting to a stop Zogo's continued participation in primary waste collection.

Conclusion

While the Project is responding to some of the challenges in the Waste Sector in Greater Monrovia, several challenges and gaps remain at the mid-term, which have implication on the delivery of the Project and the attainment of results. Empting of Skip buckets by municipal authorities remains a huge challenge that affects CBE operations, and needs to be resolved by municipal authorities.

Overall, efforts towards attainment of Project objectives need stepping-up. Results in Component 1&2 remain low. Owing to the interrelatedness and interlinkage of components 1&2, low performance in component 1 is affecting attainment of results in Component 2. Attainment of results in component 3 is well on track while attainment of component 4 is within the control of the Project.

Coverage of CBE services remains thin on ground, while challenges around their operational capacity remain unaddressed. The lack of access to finance and credit, lack of adequate tools and equipment, and the frequent breakdown of equipment continue to affect their day-to-day operations. A functional Primary-Secondary Waste Management value chain is central to improving SWM in Greater Monrovia, therefore critical for all duty bearers to perform their roles.

While the Model can lead to attainment of deliverables, it's effectiveness is directly linked with designed interventions being implemented on schedule and on plan, therefore Cities Alliance urgently needs to fast track implementation of activities that lag behind schedule.

Recommendations

Government

There is a need for improved funding for the city corporations. The lack of adequate budgetary support by the GoL has restricted city corporations' ability to expand SWM services. Government should increase on allocations to MCC, PCC, EPA and the WASH Commission, but also ensure that city authorities are supported firmly to improve revenue mobilization from local sources. Government needs to fulfill its counterpart funding with Secondary SWM Project.

Fast tracking the formulation of the Waste Management Policy and Strategy: Once in place, the policy framework will guide municipal authorities as well as provide them with adequate legal support to enforce their mandate in waste management. In addition, strict enforcement of existing laws on waste disposal would also aid greatly in eradicating the negative attitude regarding waste disposal with offenders receiving punishment.

Though waste management is a stated government priority, the subsector depends primarily on donor financing. Citizens trust in service providers is largely broken and needs to be addressed to rebuild the social contract of paying for solid waste collection. There is need to establish a policy to enforce mandatory requirement of households to subscribe to CBEs. This will help CBEs increase their revenue and prevent Zogos from encroaching on their revenue.

Cities Alliance

Expedite implementation of all activities that lag behind schedule, particularly activities in Component 1 and 2. Functionalizing the Loan Facility, Grant Facility and construction of Sorting, Compositing and Recycling facilities should be given high priority. These are central interventions, if implemented will create the desired impact.

Enhance efforts to reduce the per capita Solid Waste dumped in landfill. Diversion from landfills has become a major driver for many SWM Projects, with some States, Cities and Municipalities operating under legislative requirements for achieving specific diversion goals. Recycling and compositing are critical in determining the actual diversion rates. These interventions not only reduce per capita waste to landfills, but also generate life affirming livelihoods for the urban poor. The Project should design incentives and awareness systems to motivate waste reduction, source-separation and reuse.

Monitoring and supervision of CBEs: Supervision and Monitoring CBE activities by NACOBE is weak, needs to be strengthened. The Evaluation established that some CBE staff practice unhealthy waste disposal practices. They dispose wastes in water bodies and non-gazatted places. Unless monitored and supervised, such practices may gradually be seen to raise. We recommend reinstating Community Management Team (CMTs) to Monitor and supervise CBEs at community level.

City Authorities

Empting skips buckets regularly: Emptying skip buckets by City Corporations remains a big challenge with Greater Monrovia. Authorities should work on addressing challenges around emptying skips. Alternatively, City Corporations should permit CBEs to dump at transfer stations and landfills. This will reduce the amount of waste that goes to the skip buckets.

In order to enhance effective planning and organization of waste management operations in Greater Monrovia, there is need to gather accurate data on the quantities, type and characteristics of waste being generated. MCC and PCC should work on creation of a database on solid waste and undertake regular investigations and research to generate accurate data on the waste situations with the aim of facilitating waste planning and management.

Strengthening Public-Private-Partnerships in delivery of SWM Services. Public-Private-Partnerships are one of the proven approaches in better SWM efforts. The Project has demonstrated that Private Sector engagement is vital in stimulating improvements in SWM, and minimizing negative effects of waste in poor communities. National & City Governments should strengthen and promote sustainable, self-supporting partnerships with Partners and NACOBE/ CBEs.

Whilst the Pilot was suspended by MCC, they had already penetrated primary waste collection and remain in operation in communities. These individuals cannot be ignored, need to be engaged by municipal authorities, have them trained on basic SWM practices, supervise and monitor their operations, and have them integrated into the CBE Sector, by having CBEs employ them.

Community-Based Enterprises

There are opportunities that NACOBE can explore to enhance the service delivery model of engaging CBEs for primary waste collection. NACOBE, with support from the Project should explore the possibility of adapting zoning laws to enhance competition, efficiency and effectives among CBEs by re-dividing Greater Monrovia in well-defined zones (LGAs) and allocating specific zones (LGAS) to specific CBEs for operation. This will increase service coverage and enhance accountability.

There is need for better engagement and representation of CBE interests by NACOBE at National and City Government level, in terms of recognition of CBEs as vital private players within the Waste Sector; lobbying for opportunities for CBEs to access Finance and Credit; address issues of harassment by city authorities particularly confiscation of CBE tools and equipment, denying access to disposal sites, physical violence and extortion as well as a policy that makes it mandatory for households to pay for waste collection services to enable CBEs collect adequate revenues to sustain their operations.

CBEs operations are primarily financed by a Primary Solid Waste Collection (PSWC) fee paid by households. Individual CBE determines the fees, which in many cases are negotiated on an individual basis with households. There is need for NACOBE to work along with Municipal Authorities to come

up with a uniform fee to be charged to households than individual CBEs determining their own fees. The fee should be standardized to all households across the 12 LGAs.

Some CBE staff were found to engage in non-environmentally friendly dumping practices, partly attributed to weak supervision of CBE activities by NACOBE. We recommend that NACOBE strengthens Monitoring and Supervision of CBE activities at Community level to ensure that CBEs and their staff are compliant with waste disposal standards and protocols set by EPA

CHAPTER I: INTRODUCTION AND BACKGROUND

1.1   Introduction and Background

Globally, the amount of urban waste being produced is growing faster than the rate of urbanization. Currently, world cities generate about 1.3 billion tonnes of solid waste per year. This volume is expected to increase to 2.2 billion tonnes by 2025. Waste generation in sub-Saharan Africa is approximately 62 million tonnes per year with rates likely to more than double over the next twenty years in lower income countries[2]. Per capita waste generation is generally low in Sub-Saharan African (compared to other regions in the world), but spans a wide range, from 0.09 to 3.0 kg per person per day, with an average of 0.65 kg/capita/day.[3]

Primary waste collection continues to remain a challenge in Greater Monrovia and its surrounding townships. The Emergency Monrovia Urban Sanitation (EMUS) Project supported the Government of Liberia, on an emergency basis, to maintain and increase access to solid waste collection service in the capital city of Monrovia from the period of 2009-2016. As the country had just emerged from a 14 year long civil war at that time, the capital city of Monrovia had been among the worst affected areas, with the collapse of the solid waste management system being central to poor living conditions.

The service had ceased to exist for over 14 years, leading to massive accumulation of waste throughout the city. Piling waste was creating health and environmental hazards, which contributed to the spread of diseases, clogged the drainage and sewerage networks, and contributed to flooding that further deteriorated city infrastructure. While solid waste services in Monrovia were partially restored in 2006/7, only about a third of daily generated waste was being collected and disposed away from the city.

Solid Waste Management (SWM) services in Greater Monrovia combine primary and secondary solid waste collection services. Primary solid waste collections (PSWC) from the poorer community areas are run by Community-Based Enterprises (CBEs) with semi-formal recognition by Greater Monrovia's local governments. CBEs collect the waste at the doorstep and transport it with buckets and wheelbarrows and/or simple capital equipment (e.g. tricycle) to skips.

There is a total of 110 skips. The skips are of two types. Ten are reinforced concrete bins, which are emptied directly into tipper trucks that transport the waste directly to the Whein Town landfill. The remaining 100 skips are emptied at the nearest transfer stations. Secondary solid waste collections (SSWC) are run by formally registered SMEs who transport the waste from skips to a transfer station

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[2] Hoornweg and Bhandal-Tata (2012) *What A Waste: A Global Review of Solid Waste Management*, World Bank: Washington, DC.

[3] Data used in this section is adopted from "Description of the action on delivering climate-resilient solid waste management services in Greater Monrovia, Liberia through community-based enterprises. presented by UNOPS-Cities Alliance, December 2017

from where it is further transported to the landfill site[4]. More recently, during the end of the EMUS project, the private contractor system collapsed and the MCC then took on the service directly, moving waste from skips and transfer stations to the landfill.

The MCC established a dedicated IMPAC team to manage the project and to support CBEs. The CBEs entered into official contracts with the MCC, which provided some level of official recognition. In addition to monitoring and administrating the project, the team was responsible for establishing and training CBEs and conducting public awareness campaigns to inform the urban poor of the health and environmental benefits of improved waste disposal. The CBEs are financed by a PSWC fee paid by households and small businesses in the communities served by the CBE.

The individual CBE determines the fees, which in many cases are negotiated on an individual basis with communities and even households. Similarly, the system varies between the CBEs as the service is tailor-made to local conditions. Although the methods vary, all systems involve collecting Primary Solid Waste (PSW) directly from individual households and transferring it to a local skip bucket from where city authorities takes the waste to the landfill.

1.2 Cities Alliance's Programming

1.2.1 About Cities Alliance Country Programmes

The Cities Alliance is a global partnership for poverty reduction and the promotion of sustainable development in cities, hosted by the United Nations Office for Project Services (UNOPS). Launched in 1999 jointly by the World Bank and UN-Habitat, the Cities Alliance provides technical and financial assistance to address urban poverty in developing countries. The Cities Alliance Country Programmes were first designed in 2009 as a new model of intervention in urban development, with a shift from shorter-term, onetime initiatives towards a longer-term, programmatic approach to address the specific development needs of cities in selected countries, typically in the context of rapid urbanisation and growing urban poverty.

1.2.2 About the Liberia Country Programme

The Cities Alliance Liberia Country Programme (LCP) is a 5-year programme aiming at enabling Liberia – specifically its development partners and Cities Alliance members in Greater Monrovia – realise its urban agenda through investing in partnerships, building coherence of effort among members and partners, and improving alignment between national policy, local government capacity and an active citizenry.

The Liberia Country Programme is a partnership initiative undertaken by the Government of Liberia and its partners to align urban development efforts at the national, city and community levels working directly with Habitat for Humanity International, Institute of Housing and Development

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[4] Landfill site is located in Paynesville, part of Greater Monrovia.

Studies(I.H.S), Women in Informal Employment Globalizing and Organizing, UN-Habitat and Shack/Slum Dweller International as implementing partners. The Programme was initiated at the request of the Monrovia City Corporation (MCC) and the Liberian Ministry of Internal Affairs, and aims to provide direct service investments, especially for the urban poor and youth living in Greater Monrovia's informal settlements. It also supports Liberia's goal of achieving middle income status by 2030.

The Programme aims to improve the quality of support provided to cities in the country, eventually expanding from Greater Monrovia to secondary cities and county capitals around the country. The programme aims to:

1. Strengthen organisation and meaningful participation of slum dwellers and working poor organizations in city governance, inclusive planning and responsive service delivery.

2. Improve climate resilient and inclusive urban planning, slum upgrading and incremental housing strategies with investments in the provision of community driven services and affordable housing.

3. Enhance the national enabling environment for resilient and inclusive urbanization benefitting economic growth, local governments and the urban poor.

4. National and city level policy, planning and legislative environment for resilient and inclusive urbanization benefits recognition and voice of the urban poor.

1.2.3 About the PSWM Project

The Cities Alliance's European Union funded Project "Delivering Climate-Resilient Solid Waste Management Services in Greater Monrovia, Liberia through Community-Based Enterprises" is a 4-year Project (2018-2021) aimed at leveraging long-term support, in accordance with GCCA/GCCA+ objectives, public-private-people-partnerships in Greater Monrovia to build and sustain:

o Urban health and environmental protection, leveraging World Bank-supported Solid Waste Management (SWM) projects.
o Sustainable economic growth through green businesses generating jobs to the urban poor, leveraging the Improved Primary Waste Collection in Poor Communities (IMPAC) project.
o Resilient governance, based on the principles of partnership and subsidiarity, with participation of the urban poor and women, girls, and youth leveraging the Cities Alliance LCP.

The Goal of the Programme is to contribute to poverty reduction and improve the quality of life while supporting Liberia's carbon neutrality agenda. The overall objective is to ensure that Greater Monrovia is serviced by a citywide integrated solid waste management system that reduce greenhouse gas emission and enhances the city's resilience against climate change and disease, it creates jobs and creates awareness of climate change.

The Project is funded to a tune of £4.9M, supporting primary waste collection in Greater Monrovia through Community Based Enterprises (CBEs). The CBEs were formed as part of the door to door

collection in the city and have been working for quite some time in the area of Primary Solid Waste collection. Several attempts have been made during the past years to make the Community Based Enterprises (CBE) viable to sustain the current CBE system.

The design of the EU Funded Primary Solid Waste Collection Project is based on linking solid waste removal into the very fabric of the Liberia Country Programme with the understanding that for any solid waste removal system to be resilient, effective, and sustainable, it needs to be directly linked into a wider development vision that integrates city governance, citizenship, other municipal services, the natural ecological environment, and the economy.

1.3 Objectives of the EU Primary Solid Waste Project

- Improved access to sanitation through more sustainable and efficient solid waste collection in Greater Monrovia.

- Reduced greenhouse gas emission through improving extracting, sorting and re-use of solid waste in Greater Monrovia.

- Improved awareness of Climate Change and climate-resilient solid waste management in the Greater Monrovia population with a focus on youth.

- Improved and integrated plans and capacity to manage and fund Solid Waste Management for Greater Monrovia.

1.4 Project Implementation Approach:

Component I: Collect more wastes: This works directly with CBEs who go to households to collect solid waste and dispose the waste into skip buckets. Household subscribe and pay weekly or monthly fees for waste collection to the CBEs. The outcome is to improve access to sanitation through more sustainable and efficient Solid Waste collection within Greater Monrovia. This is attained through establishing a Micro-Credit Facility to support CBEs with equipment and loans, establish a Small Grant facility for CBEs and communities for Primary Waste collection innovation, and conduct engagement meetings with MCC, PCC, LIBA and NACOBE.

Component II: Extract and Reuse Plastic and Organic Matter: Looks at the next steps after collecting the waste. The Project provides CBEs that are ready to do recycling and compositing with loans and grants to undertake recycling and compositing activities. Expected result is reduced greenhouse gas emission through improving extracting, sorting and re-use of solid waste in Greater Monrovia. Interventions include Commissioning feasibility studies into selected options, technologies and product markets, production testing, and detailed models for plastics and organics extracting, sorting and composting. Other interventions include arranging cross visits to identified best practices and technology with respect to 4R, construct and operate sorting stations, pilot waste to compost project in operation and piloting a waste to plastic project.

Component III: Increased awareness and Education on SWM: Expected result is improved awareness of Climate Change and climate Resilient Solid Waste Management in the Greater Monrovia with focus

on Youth. Interventions include developing and implementing School and Community awareness campaigns and competitions for Greater Monrovia that promote climate change awareness, promote 4R awareness, and the importance of protecting the natural and built environment. Other interventions include implementing Outreach events such as radio shows, cleanest school & community competitions, beach cleaning campaigns, and implementing demonstration projects in selected communities and schools of Greater Monrovia.

Component IV: Integrated SWM System and Capacity: Expected result is improved and integrated plans and capacity to manage and fund SWM for GM. Interventions include support the capacity development and institutional strengthening of an integrated solid waste management team within Greater Monrovia, Developing a stakeholder platform that brings together national ministries, Greater Monrovia Local Government, private sector, and communities, linked to the City Development Strategies (CDS), developing a costed solid waste strategy for the Greater Monrovia area, designing and implementing a participatory M&E system with a community monitoring component, and design and implement learning exchange for Programme committee members and other stakeholders.

1.5 Purpose of Mid-Term Evaluation
The purpose of the Mid-Term Evaluation was to provide a strategic review of Project performance, assess results achieved, lessons learnt and the extent to which the Project is delivering on its objectives. To achieve this, the Evaluation assessed Tier II and III Project indicators (outcome and intermediate-outcomes) across the 12 LGAs of Greater Monrovia. In addition to Tier II and III indicators, Tier IV output level indicators were included in the analysis as detailed in Annex I.

1.6 Scope of the Evaluation:
The Mid-Term Evaluation covered the 12 LGAs in Greater Monrovia were Project is implemented. Tier II and III Programme indicators were assessed as per the Project Log frame. In addition, Tier IV output level indicators have been included in the Report after review and discussion of output data from the Project Management Information System with the Cities Alliance. In addition to reviewing performance against the Project log frame, a contextual analysis was conducted with regard to the Solid Waste Sector in Greater Monrovia, and the environment within which the Project is delivered. The following population groups were studied to answer the Evaluation questions and objectives.
  o   Households in Greater Monrovia
  o   National Association of Community Based Enterprises (NACOBE)
  o   Community Based Enterprises (CBEs)
  o   Government officials i.e. Ministry of Internal Affairs, EPA, WASH Commission, MCC, PCC etc.
  o   Township Commissioners from West Point, Caldwell, Congo Town, Barnesville and the Borough of New Kru Town.
  o   CLUS Project Coordinator

1.7 Evaluation Questions

Table 1: Evaluation Questions

SNO	Evaluation Criteria	Evaluation Question
1.	Relevance	▪ To what extent has the Programme Supported the National Adaptation Planning (NAP) and Nationally Determined Contributions (NDCs) processes, through building green and inclusive Community-Based Enterprises (CBEs) that reduce per capita solid waste dumped in landfills while generating life affirming Livelihoods for the urban poor and with a gender focus? ▪ To what extent has the Programme Supported national and local government, the private sector, and urban poor communities in building effective climate adaptation systems at all levels?
2.	Effectiveness	▪ To what extent will the Programme be likely to achieve its deliverables with the current structure model? ▪ How effective is the Programme design and coherence including the design of the log frame matrix/ Programme theory of change and its assumptions? ▪ The what extent has the Programme built an inclusive, safe, resilient, and sustainable ecosystem around the sector to test, refine, replicate, and scale precedence-setting Solid Waste Management technologies? ▪ What were the major factors influencing the achievement or non-achievement of the outcome/intermediate outcome(s)/expected results/outputs? (Also consider any which were possibly beyond the control of the project)?
3.	Efficiency	▪ To what degree was value for money Prioritized during Programme implementation? ▪ To what extent will the Programme staff and task distribution influence achievement of Programme results?
4.	Sustainability	▪ To what extent will the Community Based Enterprise Model of primary Waste Collection be sustainable and be scaled across Greater Monrovia? ▪ What needs to be done and/or improved to ensure institutional sustainability of the Community Based Enterprises? ▪ To what extent will the 4 project components be handed over to stakeholders?
5.	Equity	▪ To what degree is gender equality evident in the structures, systems and results of the Programme?

CHAPTER II: EVALUATION METHODOLOGY

2.1 Evaluation Design

The Evaluation adopted a cross-sectional descriptive study design, utilizing mixed methods approach i.e. both qualitative and quantitative, including secondary[5] and primary data sources to better understand the extent to which Greater Monrovia is serviced by a citywide integrated SWM system that reduces greenhouse gas emission and enhances the city's resilience against climate change and disease, and creates awareness of climate change. The cross-sectional element obtained data from a cross section of stakeholders and population groups such as Households and CBEs, while the descriptive element obtained data from NACOBE, City Corporations, Township Commissioners and Government agencies such as Ministry of Internal Affairs, EPA and WASH Commission.

2.2 Sample size estimation and selection of participants

Quantitative data collection approaches were adopted in collection of data from Households and CBEs. At 5% level of statistical significance, the required sample size for the above participants were calculated using the Kish Leslie formula for simple random sampling;

Sample size $n_0 = Z^2 \times p (1-p)/e^2$

Where n_0 = sample size,   Z = confidence level at 95%   e = margin of error at 5%

p = Proportion of households in slums with regular access to private solid waste collection

2.2.1 Sample Size for households

From Kish Leslie's formula, with p = 16%[6] gives a sample size of 207 households. A non-response of 5% was factored into the calculation to cater for both non-response and poorly filled in questionnaires. This increased the estimated sample size to 217 households. A design effect, of 2 was factored in the estimation to obtain the final sample as 434. The 434 households were apportioned across the 12 LGAs and enrolled into the Evaluation. Probability Proportionate to Size (PPS) was adopted in apportioning the number of households for selection in each LGA. However, changes were made to final sample sizes in some LGAs as detailed in Table 2, majorly due to the outbreak of Coronavirus within these LGAs, as elaborated in the limitations section.

2.2.2 Sample Size for CBEs

The number of CBEs supported by the Project is 40, of these 38 were reached. The two could not be reached successfully for interviews. Efforts to have phone interviews were unsuccessful as the known phone contacts were unavailable. To ensure quality and operational utility of this Midterm Evaluation, the Enumeration team ensured that gender issues were put into considered in selection of Evaluation participants including CBEs, Households and other stakeholders.

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[5] Baseline Report, 2018 & 2019 Project Annual Reports, MEL Strategy for LCP, Final CBE Starter Kit M&E Report, Project Proposal, CR LCP Mid-Term Evaluation Report

[6] Proportion of households in slum/low income areas with regular access to private solid waste collection based on the Mid-Term Evaluation of Cities Alliance Liberia Country Programme

Table 2: Household Reached during the Sample by City and LGA

Sno.	Name City or LGA	Population[7]	Sample Size	HH Reached
1	Monrovia	148,278	88	112
2	Paynesville	120,671	70	60
3	New Kru	82,614	45	45
4	Logan Town	76,579	44	60
5	Gardnerville	51,259	30	50
6	West Point	47,470	28	32
7	Johnsonville	2,553	10	17
8	Caldwell	45,595	27	14
9	Congo Town	15,640	9	10
10	Dixville	75,403	45	10
11	New Georgia	36,546	22	16
12	Barnesville	26,894	16	8
	Total		434	434

Table 3: Number of other Project stakeholders and population groups Reached

SNO.	Programme Stakeholder	No. Participants
1.	NACOBE	8
2.	Ministry of Internal Affairs	1
3.	Environmental Protection Agency	1
4.	WASH Commission	1
5.	Monrovia City Corporation & Paynesville City Corporation	12
6.	Township Commissioners	5
7.	CLUS Project	1
8.	Cities Alliance Staff	5

2.3   Selection of Study Participants

2.3.1 Selection of Households:

In selection of households, multistage sampling technique was adopted. First, all the 12 LGAs were considered (purposive sampling). Within each LGA, stratified sampling was adopted to select the required number of communities for the survey. Communities selected were those were CBEs supported by the Project are working. The number of communities selected in each LGA followed Probability Proportionate to Size (PPS) approach. Within each community, Simple random sampling was adopted to select the required number of Blocks and within each block, systematic random sampling was adopted to select the households enrolled in the survey. At household level, the head of the household was the target respondent and in their absence, their spouse was the next choice respondent.

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[7] Data source: Monrovia City Corporation zone and community boundaries – Ministry of Planning & Economic Affairs

2.3.2 Selection of CBEs and Other Project Stakeholders

Due to the small number of CBEs, all were selected for the Evaluation. An inventory of CBEs supported by the Project was obtained from Cities Alliance and reached out for interviews. Project stakeholders were purposively selected based on the knowledge and understanding they hold regarding the Project and their involvement in implementation, in consultation with Cities Alliance. Gender issues were put into consideration in selection of the stakeholders.

2.4   Data Collection Methods and procedures
2.4.1 Quantitative data

Household Survey Questionnaire. This was a structured researcher administered tool to community dwellers. CBE Survey Questionnaire: A Semi-structured questionnaire was used to collect data to understand their role in delivering Climate-Resilient SWM Services in Greater Monrovia.

2.4.2 Qualitative data

Qualitatively, data was collected from stakeholders using approaches detailed in the table 4.

Table 4: Qualitative Programme Stakeholders and data collection methods

SNO.	Programme Stakeholder	Data Collection Method
1.	NACOBE	Focus Group Discussion
2.	Ministry of Internal Affairs	Key Informant Interviews
3.	Environmental Protection Agency	Key Informant Interviews
4.	WASH Commission	Key Informant Interviews
5.	MCC and PCC	In-depth Interviews
6.	Township Commissioners	Key Informant Interviews
7	CLUS project coordinator	In-depth interview
8.	Household Qualitative Interviews	FGDs
9.	Cities Alliance Staff	In-depth Interviews

2.4.3 Digital Data collection for Quantitative Data

Mobile Data Collection (MDC) devices were used in collection of quantitative data. Quantitative data collection tools were converted to an electronic tool through an application designed using Kobotoolbox to collect the data. Data was then transferred from the device to a central database for storage, analysis and manipulation. These devices were password protected to limit access to unauthorized users. This saved time that would otherwise have been used to do data entry.

2.5   Field Data Collection Procedure

The first case of Covid-19 was confirmed a day before data collection started. The data collection plan and field implementation were revised to fasten data collected. While the initial plan was to work with 9 enumerators and 3 team leaders to collect data within 15 days, the numbers were increased to 15 for enumerators and 5 for supervisors, and data collected in 7 days by five (5) teams each consisting of 3 enumerators and a supervisor. The supervisor provided technical support, management of study and quality assurance.

2.6 Training and field Presetting of data collection Tools

A two-day training was conducted for the data collection team on areas encompassing the study objectives, sampling methods, data collection methods, interviewing skills and getting informed consent from the respondents.

A field pre-testing exercise was conducted in Jallah Town Community. Enumerators administered tools to the respondents to assess the validity, relevance, clarity, length and completeness of the data collection tools while the team leaders observed how interviews were being conducted. Results of the pre-test were used to refine the study tools and processes. Prior to data collection, teams visited the Township Commissioners to request for permission to conduct the survey within the LGAs.

Quality control

The consulting team was responsible for supervision of the data collection process and ensuring data is checked daily for missing information, errors and inconsistencies. Respondents with missing and inconsistent data were followed up to address the gaps. Daily reviews were held to share and discuss results, findings and the day's activities. This enabled the team to identify and deal with information gaps before leaving the field. Spot checking were conducted by reviewing a random sample of data to check for discrepancies or other anomalies.

2.7 Data Management, Systematization and Analysis

2.7.1 Data Editing, Systematization and cleaning

Data was continuously reviewed and assessed from the field at the end of each day's work, and made adjustments, where needed to control quality. Data was further scrubbed to detect & correct or remove corrupt or inaccurate records from a data set. Data harmonization and standardization was conducted to ensure a clean dataset is produced.

2.7.2 Qualitative Data Analysis

Qualitative data was analyzed following standard content analysis procedures. The analysis permitted extraction of the required content for each theme. The extracted content was synthesized in consonance with the major themes of the survey and categorized according to social, demographic and gender factors. This was used to explain the quantitative results. Transcriptions from audio recordings formed the empirical basis for the content analysis.

2.7.3 Quantitative Data Analysis

Data was exported to Excel for checking and cleaning to ensure accuracy. Univariate analysis was conducted for descriptive statistics. Frequency tables, proportions, percentages and other measures of central tendency i.e. mean and median were computed. Bivariate Analysis was performed through cross tabulations to provide further analysis.

2.8   Report Writing

2.8.1   Draft Report

On the basis of document review and field level consultations, a draft report with results and findings disaggregated by gender where applicable has been compiled. It includes a critical assessment of the data and putting together survey findings, conclusions and recommendations.

2.8.2   Draft Report Review

The first draft report was submitted to Cities Alliance for review. Feedback and comments obtained were incorporated into the second draft. Feedback and comments from the second draft were incorporated into the final Draft Report, which was shared with Project stakeholders and Cities Alliance Management for a final round of review and input. The review process provided an opportunity for Cities Alliance and stakeholders to comment on the draft reports. Apart from clarifying and correcting certain information, the review provided additional data that was used to highlight additional results.

2.8.3   Final Report Compilation

Comments and recommendations emanating from the Final Draft Report review by Cities Alliance Management and stakeholders were used to further refine, improve and compile the Final Report which has been submitted to Cities Alliance. The report captured recommendations with clear responsibility centers, and presented issues and recommendations in a way that will assist the Project team in making informed decisions to enhance performance.

2.9   Validation and Dissemination Workshop

Due to restrictions on group meeting due to Covid-19, the dissemination was done electronically by sharing the Report with Project stakeholders on mail for review, input and comments. This was used as a forum for sharing preliminary findings, crosschecking data consistence and filling any data gaps identified. Opinions and comments from stakeholders were taken into account during preparation of this Final Report.

2.10 Exit Meeting

Upon submission of the Final Report, the consulting team will hold an exit meeting with Cities Alliance to share lessons learned from the evaluation for improving the planning, design and implementation of future similar exercises.

2.11 Limitations to the Evaluation:

Respondent fatigue: Some of the selected respondents declined to participate in the Evaluation, citing involvement in several previous research undertakings by Cities Alliance, providing similar information. This was more pronounced among CBEs who highlighted to have provided Cities Alliance similar information at least twice in the past two years. A few households expressed similar

concerns. However, benefits of taking part and risks for not taking part in the Evaluation were explained to these participants, and majority consented to participate.

In selection of households, systematic sampling was adopted. However, local leaders were not certain of the total number of households at Block level. An approximation was instead made, in order to determine the sampling interval. This could have introduced a selection bias in the recruitment process. Simple random sampling should have been adopted to avert this bias.

Recall bias: Some of the questions required respondents to recall practices or behavior six months preceding the Evaluation. Some participants however, could not recall with certainty practices for such questions. Although the study minimized this by properly defining and articulating the research questions, similar research undertakings in future should employ prospective study designs since this type of design does not require recalls.

Social desirability response bias: Some respondents reported what they thought was socially acceptable. This could have resulted into under or over estimating certain outcomes. This was mitigated by assuring respondents that the Evaluation was just an inquiry into current SWM practices to identify gaps and areas that could be strengthened, and not aimed at prosecuting offenders, particularly those engaged in illegal dumping. Moreover, tools were structured in such a way that they carried no personal identifiers.

Corona Virus Outbreak: The first case of Covid-19 in Liberia was among the selected key Informants for the Evaluation. A session on preventive and safety measures was held for the Research team, and protective gear and sensitizers procured and distributed to the team before dispatch for data collection to ensure safety of the team. The following challenges were experienced;

i.   Over/under sampling in some LGAs. To ensure safety of the Research team, the Consultants continually reallocated sample sizes from LGAs that reported confirmed cases of the Coronavirus to those that were secure, which distorted the initial sample size allocation to LGAs. The reallocation was however carefully done in a way that did not affect survey results and outcomes.

ii. Change in the Data Collection Plan and Implementation approach: Face-to-face interviews were dropped for all key informant and adopted phone interviews to minimize contact. The scheduling of interviews had to be re-organized to start with group interviews (FGDs and In-depth Interviews). The Research team was beefed-up from 9 to 15 enumerators, and 3 to 5 supervisors to complete Quantitative data collection within 7 days.

iii. Missed opportunity with Schools. The outbreak of the virus resulted into closure of all schools in the country. The Evaluation missed an opportunity of visiting supported schools to assess current SWM practices and the impact of awareness campaigns with the schools.

CHAPTER III: RESULTS AND FINDINGS

3.1   Introduction

This Chapter presents findings from the Mid-Term Evaluation. It presents results from the analysis of the Solid Waste Sector in Greater Monrovia, Progress towards attainment of Project Objectives, results from the Qualitative and Quantitative Surveys, and conclusions related to the Evaluation Questions.

3.2   The Solid Waste Sector in Greater Monrovia & Project's Response to Sector Challenges

3.2.1 Analysis of the SWM Sector in Greater Monrovia

Over the years, the population in Greater Monrovia has significantly increased, currently estimated at one million. The unsustainable rise in population has led to corresponding levels of Solid Waste accumulation, putting pressure on the existing resources and infrastructure. Solid Waste disposal has thus become an overwhelming task for municipal authorities, who face severe constraints in tackling the mounting waste situation.

The Government of Liberia (GoL) has established a number of agencies to manage Solid Waste; EPA was established to tackle environmental issues and waste management services, coordination, monitoring and supervision of waste sector, and setting up national guidelines for SWM. The WASH Commission, was recently established (2018) to promote and regulate the development, management of water, sanitation and hygiene services.

Within Greater Monrovia, SWM is vested within city corporations. These are responsible for carrying out city ordinances, management of municipal wastes, recreation, public awareness and provision of services in environmental health and sanitation. The mandates of these agencies however seem to cross cut resulting into duplication of activities and resources in terms of monitoring, supervision, regulation and enforcement.

Primary Waste Collection involves door-to-door Waste Collection Services in some areas, and communal storage in skip buckets in other areas, while Secondary Waste Collection Services involve a long haul from skip buckets to transfer stations and to final disposal at a sanitary landfill, as well as management of the landfill. Secondary collection is taken over by City Governments, while Primary collection is conducted through agreements with Community Based Enterprises (CBEs).

The CBE model was created in 2007 as part of the World Bank's EMUS project. Under the model, CBEs were established by MCC through a competitive bid process, in which one or two suitable bidders were selected and assigned to a particular zone within which they were required to collect garbage from households to designated collection points.

Cities Alliance's EU funded "Delivering Climate-Resilient SWM Services in Greater Monrovia, Liberia through CBEs" builds on this model to deliver climate smart waste management services in Greater Monrovia. The Model started in Monrovia but has since been replicated in Paynesville, with 30% of the CBEs supported located in Paynesville, though serving communities outside Paynesville.

With funding from the World Bank, city corporations are implementing a Secondary SWM Project - the Cheesemanburg Landfill Urban Sanitation (CLUS) Project, collecting waste from the Skips to transfer stations and sanitary landfills. The infrastructure for SWM in Greater Monrovia includes one sanitary landfill (Whein Town Landfill), two transfer stations (Stockton Creek and Fiamah), three installed weighbridges (at the landfill and at the two transfer stations), and one hundred and ten communal disposal locations spread over the Greater Monrovia area.

Currently, municipal authorities are largely using land filling to solve the solid waste problem, however efforts to reduce the per capita Solid Waste dumped in landfills need to be enhanced. Liberia lacks the capacity to adequately utilize other options such as recycling or energy recovery. This option is down the waste hierarchy which prioritizes environmental friendliness with waste prevention at the top, followed by minimization, reuse, recycling, energy recovery, and disposal. Over the years, city corporations have demonstrated capacity to sustain SWM, though challenges & logistical gaps remain.

Inadequate sites for landfill disposal is a major challenge faced by municipal authorities. The city is saturated with squatters. Most available spaces are in the hands of private owners and outskirts of the city saturated with mangrove swamps. In short, land space is scarce and finding suitable sites for the disposal of solid waste that will not affect communities is an overwhelming task. Due to inadequate sites for waste disposal, wetlands and rivers streams are being used to dump waste.

Poor public attitude towards waste disposal, coupled with the non-enforcement of existing laws on waste disposal affects efforts towards improving SWM. Residents freely throw waste where they like. While there are city ordinances that prohibit such practice, these are not adequately enforced.

Skip buckets are not frequently emptied due to lack of fuel for waste collection trucks, and frequent breakdown of machinery. While GoL's counterpart funding under WB's Secondary SWM Project was meant to provide funds for fuel and repair of equipment and machinery, this has not been fulfilled. Therefore, the lack of logistics, poorly maintained disposal sites, and lack of waste treatment facilities make it difficult for accumulated wastes to be effectively collected and disposed.

The lack of data presents huge challenges to municipal authorities in planning and organization of waste management. The acquisition of accurate and reliable data on the sources, quantities and composition of waste generated is vital for successful planning and organization of waste management in any city. Without such data, it is seemingly impossible for any city corporation to effectively determine the resources and capacity requirement for effective and sustainable SWM in terms of personnel, logistics and organization.

Lack of Solid Waste Management Policy. Liberia lacks a National Waste Management Policy, making regulation of the sector challenging. Ordinances on waste management remain the key guiding framework for SWM, yet not adequately enforced. The lack of adequate budgetary support by the GoL has restricted city corporations' ability to expand SWM services. The challenges above have a critical bearing on delivery of intended results.

3.2.2 Project's Response to Sector challenges in Greater Monrovia

The Project is enhancing access to sanitation through more sustainable and efficient Solid Waste collection. Working closely with City Corporations, Cities Alliance has revamped and built on successes of the CBE model following closure of the EMUS Project. The Project has provided tools and equipment to CBEs, built their capacity in several areas including Solid Waste Management, Financial Management and Record Management among others.

In addition, the Project intends to provide Loan and Grant facilities to enable CBEs address challenges around inadequate tools and equipment. The Loans and Grants will further enable CBEs to generate value added services such as sorting, compositing and recycling of wastes to improve livelihoods and reduce the Quantity of recyclable waste dumped at landfills. This will enhance expansion of CBEs horizontally (Geographical coverage) and vertically (composting and recycling). Although Project activities around extracting, sorting and re-use of Solid Waste lag behind schedule, once fully implemented will go a long way in reducing greenhouse gas emission.

Coordination of the Solid Waste Sector players is critical in tackling constraints to the mounting waste situation in Greater Monrovia. The Project established a Solid Waste TWG to strengthen coordination of sector players, although this has been duplicated by MCC and the WASH Commission. The platform brings together National Ministries, City Corporations, Local Government, private sector, and communities to deliberate on issues within the waste sector.

Results from the feasibility studies have been helpful in shaping the Waste Sector in Greater Monrovia and Liberia. The studies identified the need of a National Waste Management Policy to regulate the Waste Sector, this is currently under development, and a draft has been shared with stakeholders. The Project has also enhanced awareness of Climate Change and climate Resilient Solid Waste Management through developing and implementing School and Community awareness campaigns and competitions that promote climate change awareness, promotes 4R awareness and the importance of protecting natural and built environment.

This is done through Radio and TV talk shows, outreach events, and implementing demonstration projects in selected communities and schools. Within the supported schools, the Project supported the establishment of Environmental Clubs, majorly targeting Youth. Educational excursion to solid waste management facilities have conducted for schools to raise awareness around solid waste management, increase knowledge and simulate a sense of behavior change.

The Project is supporting the development of an Integrated Solid Waste Management system as a guiding framework for city corporations in the implementation of waste management services to ensure prioritization of the various strategies of SWM in the order presented by the waste hierarchy. The Project further supports the development of a costed Solid Waste strategy for Greater Monrovia which is linked to the City Development Strategies (CDS). The Project has built the capacity of local leaders to create awareness and sensitize communities on the benefits of proper SWM.

3.2.3 Waste Sector Challenges that need to be addressed

Empting of Skip buckets by municipal authorities: Lack of logistics such as fuel, repair of waste collection trucks affects frequent emptying of skip buckets, needs to be addressed. Need to finalize construction of the Cheesemanburg Landfill to ensure adequate space is available for disposal of waste

Solid Waste Management Policy: A coherent Policy for waste management, revenue collection and incentivizing assistance from the government will go a long way in strengthening the sector, but also provide clear vision and direction for bringing in donor partners and private capital.

Enforcement of existing laws and ordinances: Weak enforcement of existing laws on waste disposal affects efforts to improve SWM. Strict enforcement would greatly aid in eradicating the negative attitude regarding disposal of waste with offenders receiving punishment.

Availability, and use of data in SWM and planning: Lack of accurate data on the quantities and types of waste being generated, their characteristics, as well as the waste disposal practices prevalent among the population affects waste planning and management. MCC and PCC should work on the creation of a database on solid waste and undertake regular investigations and research to generate accurate data on the waste situation with the aim of facilitating waste planning and management.

Inadequate land space: Land space is scarce and finding suitable sites for the disposal of solid waste that will not affect community dwellers is a huge challenge. This has affected interventions around constructing sorting, compositing and recycling stations.

Inadequate funding for government agencies responsible for waste management: Even though waste management is a stated government priority, the subsector depends primarily on donor financing. There is a need for improved funding for the City Corporations, EPA and the WASH Commission.

3.2.4 Delivering Climate Smart Solid Waste services through the CBE Model

Cities Alliance implements a model that supports CBEs to collect Waste from households and dispose into Skip Buckets placed within communities by City Corporations. This approach is key to improving primary waste collection in a sustainable manner.

Many of the benefits of the CBE model accrue to local communities, particularly because workers are sourced from the communities in which they operate. Not only does local employment provide an income and help the money stay in the community, but also helps create trust and greater sense of community ownership. CBE activities have resulted into an increase in the Quantity of Waste collected. However, because skip buckets are not regularly emptied, CBE operations are affected.

i. *Reduction in CBE Activity:* Due to delays in empting skip buckets, CBEs are forced to scale down on their activities because they have nowhere to dispose the garbage, until the City Corporations empty the skip buckets. Municipal authorities ought to grant CBEs access to Transfer stations and landfills to reduce the amount of waste dumped at the skips.

ii. *Unreliability of CBEs:* While the willingness of CBEs to collect waste is high, a scale down in activities is eminent because they have nowhere to dump the garbage. The frequency of waste collection from households has to be scaled down, as a result CBEs have are considered unreliable.

iii. *Household refusal to pay for waste collection services:* Because of the unreliability of CBEs, majority of the households will refuse to pay for waste collection services. From the Household Survey, 42% of the households were found to have refused to pay for waste collection services within the past six month preceding the survey.

iv. *Alternative unhealthy and non-environmentally sound Waste disposal practices:* Due to the unreliability of CBEs, households instead resort to unhealthy and non-environmentally friendly waste disposal practices such as damping in wetlands, river streams and burning.

3.2.5 Environment within which the Project is implemented

3.2.5.1 Current Economic Situation in Liberia

The administration of President George M. Weah clocked two years in office in January 2020, and Liberians believe their economic woes have worsened under his leadership. Weah inherited an economy badly hit by a slump in global prices of rubber and iron ore - Liberia's key export commodities. The Ebola crisis of 2014-2016 exacerbated the economic stagnation in the Country, where 80% of the population is said to live on less than $1.25 a day. The president promised to turn around economy by fighting corruption, increasing foreign investment and creating jobs for the poor.

Two years into office, the country's economy has been challenged with rising inflation as a result of significant depreciation of the Liberian dollar against the United States dollar. Inflation reached 31.3% by August 2019, up from 26.1% the previous year. The economy has fallen further into the repressed category since 2019, while GDP growth has recorded a weak performance over the last couple of years. This has hampered Government's ability to fully deliver services and meet other obligations.

The business environment in the Country remains difficult due to the challenging domestic macroeconomic environment. This has affected the ability of nationals to meet expenses on basic necessities. Government's desires to reduce poverty, create new jobs, meet critical infrastructure needs, and develop the agricultural sector to increase food production are not likely to be fulfilled without significant steps to improve the business and investment climates.

3.2.5.2 Emergence of Private Individual Waste Collectors (Zogos)

The CBE Model faces stiff competition from Private individuals (Zogos) and illegal waste collectors. Between Dec 2019 and Mar 2020, MCC piloted a three-four months Project where youths (Zogos) were recruited by the city corporation to engage in waste collection, particularly street cleaning. The introduction of Zogos added to illegal waste collectors, who have been active in the waste sector for several years. While the mandate of the Zogos was initially limited to street cleaning, many have penetrated the primary waste collection, duplicating CBE activities.

They go into households to collect garbage and get paid from households mandated towards CBEs, thus taking away their business. They are paid between LRD 10-15 every time they pick wastes. Because they are cheaper, majority of the households have resorted to using their services. However, the Zogos and illegal waste collectors are neither registered nor regulated, and their operations not monitored and supervised. They lack basic training in SWM and dump garbage in open space, streets corners, highways and in residents' compounds in the night.

They lack basic waste collection tools and equipment, and protective gear to ensure safety during waste collection. They carry garbage on their heads, when the weight becomes unbearable, they dump anywhere. Effective end of March, the Zogos approach was suspended by MCC. While the Pilot was suspended, these individuals had already penetrated primary waste collection and remain in operation in most communities.

This is unsustainable, and not the long-term solution to tackling the mounting waste situation in Greater Monrovia. The Zogos have neither supported expansion nor increased access to primary waste collection services but rather created a transfer or shift of clients from CBEs to using services of Zogos. Households that had previously subscribed to CBEs have shifted allegiance to Zogos.

Among households using private waste collection services, 84% were found to use Zogos while 16% used CBEs. In addition, satisfaction with waste collection service provider was higher among households using Zogos, at 47% compared to those using CBEs, at 36% because Zogos are cheaper and considered more reliable than CBEs. These individuals cannot be ignored, need to be engaged by municipal authorities. There is need to organize them, have them trained on basic Solid Waste Management, have them supervised and their operations monitored closely, and eventually have them integrated into the CBE Sector, by having CBEs employ them.

3.2.6 Lessons Learned implementing this Model

i.   The effectiveness of the Model requires the entire Primary-Secondary SWM value chain to be functional. A breakdown in any component along the value chain creates a breakdown in the entire cycle. While the Primary & Secondary SWM functions rest with two different entities, the two are inter-twinned & inter-linked. Success of one of the components is dependent on the other.

ii. Addressing challenges around CBE operations remains critical for the success of the Model. Efforts into training CBEs in SWM, Financial Management, Business Development and Records Management are commendable, however challenges around access to finance and credit, adequate tools & equipment, and frequent breakdown of equipment remain, and need to be addressed.

iii. While the Project supports CBE vertical and horizontal expansion, horizontal expansion can only happen to a point where the garbage collected by CBEs can be effectively managed by city corporations. If the amount of garbage generated surpasses the capacity of city corporations, then the negative consequences will be borne by the communities. This is further affected by delays in implementation of the Recycling and Compositing interventions.

iv. Public-Private-Partnerships critical: There is increasing demand for better recognition of CBEs as vital players within the Waste Sector in Liberia, particularly from City Corporations. Lessons from countries and cities with robust Waste Management Systems shows that Public-Private-Partnerships have been pivotal to such efforts. Implementing the Zogos approach did not seem to strengthen PPPs. While CBEs are slightly costly compared to the Zogos, the CBE approach is a more sustainable model because they are regulated, monitored, and supervised unlike the Zogos.

v. The Model thrives better within a conducive policy and legislative environment: Liberia currently lacks a Waste Management Policy, relying on City ordinances for regulating the Waste Sector. There is need for regulations that make it mandatory for households to pay for waste collection services. This will ensure CBEs collect enough revenue to manage & sustain day-to-day operations.

vi. Monitoring and supervision of CBEs activities is critical: The Evaluation established that some CBE staff practice unhealthy waste dispose practices. They dispose wastes in Water bodies and non-gazatted places. Unless monitored and supervised, such practices may gradually be seen to raise. Reinstating Community Management Team (CMTs) to Monitor and supervise CBEs at community level will enhance compliance to standards.

3.2.7 Limitations with the Model:

i. Inadequate Waste disposal facilities (Skip Buckets): The design did not take into account the number of skip buckets available at community level, and their capacity to accommodate the amount of garbage collected by CBEs. The Quantity of waste collected exceeds the capacity skip buckets can accommodate and many times, CBEs have nowhere to dump garbage. This is further complicated by skip buckets not emptied on time.

ii. Success of this Model requires that either (or both) the Recycling and Compositing component and/or Secondary waste collection are functional. However, the former is yet to start, while the later has been ineffective. With composting and recycling interventions behind schedule, the per capita solid waste that goes into landfills continues to increase, and delays in empting skips is a driver to communities engaging in unhealthy and environmental unsound disposal practices.

3.3 Progress towards attainment of Project Objectives:

Outcome: Greater Monrovia is serviced by a citywide Integrated SWM system that reduces greenhouse gas emission and enhances the city's resilience against climate change and disease.

The Project has contributed to an increase in the percentage of households with planned forms of garbage disposal in Greater Monrovia. The percentage increased from 36% at baseline to 83% at mid-term, surpassing the 45% Life of Project (LOP) target. This is attributed to the awareness creation campaigns where communities are sensitized on the benefits of proper waste collection, storage and disposal. As a result, households have put in place storage and disposal facilities within homes.

The Project's contribution towards reducing the quantity of recyclable waste going to the landfill remains low. The percentage (33%) remains unchanged from the baseline. Recycling and compositing reduces the quantity of recyclable waste that goes to the landfill, thus reducing GHG emissions. However, activities in Component 1&2 that support attainment of this result lag behind schedule.

Intermediate Outcomes 1: Improved access to sanitation through more sustainable and efficient solid waste collection in Greater Monrovia

Overall attainment of results under this intermediate outcome is relatively low at mid-term, particularly due to critical activities lagging behind schedule and a few internal delays that have affected speedy implementation. For instance, signing an MOU with ECO Bank to manage the Loans and Grant facility took 6-8 months to be finalized.

The percentage of households receiving PSW collection services in Greater Monrovia improved from 36% at Baseline to 37% at Mid-Term. The progress is generally low compared to the Life of Project (LOP) target of 45%. The Evaluation however observes that performance of the indicator is lower compared to what is reported in the 2019 Comic Relief Mid-term Evaluation at 52%[8]. The drop in the indicator is attributed to the following.

i.   From the Qualitative Interviews, the Evaluation found that households were using the waste generated to reclaim land. Owing to the imminent rainy season, communities are distressed of their homes being washed away, consequently resorting to using the garbage generated to reclaim land. This is aimed at lengthening the distance of the houses from the wetlands and river stream, and in some instances creating more space for settlement. This implies that even where access to waste collection services is increased, household use of the services is affected by other considerations, such as using waste to reclaim land.

ii. Reduction in levels of trust by citizens in waste collection service providers. City Corporations are ineffective in emptying skip, CBEs are unreliable, while the newly introduced Zogo approach ended shortly after it had started. This has compelled citizens to devise other waste disposal means.

iii. Low willingness by households to pay for waste collection services. The unwillingness for households to pay for waste collection has compelled them to resort to disposal methods that do not involve costs such as open dumping, dumping in wetlands, river streams and burning wastes.

Intermediate Outcome 2: Reduced greenhouse gas emission through improving extracting, sorting and re-use of solid waste in Greater Monrovia

Overall, attainment of results for the intermediate outcome at mid-term is low. Achievement of Results is reliant on the performance of Intermediate Outcome I. Owing to the interrelatedness and interlinkage of the two components, the low performance in component 1 affects attainment of full scale results for this component. The Project envisaged that if Loan and Grant facilities are provided to CBEs to engage in Composting and Recycling, this will reduce the amount of recyclable waste

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[8] Adopted from the 2019 Mid-Term Evaluation of the Comic Relief's funded Liberia Country Programme

dumped at landfills, eventually reducing green gas emission. However, Loan and Grant facilities have been delayed.

The proportion of solid waste sorted and recycled for re-use at collection remains unchanged from the baseline (0%), with the LOP target of 5%. Only one percent (1%) of the households was found to engage in waste sorting, while 16% of CBEs engaged in some kind of sorting although on a small scale. While knowledge on Recycling was found to be high among CBEs (91%), non is engaged in Recycling activities due to lack of appropriate tools, equipment, technology and resources.

As with Intermediate Outcome 1, several critical activities lag behind schedule while securing land for construction of sorting and recycling stations is a huge challenge

Intermediate outcome 3: Improved awareness of Climate Change and climate resilient solid Waste management in the Greater Monrovia Population with a focus on youth

Overall, attainment of this intermediate outcome is well on track. The proportion of households in Greater Monrovia reached by awareness campaigns on SWM improved from 0% at baseline to 15% at Mid-Term, surpassing the LOP Target of 10%.

The Project has made substantial investments in awareness creation around Climate-Smart SWM, urban health and environmental protection and the investments have led to corresponding level of results - 87% of the households sensitized found the sensitization campaigns beneficial and have made changes in SWM at household level. Best practices adopted include adopting waste reduction practices and improving storage of wastes at Household as a result.

Regarding outcome 4: Improved and integrated plans and capacity to manage and fund SWM for Greater Monrovia

Overall, attainment of this intermediate outcome is within the control of the Project. The outcome indicator is qualitative; *"Integrated Solid Waste Management small initiatives/best practices have been included at community level planning"* Analysis from the Project MIS, there is "No integrated solid waste management small initiatives/lessons learnt included at community level planning"

In order to address the capacity issues, Cities Alliance has partnered with the Institute of Housing and Development Studies (Erasmus University of Rotterdam) to conduct trainings locally in Liberia. Training courses will be developed for Municipal SWM Officials and LGA staff, conducted by the University and certificates awarded locally.

3.4   RESULTS FROM THE QUANTITATIVE AND QUALITATIVE SURVEYS

3.4.1 Introduction

This section presents results from the CBEs, Key informants, Focused Group Discussions & Households Surveys conducted across the 12 LGAs of Greater Monrovia. A total of 38 CBEs of the target 40 participated in the survey, registering 95% response rate. Data was collected through research

administered questionnaires. A similar approach was adopted to collect data from 434 households, registering 100% response rate.

From the CBE Survey, more than half of the respondents (55%, n=21) were Proprietors of the Business, the other (145%, n=17) were either Managers or Senior Officers with the CBE. From the Household Survey, majority of the respondents (53%, n=229) were Heads of Household, while forty-seven percent (n= 205) were Spouses to the Household Heads.

3.4.2 Socio-demographic Characteristics of Participants

From the CBE Survey, 76% (n=29) were Male, and majority were above 40 Years of age (Mean Age =46 Years, SD=12.4), while 92% of the respondents (n=35) were married or cohabiting, and attained University as the highest level of education (61%, n=23) as detailed in Table 5.

From the Household Survey, approximately two thirds of the respondents were female (65%, n=281), with the majority between 31-40 Years of age (Mean Age=38, SD=10.1). Youths (15-24 Years) comprised of 4% of the Household Survey respondents. Majority of the Household Survey respondents were married or cohabiting (70%, n=304), and had Senior High School (38%, n=165) as the highest level of education attained as detailed in Table 5.

Table 5: Socio-demographic characteristics Respondents

Characteristic	Response	CBE Survey (N, %)	Household Survey (N, %)
Gender	Male	29 (76%)	153 (35%)
	Female	9 (24%)	281 (65%)
Age	20-30 Years	3 (8%)	113 (26%)
	31-40 Years	14 (37%)	180 (42%)
	Above 40 Years	21 (55%)	141 (33%)
Marital Status of Respondents	Married/ Cohabiting	35 (92%)	304 (70%)
	Single	2 (5%)	98 (23%)
	Other	1 (3%)	32 (7%)
Highest Level of Education	Vocational/ Trade School	2 (5%)	34 (8%)
	Senior High School	13 (34%)	165 (38%)
	University	23 (61%)	96 (22%)
	No Education		63 (15%)
	Elementary		29 (7%)
	Junior High School		47 (11%)

More than half of the Households (54%, n=236) were from Monrovia, Paynesville and Logan Town due to the population sizes of the LGAs. Majority of the Households (53%) had 3-6 household members, with an average size of 6 (SD=2.62). Majority of the Respondents (44%) were engaged in Petty Trading as the main source of livelihood as detailed in Table 6.

Table 6: Additional Household Socio-demographic Characteristics

Characteristic	Characteristic Categories	(n, %)
Local Government Authority	Monrovia	112 (26%)
	Paynesville	60 (14%)
	Logan Town	60 (14%)
	Gardnerville	50 (12%)
	New Kru Town	45 (10%)
	West Point	32 (7%)
	Johnsonville	17 (4%)
	New Georgia	16 (4%)
	Caldwell	14 (3%)
	Congo Town	10 (2%)
	Dixville	10 (2%)
	Barnesville	8 (2%)
Household size **Mean=6, SD= 2.62**	<3	34 (8%)
	3-6	231 (53%)
	Above 6	169 (39%)
Source of Livelihood	No Livelihood	36 (8%)
	Formal Salaried Employee	122 (28%)
	Petty Trader	190 (44%)
	Casual laborer	36 (8%)
	Unpaid family worker	26 (6%)
	Industrial Worker	12 (28%)
	Business	8 (2%)
	Other	4 (1%)

3.4.3 Coverage of CBE Services

In terms of Coverage, CBEs are operational in nine (9) of the twelve (12) LGAs as highlighted in Table 7. Concentration of CBEs is much higher in Paynesville, with close to one third (32%, n=12) located in PCC. Seven in every ten CBEs (71%, n=27) have been in existence for more than more than 4 years while eight (8) have been in operation for less than 3 Years. These were established with support of the Project, with 7 out of 8 CBEs being in Paynesville. All the three (3) CBEs that have been operational for 3-4 Years are from Paynesville.

The estimated number of number of households reached with CBEs is 8,800, with CBEs employing an estimated 381 workers, for which 31% are female. As detailed in Figure 1, the number of households reached within each LGA is proportional to the number of CBEs operational within the LGA.

Table 7: Coverage of CBE Services

Characteristic	Characteristic Categories	(n, %)
No. of staff employed by CBEs = 381	Male	262 (67%)
	Female	119 (31%)

Characteristic	Characteristic Categories	(n, %)
No. of Years of Existence as a CBE	1-2 Years	8 (21%)
	3-4 Years	3 (8%)
	Above 4 Years	27 (71%)
Number of CBEs operating within each LGA	Paynesville	12
	Logan Town	6
	Monrovia	6
	Barnesville	3
	New Kru Town	3
	Congo Town	3
	Gardnerville	2
	New Georgia	2
	West Point	1

Despite the coverage at LGA and Community level above, CBE coverage remains thin on ground. While nine (9) of the twelve (12) LGAs seem covered by CBE services, the proportion of communities reached with services is low. From the Household Survey, households using private waste collection services, only 16% are using CBEs. While a number of factors could explain the low utilization of CBE services, coverage and reach of households remains a significant.

Figure 1: Estimated Number of Households Reached with CBE Services Per LGA
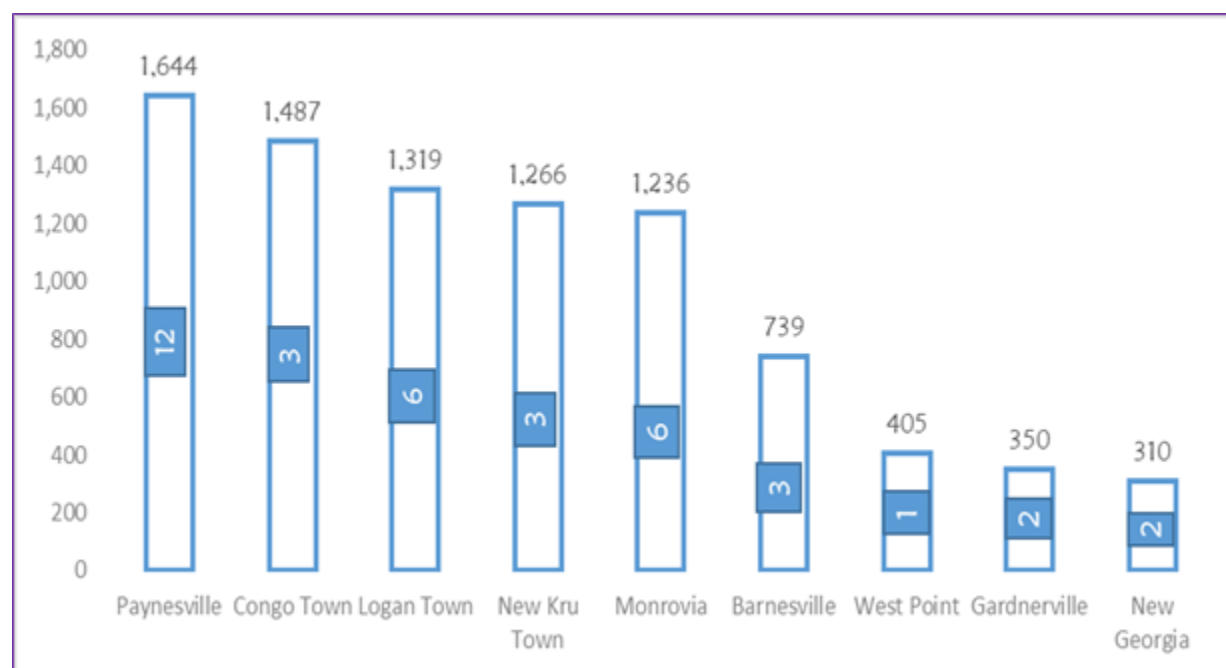
Vertical and horizontal expansion of CBEs is found to happen on a minimal scale due to inadequate access to finance and Credit, inadequate tools and equipment, and frequent breakdown of available equipment. The lack of compositing and recycling facilities, and resources affects vertical expansion.

3.4.4 CBE Operations

All CBEs are legally operational and registered with City Corporations and NACOBE. Approximately nine (9) in every ten CBEs (89%, n=34) had permanent offices where Business transactions are conducted. Record keeping and management has greatly improved among CBEs, all CBEs had records of business transactions. This is attributed to the training on Records Management by the Project.

Table 8: CBE Operations disaggregated by Duration of Operation

Characteristic	Response	Project Level	Duration of Operation[9]	
			<3 Years	≥3 Years
CBE has permanent offices to transact Business?	Yes	89%	75%	93%
	No	11%	25%	7%
CBE Keeps Records of Business Transactions?	Yes (Records accessed)	87%	88%	87%
	Yes (Records not accessed)	13%	12%	13%
Frequency of Waste Collection by CBE per week	Two times	13%	37%	7%
	Three times	39%	13%	46%
	Four Times	6%	25%	0%
	Five or More times	42%	25%	47%
Amount Charged by CBEs for Waste Collection per month (LRD)	Average Pay	325	270	350
	Minimum Pay (Median)	168	125	188
	Maximum Pay (Median)	550	450	600
Average Monthly Profits from Business (LRD)	Average	12,000	15,000	10,500
	Minimum	1,000	6,000	1,000
	Maximum	54,000	54,000	52,000
Monthly Pay to Staff (LRD)	Average Pay	8,150	10,650	7,500
	Minimum Pay (Average)	5,000	6,000	5,000
	Maximum Pay (Average)	15,250	15,250	10,000
Past 12 Months, the Profits the CBE is making;	Increased	16%	38%	10%
	Declined	71%	38%	80%
	Remain the same	13%	24%	10%
Any clients refused to pay for Services past 6 Months	Yes	95%	100%	93%
	No	5%	0%	7%

All CBEs were found to maintain Records of Business Transactions, records for 87% of the CBEs could be accessed. The result didn't differ among CBEs newly established and those that have been in business longer as indicated in Table 8.

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[9] Newly established CBEs are those who have been in operation for <3 years, while CBEs that have been longer in business are those that have been in operation for at least 3 years.

Majority of the CBEs (42%, n=16) reported to collect waste five or more times from households per week. This frequency was found to be higher among CBEs that have been in the business longer (47%) compared to those newly established (25%). The result, however differed with findings from the Household Survey were the majority of the Households (75%) with access to public or private waste collection services reported their wastes to be collected utmost three times in a week.

The amount charged for waste collection services was found to vary across CBEs. There is no standard fee set by NACOBE or CBEs, each CBE determines their fee. The amount payable by the household is dependent on the number of times a CBEs collects wastes from the households per week. The average amount charged per month from households is LRD 325 (approximately USD 1.6), an average of LRD 80 per week. Newly established CBEs are seen to have a lower monthly average charges (LRD 270) compared to CBEs that have been in business longer (LRD 350).

The Minimum amount charged per month is LRD 168, an average of about LRD 40 per week. However, the amount charged can go as high as LRD 550, an average of about LRD 140 per week. The average minimum and maximum amount charged are seen to be lower for newly established CBEs compared to CBEs that have been in business longer.

Payments for staff employed by CBEs remains low, the average monthly salary was found to be LRD 8,150 (approx. USD 41). While the labor laws in Liberia require a minimum wage of USD 125 is paid to workers, CBEs cannot afford to pay this rate. Newly established CBEs provide a much higher average monthly pay of LRD 10,650 (USD 53) compared to CBEs who have been in business longer at LRD 7500 (USD 38) mainly to attract workers. Its further observed that CBEs can pay as low as LRD 5,000 (USD 25) per Month and as high as LRD 15,250 (USD 76).

"The average monthly pay to our staff is about LRD 7,000 (USD 35), this is however for staff who collect wastes and garbage from households. Administrative officers are usually paid around LRD 10,000 (USD 50), and the CEOs or Proprietor of the CBEs paid around LRD 20,000 (USD 100). This is very low, much lower than the what the labor laws in the country require us to pay workers, which USD 125. People in the communities are willing and readily available to work but sometimes we find it hard to attract staff because our pay is very low" **Key Informant NACOBE.**

Profitability of the CBE Business remains low. Within the past 12 Months, 71% of the CBEs report a decline in profits registered. This is mainly attributed to the current economic situation in the country, failure by households to pay for Waste Collections Services, but also a reduction in the CBE clients due to the Zogo project implemented by MCC working directly with private individuals (Zogos). Many households have resorted to services of the Zogos, which has led to a decline in CBE clients and a reduction in the revenue collections.

The average monthly profits registered by CBEs is LRD 12,000 (USD 60), the profits are higher among newly established CBEs compared to CBEs that have been in Business longer. This is partly attributed to the trainings in Financial Management and Business Development conducted by the Project. Newly established CBEs were more likely to implement lessons learnt from the training compared to CBEs

who have been in business longer. Profits generated by CBEs can be as low as LRD 1,000 (USD 5) per month but also as high as LRD 54,000 (USD 270).

"The profits registered by the CBEs are very low. The Business cannot generate revenue worth USD 1,000 in a month, yet you employ like 15-20 staff who have to be paid. Now when you add other expanses like renting Office premises, paying taxes, subscription to City Corporations and NACOBE, frequent breakdown of our tools and equipment that need to be repaired almost every week, you find that very little profits are realized" **Key Informant NACOBE.**

3.4.5 Tools, Equipment and Transport Facilities used by CBEs

Availability of transport means fully dedicated for Waste Collection remains a big challenge for CBEs. CBEs collect Wastes and Garbage from Households and dispose it into Skip Buckets placed in different locations within the communities by the City Corporations. From the CBE Survey, close to half of the CBEs (47%, n=18) don't have vehicle or transport means fully dedicated to Waste Collection and disposal. CBEs without dedicated transport means were either hiring or borrowing from their colleagues. Vehicles are not a common means used by CBEs in collecting Wastes, only one CBE has a vehicle (Pick-up). The main transport means used by CBEs are Push Carts, Tricycles and Wheelbarrows. The cost of fuel and repairs limits the use of tricycles in waste collection for CBEs.

Left: A Pushcart used by CBEs in Wastes collection. (Right): Tricycles that belong to PCC before dispatched for Waste Collection. CBEs use similar Tricycles in Waste Collection

A Tricycle belonging to N. Joe Sanitation Services picking Wastes from Duport Road Community

Further analysis indicates that newly established CBEs were more likely to experience shortage or lack of dedicated transport means compared to CBEs that have been in business longer. While the Project provided equipment and tools to 3 CBEs, challenges around inadequate equipment and tools for CBE remains central. The average of three (3) Tricycles, four (4) Push Carts and five (5) Wheelbarrows is not sufficient to enable horizontal expansion of CBEs. Even with this average, one of the biggest challenges affecting CBE transport is the frequent breakdown. This adds to the challenge of having inadequate equipment and tools, which affects their operations.

A Tricycle belonging to Recvic Community Services in a Garage Under Repair

al support from anyone. They experience break down of their transport means almost every day. Now they have very few transport equipment, they have 2 or 3 tricycles, so when 1 or 2 break down, the

entire operations are crippled. And because they don't have money to repair these tri-cycles, they end up spending months and months in the garage" **KII City Corporations**

Eighty-two percent (82%, n=31) of the CBEs reported lack of adequate tools and equipment to effectively conduct their operations, the result did not differ among newly established CBEs and those that have been in business longer. Almost all CBEs expressed desire in having or increasing the number of vehicles fully dedicated for waste collection. These include Push Carts, Tricycles, and where possible vehicles (pick-ups) to transport wastes to the skip buckets. CBEs further expressed need to acquire more working tools such as Wheelbarrows, Spades and trowels, and protective wear such as gloves, nose masks, Gum/rain boots and shovels to ensure safety of workers by reducing the risk of exposure to infectious material.

The amount of funds required by CBEs to purchase the above tools and equipment ranges between LRD 180,000 (USD 900) to LRD 750,000 (3,750) with an average of LRD 360,000 (USD 1,800). The funds required did not differ among newly established CBEs and those that have been in business longer. On how the CBEs intend to raise these funds, approximately 65%, (n=20) CBEs highlighted obtaining a Grant from the Project as the immediate plan. The next option is to obtain a Loan from the Project (61%, n=19) and obtaining a Loan from Financial Institutions, although high interest rate and the lack of collateral are barriers to CBEs accessing credit from financial institutions.

Figure 2: Major Problems encountered in expanding the Size of the CBE

Lack of Capital	87%
Inadequate access to finance and Credit	76%
Lack of Appropriate tools & equipment	71%
Low demand for CBE services	18%
Obtaining Space/ Premises	16%
Low Profitability of Business	16%
Inadequate skilled labour	5%
Theft of Working Tools	5%
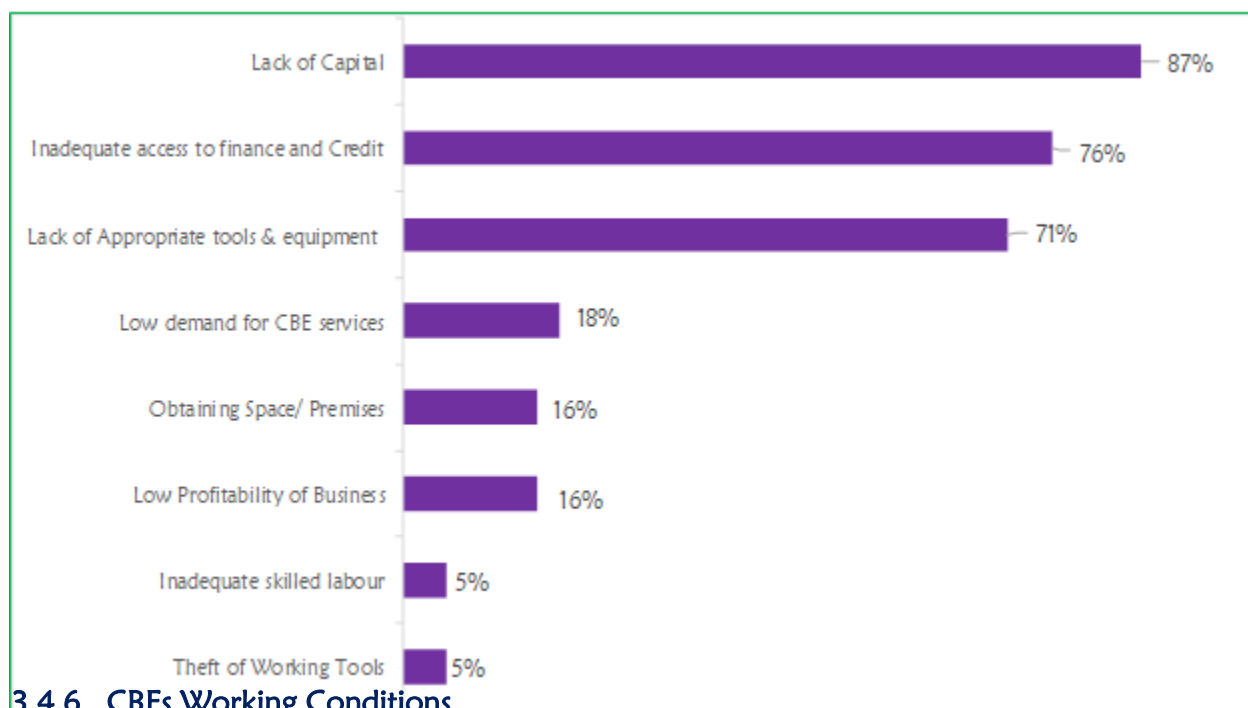
3.4.6 CBEs Working Conditions

A favorable working environment is critical to the success and sustainability of CBE operations. CBEs subscribe to NACOBE, an umbrella organization that regulates, lobbies, advocates, coordinates,

monitors and supervises the operations of CBEs. Within the past six (6) months preceding the Evaluation, all the CBEs reported to have participated in meetings with NACOBE to discuss issues related to their working conditions. Seventy-Nine percent (79%) believe that NACOBE represents their interest well. CBEs that have been in business longer report better representation of their interests (87%) compared to newly established CBEs (50%).

Table 9: Representation of CBE Interests by NACOBE

Characteristic	Response	Project Level	Duration of Operation[10]	
			<3 Years	≥3 Years
NACOBE Represents CBE Interest well (N=38)	Yes	79%	50%	87%
	No	3%	0%	3%
	Don't Know	18%	50%	10%
NACOBE Engages Government and other authorities on issues that affect CBE work (N=38)	Yes	71%	50%	77%
	No	11%	13%	10%
	Don't Know	18%	37%	13%
Satisfied with the way NACOBE is engaging Government regarding your work (N=38)	Yes	34.2%	25%	37%
	No	65.8%	75%	63%
Have freedom to express your concerns and participate in decisions that affect your work	Yes	87%	88%	87%
	No	13%	12%	13%

From the CBE Survey, 71% are in agreement that NACOBE engages Government and other City Authorities on issues that affect their work, agreement higher among CBEs that have been in business longer (77%) than newly established CBEs (50%). However, satisfaction with the way NACOBE is engaging authorities is low. Only 34% of the CBEs expressed satisfaction with how NACOBE is engaging government.

CBEs highlight the need for better representation of their interests by NACOBE, particularly recognition by City and National Government as vital private players in the waste sector, advocate for development of a National Waste Management Policy, lobbying for opportunities to access Finance and Credit, a policy that makes it mandatory for households to pay for waste collection services, and better information sharing and dissemination among others. In terms of expressing their concerns, majority of the CBEs (87%, n=33) feel they have the freedom to express their concerns and participate in decisions that affect their work, this did not differ among newly established CBEs and those that have been in business longer.

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[10] Newly established CBEs are those who have been in operation for <3 years, while CBEs that have been longer in business are those that have been in operation for at least 3 years.

Table 10: Working Conditions of CBEs

Characteristic	Response	Project Level	Duration of Operation	
			<3 Years	≥3 Years
Experienced theft of your Business Property or equipment past 6 months (N=38)	Yes	47%	50%	47%
	No	53%	50%	53%
Experienced Harassment from authorities past 6 Mnths (N=38)	Yes	37%	38%	37%
	No	63%	62%	63%
Harassed by (N=14)	Police	7%	33%	0%
	Gov't or City Authorities	93%	67%	100%
How many times has this happened in the past 6 Months (N=14)	Once	35%	29%	38%
	Twice	13%	14%	13%
	Thrice	26%	43%	19%
	More than three times	26%	14%	31%
Forms of Harassment (N=14)	Physical Violence	36%	33%	36%
	Extortion by city authorities	36%	33%	36%
	Confiscation tools & Equipt	57%	67%	54%
	Denied access to disposal sites	21%	33%	18%

The lack of adequate tools and equipment is further complicated by theft of tools and equipment. Forty-Seven percent (47%) of the CBEs experienced theft of the business property and equipment within the past six (6) months preceding the Evaluation, the incidents did not differ among newly established CBEs and those that have been in business longer.

Incidents of harassment still exist for CBEs, with 37% of the CBEs reporting to have experienced harassment from authorities within the past 6-months. The harassment is majorly done by City Authorities. To a less extent, the Police was reported to harass CBEs. More than half of the CBEs that were harassed reported this to have occurred at least three (3) times within the past six (6) months. This did not differ among newly established CBEs and those that have been in business longer.

The most common forms of harassment by reported CBEs is the confiscation of their tools and equipment, physical violence and extortion by city authorities. The other form harassment reported is denying CBEs access to disposal sites.

"Because City Authorities take long to empty the skip buckets, we find that we cannot continue dumping more wastes at the skip buckets because they are already overflowing. We have to look for other alternative places were to dump or dispose the garbage we collect, so we end up forcefully taking the garbage to transfer stations and sometimes to the landfills. However, we are denied access to these disposal sites by City Authorities" **KII NACOBE.**

3.4.7 Waste Collection, Disposal and Management Practices

The proportion of households with access to regular Solid Waste collection services increased marginally from 36% at baseline to 37% at Mid-Term, while 95% of households with access to both public and private services were found to use more of private services compared to public services.

Table 11: Household Access to Public and Private Waste Collection Services

Characteristic	Response	Household Survey
Household has access to Regular Waste collection services [Public or Private] (N=434)	Yes	37%
	No	63%
Access to Regular Waste Collection Services [Public or Private by LGA]	Monrovia	41%
	Paynesville	48%
	Logan Town	38%
	Gardnerville	26%
	New Kru Town	44%
	West Point	38%
	Johnsonville	11%
	New Georgia	13%
	Caldwell	17%
	Congo Town	45%
	Dixville	14%
	Barnesville	25%
Access to regular Solid Waste collection services by type used by Households (N=161)	Public only	5%
	Private only	48%
	Both Public and Private	47%
If Private arrangement, who provides the service (N=153)	CBE	16%
	Individuals (Zogos)	84%
Household has a planned form of waste storage and disposal within the home (N=434)	Yes	83%
	No	17%

Households without access to public or private waste collection services (63%) were found to resort to unhealthy and non-environmentally friendly waste disposal methods like disposing to the river, wetlands and water bodies as detailed in Figure 3.

The major composition of wastes generated by households is organic waste. The major storage/ disposal facilities used in homes are plastic bags and plastic Bins/drums. In addition, 17% of the households have no storage/disposal facilities, do direct disposal. Both Household & CBEs reported the current Waste Disposal system pollutes the environment (95% for CBE vs 92% for households).

Reasons differed across CBEs and Households. The three (3) major reasons by CBEs are; Wastes not collected regularly, Wastes left on the Road and Wastes left on the drain. For the households, the reasons are; Waste left on the Road, Lack of dust bins and waste dumped everywhere, and Wastes not regularly collected as shown in Table 12.

Figure 3: Waste Disposal Methods for Households with no access to Public or Private Services
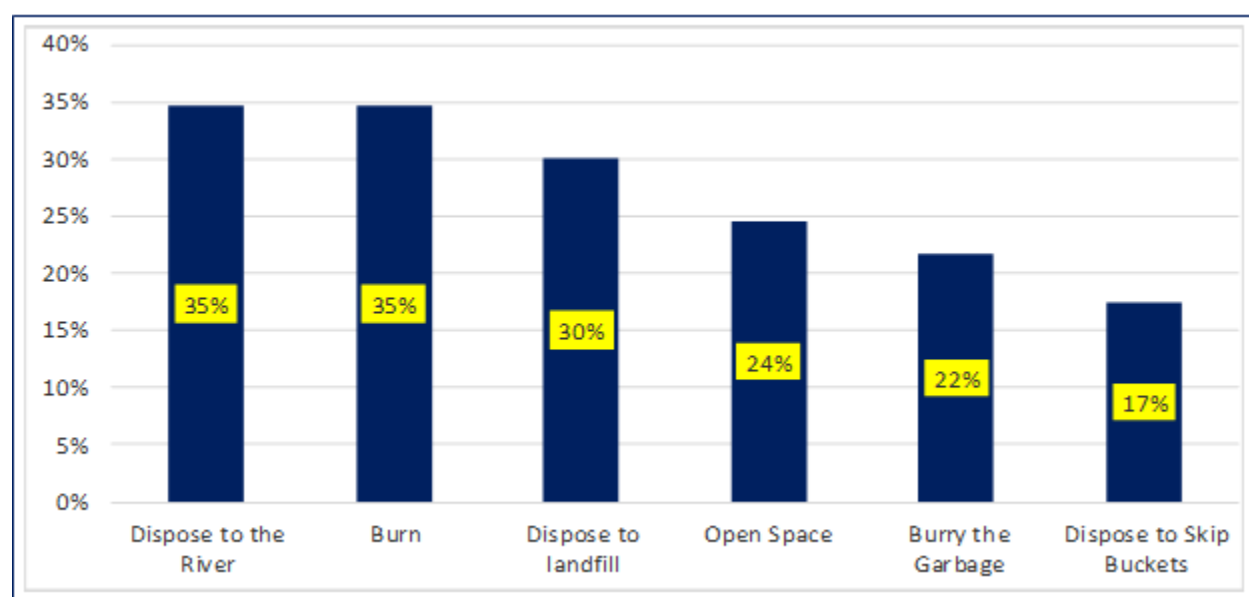
Table 12: Household Waste Disposal Practices by Households

Characteristic	Response	CBE Survey	Household Survey
Major Composition of Household Waste (N=38)	Organic	74%	69%
	Paper	5%	4%
	Plastic	21%	27%
Major Storage facilities for Wastes at Household	Plastic Bags	61%	44%
	Plastic Bins/ drums	21%	39%
	Metal Bins	18%	0%
	No storage - Direct disposal/ dump	0%	17%
Current Waste Disposal system polluting the environment (N=38)	Yes	95%	92%
	No	5%	8%
Reason why it's so (N=36)	No dustbin, waste dumped here and there	31%	49%
	Burning of Waste	31%	0%
	Waste not collected Regularly	65%	41%
	Wastes left around the Dustbin	29%	17%
	Wastes left on the Drain	55%	33%
	Inadequate enforcement	13%	0%
	Inadequate awareness and sensitization	6%	0%
	Wastes left on the Road	55%	55%

The average number of wheelbarrows of wastes collected from a household per week by CBEs ranged from 1-4 wheelbarrows, with an average of 3. The total number of wheelbarrows of waste collected by a CBE per day ranged from 15-231, with an average of 101 wheelbarrows. From the wheelbarrows of wastes collected per day, <1% (i.e. 0.7%) of the waste is separated or sorted.

| Left: Plastic Bags used to store waste, Centre: Plastic bin/drum, Right: Sacks used to store of wastes. |

From the CBE Survey, 92% of the CBEs report that it's common practice for people to dump waste alongside bins instead of inside, mainly due to the height of the bin, waste and litter spread around the bin, inadequate awareness and sensitization on good waste disposal practices at community level, and delays in emptying skip buckets. Forty-two percent (42%, n=22) of the CBEs report difficulty in accessing Skip buckets, while 82% report that Garbage containers and Skip buckets lack the capacity to accommodate the waste collected as detailed in Table 13.

Table 13: Waste Disposal Practices among Households

Characteristic	Response	CBE Survey
People dump Waste alongside bins instead of inside (N=38)	Yes	92%
	No	8%
Reasons for doing this (N=35)	Height of the Bin	46%
	Waste and litter around the bin	46%
	Inadequate awareness and sensitization	29%
	Delays in empting the skip buckets	26%
	Stray animal i.e. Dogs, Mouse	11%
	Inadequate law enforcement	11%
Are Garbage Containers/ Skip Buckets easily accessible (N=38)	Yes	58%
	No	42%
Garbage containers have capacity to accommodate waste collected (N=38)	Yes	18%
	No	82%
Frequency of emptying Skip Buckets (N=38)	Daily	14%
	Weekly	81%
	Monthly	5%

A Skip Bucket placed in Jallah Town Community, Monrovia. While the bucket is empty, people resort to dump garbage outside the Bucket than inside.

After collecting waste, CBEs dispose the garbage in Skip buckets. However, skips get filled up and over flow because they are not emptied regularly. CBEs then have to think of other disposal methods - Commonly used is open dumping (37%). Others resort to forcefully using the transfer stations (16%) and landfills (13%) although access is restricted, while a few (3%) will dump in the Water bodies and wetlands, as detailed in Figure 4.

Figure 4: Disposal of Waste by CBEs after Collection
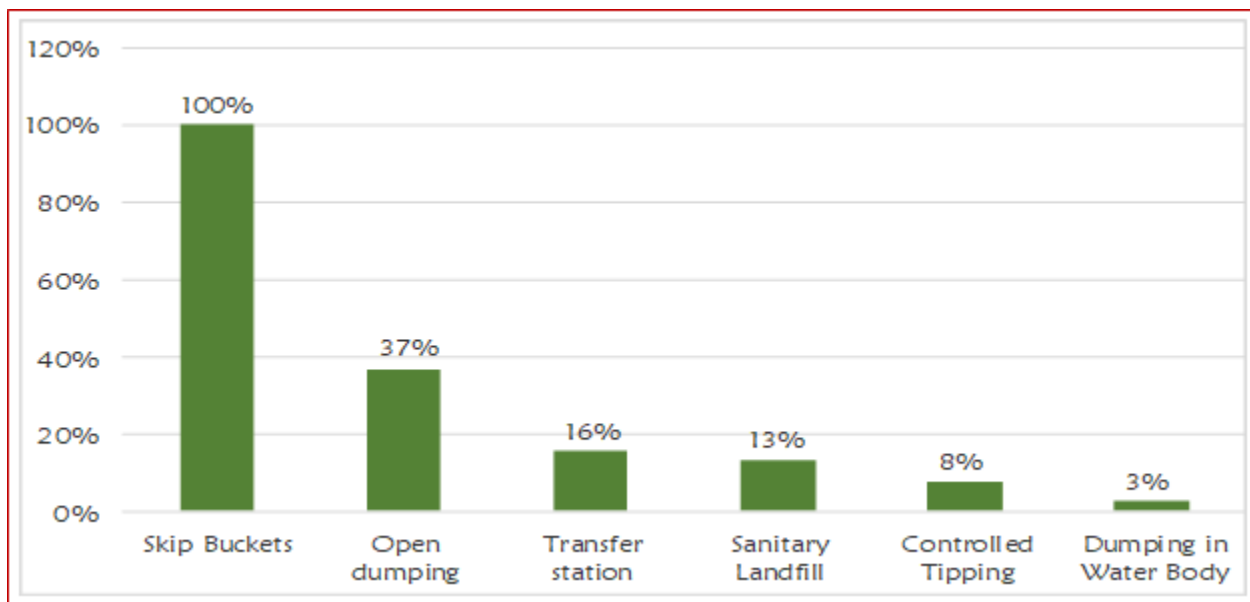
3.4.8 Frequency of Waste Collection and Satisfaction with Waste Collection Services

From the Household Survey, 75% of the households with waste collection services reported that waste collection was conducted three (3) or less time from their homes in a week. Less than half of the respondents (44%) were satisfied with the frequency of waste collection. Satisfaction did not differ by gender, while the youth were more satisfied with the services than other age groups.

Ninety-six percent (96%, n=155) of households with access to waste collection services reported to incur waste collection costs. The average amount incurred by household is LRD 130 per week, which is line with findings from the CBEs who charge an average of LRD 80 from households per week.

Table 14: Frequency of Waste Collection and Satisfaction with Waste Collection Services

Characteristic	Response	Project Level	Gender		Age		
			Male	Female	15-24	25-34	>34
Frequency of Waste collection by Waste Collection Service Provider per week (N=161)	Once	6%	11%	4%	0%	8%	6%
	Two Times	28%	23%	31%	13%	31%	27%
	Three Times	40%	45%	37%	50%	34%	44%
	Four times	7%	6%	7%	12%	6%	6%
	Five or more times	19%	15%	21%	25%	21%	17%
Satisfied with freq. of Waste collection (n=161)	Yes	44%	43%	47%	100%	43%	42%
	No	56%	57%	53%	0%	57%	58%
Household Incurs Waste collection costs (N=161)	Yes	96%	95%	97%	88%	97%	97%
	No	4%	5%	3%	12%	3%	3%
Satisfied with current Waste Collection service provider (N=161)	Yes	45%	47%	46%	100%	42%	44%
	No	56%	53%	54%	0%	58%	56%
Which of these is a priority Concern about Waste in Community (N=434)	Littering & Looks Bad	20%	23%	19%	7%	23%	20%
	Effect on Human Health	47%	42%	49%	60%	46%	46%
	Effect on Environment	33%	35%	32%	33%	31%	34%
Preferred time for Waste Collection (N=161)	Morning	69%	63%	72%	88%	64%	71%
	Noon	6%	5%	6%	0%	9%	3%
	Afternoon	7%	12%	5%	0%	9%	7%
	Evening	18%	20%	17%	12%	18%	19%
Failed to Pay for Waste collection past 6 mnths	Yes	42%	47%	39%	0%	49%	40%
	No	58%	53%	61%	100%	51%	60%
Current economic situation affects ability to pay for waste collection services	Yes	50%	55%	47%	0%	51%	53%
	No	50%	45%	53%	100%	49%	47%

On satisfaction with Waste collection services, 45% of the households were satisfied with the waste collection services. Satisfaction was higher among households using Zogos, at 47% compared to those using CBEs, at 36%. Satisfaction was higher for households using Zogos because they consider them to be more reliable in waste collection, charge a lower price for the service and also because of the high cooperation with the households, compared to the CBEs.

Figure 5: Reasons for Household Dissatisfaction with Waste Collection Services
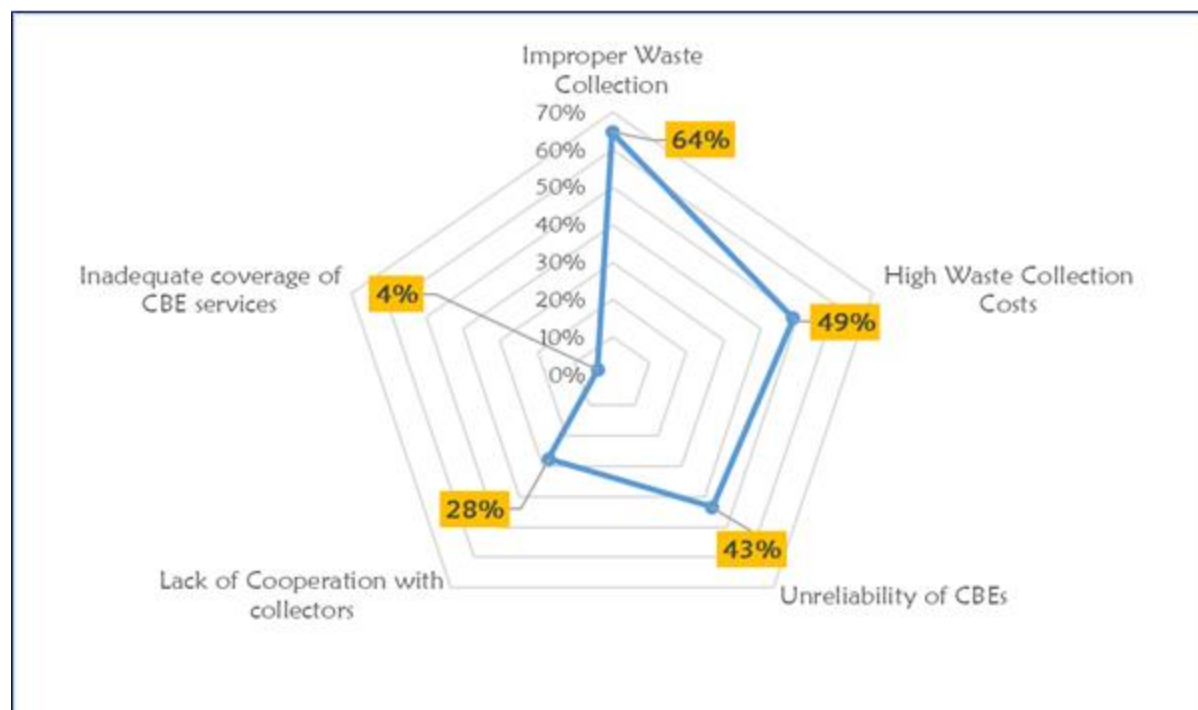
Major reasons for household dissatisfaction with Waste Collection Service provider are improper waste collection raised by 64% (n=49) of unsatisfied Households. This relates to improper removal of wastes from the storage or disposal facilities, where part of the waste drops or remains around the storage or disposal facility, leaving the place untidy. Other issues around household dissatisfaction is in regards to the high waste collection costs charged by CBEs (49%), and the unreliability of CBEs.

From the Household Survey, 42% of the households were found to have failed to pay waste collection service provider within the past six (6) months. The result is much higher among CBEs, were 95% reported to have experienced defaulting from households in the past 6 months preceding the Evaluation. The finding could be attributed to a social desirability bias, where respondents are thought to have reported what they think is socially desirable, than what the actual practice is. However, results from FGDs and Key informants were found to be in agreement with findings from the CBE Survey. Half of the respondents (50%, n= 80) using private waste collection services reported that the current economic situation in the Country had impact of their ability to pay for waste collection services.

3.4.9 Waste Sorting and Separation by CBEs and Households

Separation and sorting of wastes remains a big challenge among CBEs & Households. Only 8% of the CBEs reported to know households that engage in sorting of waste. Sensitization of Households on waste separation was found to be moderate, 55% of the CBEs reported to tell their clients to separate wastes, as detailed in Table 15.

Table 15: Waste Sorting and Separation Practices among CBEs

Characteristic	Response	Project Level	Duration of Operation[11]	
			<3 Years	≥3 Years
Do household separate different types of Waste (N=38)	Yes	8%	13%	7%
	No	92%	87%	93%
CBE tells clients (Households) to Separate Wastes (N=38)	Yes	55%	50%	57%
	No	45%	50%	43%
CBE separates different type of Waste before disposal (N=38)	Yes	16%	13%	17%
	No	84%	87%	83%

From the CBE Survey, only 16% of the CBEs were found to be engaged in some kind of sorting or separation of waste before disposal, although this is done on a small scale. The result did not differ among newly established and those that have been in business longer.

Findings from the Household Survey did not differ from those from the CBE Survey, only 1% of the households were found to separate or sort wastes. The result did not differ between gender and age. Sensitization and awareness from Waste Collection Service Providers around waste separation and sorting remains low. Only 4% of the households reporting to have ever been told to separate wastes by the service providers as detailed in Table 16.

Table 16: Waste Sorting and Separation Practices among Households

Characteristic	Response	Project Level	Sex		Age		
			Male	Female	15-24	25-34	>34
Household Separates different type of wastes (N=434)	Yes	1%	1%	1%	0%	1%	1%
	No	99%	99%	99%	100%	99%	99%
Ever been told by Service Provider to separate wastes (N=434)	Yes	4%	4%	4%	0%	3%	5%
	No	96%	96%	96%	100%	97%	95%
If No, Would you do so if told (N=416)	Yes	58%	63%	55%	53%	70%	52%
	No	42%	37%	45%	47%	30%	48%

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[11] Newly established CBEs are those who have been in operation for <3 years, while CBEs that have been longer in business are those that have been in operation for at least 3 years

From the Household Survey, willingness by households to engage in sorting of waste was found to be high (58%) if told to do so. The biggest challenge around sorting and separation of waste at household level was found to be lack of adequate storage facilities.

"While households would want to sort their wastes, we don't have enough storage facilities to separate the waste. Separation of Waste requires that you have at least three (3) storage facilities, one for Organic Waste, the other for plastics and at least one for paper. We cannot afford to do this and neither can the CBEs afford to provide us three (3) plastics bags every time they collect wastes from our homes" **FGD Participant, Household.**

3.4.10 Recycling and Compositing of Waste

Recycling and compositing of waste are critical Project interventions under Component 2. However, they lag behind schedule. This is evident from the CBE Survey, where 92% of the CBEs did not engage in recycling or composting activities. While the willingness for CBEs to Recycle and Composite Wastes is high (86%), they lack the necessary tools, equipment, technology and resources to engage in these activities.

Figure 6: Recycling and Compositing Practice by CBEs
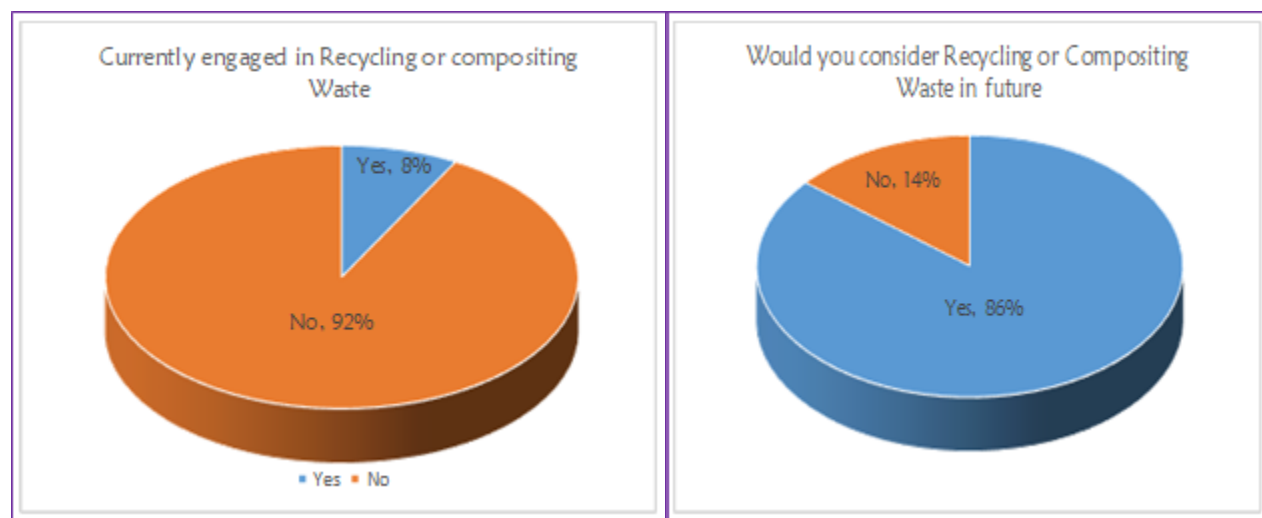
From the CBE Survey, knowledge about the 4R strategy is seen to be high among CBEs (89%), but very low among households (6%). While the strategy provides an opportunity to minimize wastes generated and disposed, knowledge is low among households. Awareness creation and sensitization activities in the remaining Project life should focus on the 4R.

Of the CBEs that have heard about the 4R, 88% heard it from Cities Alliance, likely during the training on Solid Waste Management, while only a few from NACOBE and City Authorities. Households that have heard about the 4R, majority have heard it from City authorities and members of the Community. Willingness to engage in recycling and compositing activities was found to be high among households, at 52%. More awareness is needed around the 4R at community level.

Table 17: Knowledge about the 4R Strategy of Waste Minimization

Characteristic	Response	CBE Survey	Household Survey
Heard of the 4R Strategy for Waste Minimization	Yes	89%	6%
	No	11%	94%
Source of Information about the 4R Strategy of Waste Minimization	Cities Alliance	88%	0%
	NACOBE	26%	0%
	Gov't/ City Authorities	26%	46%
	NGOs	18%	13%
	Training Institutions	6%	0%
	Community Members	0%	29%
	CBEs	0%	13%
What is the Strategy About? [CBE understands]	Waste Reduce	85%	63%
	Reusing Waste	91%	83%
	Waste Recycle	91%	100%
	Waste Recover	68%	42%

CBEs that had heard about the 4R were found to be knowledgeable about the Reuse, Recycle and Reuse strategies, however less knowledgeable about Recovery. The few Household that have heard about the 4R Strategy were found to be knowledgeable about the Recycle and Reuse Strategies. While knowledge about the 4R strategy is high among CBEs, there is need for more sensitization on Waste Recovery. At Household level, more sensitization is needed on Reduction and Recovery.

Campaigns about the 4R strategy were found to be thin on ground. Results reported did not differ among CBEs and Households. More investments needed in awareness & sensitization about the 4R at community level.

Table 18: Availability of Waste Minimization Campaigns on the 4Rs – CBE Survey

Characteristic	Response	CBE Survey	Household Survey
Waste Reduction campaigns are organized in communities (N=38)	Yes	18%	9%
	No	82%	91%
Waste Reuse campaigns are organized in communities (N=38)	Yes	13%	1%
	No	87%	99%
Waste Recycling campaigns are organized in communities (N=38)	Yes	11%	1%
	No	89%	99%
Waste Recovery campaigns are organized in communities (N=38)	Yes	5%	0%
	No	95%	100%

3.4.11 Sensitization and Awareness about Solid Waste Management

From the CBE Survey, 89% of the CBEs were found to have participated or engaged in voluntary community clean campaigns. CBEs that have been longer in Business were more likely to engage in voluntary clean-up activities than newly established CBEs. In addition, 97% of the CBEs reported to sensitize households on good waste management practices. Because CBEs are thin on ground, reach to households is low. From the Household Survey, 15% of the Households were found to have been reached with sensitization and awareness activities either by CBEs, local authorities or Cities Alliance.

Majority of the sensitization was found to be done by City Authorities and Cities Alliance, and less by CBEs. Of the Households that were sensitized, majority (87%) found the sensitization and awareness campaigns beneficial. Females were found to have benefited more from campaigns compared to the males. Youths reported to have benefited more from the campaigns compared to other age categories.

Majority of the household that have been sensitized report to have made changes in Solid Waste Management at Household level following learnings from the awareness and sensitization campaigns. Best practices adopted include adopting waste reduction practices and improving storage of wastes at Household.

Households have adopted local resources to collect and store household wastes and garbage.

Table 19: Awareness and Sensitization of Households on Good SWM Practices

Characteristic	Response	Project Level	Sex		Age		
			Male	Female	15-24	25-34	>34
Household received sensitization/ awareness on good SWM practices (n=434)	Yes	15%	17%	13%	7%	12%	17%
	No	85%	83%	87%	93%	88%	83%
Were the campaigns beneficial to you and the community (N=63)	Yes	87%	73%	97%	100%	76%	91%
	No	10%	19%	3%	0%	18%	7%
	Don't Know	3%	8%	0%	0%	6%	2%
Household has made changes in SWM practices based on learning from the campaigns (N=63)	Yes	68%	62%	73%	100%	65%	69%
	No	24%	26%	22%	0%	35%	20%
	Don't Know	8%	12%	5%	0%	0%	11%

3.4.12 Capacity Building for CBEs

The Project has enhanced the capacity of CBEs to improve SWM through training and capacity building in various areas. Ninety-five percent (95%) of the CBEs report to have benefited from trainings organized by Cities Alliance. The Estimate number of CBEs staff who have benefited from the training is these is 70, with 63% male and 37% female.

Table 20: Capacity Building activities for CBEs

Characteristic	Response	Project Level	CBE Years of Operation	
			<3 Years	≥3 Years
Any staff from CBE received training or capacity building past 2 years (N=38)	Yes	95%	100%	93%
	No	5%	0%	7%
Who conducted the training (N=36)	NACOBE	33%	50%	29%
	Gov't/ City Authorities	36%	25%	39%
	Cities Alliance	97%	100%	96%
	NGO	25%	25%	25%
Areas of Capacity Building (N=36)	Financial Management	94%	88%	96%
	Record Keeping	83%	100%	79%
	Solid Waste Management	86%	100%	82%
	Business Management	17%	25%	14%
Was Capacity Building or Training Beneficial (N=36)	Yes	100%	100%	100%
	No			

3.4.13   Community Inclusiveness in SWM Planning

From the CBE Survey, 55% of the CBEs report to have been consulted or involved in the development or selection of new Waste Management policies. On whether laws or polices about Waste Management are clear and understandable, 61% of the CBEs reported the policies and laws being clear and understandable.

From the Household Survey, only 4% of the respondents report to have been consulted or involved in development or selection of new Waste Management Policies. In addition, only 5% reported that the laws or policies about Waste Management being clear and understandable as detailed in Table 21.

Table 21: Inclusiveness of CBEs and Communities development or selection of new SWM Policies

Characteristic	Response	CBE Survey	Household Survey
Involved or consulted in development or selection of new Waste Management Policies	Yes	55%	4%
	No	29%	30%
	Don't Know	16%	66%
Laws or Policies about Waste Management are clear and understandable	Yes	61%	5%
	No	24%	50%
	Don't Know	16%	45%

3.4.14   Problems affecting CBE Operations

Figure 7: Problems affecting CBE Operations
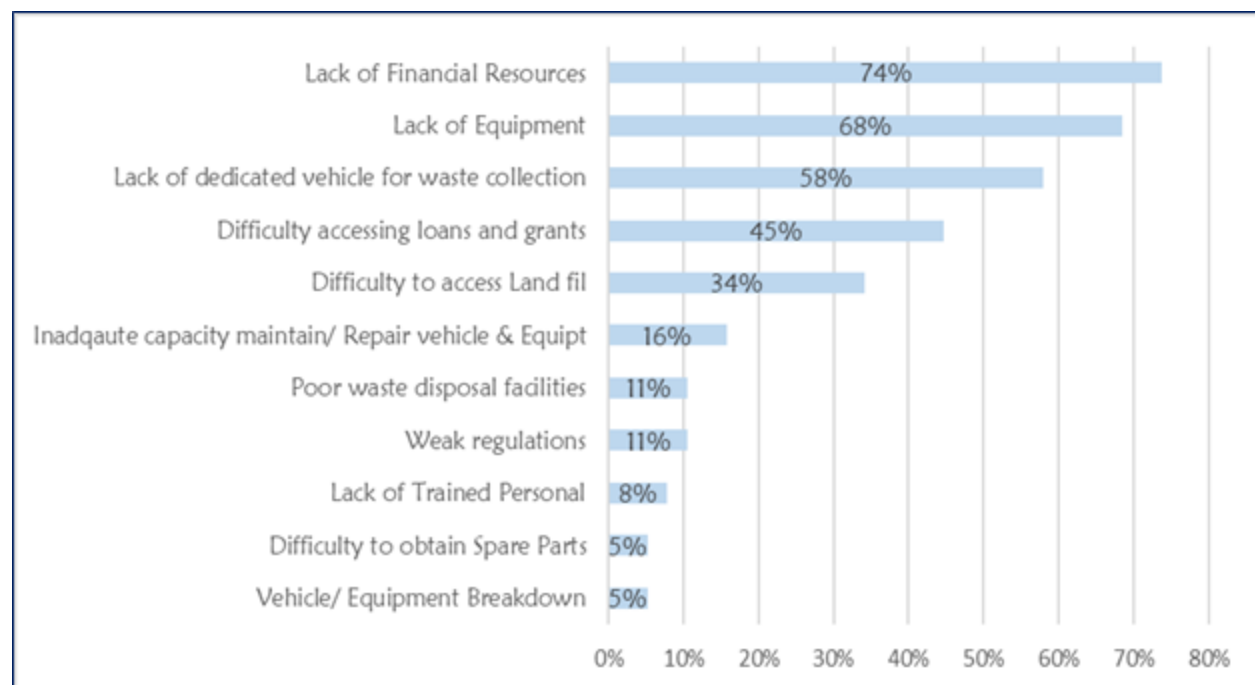
3.4.15   Visibility of Cities Alliance

All CBEs have heard about Cities Alliance. However, despite the support that Cities Alliance provides CBEs, results indicate that only 50% were found to fully understand what Cities Alliance does. CBEs that have been in business longer were twice likely to know what Cities Alliance does compared to newly established CBEs.

Table 22: Visibility of Cities Alliance among CBEs

Characteristic	Response	Project Level	CBE Years of Operation	
			<3 Years	≥3 Years
CBE heard of Cities Alliance	Yes	100%	100%	100%
	No			
Does CBE know what Cities Alliance does	Fully understands what CA does	50%	25%	57%
	Somewhat understands what CA does	47%	75%	40%
	Does not understand what CA does	3%	0%	3%

From the Household Survey, only 22% of households have heard about Cities Alliance. Males were more likely to have heard about Cities Alliance compared to Females. Respondents aged 25-34 Years were more likely to have heard about Cities Alliance than any other age groups. Of the households who have heard about Cities Alliance, only 13% fully understand what Cities Alliance does. Knowledge of what Cities Alliance does did not differ among males and females, while Youths were more likely to fully understand what Cities Alliance does.

Table 23: Visibility of Cities Alliance at Community Level

Characteristic	Response	Project Level	Sex		Age		
			Male	Female	15-24	25-34	>34
CBE heard of Cities Alliance (N=434)	Yes	22%	32%	17%	13%	24%	22%
	No	78%	68%	83%	87%	76%	78%
Does CBE know what Cities Alliance does (N=95)	Fully understands what Cities Alliance does	13%	12%	13%	50%	6%	15%
	Somewhat understands what Cities Alliance does	42%	45%	39%	50%	44%	41%
	Does not understand what Cities Alliance does	45%	43%	48%	0%	50%	44%

3.5   CONCLUSIONS FROM THE EVALUATION QUESTIONS

3.5.1   Relevance

There is unanimous acknowledgement from stakeholders that the Project provides an important and significant contribution to the waste sector in Greater Monrovia. It is widely considered to be connected to the 2030 agenda through SDG's 5 (Gender Equality), SDG 7 (Affordable and Clean Energy), SDG 8 (decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities) and SDG 16 (Promote just, peaceful, and inclusive societies).

The Project supports climate mitigation solutions as outlined in the Liberia's NDCs and NAP, through reduced greenhouse gas emissions from solid waste management services as well as creating awareness of Climate Change challenges among the population. The Project engages households and communities, enlightening them about the benefits of proper SWM, and encourages them to practice waste prevention, waste reduction and re-use, with waste disposal being the last option.

Evaluation Question: To what extent has the Project Supported the National Adaptation Planning (NAP) and Nationally Determined Contributions (NDCs) processes, through building green and inclusive CBEs that reduce per capita solid waste dumped in landfills while generating life affirming livelihoods for the urban poor and with a gender focus

Overall, impact towards support of the NDC and NAP is moderate. Demonstrable results are so far observed with the Project's awareness and sensitization interventions around climate smart SWM. Efforts to reduce emissions from SWM services will be enhanced once implementation of activities under component 1&2 is fast tracked

The growth in the number of CBEs from 14 at Baseline to 40 at Mid-Term has expanded livelihood opportunities for the urban poor. Workers employed by CBEs have grown from 299 at Baseline to 381 at Mid-Term, with more women employed (improved from 27% to 31%). Majority of the workers employed by the CBEs (70%) are Youth and selected from local communities.

To what extent has the Project Supported National and Local Government, the private sector, and urban poor communities in building effective climate adaptation systems at all levels?

The feasibility studies identified the need of a National Waste Management Policy to regulate the Waste Sector, this is currently under development, with the draft shared with stakeholders for review. Recycling, Compositing and Sorting are approaches Government is adopting for waste minimization.

The Project has built capacity of Local Government and Private Sector players. A total of 70 workers from 40 CBEs have been trained on SWM and EPA compliance mechanisms regarding Environmental Protection, while 64 community leaders have been trained on 4R and educated on the importance of utilizing CBE services at household level, benefits of proper waste disposal and the adverse effects of improper disposal of Waste on the environment. At community level, as part of the Project's Education Campaign for schools on climate change and 4R, 8 schools have been reached with awareness campaigns and outreach activities. Within the schools, the Project has supported the establishment of Environmental Clubs, majorly targeting Youth to increase awareness on climate smart behavior.

3.5.2 Effectiveness:

Overall, more efforts need to be invested to attain Project Objectives although these are subjected to risks beyond the control of the Programme, for instance the Zogos and the deteriorating economic situation. Attainment of Intermediate outcomes 1&2 requires rethinking and coming up with modalities that will address the implementation bottlenecks highlighted. Efforts in attainment of Intermediate outcome 3 are commendable, the Project is on track to attain this outcome. Attainment of intermediate outcome 4 is within the control of the project, however pending activities need to be fast tracked.

Evaluation Question: To what extent will the Project be likely to achieve its deliverables with the current structure model?

To a large extent, the Model supports attainment of the Project deliverables. Working with key government agencies such WASH Commission, EPA, Ministry of Internal Affairs and City Corporations, and the private sector (CBEs) provides a platform for enhancing climate resilient waste management services. The effectiveness of the model is however directly linked with designed interventions being implemented on schedule and plan, therefore need to fast track implementation of pending activities.

Like any other business enterprise, survival of CBEs requires that they are able to generate adequate revenues to finance their day-to-day operations. There is need to make it mandatory for households to pay for waste collection services so that CBEs can rise enough revenue to sustain their operations.

Evaluation Question: How effective is the Programme design and coherence including the design of the log frame matrix/ Programme theory and present the underlying theory of change and its assumptions?

The design of the Project is to a large extent considered effective and coherent. It brings together players and actors in the Waste Sector and leverages the Country Programme with strong established partnerships and networks. The design however, did not take into consideration the number of skip buckets available at community level and their capacity to accommodate the garbage collected.

The Project has a well-structured log frame that provides a streamlined linear interpretation of the Project's planned use of resources and its desired ends. It clearly highlights the logical linkages between intended inputs, planned activities and expected results. An Integrated M&E Plan is in place, defining M&E processes, including measurement of output, outcome and Impact Level Indicators for both the Country Programme and the PSWM Project.

Theories of Change for the Country Programme and PSWM Project have been twinned, therefore not clear how intended results are to be achieved. While efforts are commended for having an integrated M&E Plan, there is need to separate the Theories of Change as is with the logical frameworks.

To what extent has the Project built an inclusive, safe, resilient, and sustainable ecosystem around the sector to test, refine, replicate, and scale precedence-setting SWM technologies?

The Project works with a number of stakeholders dealing with Primary and Secondary Waste management, and those working on the Eco system within Greater Monrovia. In terms of inclusiveness, the Project works with the EPA, WASH commission, Ministry of Internal Affairs and City Corporations. In terms of the resilience and sustainable ecosystems, the Project intends to bring on board SMEs to engage in compositing and recycling interventions, making the Model sustainable. Regarding replication of the Model, the Model is replicable. Before the IMPAC project, the CBE model was not in place. It was first implemented by MCC during the IMPAC project in 2009 and has now been replicated in PCC.

Evaluation Question: What were the major factors influencing the achievement or non-achievement of the outcome, intermediate outcomes, expected results and outputs?

Several factors have facilitated attainment of observed successes. The Project leverages the Country Programme with well-established partnerships with GoL, City Governments, Local Governments and communities, adopts a Community-led implementation approach to ensure community inclusiveness, and has a strong Programme Steering Committee. Strengthening the platform that brings together players in SWM to discuss and deliberate issues that affect the sector has been key to the observed successes. The Project found an organized CBEs network, with an umbrella association, NACOBE. Because the CBEs were already organized, this enabled ease entry into working with them. Enhanced communication and visibility has been central in successes around awareness and sensitization

Several factors could explain the low progress towards attainment of Project Results. The waste sector in Greater Monrovia generally has several mounting constraints that need to be addressed by the GoL and municipal authorities. Secondly, the CBE Model is facing stiff competition from the Zogos, there is minimal recognition of CBEs by municipal authorities, particularly MCC, as vital players within the waste sector, while implementation of critical activities lags behind schedule particularly in component 1&2. The current economic situation in the Country has also had a toll effect on the project's progress, while the resignation of the Solid Waste Specialist created vacuum in the technical team.

Which factors were beyond the control of the project?
The Piloting of the Zogo model by Monrovia City Corporation, which duplicated CBE interventions provided stiff competition to the Model. Survival for the majority of the CBEs has long been in balance because many of their clients had restored to using Zogos, which was beyond the control of the Project.

The Country's economy has been challenged with rising inflation as a result of significant depreciation of the Liberian dollar against the United States dollar. The economy has fallen further into the repressed category since 2019 which has hampered Government's ability to fully deliver services and meet other obligations, but also made the business environment difficult, which has affected people's earnings.

To what extent is climate change mitigation mainstreamed through the Programme actions/activities?

It's evident within the Project that the climate change mitigation is mainstreamed within the actions and activities of the Project. The Projects supports activities of EPA and WASH Commission. These are government agencies responsible for implementing resilient and sustainable climate change mitigation measures. Through awareness creation campaigns, the Project is sensitizing communities about climate change while the Project objectives align well with the NAP and the NDC result areas on climate change, but also on SDG 7 (Affordable and Clean Energy).

3.5.3 Efficiency

Evaluation Question: To what degree was value for money prioritized during implementation?

The Project has conducted training in financial management for NACOBE, aimed at improving financial management for their businesses, but also ensure that resources advanced by the project are used optimally. The Project put in place robust financial management and accountability systems to ensure resources are used economically during Project implementation. The robustness has however resulted in a few delays and slowed down the pace of implementation, a case in point is the ECO Bank process.

With all the activities the Project implements, Cities Alliance goes through rigorous UNOPS procurement processes to ensure competent contractors are hired at reasonable costs. Value for money clauses are included in all Contractor contracts, prioritizing value for money. In construction Projects that will be undertaken, all processes MUST conform to, and should be compliant with the UNOPS engineering standards, which provide for high quality construction and value for money. In addition, the Project is routinely audited to ensure compliance with controls instilled by Cities Alliance and the donor.

To what extent will the Project staff & task distribution influence achievement of Project results?

At inception, the staff composition catered for the Project Manager, M&E Specialist, Solid Waste Specialist, Grants Officer and Finance Specialist. It didn't have some technical staff on the team such as the Capacity Building and Communications Specialist. Considering Cities Alliance was to do direct implementation, this structure was not ideal to deliver Project results. In consultation with EU, the structure was reviewed, and the above positions created. The workload may overwhelm due to the vacuum created by Solid Waste Specialist, but once the vacancy is filled, the work is manageable.

3.5.4 Impact

Evaluation Question: What exactly has already changed in the lives of the Programme beneficiaries (Households in slums, CBEs, City Corporations and Government)

The capacity building and training conducted for CBEs on Record Management has greatly improved Records Management Practices. As a result of the training, CBEs maintain Records of Business Transactions. CBE activities have also resulted into an increase in the Quantity of Waste collected

The Project has contributed to an increase in the proportion of households with planned forms of garbage disposal in Greater Monrovia, increasing from 36% at baseline to 83% at mid-term,

surpassing the 45% Life of Project (LOP) target. As a result, households have put in place storage and disposal facilities within homes.

The Project has made substantial investments in awareness creation around Climate-Smart SWM, urban health and environmental protection which have led to corresponding level of results - 87% of the households sensitized found the sensitization campaigns beneficial and made changes in SWM at household level. Best practices adopted include adopting waste reduction practices and improving storage of wastes at Household.

3.5.5 Sustainability

Evaluation Question: To what extent will the Community Based Enterprise Model of primary Waste Collection be sustainable and be scaled across Greater Monrovia?

The programme approach, has been documented to improve primary waste collection in a sustainable manner. It is a good example of how city-community partnerships can deliver essential services to poor communities in resource poor situations, including informal high-density townships. CBEs are locally established and employ workers from within local communities.

CBEs through their umbrella organization NACOBE, are part of the Waste Sector TWG. This provides a platform for sustaining their operations because of their role in the sector. However, the emergence of Zogos within the waste sector not only provides stiff competition to the CBE Model but threatens the survival considering that households are resorting to Zogos than the CBEs.

Evaluation Question: What needs to be done and/or improved to ensure institutional sustainability of the Community Based Enterprises?

To enhance institutional sustainability of CBEs, there is need to recognize CBEs as vital players within the Waste Sector in Liberia, particularly by MCC. There is also need to address the issues around CBE capacity and operational challenges. Success of the CBE Models requires that CBEs are able to generate adequate revenues to finance their day-to-day operations. There is need to make it mandatory for households to pay for waste collection so that CBEs can rise revenue to sustain their businesses.

To what extent will the 4 project components be handed over to stakeholders?

Likelihood of handing over of Project components is high, however handover processes is affected by critical activities lagging behind schedule. Continuity of the CBE model is guaranteed since they are well organized, with an umbrella organization in NACOBE.

Handover for component 1&2 is highly likely. Likelihood of the Loan facility continuing is quite high because it can be integrated into ECO Bank products or services, while the Composting and Recycling stations and interventions can be handed over to municipal authorities. City Corporations have Directorates of Solid Waste Management, interventions around SWM will likely be handed over to City Corporations. With component 3, City Corporations have departments for Community Services, that carry out awareness and sensitization and the Project is already engaging them.

3.5.6 Equity

To what degree is gender equality evident in the structures, systems and results of the Project?

It's evident within the Project design, structures and implementation that gender is integrated. Particularly, there has been growth in females employed by CBEs, increasing from 27% to 31%. It is also observed that some of the CBEs are owned by Women, 30% of the Project technical staff are women. The Project is creating awareness mainstreaming gender in all activities, while Cities Alliance has zero tolerance policies to discrimination on any accounts, including gender. The M&E framework has gender sensitive indicators, generating, analyzing and presenting gender disaggregated data.

CHAPTER IV: SUCCESSES, CHALLENGES & AREAS OF FOCUS

4.1   Introduction

This Chapter presents consolidated achievements and successes at Mid-Term, further highlighting challenges and the key areas of focus moving into the final 2 years of the Project.

4.2   Project Achievements and Successes

Strengthened Public-Private-Partnerships: The Project has strengthened Public-Private-Partnerships in the Waste Sector in Greater Monrovia. Primary Solid Waste Collection is done by the private sector, particularly CBEs, while the Secondary Waste Collection is managed by City Corporations.

Increased number of CBEs: The number of CBEs increased from 14 at baseline to 40 at Mid-Term to improve access to sanitation within Greater Monrovia. The total number of communities served also increased from 89 at baseline to 222 at Mid-Term, surpassing the LOP target of 105.

Expansion of the CBE model to PCC: The CBE Model started in Monrovia but has since been replicated in Paynesville, with majority of the CBEs (30%) supported by the Project located in Paynesville. PCC adopted this model following successes from Monrovia from the EMUS Project.

Capacity Building: Seventy (70) workers from 40 CBEs have been trained on SWM, Financial Management, Records Management, and EPA Compliance mechanisms regarding Environmental Protection. In addition, 64 community leaders have been trained on 4R, benefits proper waste disposal and the adverse effects of improper waste disposal on the environment.

Awareness Creation and Outreach activities: Eight (8) schools have been reached with outreach and awareness campaigns. Within the schools, the Project supported the establishment of Environmental Clubs, majorly targeting Youth to increase awareness on climate smart SWM.

Tools and equipment to CBEs: The Project provided starter kits to 3 CBEs as a way of addressing challenges around inadequate tools and equipment. These include tricycles, wheelbarrows, shovels, rakes and masks. This support horizontal expansion of operations of the beneficiary CBEs.

Coordination Platform for Waste Sector Players in Greater Monrovia: The platform brings together National Ministries, City Corporations, Local Government, private sector, and communities to deliberate on addressing constraints to the mounting waste situation in Greater Monrovia. A series of engagement meetings aimed at establishing partnerships, collaboration and synergies between Cities Alliance, MCC, PCC, LIBA and NACOBE.

Leveraging the Country Programme: Project has benefited from the existing multi-stakeholder partnerships existing under the LCP and community partners such Community Based Enterprises (CBEs), street trader union and slum dweller savings forums who are active participants in the LCP.

Establishment of the Micro-finance facility: While the Loan and Grant facilities are not yet functional, the Project has established a micro finance facility with ECO Bank to facilitate disbursement of loans.

4.3 Challenges:

The waste sector in Greater Monrovia generally has several mounting constraints that need to be addressed by the GoL and municipal authorities. These challenges have been elaborated under section 3.2.3 and have huge impact on attainment of intended results.

Minimal recognition of CBEs as vital players within the Waste Sector by City Corporations, particularly MCC has affected success of the CBE Model. This further affected efforts to strengthen PPPs

Emergence of the Zogos: The Emergence Zogos, duplicating CBE activities has provided stiff competition to the CBEs.

Lack of Solid Waste Management Policy: Liberia lacks a National Waste Management Policy, which makes regulating the Sector challenging. Implementation of Waste Management activities are enforced through City ordinances rather than National Policy.

Inadequate support from Monrovia City Corporation: This steams from the understanding that MCC wanted to do direct implementation for both the Primary and Secondary SWM Projects. Awarding the PSWM Project to Cities Alliances was not warmly received by MCC. The implementation of the Zogo approach and duplication of the SWM TWG shows limited support to from MCC.

4.4 Key Areas of Focus for the final 2 Years:

Fast tracking the implementation of pending activities: Priority focus should be on ensuring that all activities lagging behind are fast tracked. Particular focus should be interventions in component 1 &2 (Loan and Grant Facilities, and Compositing and Recycling Interventions). These have the potential to turn around Project results and demonstrate better impact.

Enhancing Monitoring and Evaluation: There is need to enhance Performance Review and Lesson Sharing meetings with the implementation team to assess progress. Monthly feedback meetings with the technical team at Cities Alliance to garner support to speed up implementation.

Addressing challenges around CBE operational capacity: Existing CBE challenges do not support attainment of vertical and horizontal expansion. Particular focus attention to these challenges is key in attainment of Project deliverables.

Functionalizing the Primary-Secondary value chain: Focus should be on ensuring that duty bearers along the value chain perform their roles. Failure for any player to implement their roles breakdowns the entire chain and affects attainment of Project deliverables.

Additional investments in awareness creation and sensitization activities: Proper solid waste practices require continues awareness and sensitization to change behavior. Investments made in awareness creation have so far shown corresponding level of results. More investments need to be made in awareness creation, particularly around the 4R. Because of the respect they commend in communities, the Project may explore engaging Religious Leaders in sensitization campaigns.

CHAPTER V: PROJECT MONITORING AND EVALUATION

5.1   Introduction

M&E is vital in assessing how well Project activities are being implemented and measuring the extent to which the Project objectives are being attained. This section provides an analysis of the robustness of the M&E processes, and the project's ability to collect adequate information to monitor progress.

5.2   M&E Structure for the Project

The Country Office has a full time M&E Analyst responsible for providing M&E oversight to Projects at the Country Office. He receives backstopping support from the M&E specialist based at Cities Alliance's head office in Brussels. The County Office structure is such that the M&E Analyst is part of the Senior Management. The Project, however allocates a minimal budget to M&E activities, which is less than 5% of the Project Budget, to support M&E activities including Evaluations (formative and summative), strategic information, tools, training, data use and improvement of the existing system.

The M&E Analyst is responsible for the flow of Project information from partners and stakeholders to the donors; also responsible for M&E planning and operationalization of the M&E plan for the Project, ensuring the functionality of information systems and putting in place plans and systems to monitor and evaluate the Project.

The Project has a well-structured log frame that provides a streamlined linear interpretation of the Project's planned use of resources and its desired ends. It clearly highlights the logical linkages between intended inputs, planned activities and expected results. The set objectives are a clear reflection of the outputs, defines and clearly identifies key activities, defines resource requirements, and ascertains the Means of Verification.

An Integrated M&E Plan is available, defines how to Monitor and Evaluate the Project, a component on the role of the Community in Monitoring and Evaluating performance is incorporated into the plan. The Monitoring Evaluation and Learning Strategy for the Country Programme was strengthened to enable Cities Alliance to more closely monitor and steer the project activities. A structured Programme theory of change, Management Information System and data collection instruments have been developed to support Programme Monitoring and Evaluation.

Measurement of output, outcome and Impact Level Indicators for both the Country Programme and the PSWM Project are well articulated and mechanisms for communicating, disseminating and sharing project learning are well established. The Project reports annually to EU, however activity reports are submitted by the programme specialists to monitor and track activity implementation and Project results routinely.

Program Evaluations: Evaluations are perceived important and Cities Alliance always evaluates the Projects it implements (conducts Baseline Surveys, Mid- Term and End-Term Evaluations) and shares reports with all stakeholders. The Project allocated budgets to cater for Evaluation studies.

5.3   M&E Areas that can be Strengthened

i.   The Theories of Change for both the Country Programme and the PSWM Project have been twinned, therefore not clear on how the Project is expected to achieve the intended results within the Theory of Change. While efforts are commended for having an integrated M&E Plan, there is need to separate the Theories of Change. The M&E Plan can remain integrated, however, the two theories should be separated, as is with the logical frames.

5.4   Proposed Revisions in Project Indicators

Table 24: Proposed Revisions in Project Indicators

SNO.	Observation	Proposed Change
1.	o At outcome level, Project lacks an indicator (s) to measure coverage of CBE services at community level	Incorporate a new indicator *"Percentage of Households receiving PSW collection services from CBEs in Greater Monrovia"*
2.	o Under Output 1.1, the indicator *"Number of CBEs that report improved revenue"* should be sharpened	Revise to "*Percentage of CBEs that report improved revenue"* *May consider including it as an outcome indicator*
3	o Revision of indicator targets	Targets for the following indicators to be reviewed to ensure all CBEs are supported o Number of loans provided to CBEs by the Project o Number of grants provided to CBEs by the Project
	o At outcome level % of recycled waste going to landfill (organic & inorganic) is beyond project scope. There are no project interventions beyond the disposal of waste in the skip buckets	% of recycled waste going to skip buckets (organic & inorganic)

CHAPTER VI: CONCLUSION AND RECOMMENDATIONS

6.1   Introduction

The foregoing chapters have presented and discussed the findings of the Mid-term Evaluation, key achievements, lessons learned, the facilitators and barriers to achieving full scale results, and the key areas of focus in the final 2 years. This final chapter draws some conclusions and makes recommendations for improving Project performance in the final half of the Project.

6.2   Conclusion

While the Project is responding to some of the challenges in the Waste Sector in Greater Monrovia, several challenges and gaps remain at mid-term, which have implication on the delivery of the Project and the attainment of results. Empting of Skip buckets by municipal authorities remains a huge challenge that affects CBE operations, and urgently needs to be resolved by municipal authorities.

Overall, efforts towards attainment of Project objectives need stepping-up. Results in Component 1&2 remain low due to critical activities lagging behind schedule, while the inefficiencies within the public system have not helped to address access issues. Owing to the interrelatedness and interlinkage of components 1&2, low performance in component 1 is affecting attainment of results in Component 2.

Attainment of results in component 3 is well on track. Substantial investments have been made in awareness creation activities which has led to corresponding level of results. Working with school age children as agents of change in their communities is a long term investment in changing behavior of individuals and communities. Attainment of component 4 is within the control of the Project. Focus should be on fast tracking implementation of pending activities, such as the development of the Solid Waste Strategy which is part of the CDS.

The CBE Model faces stiff competition from Zogos, there is minimal recognition of CBEs by municipal authorities, particularly MCC as vital players within the waste sector while challenges around CBE operational capacity need to be addressed. A functional Primary-Secondary Waste Management value chain is central to improving SWM in Greater Monrovia, therefore critical for all duty bearers to perform their roles. While the Model can lead to attainment of deliverables, it's effectiveness is directly linked with designed interventions being implemented on schedule and on plan, therefore Cities Alliance urgently needs to fast track implementation of activities that lag behind schedule.

6.3 Recommendations

6.3.1   Government

There is a need for improved funding for the city corporations. The lack of adequate budgetary support by the GoL has restricted city corporations' ability to expand SWM services. Government should increase on allocations to MCC, PCC, EPA and the WASH Commission, but also ensure that city authorities are supported firmly to improve revenue mobilization from local sources. Government needs to fulfill its counterpart funding with Secondary SWM Project.

Fast tracking the formulation of the Waste Management Policy and Strategy: Once in place, the policy framework will guide municipal authorities as well as provide them with adequate legal support to enforce their mandate in waste management. In addition, strict enforcement of existing laws on waste disposal would also aid greatly in eradicating the negative attitude regarding waste disposal with offenders receiving punishment.

Though waste management is a stated government priority, the subsector depends primarily on donor financing. Citizens trust in service providers is largely broken and needs to be addressed to rebuild the social contract of paying for solid waste collection. There is need to establish a policy to enforce mandatory requirement of households to subscribe to CBEs. This will help CBEs increase their revenue and prevent Zogos from encroaching on their revenue.

6.3.2 Cities Alliance

Expedite implementation of all activities that lag behind schedule, particularly activities in Component 1 and 2. Functionalizing the Loan Facility, Grant Facility and construction of Sorting, Compositing and Recycling facilities should be given high priority. These are central interventions, if implemented will create the desired impact.

Enhance efforts to reduce the per capita Solid Waste dumped in landfill. Diversion from landfills has become a major driver for many SWM Projects, with some States, Cities and Municipalities operating under legislative requirements for achieving specific diversion goals. Recycling and compositing are critical in determining the actual diversion rates. These interventions not only reduce per capita waste to landfills, but also generate life affirming livelihoods for the urban poor. The Project should design incentives and awareness systems to motivate waste reduction, source-separation and reuse.

Monitoring and supervision of CBEs: Supervision and Monitoring CBE activities by NACOBE is weak, needs to be strengthened. The Evaluation established that some CBE staff practice unhealthy waste disposal practices. They dispose wastes in water bodies and non-gazatted places. Unless monitored and supervised, such practices may gradually be seen to raise. We recommend reinstating Community Management Team (CMTs) to Monitor and supervise CBEs at community level

6.3.3 City Authorities

Empting skips buckets regularly: Emptying skip buckets by City Corporations remains a big challenge with Greater Monrovia. Authorities should work on addressing challenges around emptying skips. Alternatively, City Corporations should permit CBEs to dump at transfer stations and landfills. This will reduce the amount of waste that goes to the skip buckets.

In order to enhance effective planning and organization of waste management operations in Greater Monrovia, there is the need to gather accurate data on the quantities, type and characteristics of waste being generated. MCC and PCC should work on creation of a database on solid waste and undertake regular investigations and research to generate accurate data on the waste situations with the aim of facilitating waste planning and management.

Strengthening Public-Private-Partnerships in delivery of SWM Services. Public-Private-Partnerships are one of the proven approaches in better SWM efforts. The Project has demonstrated that Private Sector engagement is vital in stimulating improvements in SWM and minimizing negative effects of waste in poor communities. Sustainable processes however require co-operation between Public, Private and citizen stakeholders. National & City Governments should strengthen and promote sustainable, self-supporting partnerships with Partners and NACOBE/ CBEs.

Whilst the Pilot was suspended by MCC, they had already penetrated primary waste collection and remain in operation in communities. These individuals cannot be ignored, need to be engaged by municipal authorities, have them trained on basic SWM practices, supervise and monitor their operations, and have them integrated into the CBE Sector, by having CBEs employ them.

6.3.4 Community-Based Enterprises

There are opportunities that NACOBE can explore to enhance the service delivery model of engaging CBEs for primary waste collection. NACOBE, with support from the Project should explore the possibility of adapting zoning laws to enhance competition, efficiency and effectives among CBEs by re-dividing Greater Monrovia in well-defined zones (LGAs) and allocating specific zones (LGAS) to specific CBEs for operation. This will increase service coverage and enhance accountability.

Only 34% of the CBEs expressed satisfaction with the way NACOBE is engaging authorities on issues that affect their work. There is need for better engagement and representation of CBE interests by NACOBE at National and City Government level, particularly in terms of recognition of CBEs as vital private players within the Waste Sector; lobbying for opportunities for CBEs to access Finance and Credit; address issues of harassment by city authorities particularly confiscation of CBE tools and equipment, denying access to disposal sites (transfer stations), physical violence and extortion. There is also need for NACOBE to advocate for a policy that makes it mandatory for households to pay for waste collection services to enable CBEs collect adequate revenues to sustain their operations.

CBEs operations are primarily financed by a Primary Solid Waste Collection (PSWC) fee paid by households in the communities served by the CBE. The individual CBE determines the fees, which in many cases are negotiated on an individual basis with communities and households, and the service is tailor-made to local conditions. There is need for NACOBE to work along with Municipal Authorities to come up with a uniform fee to be charged to households than individual CBEs determining their own fees. The fee should be standardized to all households across the 12 LGAs.

Some CBE staff were found to engage in non-environmentally friendly dumping practices such as open dumping and dumping in wetlands and River streams. This is partly attributed to weak supervision of CBE activities by NACOBE. We recommend that NACOBE strengthens Monitoring and Supervision of CBE activities at Community level to ensure that CBEs and their staff are compliant with waste disposal standards and protocols set by the Environmental Protection Agency

Annex I: Progress against the Project Monitoring Framework

SNo	Indicator	Baseline		Mid-Term	Target		Gender	
		Year	Value		Target	% Achiev't	Male	Female
Goal: To contribute to poverty reduction and improve the quality of life while supporting Liberia's carbon neutrality agenda								
Project Outcome: Greater Monrovia is serviced by a citywide integrated solid waste management system that reduces greenhouse gas emission and enhances the city's resilience against climate change and disease,								
1	% households with planned forms of garbage disposal in selected communities of Greater Monrovia.	2017	36%	83%	45%			
2	% of recycled waste going to landfill (organic & inorganic)	2017	33%	33%	25%			
Intermediate Outcome/ Component I: Collect more waste: Improved access to sanitation through more sustainable and efficient solid waste collection in Greater Monrovia								
1.1	Percentage of Households receiving PSW collection services in Greater Monrovia	2017	36%	37%	45%			
Output: 1.1 Improved Coverage and effectiveness through CBEs:								
1.1.1	Number of CBEs registered with MCC, PCC, NACOBE, LIBA and are active in PSW.	2017	14	40	35	114%		
1.1.2	Number of communities served by CBEs in Greater Monrovia	2017	89	222	105	211%		
1.1.3	Number of loans provided to CBEs by the Project	2017	0	0	35	0%		
1.1.4	Number of grants provided to CBEs by the Project	2017	0	0	35	0%		
1.1.5	Number of people employed by CBEs, by Gender	2017	299	381	330	115%	262	119
1.1.6	Number of CBEs that report improved revenue.	2017	0	14	35	40%		
1.1.7	Number of households served by CBEs	2017	7,600	8,800	8,200	107%		
Intermediate Outcome/Component 2: Extract and reuse plastic and organic matter: Reduced greenhouse gas emission through improving extracting, sorting and re-use of solid waste in GM								
2	Proportion of solid waste sorted and recycled for re-use at collection	2017	0%	0%	5%			
Output 2.1 Feasibility Studies								
2.1.1	Number of feasibility studies conducted.	2017	0	3	3	100%		

SNo	Indicator	Baseline		Mid-Term	Target		Gender	
		Year	Value		Target	% Achiev't	Male	Female
Output 2.2 Recycling pilots: Sorting and Extracting								
2.2.1	Number of CBEs and SMEs supported (financial/ capacity) to enter the 4R Market	2017	0	0	20	0%		
2.2.2	Number of jobs created through 4R	2017	0	0	40	0%		
2.2.3	Number of sorting stations supported	2017	0	0	3	0%		
Output 2.3: Recycling Pilots: Plastics and composting manufacturing								
2.3.1	Number of organic recycling pilots established in selected communities and schools.	2017	0	0	7	0%		
2.3.2	Number of plastic recycling pilots established in selected communities and schools	2017	0	0	3	0%		
Outcome/Component 3: Increased awareness and education on solid waste management: Improved awareness of Climate Change and climate resilient solid Waste management in the GM population with a focus on youth.								
3	Proportion of households in Greater Monrovia reached by awareness campaigns on solid waste management.	2017	0	15%	10%			
Output 3.1: Education campaigns for schools on climate change and 3R								
3.1.1	Number of schools reached in awareness campaigns	2017	0	8	30	27%		
3.1.2	Number of education campaigns targeting schools	2017	0	3	3	100%		
3.1.3	Number of youths reached in awareness campaigns disaggregated by sex	2017	0	360	9,600	4%	195	165
Output 3.2 Outreach activities for GM population, on climate change SWM and 3R, climate smart behavior								
3.2.1	Number of outreach activities to educate the general populations about the threat of climate change	2017	0	7	5	140%		
3.2.2	Number of print publications developed and disseminated	2017	0	1	5	20%		
3.2.3	Number of audio/video materials developed and disseminated	2017	0	6	15	40%		
Output 3.3 Pilot projects in schools and communities: demonstration projects								
3.3.1	Number of 3R demonstration projects in selected schools of Greater Monrovia	2017	0	5	10	50%		

SNo	Indicator	Baseline		Mid-Term	Target		Gender	
		Year	Value		Target	% Achiev't	Male	Female
3.3.2	Number of 3R demonstration projects in selected communities of Greater Monrovia	2017	0	3	15	20%		
3.3.3	Number of community members engaged in the demonstration projects.	2017	0	40	225	18%	26	14
Outcome/Component 4: Integrated SWM systems and capacity: Improved and integrated plans and capacity to manage and fund SWM for GM								
	Integrated Solid Waste Management small initiatives/best practices have been included at community level planning.	2017	1	1	3			
Maturity matrix: 1-No integrated solid waste management small initiatives/lessons learnt included at community level planning. 2- Existence of an Integrated SWM small initiatives/lessons learnt but neither included nor implemented in community level planning 3. Existence of an integrated solid waste management small initiatives/lessons learnt included and implemented in community level planning								
Capacity Built of local government officials								
	Number of LGA staff trained on solid waste management disaggregated by sex.	2017	0	0	32	0%	0	0
	Number of training courses/modules developed for municipal SWM officials	2017	0	0	3	0%		
Oversight of the Project								
	Number of Technical Committee meetings & SWM partnerships	2017	0	8	6	133%		
M&E of the Project								
	Development of a comprehensive M&E strategy for the Project	2017	0	1	1	100%		
Learnings documented and shared								
	Number of Programme Steering Committee (PSC) meetings organized	2017	0	3	12	25%		