

CITIES ALLIANCE PRIMARY SOLID WASTE (PSW) PROJECT

"Delivering Climate Resilient Solid Waste Management Services in Greater Monrovia, Liberia through Community Based Enterprises"

END-LINE EVALUATION REPORT

NOVEMBER, 2021

END OF PROJECT EVALUATION

EU FUNDED PROJECT "DELIVERING CLIMATE RESILIENT SOLID WASTE MANAGEMENT SERVICES IN GREATER MONROVIA, LIBERIA THROUGH COMMUNITY-BASED ENTERPRISES"

JAY CONSULT (U) LTD

NOVEMBER, 2021

CBEs	- Community-Based Enterprises
CDS	- City Development Strategy
CLUS	- Cheesemanburg Landfill Urban Sanitation
EPA	- Environmental Protection Agency
EMUS	- Emergency Monrovia Urban Sanitation Project
EU	- European Union
FCDO	- Foreign Commonwealth & Development Office
FGDs	- Focus Group Discussion
HQ	- Headquarters
IMPAC	- Improved Primary Waste Collection in Poor Communities
Klls	- Key Informant Interviews
LCP	- Liberia Country Programme
LGA	- Local Government Authority
M&E	- Monitoring and Evaluation
MIA	- Ministry of Internal Affairs
MIS	- Management Information System
MSC	- Most Significant Change
NACOBE	- National Association of Community-Based Enterprises
NLCF	- National Lottery Community Fund
PET	- Polyethylene Terephthalate
PCC	- Paynesville City Corporation
PPEs	- Personal Protective Equipment
PPS	- Probability Proportionate to Size
PSW	- Primary Solid Waste
SIDA	- Swedish International Development Cooperation Agency
SMEs	- Small and Medium Enterprises
SOPs	- Standard Operating Procedures
SPSS	- Statistical Package for Social Scientists
SWM	- Solid Waste Management
TOR	- Terms of Reference
UN	- United Nations
UNEP	- United Nations Environmental Programme
UNICEF	- United Nations Children's Fund
UNOPS	- United Nations Office of Project Services
WASH	- Water Sanitation and Hygiene

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THE PSW PROJECT IN NUMBERS



Between 2018-2021, 41 **Additional CBEs** were

registered to provide door-to-door primary waste collection services. The number of CBEs operational in Greater Monrovia improved from 14 at Baseline to 55 at End-line.



Capacity for over 109 public sector staff was built to address knowledge gaps and enhance capacity to address systemic SWM challenges in Greater Monrovia. Staff from over 10 government institutions were trained

The Percentage of Households

Waste collection services in

Greater Monrovia improved

from 36% at Baseline to 40%

receiving Primary Solid

at final Evaluation

Over 300 Communities in

Greater Monrovia Reached with CBE services to improve waste collection and disposal practices.



From 0% at Baseline to 26% at Final Evaluation.

The Proportion of households in Greater Monrovia reached y awareness campaigns on SWM, surpassing the project t target of 15%





HOUSEHOLD

Over 9.500 Households in

Greater Monrovia subscribed to CBE waste collection services to reduce the occurrence of of indiscriminate waste disposal among households

A revolving fund, the first of a kind in Liberia was set-up

for CBEs to enhance access to finance and credit in the longer-

term, with an 18-month repayment

period and 1% interest rate per

Loans to a tune of \$267,345

issued to 21 CBEs to address the logistical challenges faced by CBEs,



particularly the procurement of waste collection tools and equipment



Three (3) feasibility studies conducted for **Greater Monrovia** into

selected options, technologies and, detailed models for plastics and organics extracting, sorting and composting





Four (4) training courses and modules developed for Municipal SWM officials to enhance capacity in SWM. These will helpful in future capacity building trainings for local government officials

Twenty (20) Schools reached

annum

with education campaigns targeting students to champion climate change, and climate-resilient solid waste management at household and community level School Environmental Clubs. Over 12,000 youths were reached



Sixty (60) Skip Buckets procured and distributed to city corporations to enhance

storage space for garbage collected by CBEs at household and community level



INTRODUCTION:

Solid waste management programs within Greater Monrovia have progressed over the recent years with support from the Government of Liberia, donors and implementing partners. Between 2015-2021, there have been four major solid waste projects funded by the World Bank and EU focusing on activities supporting primary and secondary waste collection; waste disposal and hygiene promotion. However, the unsustainable rise in the population of Greater Monrovia has led to corresponding levels of solid waste accumulation, putting pressure on the existing resources and infrastructure. The solid waste management system in Greater Monrovia is designed to provide primary and secondary waste collection services. Primary collection is conducted through agreements with CBEs, while Secondary waste collection is taken over by city governments, and SMEs. Large established businesses rely on contracts with SMEs, who collect and transfer waste directly from the businesses to the landfill.

Over the years, city corporations have demonstrated capacity to sustain SWM, though challenges and logistical gaps remain. The environment and context in which the project was implemented and delivered was challenging, and was significant to the attainment of project outcomes. Currently, SWM is grossly underfunded in the national budget due to lack of adequate resources by government to invest in the sector. Between 2015-18, all budgetary allocation towards SWM came solely from counterpart funding linked to the Emergence Monrovia Urban Sanitation (EMUS) and Cheesemanburg Landfill Urban Sanitation (CLUS) projects. Liquidity constraints, thus curbing city corporations' ability to achieve long term sustainability for sanitation. While the primary waste sector is better organized through CBEs; CBEs incur huge overhead costs, and generate low revenue since the number of households they serve is nearly constant. In addition, households are not mandatorily required to subscribe to CBEs; thus, further reducing potential revenue. Further, Zogos¹ tend to illegally collect garbage and get paid from households mandated towards CBEs, thus taking away their business.

Since 2018, Cities Alliance has been implementing a 4-year (2018-2021) primary PSW project aimed at ensuring 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, creates jobs and creates awareness on climate change. The project objectives were; (i) to improve access to sanitation through more sustainable and efficient solid waste collection in Greater Monrovia, (ii) Reduce greenhouse gas emission through improving extracting, sorting and re-use of solid waste in Greater Monrovia (iii) improve awareness of Climate Change and climate-resilient solid waste management in the Greater Monrovia population with a focus on youth, and (iv) improve and integrate plans and capacity to manage and fund solid waste management for Greater Monrovia.

To achieve long term impact, the project implemented four (4) components; (i) Collect more waste, (ii) Extract and Reuse plastic and organic matter (component descoped), (iii) Awareness and Education on solid waste management, and (iv) Integrated solid waste management and capacity building. Despite descoping of some project interventions, the Evaluation assessed the performance of the entire project from design to closure – including an assessment of why certain interventions were descoped, and the potential impact this had on the project.

¹ These include illegal waste collectors and disadvantaged-youths (using drugs) who engage in waste collection and disposal activities. Their operations are not monitored and supervised, and are not regulated. They lack basic training in SWM and dump garbage in open space, streets corners, highways and in residents' compounds in the night.

The data collection for the Evaluation was conducted in October 2021 to determine the extent to which the project overall objective and outcomes were achieved; document lessons learnt; and provide recommendations for future project interventions. Specifically, the Evaluation sought to; (i) verify the results achieved and make conclusions and recommendations relating to the design and performance of the project, (ii) document project outcomes and impact, (iii) support Cities Alliance Country Programme model by generating evidence-based recommendations relating to the design and implementation of the project, and (iv) provide an updated systemic analysis of the waste sector, develop specific recommendations for key stakeholders, and identify priority areas in the short and longer-term.

EVALUATION METHODOLOGY:

The Evaluation combined qualitative and quantitative approaches, adopting a cross-sectional descriptive design. In addition, longitudinal analysis was conducted for Baseline, Mid-Term and End-line data to demonstrate changes in outcomes over time. In addition to the Qualitative and Quantitative methods, participatory approaches were adopted in collection, analysis and selection of MSC stories to assess how the project impacted individuals, communities, institutions and the waste sector in Liberia. The quantitative component collected data through Surveys from Households and CBEs, while Qualitative approaches consisted of document reviews; and engaging stakeholders through meetings, Key Informant Interviews (KIIs), In-depth Interviews, and Focus Group Discussions (FDGs).

Virtual data collection approaches were adopted for qualitative data to limit exposure of the Evaluation team and participants to COVID-19. However, face-to-face interviews were adopted for interviews where face-to-face was the most feasible method (i.e., during FGDs and MSC stories); and where participants had intermittent internet connectivity. The data collection team was oriented in data quality assurance processes to ensure accuracy, integrity and confidentiality of data. Random spot checks were conducted to check compliance with guidelines on sample selection and implementation of the field data collection plan. A total of 567 household interviews were conducted, registering 101% response rate; while 39 CBEs were interviewed, registering 98% response rate.

RESULTS AND FINDINGS FROM THE EVALUATION:

Systemic Analysis of the Waste Sector in Liberia:

According to a World Bank Report of 2019, Liberia's urban population has increased by nearly 70% since the end of the civil war, as more and more people migrated from the leeward counties to the urban centers, particularly Monrovia and Paynesville. Unfortunately, this urbanization has been met by increasingly poor environmental conditions in urban centers. Solid waste disposal has become an overwhelming task for the municipal authorities that face severe constraints in tackling the mounting waste situation.

In Monrovia, high costs and difficulties in collecting large quantities of waste generated by households and business are critical challenges facing the solid waste sector. This has resulted in the accumulation of a significant amount of uncollected and haphazardly disposed solid waste in the city. According to the most recent tonnage data, the waste collection rate in the city of Monrovia was approximately 800 tons of domestic solid waste per day, representing approximately 45 % of the total waste generated in the city. The remainder (approximately 55 %) is not covered by the formal solid waste collection system.

Solid waste management within Greater Monrovia is vested within Monrovia and Paynesville City Corporations. Beyond household and business collection, this responsibility extends to enforcing ordinances which regulate residential SWM practices, as well as education and awareness initiatives.

CBEs are assigned a particular zone within which they are required to collect garbage from households to designated collection points. They are restricted to a particular zone, and cannot expand outside these zones unless certified by municipal authorities.

CBEs have come together to form an umbrella association, NACOBE. According to NACOBE, 55 CBEs are currently functional in Greater Monrovia. Initially, CBEs benefited from a perceived monopoly in their respective zones, since no other CBEs or organizations were allowed to operate and deliver primary solid waste services. However, this has changed in the recent past due to the high penetration of Zogos² into the primary waste sector. The Evaluation found that 81% of the households in Greater Monrovia (subscribing to private waste collection services) were using Zogos, compared to 19% for CBEs. The model of working with Zogos was first piloted by MCC to respond to the high unemployment among the youth in Liberia, but has since expanded to PCC. The high penetration of Zogos into the sector significantly affected CBE operations, including income and revenues; which has forced CBEs to start waste collection services from businesses and institutions to earn income to sustain their businesses, an area serviced by SMEs.

With secondary waste collection done by city corporations and in some instances SMEs, in the recent past, SME activities have been thin in collecting garbage from skip buckets to transfer stations and the landfill since it's not their mandate and can only do so if contracted by municipal authorities; their presence however is strong in providing services to business entities. Therefore, the responsibility of emptying skip buckets is incumbent to municipal authorities. Secondary waste management faces several challenges such as impromptu emptying of skip buckets by municipal authorities attributed to lack of logistics such as fuel, and resources to repair and maintain waste trucks despite city governments implementing a secondary waste project – CLUS³ Project. The Evaluation found that government was meant to provide counterpart funding to cater for logistics. However, the shift in priorities, to divert resources to fight COVID-19 could have affected its commitment to fulfill the counterpart funding pledge for the CLUS project.

This has had huge impact on the success of the project – the effectiveness of the primary component was directly linked to a functional secondary component. For a larger duration of the project, skip buckets were constantly full, and CBEs didn't have proper places to dump waste, therefore could not collect more garbage from households. As a result, households lost trust in CBE services, who then resorted to using services of Zogos because they never failed to dump garbage (illegal dumping – which is the default disposal system). Some of the CBEs were forced into illegal dumping to maintain their clients, which is unfortunately the default practice for disposal when skips are full across Greater Monrovia. While the project made efforts to address illegal dumping by CBEs, this was not wholly mitigated because of the problems down the value chain and the skip system.

In addition, municipal authorities reduced the number of collection points to retain a few points that they can effectively manage with the resources at their disposal, which has reduced the number of skip bucket locations within Greater Monrovia. In addition, the available infrastructure for solid waste management needs to be enhanced. Available facilities include one sanitary landfill at Whein Town; two transfer stations at Stockton Creek and Fiamah, three installed weighbridges at the landfill and at the

² These are private individuals or disadvantaged youth. They lack tools, carry waste on their heads and dump anywhere they find space including streets, wetlands and people's compounds

³ The Cheesemanburg Landfill Urban Sanitation (CLUS) Project funded by EU and the World Bank.

two transfer stations. The Whein Town landfill has reached maximum capacity, although the CLUS Project is constructing a new landfill at Cheesemanburg, which will replace the Whien Town landfill. There is need for a transfer station in Paynesville.

Several challenges constrain the sector's ability to provide efficient and sustainable solid waste services.

- (i) Several policy documents and frameworks to support sector governance and regulation continue to be in draft form, while several others need to be developed.
- (ii) The capacity of SMEs/CBEs needs to be enhanced to adequately utilize recycling and composting solutions.
- (iii) Lack of a transfer station in Paynesville which significantly affects SWM activities in the city.
- (iv) While land space is available in Greater Monrovia, the identified sites were less suitable for waste disposal facilities either located in swampy areas or in the middle of communities.
- (v) Residents freely throw waste anywhere, and while there are city ordinances that prohibit such practice, these are not adequately enforced.
- (vi) Lack of budgetary support for municipal SWM by government due to inadequacy in resources to invest in Solid Waste Management.
- (vii) Inadequate human resource within Solid Waste Management units at city corporations.
- (viii) Logistical challenges.

Despite the enormous challenges, the waste sector in Liberia has registered success in several areas within the past 4-years.

- (i) Draft policy documents and frameworks⁴ have been developed to enhance sector governance, regulation and coordination. These however need to be formalized
- (ii) Strengthened Public-Private-Partnerships, acknowledging that the public sector cannot solve waste sector challenges alone
- (iii) Established the Liberia WASH Commission to provide WASH sector governance
- (iv) Better technical capacity of national, city and local government individuals and institutions working in the waste sector
- (v) Better organized and coordinated primary waste sector, with a strong CBE network organized around their umbrella association, NACOBE
- (vi) Improved coordination of partners in the waste sector.

Several areas need to be strengthened to ensure a more sustainable and efficient SWM system in Liberia;

- (i) Efforts to reduce the per capita solid waste dumped in the landfill need to be enhanced through sorting, recycling and composting solutions
- (ii) City governments need to take advantage of the Public-Private-Partnership, they need support and guidance on setting up clear strategic actions on how to operationalize and manage the PPP to ensure sustainable and self-supporting partnerships with the private sector
- (iii) Budgetary allocation for municipal waste management, (iv) enhancing waste sector governance, particularly the development of policies and guidelines to regulate the sector.

⁴ These include the National Solid Waste Management Strategy; National Solid Waste Standards and Regulation; and Community Solid Waste Management Action Plans.

ATTAINMENT OF PROJECT OBJECTIVES:

<u>Component 1: Collect more waste:</u> This component aimed at improving access to sanitation through more sustainable and efficient solid waste collection within Greater Monrovia. Within the past 4-years, the project has been supporting CBEs to improve access to primary solid waste collection services among households. Households receiving primary solid waste collection services improved from 36% at baseline to 40% at end-line, although below the project target of 45%. Between 2018-2021, the number of CBEs operating within Greater Monrovia increased from 14 to 55; and to some extent, livelihood opportunities enhanced, evidenced by an improvement in the number of staff employed by CBEs in waste collection by 80% over the 4-years (299 at baseline vs. 537 at end-line). More jobs opportunities could have been created if recycling and composting solutions had, however not been descoped. While the number of CBEs increased, this was not sufficient to adequately cover the Greater Monrovia area.

Attainment of this outcome was hugely affected by the environment and context in which the project was delivered. (i) the high penetration of Zogos into the primary waste sector provided stiff competition to the CBEs, which forced several of them to reduce waste collection activities with households and started collecting garbage from business entities and institutions; (ii) nearly 2 of the 4-years of implementation were lost due to delayed kick-off of the project and the outbreak of COVID-19; (iii) the shift in government priorities, diverting resources to fighting COVID-19 could have affected its commitment to fulfill the counterpart funding pledge for the CLUS project which directly affected secondary and primary SWM; (iv) the secondary component was unable to effectively address the challenge of impromptu waste collection at skip buckets; (v) the inability for households to pay for waste collection services due to the impact of COVID-19 affected efforts to expand CBE services as CBEs resorted to collecting waste from business entities; (vi) while a stronger buy-in into the CBE model from city corporations could have led to better results. Additionally, high staff turn-over within the project; and the lack of storage space for CBEs to dispose of waste affected delivery of the CBE Model.

Despite the numerous challenges encountered, efforts to enhance primary SWM registered some positive results;

- (i) The project improved the organization of the primary waste sector.
- (ii) The CBE sector is more cohesive, clustered and together
- (iii) Better technical capacities for CBEs following the capacity building trainings
- (iv) The CBE model demonstrated that Public-Private-Partnership is the most feasible way in addressing the systemic solid waste challenges in Greater Monrovia.

Several lessons were learnt during the implementation of the CBE Model;

- (i) effectiveness of the model requires that the entire solid waste management value chain is fully functional.
- (ii) Public-Private-Partnerships are the most feasible way of addressing the systemic solid waste challenges in Greater Monrovia.
- (iii) Timely emptying of skip buckets is central to the success of the CBE operations
- (iv) The CBE model should have been approached from an entrepreneurship perspective, an area where CBEs can make business and grow.
- (v) There is need to push for regulations that makes it mandatory for households to subscribe to CBEs and pay for waste collection services.

Several contextual and unintended outcomes were registered from the delivery of the CBE model;

- (i) failure for households to pay for waste collection services compelled CBEs to start collecting waste from business entities to earn incomes to sustain their businesses.
- (ii) CBE activities increased the volume of waste at skip buckets, which was never matched by corresponding levels of emptying.
- (iii) City corporations reduced the number of waste collection locations at community level, evident from several of the skip buckets provided by the project still within the compound of city corporations.
- (iv) Lack of adequate dumping space forced CBEs to engage into illegal dumping to maintain clients, which is unfortunately the default practice for disposal in Greater Monrovia when skips are full.

Several other outcomes were attained within this component.

- A Grant facility was established to provide grants to SMEs/CBEs to engage in recycling and composting solutions to diversify the waste value chain, although processes ended with no grants awarded.
- The project established a micro-credit facility, providing loans to CBEs to procure tools and equipment to enhance their operations, to a tune of USD 300,000. This is the first of a kind in Liberia to support CBE operations. Setting up the facility took longer with loans provided in the final five months of the project. However, the facility provides an opportunity for CBEs to access finance and credit to expand their enterprises, and improve service coverage.
- By the time of the Evaluation, loans to a tune of USD 267,345 had been issued to 21 CBEs. With the
 project ending December 2021, the facility will continue as a revolving fund. A technical committee
 comprising of MIA, MCC, PCC, EPA, Foundation for Women, Eco Bank and NACOBE has been setup to ensure benefits of the facility continue beyond the project.

If effectively utilized, the loans will (i) Improve the operational capacity of CBEs through acquiring better tools (ii) the revolving fund will improve access to credit and financial services for CBEs in the longer term, (iii) with enhanced capacity, coverage of CBE services will be improved to reach more communities and households, and (iv) with a repayment period of 18 months and 1% interest rate per annum, CBEs can repay the loan in a way that does not put the enterprise into financial hardship. However (i) launching the facility early in the project would have had stronger impact on CBE operations (ii) would have provided adequate time for learning and integration of learning into practice (iii) proactiveness of the technical committee will be critical to the success and sustainability of the fund (iv) the ability of CBEs to repay back the loans will be key in ensuring sustainability of the fund.

The project supported city corporations to conduct community SWM forums across Greater Monrovia. A total 6 forums were conducted, which (i) provided an environment where community members, city governments, partners, and stakeholders sit together to come up with joint resolutions that incorporate holistic approaches toward delivering climate resilient solid waste management in Greater Monrovia (ii) Draft SWM Strategic and Action Plans were developed by city corporations, providing long-term vision and guidance to city corporations for efforts towards improving traditional waste management practices, while gradually transitioning to more sustainable waste management practices including ₃Rs to achieve a resource efficient and zero waste emission society. However, to ensure the forums achieve intended outcomes, there is need for a system that ensures regular interaction of city governments with community members on the importance of proper SWM, and enable communities to contribute solutions to addressing their own waste challenges.

COMPONENT 2: EXTRACT AND RE-USE PLASTIC AND ORGANIC MATTER

The component intended to reduce greenhouse gas emission through improving extracting, sorting and re-use of solid waste. It built-on component 1, looking at the next steps after waste collection. It was envisioned that following the award of grants, SMEs/CBEs would engage into sorting, recycling and composting⁵ solutions - therefore the component to a great extent hinged on award of grants to SMEs/CBEs. All necessary processes were undertaken to have grants of about USD 25,000 to USD 50,000 awarded, however proposals received needed to be enhanced to meet the minimum requirements. The process was therefore concluded without award. This outcome was not attained because (i) while the grant facility was established, no grants were awarded; (ii) while some land space was identified, this was not suitable for waste disposal facilities. If land at Omega market was identified early in the project, this could have enabled completion of the transfer station on time; (iii) the capacity of SMEs/CBEs needed strengthening to develop fundable proposals.

However, within this component, feasibility studies were conducted. These include the Action Plan for horizontal and vertical expansion of the CBE system for Primary Waste Collection, (ii) Costed Feasibility models and action plan for implementing composting and recycling options for primary waste collection in Monrovia, Paynesville and Surrounding Townships; and (iii) Greater Monrovia SWM baseline.

The descoping of sorting, recycling and composting interventions had significant impact on project objectives, would-be beneficiaries and the waste sector in Liberia; (i) the intended outcome was to reduce greenhouse gas emission through improving extracting, sorting and re-use of solid waste. Descoping of these interventions meant this could not be addressed; (ii) recycling and composting interventions create jobs, an opportunity was lost in tackling youth unemployment. Additionally, interventions (iii) could have reduced the amount of waste dumped to the landfill; (iv) could have reduced the amount of greenhouse gases released into the atmosphere, (v) could have enhanced business opportunities. Further, the government lacks resources to fund recycling and composting activities, therefore in future efforts, new donors have to be identified to invest in these interventions.

Additionally, (i) efforts have been made to support SMEs/CBEs to engage in recycling and composting solutions, although these were found to have varying capacity. There is a need to further enhance the capacity of SME/CBE to adequately undertake recycling and composting activities; (ii) the value chain and market variables needed to develop recycling and composting solutions need to be established (iii) limited availability of market for compost and recycled products need to be addressed; (iv) while the project engaged some manufacturers recycling plastic, the cost of recyclable plastics was not attractive to CBEs, therefore the linkage of waste value addition solutions with sectors such as agriculture, industry and manufacturing needs to be strengthened; (v) government needs to subsidize the private sector to attract investment into recycling and composting; (vi) the location of composting stations should be well planned as most of the farms and agriculture is done far away from Monrovia.

COMPONENT 3: INCREASED AWARENESS AND EDUCATION ON SWM:

The Project conducted intensive public awareness campaigns to inform the population in Greater Monrovia of the health and environmental benefits of improved SWM. The proportion of households reached by awareness campaigns on SWM improved from o% at baseline to 26% at end-line, surpassing the project target of 10%, while over 12,000 youths were reached with awareness messages through

⁵ Recycling means turning an item into raw materials which can be used again, either for the same product or a new one, while reusing means using an object as it is, without treatment. Composting is a natural process by which any organic material, is broken down by naturally by bacteria and fungus in the soil to form compost

education campaigns in schools. Awareness and sensitization campaigns (i) changed the behavior of communities in SWM (ii) several communities established sanitation taskforces to enforce proper SWM within communities, (iii) the journalism training resulted in the organization of local journalists into a Waste Management Reporters' Network, and the establishment of a social media platform where reports on climate change and SWM are uploaded and disseminated to the public; (iv) the project-built the capacity of students as change agents and champions on proper SWM at school and communities.

Several contextual and unintended outcomes were observed; (i) social cohesion, unity and bonding of communities; (ii) establishment of platforms for information sharing and dissemination amongst local governments, community leaders and their constituents, (iii) several households expressed willingness to subscribe to CBE services to improve primary SWM, however, coverage of CBE services remains low, with several communities not reached with waste collection services, (iv) willingness for communities to adopt healthy and safer waste disposal practices was found to be high; however, COVID-19 affected implementation of several awareness activities, particularly those that involved large gatherings.

COMPONENT 4: INTEGRATED SOLID WASTE MANAGEMENT SYSTEM AND CAPACITY

The Intermediate Outcome was integrated SWM systems and capacity improved, and integrated plans and capacity to manage and fund SWM for Greater Monrovia. Analysis of the maturity scale for the indicator showed that there is existence of an Integrated SWM small initiatives/lessons learnt but neither included nor implemented in community level planning. Additionally, to address capacity challenges within the public sector, the project partnered with the Institute for Housing and Urban Development Studies to conduct capacity building training for government officials. A total of 109 officials benefitted from the training; while the capacity of CBEs and NACOBE was built in Business Development, SWM, M&E, Financial Management, Quality Service Delivery, Records and Human resource Management. The capacity building training conducted had significant impacts at the individual, institutional, and sector level in Liberia. (i) The trainings in SWM directly responded to capacity challenges, needs and priorities of the public sector at national, city and local government, (ii) better technical capacities for national, city and local government officials, (iii) enhanced the capacity of NACOBE and CBEs to deliver their mandate, (iv) training in Financial Management provided CBEs an opportunity to view SWM with an entrepreneur perspective, unlike before were they considered their work as a community service, (v) the project enhanced coordination of partners and stakeholders within the waste sector.

FINDINGS FROM THE EVALUATION QUESTIONS:

OCED-DAC CRITERIA 1: RELEVANCE:

1. How appropriate was the project design to the achievement of the overall and specific objectives?

Considering the environment and context in which the project was implemented, the design was to a large extent appropriate to deliver the intended results. (i) the project did not create new structures but focused on working with, and empowering existing structures at national, city and community level, (ii) was effectively designed to address illegal dumping by CBEs, although not wholly mitigated because of the problems down the value chain and skip system; (iii) designed recycling and composting solutions to promote job creation, which complemented government efforts to address unemployment particularly among youth, (iv) built on successes and lessons from the EMUS project, and (v) engrossed on working with CBEs which was a key entry point into the sector. However, the project could have been delivered better if (i) had adopted bottom-up approaches; (ii) considered the interaction with the secondary component to create an effective value chain.

2. To what degree did the interaction between different project components contribute to achievement of outcomes in addressing systemic Solid Waste challenges? How could this have been improved?

At the sector level, interaction between the primary and secondary components could have been enhanced. There was minimal evidence of synergy between the two components. At the project level, interaction was evident. Leveraging results from component 1, there were strong and positive synergies with component 2 prior to descoping of the recycling and composting solutions. Interaction is evident on how awareness and sensitization campaigns encouraged households to subscribe to CBE services, promoted healthy SWM, encouraged waste separation at source, and promoted climate smart behavior. However, better results could have been delivered if (i) the Interaction between primary and secondary components ensued, and (ii) implementation of component 2 activities was fast tracked.

3. How responsive to the needs and priorities of local stakeholders were project processes including project design, implementation, monitoring and delivery? What can be learned and what could be strengthened in the future?

Despite the numerous waste sector challenges, the project made efforts to address the needs and priorities of local stakeholders. The project-built the capacity of public sector institution to address knowledge gaps in SWM; did not reinvent the wheel, but rather focused on addressing gaps that remained from the EMUS project; supported city corporations to develop and validate community SWM guidelines to improve SWM at community level; procured and distributed 60 skip buckets to improve waste storage; supported horizontal expansion of CBEs to improve coverage of waste collection services; provided start-up tools and equipment for waste collection to CBEs to enhance waste collection services; set up a loan facility (revolving fund) to address issues of access to finance and credit among CBEs, and conducted three (3) feasibility studies which provided an analysis of the waste system in Greater Monrovia. However, several priorities remain (i) sorting, recycling and composting (ii) lack of a transfer station in Paynesville, and (iii) waste sector governance - policies and guidelines.

4. 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?

The project-built the capacity of national, city and local government, the private sector and communities in building effective climate adaptation systems. At the community level, the project supported SWM community forums; supported awareness campaigns on climate change, and climate smart behavior; built the capacity of community leaders, and CBEs to sensitize communities about the importance of protecting the natural and built environment. At the local government level, the project built the capacity of Township commissioners and the technical staff of the townships in Montserrado County as change agents and champions in advocating for climate smart behavior, climate change and healthy SWM.

OECD-DAC CRITERIA 2: EFFECTIVENESS:

5. To what extent has the Programme achieved its intended results, and how effective were the various components?

The goal of the project was to ensure that 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. This was partially achieved. Outcome indicators showed that households with planned forms of garbage disposal improved from 36% at baseline to 87% at end-line, although below the project target of 45%. However, descoping recycling and composting interventions meant

that reduction in greenhouse gas emissions and job creation could not be attained. **Intermediate Outcome 1 focused on improving access to sanitation through more sustainable and efficient solid waste collection**. This was partially achieved. The percentage of Households in Greater Monrovia receiving PSW collection services improved from 36% at baseline to 40% at end-line, although below the project target of 45%. Loans to 21 CBEs (to a tune of USD 267,345) to procure tools and equipment will enhance their operations.

Attainment of this outcomes was however hugely affected by the environment and context in which the project was delivered. (i) Nearly 2 of the 4-years of implementation were lost due to delayed kick-off of the project and the outbreak of COVID-19; (ii) the shift in government priorities, diverting resources to fighting COVID-19 could have affected its commitment to fulfill the counterpart funding for the CLUS project which directly affected secondary and primary SWM; (iii) high penetration of Zogos into the primary waste sector provided stiff competition to CBEs, which forced CBEs to start collecting waste from business entities and institutions. (iv) the secondary component did not effectively address the challenge of impromptu waste collection at skip buckets; (iv) a stronger buy-in into the CBE model from city corporations could have led to better results; (viii) while the inability for households to pay for waste collection services affected efforts to expand CBE services to households.

Intermediate Outcome 2 focused on reducing greenhouse gas emission through improving extracting, sorting and re-use of solid waste. However, grants were not issued, as proposals received needed to be enhanced to meet the minimum requirements, therefore the outcome was not achieved. Descoping of recycling and composting activities affected attainment of this outcome. This outcome was therefore not attained because (i) while the grant facility was established, no grants were awarded; (ii) while some land space was identified, this was not suitable for waste disposal facilities. In Paynesville, space was identified late in the project which affected construction of the transfer stations; (iii) the capacity of SMEs/CBEs needed strengthening to develop fundable proposals.

Intermediate Outcome 3 focused on improving awareness of climate change and climate-resilient SWM with a focus on youth. To a large extent, this was achieved. The proportion of households in Greater Monrovia reached by awareness campaigns on SWM improved from o% at baseline to 26% at end-line, surpassing the project target of 10%, while over 12,000 youths were reached with awareness messages through education campaigns in schools. The outbreak of COVID-19 affected implementation of several awareness activities, particularly those that required large gatherings such as education campaigns in schools, and outreaches among others;

Intermediate Outcome 4 focused on ensuring integrated plans and capacity to manage and fund SWM for Greater Monrovia is attained. This was partially achieved. The project built the capacity of national, city and local government officials, which addressed knowledge gaps in SWM, while analysis of the maturity scale for the indicator showed that there is existence of an Integrated SWM small initiatives/lessons learnt but neither included nor implemented in community level planning.

6. What were the major factors influencing achievement or non-achievement of outcome/intermediate outcome(s)/expected results/outputs?

Several factors influenced the achievement of results; (i) the project leveraged the Liberia Country Programme with well-established partnerships with national, city and local governments; and communities to improve primary solid waste services (ii) leveraged existing community structures established by the Country Programme to conduct impactful public awareness and sensitization

activities (iii) adopted a coherent and clustered CBE model that was a success with previous projects, and (iv) built on lessons and successes from the EMUS project.

Several factors influenced non-achievement of project outcomes (i) weak secondary waste component (ii) inadequate buy-in into the CBE model from city corporations (iii) high penetration of Zogos into the primary waste sector (iv) COVID-19 affected implementation of several activities; (v) land space or sites identified were not suitable for waste disposal facilities, and (vi) time consuming compliance procedures required for civil works and construction projects affected activities such as construction of a transfer station in Paynesville.

7. How adaptable has the project been to external and contextual challenges (including the economic and political situation, and the Covid-19 pandemic), and to learning and feedback generated during implementation. How could this have been improved?

COVID-19 affected several activities mainly those that required sizable gatherings. However, the project adopted several approaches to address this. For instance, (i) capacity building activities were conducted virtually, (ii) the project leveraged community structures established by the LCP to conduct awareness and sensitization activities; (iii) adopted radio talk shows for awareness campaigns; (iv) leveraged the CBE network to conduct awareness and sensitization activities at household level as CBEs collected garbage, (v) the project recognized that women and children are key players in SWM at household level, therefore integrated and aligned social protection issues in awareness and sensitization activities.

However, certain external and contextual challenges were beyond the project's control. For instance, the project had moved a long way, and could not align to some of the priorities of the new government as this had huge implications on implementation approaches; the project also had less control on the Zogos whose penetration into the sector affected CBE efficiency. In terms of lessons learned: (i) developing more realistic assumptions would have contributed to better results (ii) enhancing monitoring of risks and assumptions in the log frame would help address external factors influencing non-achievement of outcomes; while (iv) enhancing coordination of the primary and secondary components would help address gaps in the solid waste management value chain.

OECD-DAC CRITERIA 3: EFFICIENCY:

8. To what degree was value for money prioritized during Programme implementation?

The project was keen on ensuring money was spent the right way and for the intended purpose. (i) the project ensured due diligence was conducted for all its operations including tenders to suppliers, consultants and civil works (ii) put in place a management committee comprised of MIA, PCC, MCC, Foundation for Women, Eco Bank and NACOBE that will ensure the loans given to CBEs are used for the right purpose (iii) NACOBE has worked arrangements with CBEs such that those that have similar items to be purchased can procure from a single vendor to increase bargaining power and lower the cost (iv) conducted training in financial management for CBEs, partly aimed at ensuring that resources advanced to CBEs are used optimally, and (v) robust financial management and accountability systems were put in place to ensure that resources are being used economically during Project implementation.

OECD-DAC CRITERIA 4: IMPACT

9. What were the intended/unintended outcomes and impacts of the project? Specifically, what were the outcomes for direct stakeholders and participants?

Several intended results were attained by the project (i) better organization of the primary waste sector reflected in better organization of CBEs through NACOBE (ii) better technical capacities of public sector individuals and institutions working in the waste sector (iii) the capacity building trainings conducted for CBEs on financial and record Management improved record management practices for CBEs (iv) the project established a loan facility/ revolving fund for CBEs, the first of a kind in Liberia, which will go a long way in enhancing access to credit and finance for CBEs in the longer term (v) enhanced coordination of partners and stakeholders within the waste sector, (vi) procured and distributed skip buckets to MCC and PCC which improved waste storage at community level (vii) the community forums were central in delivering messages about healthy waste disposal practices, enhanced community participation in coming up with solutions to their own waste challenges, which created a sense of ownership for sustainable solid waste management.

Several contextual and unintended outcomes were observed (i) failure for households to pay for waste collection services has compelled CBEs to move into collecting waste from business entities so that they can earn incomes to sustain their businesses (ii) CBE activities increased the volume of waste that goes to skip buckets, which was never matched by corresponding levels of emptying (iv) the number of collection points at community level have been reduced by city corporations to retain a few points that they can effectively manage, (v) due to inadequate waste disposal space, some CBEs were forced to engage into illegal dumping to retain their clients, which is unfortunately the default practice for disposal when skips are full.

Several outcomes were registered for direct stakeholders and participants

- The project Installed a sense of behavior change among individuals and communities towards SWM. The population is more aware about the importance and benefits of proper SWM
- (ii) Several communities have established sanitation taskforces to enforce better waste disposal practices within communities
- (iii) Students have become champions and change agents on proper SWM within schools, households and communities
- (iv) There is more commitment by residents to ensure proper waste disposal
- (v) Enhanced the capacity of the public sector to deliver climate resilient SWM
- (vi) Enhanced coordination of partners and stakeholders within the waste sector
- (vii) Improved bookkeeping, records and financial management practices of CBEs
- (viii) Enhanced unity and cohesion of community members
- (ix) The project leaves behinds a cohesive, clustered and well-coordinated CBE Network in Greater Monrovia
- (x) Enhanced the capacity of CBEs to implement primary solid waste activities through provision of working tools, loan assistance and capacity building training
- (xi) The community SWM forums provided an environment where community members, city governments, partners and stakeholders sit to come up with resolutions on how to incorporate holistic approaches towards delivering climate smart resilient SWM in Greater Monrovia

OECD-DAC CRITERIA 5: SUSTAINABILITY:

10. To what degree will the identified outcomes be sustained following closure? What specific recommendations to the Cities Alliance and implementing partners relating to future programming would improve or ensure the institutional sustainability of the SWM Programme initiatives?

- Importantly, the project leaves behind a coherent and clustered CBE network, with a strong umbrella organization NACOBE – which is better placed to advocate, monitor and supervise CBE operations
- **The loan facility (revolving fund) will continue after the project**. A management committee has been set up to manage the fund moving forward
- The knowledge gained from capacity building training remains relevant in addressing the systemic solid waste challenges
- The modules and curriculum developed on SWM will be useful for future capacity building programs.

However, to ensure institutional sustainability; (i) there is need to further improve coverage of CBE services (ii) there should be deliberate efforts by city corporations to create an enabling environment for CBEs to thrive, (iii) future projects should incorporate programs that support sector governance particularly development of SWM policies and guidelines, (iv) public awareness and sensitization activities were impactful in changing solid waste disposal practices at community and household level; however, continuity of these activities is not guaranteed unless funded. Even when integrated into city work plans, city corporations lack budgets to fund these activities⁶. Government needs to appropriate resources to city corporations to cater for municipal solid waste management.

OECD-DAC CRITERIA 6: EQUITY

11. To what degree was gender mainstreaming evident in the analyses, design, structures, services and results of the SWM project (for example, in access to leadership roles and the services provided), and how could this have been improved?

There is evidence of gender mainstreaming right from design through to execution of the project. (i) Within the project structure, gender is mainstreamed into project activities and results (ii) the project ensured female owned CBEs were recruited into the project – 20% of the CBEs were female owned (ii) project staff were trained and capacitated to execute their work in a gender-responsive manner as well as all internal policies, mechanisms and processes; (iv) as part of the Programme's commitment to gender equality, a Gender Equality Strategy was developed by Cities Alliance and adopted by the project. (v) UNOPS has set a target of having 50-50 staff ratios for gender (vi) In addition, the M&E framework has gender sensitive indicators with focus on generating, analyzing and presenting gender disaggregated data. In addition, the number of females employed by CBEs almost tripled (i.e., 82 at baseline to 221 at end-line). The Project created awareness and sensitization, mainstreaming gender in all such activities; while Cities Alliance has zero tolerance policies to discrimination on any accounts, including gender.

CONCLUSION:

In spite of the numerous difficulties, challenges and the environment within which the project was implemented; the 4-year period of working with CBEs, has established some successes onto which further programing can be hinged to and built upon. Even with the rest of the value chain being ineffective, the project kept going, working with the CBEs to improve primary solid waste services. While the sector has registered success in several areas in the recent past, more remains to be done, with PPP

⁶ while city corporations receive financial support annually from the GoL to provide basic municipal services, budgets earmarked for solid waste management are directly linked to donor financed projects. Currently, solid waste management is grossly underfunded in the national budget because government has no resources to invest in the sector

the most feasible model in delivering efficient and sustainable SWM in Greater Monrovia. The public sector lacks the adequate capacity and resources to effectively manage municipal solid waste on its own. However, through PPPs, this can be achieved.

However, for this to be attained, (i) City governments need to acknowledge CBEs as important stakeholders in the waste sector; (ii) city governments need to operationalize the principals of PPP; (iii) city governments constrain operations of CBEs in areas in which they don't have capacity; (iv) city governments should provide a conducive environment for CBEs to operate (v) high licensing and registration fees for CBEs should be revisited to allow entry of more CBEs into the sector; (vi) CBEs should be permitted to directly dispose to the transfer station to reduce the burden that city corporations have in emptying skip buckets; and (vii) engagement of community leaders in SWM activities to enforce payment of waste collection services at household level; while (viii) CBEs need to keep the spirit of being private entities which is revenue based, and look at their operations from an entrepreneur perspective, ready to generate revenue and grow their enterprises.

Dump sites are not the way to go with waste management, recycling and composting is. This should be the direction and priority of the government. Government should ensure that it has the right minimum funding available for the sector, and complement this with investment from the private sector. Trust should be built between government and the private sector, and an enabling environment fostered for it to thrive. Continuous efforts should be made to expand CBE coverage to reduce illegal dumping, offer durable solutions to improve solid waste management, prolong the longevity of the landfill, improve livelihoods and create jobs. Vertical expansion of the CBE system into composting, recycling and reuse is the way to achieve these objectives.

RECOMMENDATIONS:

To the donor: As EU plans its next steps and priorities for the sector, there is need to reconsider support and investment in sorting, recycling and composting programs, building on experiences and lessons learnt from this project; the project set aside resources to improve the available SWM infrastructure, however gaps remain as most of the planned infrastructure projects were not undertaken therefore supporting sector governance activities particularly policy development to enhance sector governance and regulation; and more investments in supporting improvement in the solid waste management infrastructure in Greater Monrovia is important for future programmes.

To the Government: (i) need to consider restrictions on packaging and controls on products to reduce solid waste generation rates. Tariffs could be increased on plastic as a way of discouraging their production and use; (iii) strengthening PPPs in delivery of solid waste services; (iv) to ensure sustainable and efficient SWM, recycling and composting should be the direction and priority of government; (v) there is need for government to increase funding to city governments to improve municipal waste management, particularly the secondary system; (vi) there is need for government to subsidize CBEs working within informal settlements; while (vii) efforts to reduce the per capita solid waste dumped in the landfill need to be enhanced through sorting, recycling and composting solutions.

To city Corporations: (i) there is need for city governments to recognize CBEs as vital players within the sector, provide them the necessary support to expand service coverage, build trust, and allow them to take charge of primary SWM; (ii) enhance processes for conducting supervision and monitoring of CBE activities to ensure compliance and adherence to sanitation standards; (iii) work with EPA, WASH Commission and NACOBE to develop, implement and enforce guidelines that make it a mandatory

requirement for households to subscribe to CBEs and pay for waste collection services to ensure protection of the CBE space from encroachment by Zogos, and increase revenue collection to sustain their enterprises; (iv) need to establish a system that ensures regular interaction of city governments with community members on the importance of proper waste management, and enable communities to contribute solutions to addressing their own waste challenges; (v) timely emptying of skip buckets.

To Cities Alliance: (i) interventions that involve civil works or construction should be launched early in the project to provide adequate time for learning and integration of learning into practice to improve performance; (ii) enhance Monitoring and Evaluation, particularly in conducting periodic analysis of the effect of project risks and assumptions on delivery of project objectives and proposed interventions.

To Partners (institutions/ organizations that might in the short or long run implement similar programs/projects/ activities in SWM) : (i) there is a need to support and guide city governments on setting clear strategic actions on how to operationalize and manage PPPs; (ii) future programs should ensure that before venturing into SWM activities, both primary and secondary components are functional or support provide to ensure both are functional - preferably both primary and secondary components implemented by the same institution; (iii) the public and private sector need further strengthening through capacity building trainings to adequately undertake recycling and composting solutions; (iv) enhance the capacity of SMEs/CBEs to engage in recycling and composting activities (v) the location of the composting stations should be well planned. Most of the farms and large-scale agriculture is done away from Monrovia; and (vi) entities intending to venture into recycling and composting solutions should initially pilot these interventions before full-scale roll out. It's therefore important to start small, learn from initial processes, integrate learnings into practice, and later roll-out on a larger scale. Demonstration projects could be adopted.

To NACOBE and CBEs: (i) there is need to work with city authorities to come up with a uniform fee to be charged to households. The fee should be standardized to all households or clustered based on income pyramids, (ii) NACOBE should take keen interest in how CBEs are utilizing loans advanced; and ensure loan repayments are made to ensure sustainability of the revolving fund.

1.1 INTRODUCTION:

Solid waste management is arguably one of the greatest public health threats in Liberia. Previously considered a local issue, it's clear that solid waste management has gained international and global attention. Actions to reduce the environmental risks of solid waste treatment and disposal operations have reached unprecedented levels. Nations are considering restrictions on packaging and controls on products in order to reduce solid waste generation rates. Local and regional governments are requiring wastes to be separated for recycling, and some have established mandatory recycling targets.

Several developed countries have embarked upon major environmental reforms, and have made advances in best practices and sustainable management of their Municipal Solid Waste. However, in most developing countries like Liberia, such environmental reforms have not been initiated and therefore the situation has become compounded. Waste management in the cities is inadequate, and a significant amount of domestic solid waste generated remains uncollected^{7.} According to UNICEF, at least 20 percent of deaths of children under five in Liberia are caused by diarrhea, caused primarily by poor hygiene and lack of sanitation. The rise in commercial industries, increase in population size, rapid urbanization and expansion of cities are significant concerns on solid waste management efficiency.

In addition, the ineffective management of household solid waste has become a major issue threatening the environment and public health in Liberia. The population of Monrovia is increasing, accompanied by rapid urbanization. Due to rapid urbanization, economic development, higher living standards and changes in consumption patterns and lifestyle, the generation rate of waste has increased. The generated waste is inadequately disposed off due to the inadequate collection system, as large fragments of waste remain uncollected resulting in open dumping and littering on the streets.

According to the Environmental Protection Agency (EPA) Report of 2013, solid waste management is faced with several challenges characterized by low public awareness regarding waste and the risk to public health if not properly handled, poor environmental education and lack of coordination and participatory approach among others. These waste management challenges have become heightened as a result of insufficient technology to ensure proper management, low budgetary allocations for effective waste management, lack of skilled professionals and poor implementation of regulations⁸

A significant proportion of the waste generated in Greater Monrovia is organic refuse and plastic. The increasing number of plastic wastes is as a result of the increased use of plastic products on the market such as plastic sachet water, polyethylene terephthalate (PET) bottles and plastic bags. Wastes are being dumped in open spaces, streets corners, burnt, or buried in backyards.

According to the World Bank Solid Waste Management Report of 2019, the high costs and difficulties in collecting large quantities of waste generated by households are critical challenges facing the solid waste sector. This has resulted in the accumulation of a significant amount of uncollected and haphazardly disposed solid waste in the city. The same Report highlights that from the tonnage data, the waste collection rate in the city of Monrovia was approximately 800 tons of domestic solid waste per day, representing approximately 45% of the total waste generated in the city. The remainder (approximately 55 %) is not covered by the formal solid waste collection system.

⁷ United Nations Environmental Programme (UNEP) 2006

⁸<u>https://www.researchgate.net/publication/332143253_Solid_Waste_Management_in_Monrovia_Liberia_Implications_for_Sustainable_Development</u>

1.2 About Cities Alliance:

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.

1.3 Cities Alliance Liberia Country Programme:

The Liberia Country Programme (LCP) aims to enable Liberia to realize its urban agenda through investing in partnerships, building coherence of effort among Cities Alliance members and partners, and improving alignment between national policy, local government capacity and an active citizenry. Inaugurated in 2016 with funding from Comic Relief and the National Lottery Community Fund (NLCF), the LCP is an ambitious five-year, multi-level urban development Programme that aims improving the lives and opportunities of up to 400,000 slum dwellers in Greater Monrovia. It includes components funded by Comic Relief and NLCF, two EU funded Projects on primary waste collection and innovative waste-to-energy initiatives, as well as the FCDO funded Covid-19 response projects.

1.4 The EU funded Primary Solid Waste (PSW) Project:

The Cities Alliance EU funded Programme **"Delivering Climate-Resilient Solid Waste Management Services in Greater Monrovia, Liberia through Community-Based Enterprises"** is a 4-year programme (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:

- 1. Urban Health and Environmental protection, leveraging World Bank-supported SWM projects.
- 2. Sustainable economic growth through green businesses generating jobs to the urban poor, leveraging the Improved Primary Waste Collection in Poor Communities (IMPAC) project.
- 3. 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 Liberia Country Programme.

Overall Project Objective:

The overall objective is to ensure that 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, it creates jobs and creates awareness of climate change"

Specific Objectives:

- 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.

1.5 Purpose and Objectives of the Evaluation

1.5.1 Purpose of the Evaluation:

To determine the extent to which the project overall objective and outcomes were achieved; document lessons learnt; provide recommendations for future project interventions and help UNOPS-Cities Alliance to understand the changes brought by the Project on the targeted beneficiaries and stakeholders.

1.5.2 Objectives of the Evaluation:

- 1. Verify the results achieved (specifically relating to the overall and specific objectives and measurement of log frame outcome indicators through household and CBE surveys and other methodologies), and make conclusions and recommendations relating to the design and performance of the Programme during the 4 years of implementation, with consideration of contextual challenges in the waste sector in Liberia.
- 2. Identify and document Programme outcomes/impact (intended and unintended), feedback and lessons learned, (to include adaptive capacity to a changing implementation environment).
- 3. Support the Cities Alliance Country Programme model by generating evidence-based strategic recommendations relating to the design and implementation process of this programme (specifically what learning should the Cities Alliance take forward to future Country Programme design)
- 4. Provide an updated systemic analysis of the waste sector in Liberia and develop specific recommendations for key stakeholders in SWM in Greater Monrovia, to identify priority areas for improvement as immediate next steps and recommendations for stakeholders for the longer-term.

1.6 Scope of the Evaluation:

The Evaluation was conducted across the 2 cities and 10 townships where the Project was implemented. While the project was unable to award grants and civil works descoped, the evaluation established whether the descoping and the inability to award the grant affected the Project objectives. The evaluation assessed the performance of the Project from design to closure – including an assessment of why certain components were descoped, the effect this had on project objectives and beneficiaries; and missed opportunities in having these components descoped.

1.7 Project design and model of implementation:

The design of the EU funded PSW Project is based on linking solid waste removal into the very fabric of the LCP 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. The project adopts a model that supports CBEs to collect Waste from households and dispose into Skip Buckets.

To achieve long term impact, the Project implemented four (4) components as detailed below:

Component 1: Collect more wastes:

Component 2: Extract and Reuse Plastic and Organic Matter (Descoped)

Component 3: Increased awareness and Education on Solid Waste Management:

Component 4: Integrated SWM System and Capacity: Expected result is improved and integrated plans and capacity to manage and fund SWM for Greater Monrovia.

1.8 Specific Evaluation Questions:

Table 1: OECD DAC Evaluation Criteria and Questions

OECD CRITERIA	SPECFIC EVALUATION QUESTIONS		
Relevance	1. How appropriate was the design of the EU-funded Programme to the achievement of the Programmes overall and specific objectives?		
	2. To what degree did the interaction between the different LCP Programme components contribute to the achievement of outcomes in addressing systemic Solid Waste challenges? How could this have been improved?		
	3. How responsive to the needs and priorities of local stakeholders were the Programme processes including programme design, implementation, monitoring and delivery, what can be learned and what could be strengthened in the future?		
	4. 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?		
Effectiveness 5. To what extent has programme achieved its intended results, and how were the various components?			
	6. What were the major factors influencing the achievement or non-achievement of the outcome/intermediate outcome(s)/expected results/outputs?		
	7. How adaptable has the programme been to external and contextual challenges (including the economic and political situation, and the Covid-19 pandemic), and to learning and feedback generated during implementation. How could this have been improved?		
Efficiency	8. To what degree was value for money prioritised during programme implementation		
Impact	9. What were the intended/unintended outcomes and impacts of the SWM project? Specifically, what were the outcomes for direct stakeholders and participants? At a minimum, this analysis should include both quantitative and qualitative changes, and identify differential outcomes based on gender and age.		
Sustainability	10. To what degree will the identified outcomes be sustained following closure? What specific recommendations to the Cities Alliance and implementing partners relating to future programming would improve or ensure the institutional sustainability of the SWM Programme initiatives?		
Equity	11. To what degree was gender mainstreaming evident in the analyses, design, structures, services and results of the SWM project (for example, in access to leadership roles and the services provided), and how could this have been improved?		

2.1 INTRODUCTION:

This section provides an elaboration of the methodology adopted for the Evaluation. Practical and feasible data collection methods were identified to generate high quality data and most credible impact evidence that corresponds to the evaluation questions. The methods were carefully selected to minimize the risk of exposure of the evaluation team and participants to COVID-19.

2.2 EVALUATION DESIGN:

A mixed-Methods approach was adopted - using a combination of qualitative and quantitative methods to social investigation. Longitudinal analysis was also conducted to demonstrate impact, through comparison of data at Mid-Term and End-line⁹. Primary and Secondary data was collected from various participants and stakeholders¹⁰ using structured data collection tools, while secondary data collection involved extraction of data from the project Management Information System (MIS) to measure output level indicators; and document review and analysis. The above approaches were complemented with the MSC Story approach to assess how the project impacted direct and indirect beneficiaries.

2.3 SAMPLE SIZE ESTIMATION AND SELECTION:

Kish Leslie formula for simple random sampling was adopted in computing the sample size for households i.e., Sample size $n_0 = Z^2 \times p (1-p)/m^2$. Using this formular, the total sample size for households was 564. However, a total of 567 households were reached, representing 101% response rate. The project worked with 40 CBEs to support primary solid waste collection. Due to their relatively small sample size, all the 40 CBEs were selected for the evaluation. However, 39 were reached, representing 98% response rate. Household sample sizes at Mid-Term and End-line differed significantly (by 30%), with the end-line sample size significantly higher. This was adequate to generate the desired statistical power for the Evaluation, which enabled comparability of results and findings (Mid-term vs End-line).

SNo.	City or LGA	Population ¹¹	Mid-Term Sample Size	End-Line Sample Size	Sample Size reached
1	Monrovia	148,278	112	115	116
2	Paynesville	120,671	60	83	83
3	New Kru	82,614	45	64	64
4	Garworlorn	76,579	60	59	58
5	Gardnerville	51,259	50	40	42
6	West Point	47,470	32	32	33
7	Johnsonville	2,553	17	17	13
8	Caldwell	45,595	14	35	35
9	Congo Town	15,640	10	21	20
10	Dixville	75,403	10	49	54
11	New Georgia	36,546	18	28	28
12	Barnesville	26,894	8	21	21
	Total		434	564	567

Table 2: Household Sample Size disaggregated by LGA:

⁹ Baseline data was not considered in conducting longitudinal analysis which it was unavailable

¹⁰ Evaluation participants included Community members (households), CBEs, NACOBE, MIA, MCC, PCC,

Township commissioners, European Union and Cities Alliance Staff in Liberia

¹¹ Data source: Monrovia City Corporation zone and community boundaries – Ministry of Planning & Economic Affairs

Selection of households adopted multistage sampling technique; the project area was clustered into 12 LGAs. Within each cluster, stratified sampling was adopted to stratify communities; and within each stratum, simple random sampling was adopted to select the required number of Blocks. At block level, a list of households within each block was obtained from local leaders to form the sampling frame. Using this sampling frame, systematic random sampling was adopted to select the households.

The selection of CBEs was direct since all were enrolled into the evaluation. With township commissioners, the project worked in 10 townships (excluding the two (2) cities of Monrovia and Paynesville). A total of five (5) commissioners¹² were selected for the evaluation, adopting the simple random sampling approach.

Indicator	Response Category	CBE Survey	Household Survey
Candar	Male	79%	33%
Gender	Female	21%	67%
	20-30 Years	3%	25%
Age	31-40 Years	31%	37%
	Above 40 Years	66%	38%
	<3		5%
Household size	3-6		55%
	>6		40%

Table 3: Social Demographic Characteristic of Survey Participants

2.4 DATA COLLECTION METHODS AND PROCEDURES:

The evaluation adopted Qualitative and Quantitative methods, and the MSC story approach. Quantitative Data was collected from Households and CBEs through surveys, using survey questionnaires. These were structured "Researcher administered" questionnaires, administered to heads of households and proprietors of CBEs. Digital data collection approaches were adopted in collection of quantitative data. Households and CBE survey questionnaires were converted into an electronic tool designed using Kobotoolbox, and data collected using tabulates.

Several project participants and stakeholders¹³ were engaged through qualitative methods such as Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), In-depth Interviews and verification analysis. Virtual data collection approaches were largely adopted, except for respondent categories where face-to-face interviews were the most feasible data collection method to limit exposure of the evaluation team and evaluation participants to COVID-19. Online platforms such as Teams and Zoom were adopted. The evaluation facilitated participatory and empowering processes with project stakeholders to identify, analyze and document outcomes, feedback and lessons learned through the MSC Story approach with different project stakeholders¹⁴. The data collection strategy adopted included recruitment of enumerators and field supervisors; training of the data collection team; validation and pre-testing of data collection tools, and field data collection plan.

¹² Township commissioners selected were from Dixville, West Point, Congo Town, Garworlorn, New Kru Town ¹³ These include CBEs, NACOBE, Community members, MIA, EPA, WASH Commission, city corporations, EU

and Cities Alliance staff in Liberia.

¹⁴ These include NACOBE, CBEs, community members, MIA, EPA, WASH Commission, city corporations and township commissioners.

Safeguarding the enumeration team and participants from COVID-19:

Several strategies were implemented to minimize exposure of the Evaluation team and participants from contracting COVID-19, building on experience in conducting several evaluations in the height of COVID-19, including the End-line Evaluation of the Liberia Country Programme. Approaches adopted include virtual data collection approaches, vaccination of the enumeration team, use of PPEs throughout data collection, sanitizing participants prior to start of face-to-face interviews, and maintaining social distance during the interviews.

2.5 QUALITY CONTROL:

Robust and flexible organizational systems enabled effective coordination and delivery of the assignment on time and with quality. The evaluation team was adequately trained on data collection processes, quality assurance procedures, and routine checks conducted to ensure collection of reliable and quality data. A team of field supervisors was deployed to oversee data collection; data collection tools were refined and piloted together with the enumeration team in discussion with Cities Alliance to ensure suitability and greater quality of data. Daily review meetings were conducted to share and discuss findings, and address gaps where they exist. This enabled identification and dealing with information gaps. Call backs were done in order to fill gaps which offered an opportunity for triangulating data. Field supervisors conducted spot checks for purposes of ensuring data quality, checking compliance and observance of guidelines on sample selection and implementation of the field data collection plan.

2.6 DATA MANAGEMENT, SYSTEMATIZATION AND ANALYSIS

2.6.1 Data Editing, Systematization and cleaning:

Data from the field was continuously assessed and reviewed, and adjustments made in the data to control its quality. In addition, data was scrubbed to detect, correct and remove corrupt or inaccurate records from a data set.

2.6.2 Data Analysis

Qualitative data was analyzed following standard content analysis procedures from focus group discussions, key informant interviews and in-depth interviews to permit extraction of the required content for each theme using NVivo. Quantitative data was exported to Excel for checking and cleaning to ensure accuracy. Univariate and Bivariate Analysis were conducted against project indicators, to determine relationships and comparative analysis using STATA. The scoring technique was adopted in analysis and selection of MSC stories. Participants were asked to rate the value of each story using a scale of 1- 10, where the minimum score of 1 indicated a story that is not at all valuable, while the maximum score of 10 indicated a story that is extremely valuable.

2.7 REPORTING

A Draft Report highlighting results and findings, strategic recommendations and conclusions was compiled and submitted to Cities Alliance. The Report was structured using the format provided by Cities Alliance, which included a stand-alone 10-page Executive Summary. The Report was language edited by a professional language editor and subjected to appropriate professional formatting standards.

A Draft Report Review Meeting was held following the submission of the first Draft Report to discuss initial and preliminary findings. The review exercise provided Cities Alliance an opportunity to comment on the draft report, clarify and correct certain information and providing additional data that was used to highlight additional results.

Second Draft Report: Following the draft review meeting; feedback, comments and input from Cities Alliance were consolidated, and revision made to the first draft report to produce the Second Draft.

Final Draft Report: A Final Draft Report will be compiled upon receipt of comments and feedback from Cities Alliance on the Second Draft Report. At this point, all feedback from Cities Alliance will be effectively addressed. We will submit the Final Draft Report for onward sharing with partners and stakeholders for review and providing feedback.

Dissemination and validation workshop: A virtual dissemination workshop will be organized to share results, findings recommendations and way forward from the final Evaluation. This will be a 2-hour meeting organized for project stakeholders.

Final Evaluation Report: Comments and recommendations emanating from the dissemination workshop and Final Draft Report review will be used to refine the Final Draft Report and later submit the Final Evaluation Report to Cities Alliance. A 10-page Executive Summary will be compiled and submitted summarizing key findings, lessons learnt and recommendations.

2.8 ETHICAL CONSIDERATIONS:

Ethical considerations were adhered to whilst undertaking the assignment. These include; the do no harm principal; Informed consent and confidentiality; Impartiality; data security; adherence to professional standards; and safeguarding children and vulnerable people.

3.1 INTRODUCTION:

This section presents results and findings from the Evaluation. The section highlights results from the systemic analysis of the waste sector in Liberia, and the extent to which the project objectives and intermediate outcomes were achieved.

3.2 OVERALL RESULTS FROM IMPLEMENTATION OF THE PROJECT:

Since 2018, Cities Alliance has been working with several government agencies (MIA, EPA and WASH Commission); municipal authorities from Greater Monrovia, and CBEs to improve primary solid waste management. Project activities demonstrated that Public-Private-Partnership is the most feasible way in addressing systemic solid waste challenges in Greater Monrovia. The activities further resulted into better organization of the primary waste sector reflected in better organization of CBEs through NACOBE; better technical capacity of public and private sector individuals and institutions working within the sector; enhanced coordination of partners and stakeholders in the waste sector; while the capacity building training in solid waste management directly responded to the needs and priorities at national, city and local government level.

A loan facility was established for CBEs, which will continue as a revolving fund post project. This is the first of a kind in Liberia that CBEs are supported to access low-interest loans (1% per annum) to purchase tools and equipment to enhance their capacity in conducting door-to-door waste collection services. The fund will go a long way in enhancing access to finance and credit in the longer term. Several skip buckets (60) were procured and distributed to municipal authorities in Greater Monrovia which improved waste storage at community level. The community forums supported by the project enhanced community participation in coming up with solutions to their own waste challenges, which created a sense of ownership for sustainable solid waste management

The intensive public awareness campaigns enhanced behaviour change among households and communities on solid waste management; while working with school age children as agents of change is a vital long-term investment in changing waste management behaviour and practice among future generations. The project improved horizontal expansion of CBEs from 14 at project start to 55 by end-line; households reached with door-to-door waste collection services increased from 7,600 at project start to 9,500 at end-line; while communities reached with CBE services increased from 89 at project start to 300 at end-line. In addition, the project developed training modules and curriculum in solid waste management for municipal officials, which will be useful for future capacity building trainings.

Analysis of project log frame indicators showed that several outcome and impact level indicators were attained, while others fell short of the planned targets. For instance, the percentage of households with planned forms of garbage disposal improved from 36% at baseline to 87% at end-line, surpassing the project target of 45%; the proportion of households in Greater Monrovia reached by awareness campaigns on SWM improved from 0% at baseline to 26% at end-line, also surpassing the project target of 10%. This is attributed to leveraging the LCP's well-established partnerships with national, city and local governments; leveraging existing community structures to conduct impactful public awareness activities; adopting community-led approaches; & building on lessons & successes from EMUS project.

However, while the percentage of households receiving PSW collection services improved from 36% at baseline to 40% at end-line, this was below the project target of 45%; the proportion of solid waste sorted and recycled for re-use at collection remained unchanged from baseline i.e., 0%.

Several challenges affected attainment of intended results. Attainment of project outcomes could have been stronger if: municipal authorities had been supported to effectively address the challenge of impromptu waste collection at skip buckets to allow CBEs adequate space to dump garbage collected from households; stronger buy-in into the CBE model from municipal authorities as part of operationalizing PPPs; strengthened the capacity of SMEs/CBEs to engage in recycling and composting solutions; and launching recycling and composting activities early in the project.

In addition, the shift in government priorities, diverting resources to fighting COVID-19 could have affected its commitment to fulfill the counterpart funding pledge for the CLUS project (secondary SWM project) which was meant to cater for logistics such as fuel, repair of waste collection trucks and equipment, and payment of staff salaries. The poorly performing economy due to the impact of COVID-19 affected household's ability to pay for waste collection services, affecting CBEs' capacity to expand services; the outbreak of COVID-19 affected activity implementation and results; the emergence of Zogos in primary waste collection; obtaining land within the cities to construct solid waste infrastructure was a challenge for municipal authorities, which affected construction of a transfer station in Paynesville, and sorting infrastructure in Monrovia because suitable sites could not easily be identified.

Several contextual and unintended outcomes were registered; the inability of households to pay for waste collection services compelled CBEs to start collecting waste from business entities to earn incomes to sustain their enterprises; CBE activities increased the volume of waste that goes to skip buckets which was never matched by corresponding levels of emptying due to logistical challenges; and the number of collection points at community level were reduced by municipal authorities to retain a few points that they can effectively manage with the limited resources at their disposal.

3.3 ANALYSIS OF THE WASTE SECTOR IN LIBERIA

3.3.1 INTRODUCTION:

Statistics from the World Bank¹⁵ indicate that Liberia's urban population has increased by nearly 71% since the end of the civil war, as more and more people migrated from the leeward counties to the urban centers, particularly Monrovia and Paynesville. This unsustainable rise in the population has led to corresponding levels of solid waste accumulation, putting pressure on the existing resources and infrastructure. Monrovia and Paynesville city corporations have a national mandate to collect and dispose solid waste within Monrovia and Paynesville city limits. Beyond household and business collection, this responsibility extends to enforcing ordinances which regulate residential solid waste management practices. Municipal authorities are also responsible for regulating private sector activities in the solid waste management system. Both CBEs and SMEs operate under their jurisdiction. This responsibility includes issuing licenses and assigning zones of operation.

Solid waste management programs within Greater Monrovia have progressed over the recent years with support from the Government of Liberia, donors and implementing partners. Between 2015-2021, there have been four major solid waste projects funded by the World Bank and EU. These are; Emergency Monrovia Urban Sanitation project (EMUS); Cheesemanburg Landfill Urban Sanitation (CLUS); EU Water Facility Project; and Cities Alliance EU funded Primary Solid Waste Project. These projects focused on several activities supporting primary and secondary collection of waste, waste disposal and hygiene promotion within Greater Monrovia and its environs.

¹⁵ Referenced from the World Bank Solid Waste Management Report of 2019

In the recent past, the Government of Liberia established some institutions to tackle the mounting waste situation in the country. The Environmental Protection Agency (EPA) was established to coordinate, monitor, supervise and regulate the waste sector, while the WASH Commission, was recently established (2018) to promote and regulate the development, management of WASH sector activities – including solid waste management. The solid waste management system is designed to provide primary and secondary waste collection services.

Primary collection is conducted through agreements with CBEs, while Secondary waste collection is taken over by city governments, and SMEs. City corporations register and license CBEs to provide primary solid waste collection services for a defined area (zone); and are meant to conduct supervision and monitoring of CBEs to ensure compliance and adherence to sanitation standards, although this needs to be strengthened. Large established businesses rely on contracts with SMEs, who collect and transfer waste directly from the businesses to the landfill in Whein Town.



Figure 1: Current Solid Waste Management value chain in Greater Monrovia¹⁶

3.3.2 CONTEXT AND ENVIRONMENT WITHIN WHICH THE PROJECT WAS DELIVERED:

The project was implemented and delivered within a challenging environment. Within Greater Monrovia, city corporations are the lead agencies responsible for implementing solid waste management activities, and have over the years demonstrated capacity to sustain solid waste management, though challenges and logistical gaps remain. The World Bank Solid Waste Management Report of 2019 notes that while city corporations receive financial support annually from the GoL to provide basic municipal services, budgets earmarked for solid waste management are directly linked to donor financed projects. Currently, solid waste management is grossly underfunded in the national budget. Between 2015-18, all budgetary allocation towards solid waste management came solely from counterpart funding linked to the EMUS and CLUS projects. City corporations collect small fees paid by small contractors for tipping at the transfer stations and the landfill, from businesses operating within the city limits, and from CBEs that provide primary collection services to the residents. These fees are supposed to be directed to an account that is restricted only for purposes of municipal solid waste collection and disposal, however this has not been the case.

¹⁶ Adopted from Cities Alliance's feasibility study titled "Costed Feasibility Models and Action Plan for Implementing Composting and Recycling Options for Primary Waste Collection in Monrovia, Paynesville, and Surrounding Townships"

In addition, Inefficiencies exist within the contractual model with CBEs. Initially, CBEs were mandated to work only in a particular zone. This was based on the notion that communities within a zone would be incentivized to informally organize themselves and engage in primary waste collection activities. However, over time, in order for the municipal authorities to effectively monitor CBEs, it was deemed essential to legalize the process by requiring CBEs to register as formal businesses. CBEs essentially became SMEs but were restricted under their contractual agreement with the city corporations to expand outside of their allotted zone. Consequently, they are unable to leverage efficiencies of scaling up, but incur huge overhead costs and generate low revenue, since the number of households they serve is nearly constant. Additionally, households are not mandatorily required to subscribe to CBEs; thus, further reducing potential revenue.

Most CBEs don't have valid and legal contracts but continue to work with minimal regulation, monitoring or supervision. Further, street cleaners and Zogos tend to illegally collect garbage and get paid from households mandated towards CBEs, thus taking away their business. Low levels of trust between citizens and CBEs are aggravated when bottlenecks in the processing of solid waste effect regular collection. CBEs have a difficult relationship with households who refuse to pay fees when garbage is not collected. However, when skip buckets are full, usually because private contractors (SMEs) or the city corporations fail to empty the skip buckets on time, CBEs have no location to dump their loads making it difficult for CBEs to serve houses. Overfilled skip buckets, in turn, have led to CBEs collecting garbage from households fewer times than what was previously agreed upon. Consequently, households refuse to pay CBEs, resulting in further conflict.

Revenues over the last three years have been decreasing. The lack of adequate budgetary allocation by the GoL to solid waste management activities restricted city corporations' ability to expand sanitation services. Further, Liberia's garbage tax is too low to recover costs. Thus, a large percentage of the refuse generated in Greater Monrovia remains uncollected and left on the ground in communities. In addition, areas where city corporations can increase potential revenues have been outsourced to CBEs and private providers. Liquidity constraints, thus curbing the city corporations' ability to achieve long term sustainability for sanitation.

3.3.3 PRIMARY SOLID WASTE MANAGEMENT:

Primary waste collection involves door-to-door waste collection services from households and businesses (such as restaurants, hotels etc.) to skip buckets. Collection from households to skip buckets is conducted through agreements with CBEs, while waste collection from businesses is conducted by SMEs. The Evaluation however found that CBEs have started collecting waste from businesses. They (CBEs) are assigned a particular zone within which they are required to collect garbage from households to designated collection points. CBEs have come together to form an association, NACOBE that coordinates, monitors and supervises their activities. According to NACOBE, 55 CBEs are currently functional in Greater Monrovia;

CBEs charge their clients an average of LRD 400-500 per month for solid waste collection services rendered (usually 2-3 times per week) and paid yearly licensing fees to the city corporations. Initially CBEs benefited from a perceived monopoly in their respective zones since no other CBEs or organizations were allowed to operate and deliver solid waste services. However, this has changed in recent years with Monrovia city corporation implementing a pilot primary waste collection project, working with private individuals (locally known as Zogos or disadvantaged youths), which later spread to Paynesville. These have no specific rates charged, but believed to charge costs lower than CBEs.

To the CBEs, this was intended to provide direct competition to their enterprises. However, to municipal authorities, this intended to bridge service coverage gaps, particularly in communities not reached by CBEs. However, the penetration of Zogos was found to extend into areas served by CBEs. The Evaluation found that 81% of the households in Greater Monrovia subscribing to private waste collection services were using Zogos in primary waste collection, compared to 19% for CBEs. However, these (Zogos) lack waste collection tools and equipment; carry garbage on their head, and will dump anywhere they find space including the roadside, wetlands and people's compounds.

The Evaluation further established that piloting this project aimed at responding to the high rate of unemployment among the youth in Liberia. However, this being implemented parallel to Cities Alliance's primary solid waste project affected the CBE operations. Several households resorted to using these individuals because they are cheaper, and as a result, CBE collections have been low and insufficient to cover their day-to-day operational expenses. These have now resorted to collecting garbage from businesses (an area managed by SMEs) because these can ably pay for waste collection.

3.3.3 SECONDARY SOLID WASTE COLLECTION:

Secondary waste collection begins at the skip buckets to transfer stations and landfill for final disposal. This is done by city corporations and in some instances SMEs. Unlike CBEs, SMEs can dispose at transfer stations and the landfill. They are charged a small fee for dumping at the transfer stations. Secondary solid waste management is however faced with impromptu emptying of skip buckets by municipal authorities due to logistical challenges, and lack of resources to repair and maintain waste collection trucks. City corporations are implementing a secondary waste project - the Cheesemanburg Landfill Urban Sanitation (CLUS) Project, which procured trucks and other equipment for managing municipal waste collection. As part of the project, the Government of Liberia was meant to provide counterpart funding to cater for logistics – however, this became increasingly difficult for the government to fulfil as priorities shifted to fighting the spread of COVID-19. This affected secondary solid waste management activities, and success of the primary component as CBEs could not go to households to collect more waste because they lacked were to dump the garbage - skip buckets were always full.

As a results, households lost trust in the CBEs, and resorted to using Zogos who never failed to get were to dump (illegal dumping). Some CBEs were forced into illegal dumping to maintain their clients, and ensure their tricycles don't have to park for long with garbage which is unfortunately the default practice for disposal when skips are full. Municipal authorities were also forced to reduce the number of collection points at community level and retain a few points that they can effectively manage with the limited resources at their disposal. In addition, in the recent past, communities provided spots for city authorities to place skip buckets. However, due to impromptu emptying of buckets, communities demanded that authorities remove the buckets. The spots had turned into disposal sites, causing health & environmental risks to nearby households and communities.

3.3.4 RECENT PROGRAMS TO IMPROVE SOLID WASTE MANAGEMENT IN GREATER MONROVIA

Several solid waste management programs have been implemented with support from the Government of Liberia, donors and partners. These projects focused on several activities supporting primary and secondary waste collection. Since 2015, the following donor projects have been implemented;
- **EU Water Facility Project:** The EU Water Facility project was €3.3 million financed by the European Union through the Liberian WASH Consortium with MCC being one of the major national partners. The project ran for three years (2012-2015) but ended 2017 due to the Ebola outbreak.
- Emergency Monrovia Urban Sanitation (EMUS) Project: The World Bank's EMUS Project supported the Government of Liberia, on an emergency basis, to maintain and increase access to solid waste collection service in Monrovia from the period of 2009-2016. The total financing provided to the Project over seven years was US\$ 32.72 million. The EMUS Project closed in December 2016.
- Cheesemanburg Landfill Urban Sanitation (CLUS) Project: The Cheesemanburg Landfill Urban Sanitation (CLUS) project is a 5-year US\$ 17.5 million project aimed at improving access to secondary solid waste collection and disposal in Monrovia and its environs. The CLUS project is implemented by the Project Implementation Unit (PIU) at the Monrovia City Corporation (MCC) and Paynesville City Corporation (PCC), and is currently on-going till June 2023.
- Cities Alliance EU funded Primary Solid Waste Management Project (2018-2021): Aimed to deliver Climate-Resilient Solid Waste Management Services in Greater Monrovia, through CBEs. This is a 4year £4.9M project, supporting primary waste collection in Greater Monrovia through CBEs. The project aimed at ensuring 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.

3.3.5 SOLID WASTE MANAGEMENT INFRASTRUCTURE IN GREATER MONROVIA:

The available infrastructure for solid waste management includes one sanitary landfill at Whein Town; two transfer stations at Stockton Creek and Fiamah (both in Monrovia), three installed weighbridges - at the landfill and at the two transfer stations, and about 80 skip buckets. The Whein Town landfill has reached maximum capacity; however, with support from the CLUS Project, a new landfill is under construction at Cheesemanburg. However, Paynesville lacks a transfer station. In recent years, solid waste management infrastructure in Greater Monrovia has not improved. Several of the implemented programs focused on waste collection and disposal, and to a less extent, on waste management infrastructure, until of recent with the CLUS project.

Identifying land within the cities to set-up such infrastructure was challenging. For instance, Cities Alliance made efforts to construct a transfer station in Paynesville, however land identified at Omega market was in a swampy place, therefore required heavy investments in terms of resources and time. Additionally, timelines to project closure were too short to have the transfer station constructed. However, processes should have been initiated in the early stages of the project.

The sector has registered success in several areas with support from Government of Liberia, donors and implementing partners;

(i) Draft National Solid Waste Management Strategy, National Solid Waste Standards and Regulation, and Community Solid Waste Management Action Plans have been developed to enhance sector governance, regulation, supervision and coordination. However, several of these policies and framework remain in draft form, yet to be formalized.

- (ii) Acknowledging that the public sector cannot solve waste sector challenges alone; lacks adequate capacity and resources to address these challenges; PPP have been strengthened.
- (iii) The sector saw the establishment of the Environmental Protection Agency (EPA) and WASH Commission to provide sector governance, regulation, coordination and supervision.
- (iv) Better technical capacity of public and private sector individuals and institutions through capacity building trainings conducted by implementing partners including Cities Alliance.
- (v) The primary waste sector is better organized and coordinated, with a strong CBE network organized around their umbrella association, NACOBE.
- (vi) Improved coordination of partners and stakeholders within the waste sector at national, city and local governments, and the private sector.

Despite the success registered within the past 4-years, several challenges constrain the sector's ability to attain efficient and sustainable solid waste management.

- Sector governance, regulation, supervision and monitoring remain an area for enhancement. Several policy documents and frameworks continue to be in draft form. A draft National Solid Waste Management policy was first created in 2015 in response to the need for strategic coherence nationwide in line with decentralization of certain solid waste management responsibilities. A validated policy was presented in April 2017 but is yet to be formalized.
- While considerable efforts have gone into preparing the public and private sector to undertake recycling and composting solutions, this needs further enhancement. Currently, municipal authorities are largely using land filling to solve the solid waste problem, however, efficient and sustainable solid waste management requires adoption of recycling, composting and re-use solutions.
- Paynesville city corporations lacks a transfer station, the two (2) transfer stations in Greater Monrovia are both located in Monrovia. As the capacity of the sector is enhanced to undertake recycling and composting solutions, a transfer station would be crucial for Paynesville as several sorting and waste separation activities can be done here.
- While several sites were identified for construction of waste management infrastructure, majority of the sites (land) were not suitable for accommodating waste disposal facilities. Greater Monrovia is saturated with squatters, most available spaces are in the hands of private owners, while outskirts saturated with mangrove swamps.
- Previous programs increased awareness on the benefits of proper waste disposal, and some level of behavior change realized. However, some residents freely throw waste wherever they like. While there are city ordinances that prohibit such practice, these are not adequately enforced.
- Limited budgetary allocation to solid waste management activities. Government resource envelop remains thin, and the ability of city corporations to generate own revenue is low. This has restricted city corporation's ability to expand sanitation services.
- Logistical challenges on the part of municipal authorities makes it difficult for accumulated waste to be effectively collected and disposed.

Recommendations on ensuring a more sustainable and efficient solid waste management system are discussed in Chapter 6.

3.4 COMPONENT ONE: COLLECT MORE WASTE

Intermediate Outcome: "Improved Access to Sanitation through More Sustainable and Efficient Solid Waste Collection in Greater Monrovia"



3.4.1 INTRODUCTION:

To achieve this outcome, the project (i) established a Micro-credit and loan facility to support CBEs with loans and equipment (ii) established a grant facility for CBEs & communities for Primary Waste collection innovation and issue small grants (iii), conducted engagement meetings with MCC, PCC, & NACOBE.

3.4.2 THE COMMUNITY-BASED ENTERPRISE (CBE) MODEL:

The CBE model was created in 2007 as part of the World Bank's EMUS project where one or two suitable bidders were selected and assigned to a particular zone within which are required to collect garbage from households to designated collection points. The project builds on this model to support horizontal and vertical expansion of CBEs¹⁷.

Indicator	Response category	Baseline	Target	Mid-Term	End-line
No. of staff	Total	299	330	381	537
employed by	Male	217	239	262	316
CBEs	Female	82	91	119	221
Coverage of	No. of CBEs active in PSW	14	35	40	55
CBE services	Households served	7600	8200	8,800	9,500
	Communities served	89	105	222	300

Table 4: Coverage and effectiveness of CBEs in primary waste services

- Between 2018-2021, the number of CBEs operating within Greater Monrovia improved from 14 to 55.
 While the number of CBEs improved, this was not sufficient to adequately cover Greater Monrovia.
 Working with CBEs enhanced livelihood opportunities for vulnerable communities the number of staff employed by CBEs in waste collection improved by 80% over the 4-years. However, more people could have been employed if recycling and composting activities had not been descoped.
- While the number of households subscribing to CBEs improved by 25% over the 4-years, this was less than 1% of the households in Greater Monrovia. Expansion of CBE services met several challenges; (i) strong penetration of Zogos into primary waste collection led to competition for clients; (ii) inability of households to pay for waste collection services due to the impact of COVID-19; (iii) high registration fees which affected entry of new CBEs into the sector (iv) limited storage space due to impromptu emptying of skip buckets (v) and lack of adequate waste tools and equipment, although this was later addressed through the loans issued by the project.

While coverage of CBE services could not adequately cover the Greater Monrovia area, their engagement in primary solid waste management registered some positive results;

- (i) The CBE sector is more cohesive, clustered and together which is a direct result of strengthening the National Association of Community-Based Enterprises (NACOBE)
- (ii) Better technical capacities for CBEs in solid waste management following the capacity building training in solid waste management.
- (iii) The financial management training provided CBEs an opportunity to view waste management with an entrepreneur perspective, as opposed to looking at their work as a community service.

¹⁷ Horizontal expansion focused on improving the geographical coverage of CBEs while vertical expansion focused on supporting SMEs/CBEs to engage in sorting, recycling and composting activities.

(iv) Despite the several challenges encountered, the CBE model demonstrated that PPPs is the most feasible way in addressing the systemic solid waste challenges in Greater Monrovia.

MOST SIGNIFICANT STORY 1:

TITLE OF STORY: A COHESIVE, CLUSTERED AND WELL-COORDINATED CBE NETWORK

J. Saah Joe is the president of NACOBE. According to Saah, NACOBE coordinates, monitors and supervises the activities of CBEs. "It's our responsibility as NACOBEs to ensure that our members (CBEs) are functional and effectively supervised. We are also charged with ensuring that members are in full compliance with city waste management policies; we work with the city corporations in preparation of CBE annual contracts; and structure enumeration of places were CBEs work. However, achieving this has not been an easy task. First, the CBE network was very disorganized, everyone was working independently and implementing activities in isolation. This made it so hard to deliver our mandate as NACOBE.

In 2018, Cities Alliance partnered with us to improve primary waste collection. We saw this as an opportunity to better organize the CBE sector. While CBEs had previously worked on a project supporting primary SWM, when the project closed, everyone (CBEs) went their own way. Coordination of our members became challenging. However, Cities Alliance conducted a training for NACOBE executive committee members in leadership, governance and sustaining CBE activities. Following this training, we came up with an action plan, and one of the priority areas was to re-unite the CBE network and make it more cohesive and together.

The project leaves behind a cohesive, clustered and well-coordinated CBE network. This is attributed to strengthening the capacity of NACOBE through the trainings provided to executive members. NACOBE is now well capacitated to deliver its mandate and the benefits of being a NACOBE member will continue to members post project. With the loans that the project has provided, NACOBE has the capacity to effectively monitor its members to ensure they are used for the right purpose, but also follow-up members to ensure that they repay the loans because if they don't pay back the money, all members who didn't get loans in the first batch will not benefit in future, because them getting loans is dependent on the 21 CBEs repaying back the money.

The implementation of the CBE model resulted into several contextual and unintended outcomes;

- (i) The inability for households to pay for waste collection services compelled CBEs to start collecting waste from business entities to earn incomes to sustain their businesses.
- (ii) Due to impromptu emptying of skip buckets, communities have demanded that city corporations remove buckets from collection spots provided by the communities. These spots have turned into disposal sites, causing health and environmental threats to the hosting households.
- (iii) CBE activities increased the volume of waste that goes to skip buckets, which was never matched by corresponding levels of emptying by city corporation
- (iv) City corporations reduced the number of waste collection points and retained a few points that they can effectively manage with the limited resources at their disposal, evident from several skip buckets donated by the project still within the compound of city corporations.

Table 5: Analysis of CBE performance against Project Indicators¹⁸

for waste

collection

Result Area	Indicator	Mid-Term	End-line
	% Of CBEs fully Registered with authorities ¹⁹	100%	100%
	% Of CBEs with Permanent Offices	89%	87%
Operation	% Of CBEs that Keep Records of Business Transactions	87%	97%
of CBEs	% Of CBE reporting client refusal to pay for waste collection ²⁰	95%	90%
0.0013	% HH reporting refusal to pay for waste collection services	42%	37%
	% Of CBEs Reporting improved Revenue ²¹	16%	13%
Payment	CBE average monthly charge from HH for waste collection	325	580

Several lessons were learned from implementation and delivery of the CBE Model;

Average Monthly Pay to waste collection staff (LRD)

• The effectiveness of the model requires the entire solid waste management value chain to be fully functional. Success of the primary and secondary components is inter-dependent.

8,150

8,074

- The public sector has made efforts to improve solid waste management in recent years, however remains resource constrained; which limits its capacity to invest in solid waste activities. PPP is the most practical alternative to address systemic solid waste management challenges in Liberia.
- An increase in the waste volume at skip buckets should have been matched with corresponding levels of emptying. Timely emptying of skip buckets is central to the success of the CBE model.
- Pushing for regulations that make it mandatory for households to subscribe to CBEs and pay for waste collection services will ensure CBEs collect adequate revenue to sustain their operations.

Result Area	Indicator	Mid-Term	End-line
	% Of CBEs reporting people to dump waste alongside bins instead of inside	92%	90%
Skip bucket	% Of CBEs reporting Skip Buckets or Garbage containers being easily accessible	58%	23%
activities	% Of CBEs reporting Skip buckets having the capacity to accommodate waste collected	18%	10%
	% Of CBEs reporting Skip buckets being regularly emptied by relevant authorities	5%	3%
Sorting,	% Of CBEs engaged in separating different types of waste	16%	13%
Recycling % Of CBEs sorting waste before disposing it off		8%	5%
and	% Of CBEs engaged in recycling or composting of waste	0%	0%
Composting % Of CBEs willing to venture into recycling and composting		86%	88%
Waste	% Of CBEs aware of the 2R	80%	90%

Table 6: Performance of CBEs with Sorting, Recycling and Composting and Skip Bucket Activities:

¹⁸ Longitudinal analysis considered Mid-Term, End-line data; baseline data was not available for the indicators

¹⁹ Measured the proportion of CBEs that are fully registered with City Corporations, NACOBE and LIBA

²⁰ Measured the proportion of CBEs that reported to have experienced household refusal to pay for waste collection services 6-months preceding the survey

²¹ Measured the proportion of CBEs that reported improvement revenues 6-months preceding the survey

Result Area	Indicator	Mid-Term	End-line
NACOBE and	% Of CBEs attending meeting with NACOBE to discuss issues related to work conditions within past 6-months		97%
representing	% Of CBEs that felt NACOBE represents their interests well	79%	95%
of CBEs	% Of CBEs that felt NACOBE engages Government and other Stakeholders on issues that affect their work	71%	82%
	% Of CBEs satisfied with how NACOBE engages government and stakeholders on issues that affect their work	34%	44%
	% Of CBEs who felt they had freedom to express their concerns and participate in decisions that affect their work	87%	90%

Table 7: Representation of CBEs through their association - NACOBE

VOICES FROM STAKEHOLDERS

"The project did extremely well in enhancing the capacity of CBEs to implement primary solid waste activities. Initially, CBEs did not tools, they didn't have equipment and lacked protective wear. They were using wheelbarrows and pushcarts which were very old, which could not operate in 6-10 communities. They didn't have comprehensive knowledge about solid management, but Cities Alliance came in at the right, to provide working tools to the CBEs and also build their capacity in solid waste management" **EPA**

"Assuming the number of CBEs doubled from the current 55 to 100. These 100 will double the waste volume at the skip buckets. Suppose we provided more skip buckets - If city corporations don't have trucks, resources to fuel and maintain the trucks, and moving the waste from skip buckets to the disposal sites, CBEs will still fail at collecting waste, because once the skips are not emptied, CBEs will not collect more waste because they will not have where to dispose it, then, households will not subscribe, and the CBEs will fail" **CITIES ALLIANCE PROJECT STAFF**

"City corporations need to deal with the issue of emptying skips buckets. If you don't empty skips buckets, it affects waste collection from households. If the skip buckets are full all the time, there is no way CBEs will go to communities to collect waste. The project tried to improve primary waste collection but was less successful because of the secondary component. If city corporations don't empty skip buckets, we will have no were to dump and community members will resort to illegal dumping in places such wetlands, swamps and on streets" NACOBE MEMBER

"We used to have contracts from city corporation (MCC). But for the past 4-5 years, we've not had contracts. Sometimes we go to communities looking for business, and clients are asking us to present contracts from city authorities that show we are authorized to carry out waste collection services within this Zone (community), but you have nothing to show. Many clients have denied us business because we don't have contracts. We need to get back to the old days where we had contracts so that we can have the trust of our clients" CBE

"Previously, we used to have staff from the city corporations (MCC) coming to the field to conduct monitoring and supervision visits, to ensure that we are doing what we are meant to do as per our contracts. However, this is not happening now because in the first place, we have no contracts. Before, we were given targets, we used to have quarterly meetings with the MCC but this is not happening any more. We need to get back to such standards" **CBE**

WASTE COLLECTION AND DISPOSAL PRACTICES AMONG HOUSEHOLDS:

Households with access to regular waste collection services (either public or private) improved from 37% at baseline to 40% at end-line, although this was below the project target of 45%; households with planned forms of waste storage and disposal within the home improved from 36% at baseline to 87% at end-line; while coverage of CBE services improved from 16% at Mid-term to 19% at end-line.

Several challenges affected the project's ability to improve and expand access to regular waste collection services; (i) the practice of using garbage to reclaim land affected households' ability to subscribe to waste collection service providers; (ii) the reduction in the number of skip buckets by municipal authorities affected access to public collection services; (iii) the economic impact of COVID-19 affected households' ability to subscribe to CBE services; while (iv) the inability of households to pay for waste collection services affected expansion of CBE services.

Table 8: Solid Waste Management Practices among Households

Result Area	Indicator	Mid-Term	End-line
	% Of HH with access to regular waste collection	37%	40%
A	(Public or Private)		
Access to waste	% Of HHs with a planned form of waste storage and	83%	87%
Collection	disposal within the home		
Services	% Of HH satisfied frequency of waste collection	44%	40%
	% Of HH satisfied current waste collection services	45%	46%
		·	·

Service provider	Service provided by a CBE	16%	19%
used by HH	Service provided by an Individuals (Zogos)	84%	81%

Waste disposal methods adopted by household without access to regular waste collection services



Figure 2: Waste Disposal Methods adopted by Households without access to Regular collection services

The evaluation established the following reasons for adoption of unhealthy waste disposal practices; (i) low coverage of CBEs services; (ii) waste collection service providers being unreliable; (iii) wetlands and water bodies being in close vicinity to households; (iv) using waste to reclaim land for settlement; and (v) high waste collection charges.



Figure 3: Reasons for adopting unhealthy waste disposal practices among households

Sorting and Separation of Waste by Households:

Households separating different types of waste improved by 1% at Mid-term to 5% at end-line, attaining the project target of 5%; attributed to several factors such as (i) awareness and sensitizations campaigns that emphasized adoption of the 3R strategy; (ii) awareness activities on the importance of natural and built environment; (iii) desire of households and communities to re-use waste; and (iv) the impact of the community solid waste management forums.

Table 9: Waste separation and sorting practices among Households

Result Area	Indicator	Mid-Term	End-line
Waste	% Of HHs separating different type of waste	1%	5%
separation and	% HHs told to separate waste by CBEs	4%	7%
Sorting	% HHs willing to separate waste	58%	76%

The percentage of households reporting refusal to pay for waste collection services declined from 42% at Mid-term to 37% at end-line. The major reasons for household failure to pay for waste collection services is summarized in the table below. The impact of COVID-19 had a toll impact on households' ability to pay for waste collection services as shown in Table 10.

Table 10: Reasons for failure to pay for waste collection services

Result Area	Indicator	End-line
Reasons for fail to pay for	Unstable Economy in the Country	34%
waste collection services	ion services The impact and effect of COVID-19	
	Not satisfied with the service	
	Waste collection charges are very high	29%
	No formal engagement with the service provider	42%

3.4.3 ESTABLISHING A MICRO-CREDIT AND LOAN FACILITY:

Over the recent years, one of the challenges that has consistently affected CBE operations has been the lack of waste collection tools and equipment, which limited their capacity to expand primary waste collection services. The project established a micro-credit facility of USD 300,000 to provide CBEs with loans to procure tools and equipment to enhance their operations. This is the first of a kind that a fund is

established to support CBEs acquire loans at very low interest (1% per annum vs 25-30% provided by commercial banks) to enhance their operations. Setting up the facility however took longer than expected, with loans provided in the final five months of the project. By Evaluation time, loans to a tune of USD 267,345 had been issued to 21 CBEs.

Criteria adopted in issuing loans to CBEs:

The project convened two information sharing sessions to provide clarity amongst targeted beneficiaries on the terms and conditions, eligibility criteria and submission procedures. Selection of beneficiaries was based on (i) financial proposals submitted (ii) stability of the enterprise (iii) up to date registration, and (v) consistence of the business plan to the objectives of the facility. An aggregate score was computed, and all business plans that attained the benchmark of 70% were awarded. The repayment period of the loans is 18-months.

Management of the loan facility:

With the project ending December 2021, the facility will continue as a revolving fund, and will be handed over to the Ministry of Internal affairs for management. A technical management committee has been set-up to ensure benefits of the facility continue beyond the project; comprising of MIA, Monrovia and Paynesville city corporations, EPA, Foundation for Women, Eco Bank and NACOBE. These have the responsibility of ensuring loans are used for the rightful purpose, and repayment effected.

In addition to the technical management committee, several arrangements have been put in place to ensure sustainability of the facility and ensure that resources are used for the right purpose;

- (i) NACOBE has worked arrangements with CBEs such that those that have similar items to be procured (i.e., tricycles, pushcarts, wheelbarrows etc.) can be procured from a single vendor to increase the bargaining power, but also lower the purchase cost.
- (ii) The Project has developed several tools and SOPs to support repayment tracking, reporting, supervision and monitoring activities for the fund.
- (iii) Copies of business plans for the 21 CBEs awarded loans have been shared with the technical management committee to ensure loans are used for the purpose presented in the business plans.

Because the loans were issued late in the project, it was still early to assess the impact on CBE operations. However, if effectively utilized as per the business plans, the loans will;

- (i) Improve the operational capacity of CBEs through acquiring better tools, equipment and personal protective wear for waste collection.
- (ii) The revolving fund established will improve access to finance and credit for CBEs in the longer term.
- (iii) Due to enhanced capacities, coverage of CBE services will be improved. CBEs will be able to reach more communities and households with better tools and equipment acquired.
- (iv) With a repayment period of 18 months and 1% interest per annum, CBEs can repay back the money in a way that doesn't put the enterprise into financial hardship. This makes it a highly affordable resource long-term, which CBEs should capitalize on to expand their enterprises.

Several lessons have been learned from implementing the loan facility;

(i) Launching the loan facility early in the project would have had stronger impact on CBE operations, and provided adequate time for learning, and integration of learning into practice.

- (ii) Activeness of the technical management committee will be critical to the success and sustainability of the fund. The committee has to ensure that CBEs repay back the money, but also ensure the loans are used for the rightful purpose.
- (iii) Consistence of the business plans with the objectives of the facility was critical in ensuring resources are spent for the rightful purpose and for the right reasons.
- (iv) The ability of CBEs to repay back the loan will be key in ensuring benefits of the facility extend to the 34 CBEs that didn't receive loans in the first phase.

3.4.4 ESTABLISHING A GRANT FACILITY FOR PRIMARY WASTE COLLECTION INNOVATION:

The outcome of this intervention was to establish a Grant facility for purposes of diversifying the waste value chain. This was successfully attained, although no grants were awarded as detailed in Component 2. A total of 9 SMEs/CBEs were targeted, with a grant size of about USD 25,000 to 50,000 per beneficiary

VOICES FROM STAKEHOLDERS

"The project was unable to address the challenge of diversifying the waste value chain. We wanted to turn garbage into cash by doing recycling and composting, however, the capacity of SMEs/CBEs needed further enhancement. The project delivered several capacity building trainings on financial management, business management, solid waste management etc. in anticipation that within a year, we would start giving grants. However, this was not the case because the challenges were much bigger and much more intricate to the system than we had expected. So, instead of taking a year, it took us 3 years to get to a stage of launching the grant facility. A capacity building training particularly on recycling and composting in the early stages of the project would have been ideal" **EUROPEAN UNION**

"The project actually lowered the criteria and the minimum requirements for award considering the environment and context within which the project was being implemented. We didn't want to put too much technicalities so that we could have 2-3 SMEs/CBEs that we could work with on this. However, none was able to meet the adjusted requirements. Most of the proposals didn't offer what we wanted - none focused on producing compost or recycled products. Most of them were a mix of conducting door-to-door sensitization, procuring tricycles etc. which were out of context. Instead of trying soo much to have 1-2 grants awarded, we made a decision to cancel the grants. What needs to be done is now focus on strengthening the capacity of SMEs/CBEs to engage in recycling and composting" CITIES ALLIANCE PROJECT STAFF

"The ideas that we wanted for a proposal worth USD 50,000 were not there. My expectation was - I get to read a proposal "I'm a CBE/SME collecting garbage from 30 communities. I have a piece of land, but would want to engage in composting. I will sort the waste either with my staff or use my customers to sort waste at source. With the grant, I will construct a shade where to compost the organic waste. I will take the compost to Red Light market and sell it because I've identified someone who is ready to buy it" These are some of the ideas we were looking for but no body presented such ideas. Most of the proposals were about buying tricycles etc. So, when we assessed the proposals, none had these concepts. We also went to the field to assess feasibility, and none could pass the criteria. None of the proposals had technical viability, so we had to conclude without award" CITIES ALLIANCE PROJECT STAFF

3.4.5 ENGAGEMENT MEETINGS WITH MCC, PCC, LIBA AND NACOBE

The project conducted several engagement meetings with city corporations, and NACOBE on project related activities to garner support from the institutions. These include engagement on implementation of the loan and grant facilities; awareness and sensitization campaigns; provision of waste storage



Cities Alliance with PCC staff during an engagement meeting prior to a community clean-up exercise

facilities (skip buckets) and implementation of community clean up campaigns among others.

3.4.6 COMMUNITY SWM FORUMS WITH THE CITY CORPORATIONS:

The project supported city corporations to conduct community solid waste management forums across Greater Monrovia. A total 6 forums were conducted, 4 by MCC and 2 by PCC. The objective was to bring together community stakeholders to brainstorm on effective models for improving solid waste management, and create awareness on healthy waste management practices. These dialogue platforms brought together various waste sector players and stakeholders to initiate discussion and brainstorm actionable solutions around collective, sustainable, and results-based approach to effective Solid Waste Management across the cities. They also provided a framework for the discussion and validation of the solid waste management strategic and action plan.

The forums were held 2 months prior to the evaluation, therefore too early to assess their impact. However, initial results indicate that;

- (i) The forums provided an environment where community members, city governments, partners, and stakeholders sit together to come up with joint resolutions that incorporate holistic approaches toward delivering climate resilient solid waste management in Greater Monrovia.
- (ii) SWM Strategic and Action Plans were developed by city corporations, providing long-term vision and guidance to city corporations for efforts towards improving traditional waste management practices while gradually transitioning to more sustainable waste management practices including 3Rs to achieve a resource efficient and zero waste emission society.
- (iii) The platforms identified programs, approaches and local policies to enhance municipal solid waste collection and diversion, improve final treatment and disposal, maximize proper collection and treatment of industrial, medical, and other types of waste, whilst ensuring that waste management services remain sustainable through institutional strengthening, capacity building, awareness raising, advocacy, continuous review, monitoring and innovation.

- (iv) Joint resolutions with stakeholders i.e., township commissioners & community leaders were made expressing commitment to work with cities to successfully implement the strategic action plans.
- (v) Provided an opportunity to engage communities, through their leaders in a participatory way on the best effective models and solutions to addressing solid waste challenges while engaging women and youth to participate and make contribution to addressing these challenges.

However, to ensure community solid waste management forums achieve their intended outcomes;

• There is need for a system that ensures regular interaction of city governments with community members on the importance of proper waste management, and enable communities to contribute solutions to addressing their own waste challenges.

3.4.7 PROCUREMENT AND DONATION OF SKIP BUCKETS

Supporting CBE activities meant an increase in the waste volume at skip buckets. The project anticipated that available skip buckets would not be sufficient to accommodate the increase in waste volume, therefore procured and donated 60 skip buckets to the cities to improve on waste storage.



Some of the skip buckets procured and donated to PCC still laying the city corporation's compound

With skip buckets procured and donated to city corporations;

- (i) By Evaluation time, several of the donated skip buckets were still within the compound of the city corporations, yet to be placed within communities, partly due to the decision by municipal authorities to reduce the number of collection points to retain those that they can effectively manage due to resource constraints.
- (ii) Due to impromptu emptying of skip buckets, communities have demanded city corporations to remove buckets from collection spots provided by the communities. These spots have turned into disposal sites, causing health and environmental risks to nearby households and communities.

3.5 COMPONENT 2: EXTRACT AND RE-USE PLASTIC AND ORGANIC MATTER

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



3.5.1 INTRODUCTION:

Broadly, the objective was that following the award of grants, SMEs and CBEs would engage in sorting, recycling and composting²². Implementation of this component was therefore hinged on award of grants to SMEs/CBEs. As discussed under sub-section 3.4.4, the project was unable to award grants and recycling and composting solutions descoped. The component included Commissioning feasibility studies into selected options; Building and operating a sorting station; Piloting a waste to compost project; and Piloting waste to plastic project. Feasibility studies were however commissioned.

Grant Awarding:

The project undertook all necessary processes to have the grants awarded, however processes ended with no award as none of the proposals received met the minimum requirement for award. The intended grant size was about USD 25,000 to 50,000. SMEs/CBEs were the target beneficiaries because they were already engaged in waste collection activities.

Grants targeted proposals whose activities supported (i) reduction in the use of plastics and promote more environmentally friendly re-usable alternatives (ii) sorting out from the general city/community waste the non- organic materials that can be recycled and sold to businesses that can transform waste into new products (iii) using re-cycled non-organic waste to manufacture in a non-polluting manner any products that generate market demand, and (iv) transforming organic waste into either compost or any other usable product that will generate market demand. However, none of the proposal addressed any of the above areas.

Criteria adopted in selection and award of Grants:

A call for applications was publicly launched in the UNMG, for proposals that can utilize up to USD 50,000 to set up a composting or recycling facility or improve an existing one. Interested applicants made their submission through UNMG. The project established a panel that was responsible for screening proposals to ensure that they meet the minimum criteria for eligibility. Proposals that passed the eligibility check and threshold were then assessed by a Technical Evaluation Team (Technical Working Group) based on a predefined set of selection criteria. The Technical Working Group comprised of key stakeholder representatives and evaluated all eligible proposals on a competitive basis. The TWG then made recommendations to the project selection panel.

Qualified applicants were contacted to provide further financial and technical information about their organization and the proposal submitted before a final decision was made. In addition to the selection criteria, the panel considered additional factors such as theme, geography or constituencies and knowledge needs to maintain the strategic balance of the overall Cities Alliance grant portfolio. By the end of this process, no grants were awarded, as none of the applicants met the minimum requirements.

Lessons learned and challenges from implementing the Grant Facility:

- (i) Activities within the proposals submitted were not aligned with the four (4) key areas that the grants were meant to support.
- (ii) Applicants needed to be more realistic with what they were going to utilize the grants for.

²² Recycling means turning an item into raw materials which can be used again, either for the same product or a new one, while reusing means using an object as it is, without treatment. Composting is a natural process by which any organic material, such as food waste or lawn trimmings, is broken down by naturally occurring bacteria and fungus in the soil to form compost

3.5.2 COMMISSIONING FEASIBILITY STUDIES INTO SELECTED OPTIONS:

- (i) The Action Plan for horizontal and vertical expansion of the CBE system for Primary Waste Collection: Through this study, a costed and financially viable Action Plan was developed for the horizontal and vertical expansion of the CBE system, including an indicative budget for full horizontal and vertical expansion into Composting and Recycling. The study includes a market demand analysis for composting and recycling systems to determine initiatives which could be implemented as pilot projects to diversify the economic model of the CBEs.
- (ii) Costed Feasibility models and action plan for implementing composting and recycling options for primary waste collection in Monrovia, Paynesville and Surrounding Townships. The study examined existing municipal solid waste management cycle and value chain in Monrovia, Paynesville, and surrounding townships; identified entry points to create additional livelihoods and self-employment opportunities (in particular targeting women and youth) through the processing of waste i.e., recycling, reusing waste products, composting, bio-gas production from waste, etc.
- (iii) Greater Monrovia Solid waste management baseline. The Baseline Study established and documented baseline parameters for solid waste management in Greater Monrovia. It served as the foundation for identifying short and long-term opportunities to improve Greater Monrovia's solid waste management; and provided information necessary to develop an effective, economically viable long term solid waste management plan for Greater Monrovia.

3.5.3 BUILD AND OPERATE A SORTING STATION:

Before descoping recycling and composting interventions; the project had developed technical design briefs, explaining the design and functionality of the station. The proposed design was to accommodate (i) perimeter fencing (ii) Security booth and reception space (iii) main sorting station building/ facility (iv) demarcated temporary outdoor storage area for incoming pre-sorted, dry or dirty waste (v) storage shelter/ facility for clean/ sorted materials (vi) operational auxiliary facilities; and (vii) basic furniture for offices among others.

Descoping of sorting stations was due to; (i) challenges obtaining suitable sites by municipal authorities to set-up the infrastructure; (ii) investment costs needed to set-up the infrastructure at the site proposed by PCC were way higher than the available budget; (iii) the implementation period left was too short for UNOPS standard civil work procedures (such as design approval, certification, construction and the Defect Notification Period) to be completed.

3.5.4 PILOTING WASTE TO COMPOST PROJECT:

A concept note for composting of organic waste had been developed with the objective of providing financial support to existing initiatives working in the solid waste sector in the areas of composting. Eligible entities included CBEs, SMEs and local NGOs with comprehensive proposals aiming to start new or improving existing entrepreneurial initiatives in composting.

3.5.5 PILOTING WASTE TO PLASTIC PROJECT IN OPERATION:

Similar to the waste to compost project, a concept note had been developed detailing the requirements for award of grants to pilot waste to plastic projects.

Cancellation of sorting, recycling and composting solutions had significant impact on project objectives, would-be beneficiaries and the waste sector in Liberia;

- (i) The outcome intended to reduce greenhouse gas emission through improving extracting, sorting and re-use of solid waste. With municipal authorities largely using land filling to solve the solid waste problem, descoping of these interventions means this was not achieved.
- (ii) Opportunity lost in tackling youth unemployment: In order to run a recycling or compost unit, there must be a few workers, at least one for every step of the way. This way, many people would get employed, thus providing them a viable means of livelihood.
- (iii) Reducing the amount of waste sent to the landfill remains unaddressed. Recycling and composting is the long-term solution to sustainable SWM. These reduce the amount of waste that goes to the landfill, which increases the longevity of the landfill and reduces emission of methane.
- (iv) Greenhouse gases such as methane and carbon dioxide continue to be released into the atmosphere in large quantities, contributing to global warming.
- (v) Business opportunities were lost.
- (vi) In addition, this being the first attempt to large scale recycling and composting, an opportunity was lost to learn from initial processes, which would be key in improving future similar processes.
- (vii) Composting and recycling activities are donor funded in future, other donors need to be identified to invest in recycling and composting solutions.

Several lessons have been learned;

- While efforts were made to improve the capacity of SMEs/CBEs to engage in recycling and composting solutions, this needs further enhancement.
- The value chain and market variables needed to develop the sector need to be enhanced.
- Recycling and composting solutions should be planned early in the project to allow adequate time for learning, making corrections, enhancing capacity, and integrating learning into practice.
- Large space is required for processing compost, and there is more land available in the city outskirts, which are also closer to potential customers.

Several challenges affected implementation of recycling and composting activities;

(i) Acquiring land to set up the infrastructure was a challenge. In Paynesville, several land spots were identified and made available for construction of the transfer station. Selection of land space considered several factors such as accessibility and geotechnical factors. However, several of the proposed sites could not meet the selection criteria majorly due to location issues i.e., located in swampy areas or in the middle of the communities, which made such sites unsuitable for setting up the infrastructure. Processes were concluded with identification of space at Omega Market.

Identification of land space however too long; by the time land was identified, the project was closing. The remaining timelines were insufficient to have the transfer station completed, and this

cancelled. Additionally, the land at Omega market was in a swampy area, therefore the cost of constructing the facility was going to be higher than the available resources. This is a critical lesson for future similar projects.

- (ii) Limited market for compost and recycled products: Availability of market or establishing one is important before venturing into these interventions.
- (iii) While the project engaged some manufacturers that recycle plastic, the cost of recyclable plastics was not attractive to CBEs, therefore linkage of waste value addition solutions with sectors such as agriculture, industries and manufacturing needs strengthening.
- (iv) No dealers or suppliers of recycling and composting machines and equipment are located in Liberia, machines have to be imported.
- (v) Limited electricity supply in some of the proposed areas or sites; yet recycling and composting machinery are electricity driven.

To ensure success of recycling and composting activities for future programs;

- (i) Building the waste value chain is key prior to venturing into recycling and composting solutions. capacity building in recycling and composting for CBEs, SMEs and other stakeholders in waste sector is key for future programs.
- (ii) There is need to provide subsidies to the private sector to venture into recycling and composting activities to a point where the sector becomes self-sustaining.
- (iii) The process must be secured and professionally managed in order to produce high-quality compost able to compete in terms of efficiency and cost with chemical fertilizers.
- (iv) Conduct a market assessment to establish where to sell the recycled products and compost. The market needs to be available or established prior to venturing into recycling and composting.
- (v) The location of the compost stations should be put into consideration. Most of the farms and agriculture is done far away from Monrovia. With urban gardening not happening, the composting stations need to be established near such farms for ease of getting market.
- (vi) Recycling and composting should first, be piloted on small scale, and later scaled up. Need to start small, learn from initial processes, integrate learnings into practice, and then scale-up. Demonstration projects or farms could be of value.

VOICES FROM STAKEHOLDERS

"Several feasibility studies were undertaken by Cities Alliance focusing on effective models for improving solid waste management. These studies have been very helpful to the government. Government now has a clearer picture of what the waste sector looks like, we have knowledge about the waste management systems in country, the gaps that exist and what needs to be done. Because of these studies, we know we need to invest heavily in recycling and composting activities" **DEPUTY MINISTER FOR URBAN AFFAIRS**

"The Project developed real time documents which the waste sector was thirty to have. Feasibility studies are some of the key documents that we currently use in our operations and decision making at EPA. These will remain in use for several years even when the project ends. This is one of the things that the sector takes from this project" **ENVIRONMENTAL PROTECTION AGENCY**

"Descoping of sorting, recycling and composting activities was a huge missed opportunity. We had hoped that finally, we were going to start recycling and composting as a way of reducing the quantity of garbage that goes to the landfill, and reduce on greenhouse gas emissions" **CBE**

"The best way to reduce the amount of waste that goes to the landfill is through recycling and composting. The reasons why the landfill at Whien Town has reached maximum capacity is because there is a lot of plastic in the waste disposed at the landfill. To reduce the volume of plastic, you have to engage in recycling. However, in Liberia we don't have the infrastructure to engage in recycling or composting. Most people don't understand recycling activities. We need to build capacity of public and private sector to engage in recycling and composting activities. **CITY CORPORATIONS**

"In the long run, we need to discourage use of plastic. Government should consider increasing tariffs on plastic as a way of discouraging their production and use. In the short run, focus should on reduction of plastic waste and encouraging household to do waste separation at source. We need to create massive awareness and engage communities to know that the trash can be bought from them if it's well sorted. We need to let people know that sorting at source presents an opportunity to purchase the plastic and earn from it" CBE

"The idea was that, we would be able to start small businesses with the grants that would grow and would financially sustain themselves through selling compost and recycled products. That was the idea but there were several challenges. So, the project was successful in identifying where we stand and this will be a good starting ground for any one intending to invest in recycling and composting activities. **EUROPEAN UNION**

3.6 COMPONENT 3: INCREASED AWARENESS AND EDUCATION ON SOLID WASTE MANAGEMENT

Intermediate Outcome: Improved awareness of Climate Change and Climate-Resilient Solid Waste Management in Greater Monrovia population with a focus on Youth.



3.6.1 INTRODUCTION:

Intensive public awareness campaigns were conducted to inform the population in Greater Monrovia of the health and environmental benefits of improved solid waste management. Awareness activities tackled existing solid waste challenges of local communities, and their roles and responsibilities in addressing these challenges. Education campaigns for schools and communities were conducted, while several outreach activities on climate smart behavior, climate change, solid waste management and ₃R were conducted targeting individuals, households and communities. Approaches adopted in delivering awareness messages include mobile public address systems, radio talk shows, drama performance activities, Jingles, Jokers and using renowned comedians among others.

3.6.2 EDUCATION CAMPAIGNS FOR SCHOOLS AND COMMUNITIES ON CLIMATE CHANGE AND 3R

Education and awareness campaigns for Schools:

The project conducted several awareness activities targeting students, particularly youths as change agents in schools, homes and communities regarding waste management and climate change. The project developed and produced a comic book and video animation to educate students about climate smart behavior and ₃R. Awareness was conducted through the environmental clubs established within the schools. The project partnered with 20 high schools, benefiting over 12,000 youths. School activities were however, significantly affected by the outbreak of COVID-19, with learning institutions closed for over 6 months.



Students from Boatswain Jr. & High School, Monrovia during an education and awareness exercise

Competitions for schools to promote 3R

The Project organized competition between schools to promote awareness on climate change, ₃R and the importance of protecting the natural and built environment. The competitions were key in creating awareness of Climate Change and climate resilient solid Waste management among students and youth within Greater Monrovia.

Indicator	Response category	Baseline	Target	Mid-Term	End-line
	No. of Schools reached	0	20	8	20
	No. of communities reached	0	50		50
Awareness	No. of Education outreach campaigns in schools	0	20	3	20
Campaigns	No. of outreach to educate the population on climate change	0	10	7	22
	Youths reached in Schools	о	9,600	3,600	12,000
			·	·	
	No. of radio broadcast on climate change, SWM and 3R	0	40	ο	24
Information Education and	No. of print publications developed and disseminated	0	5	1	5
Communication (IEC)	No. of video materials developed and disseminated	0	5	1	3
	No. of serial Radio Drama aired and disseminated	0	1	0	1
				·	
3R Strategy	No. of 3R demonstration projects in selected schools in Monrovia	0	10	5	15
	No. of 3R demonstration projects in selected communities	0	10	3	3
	No. of community members engaged in the demonstration projects.	0	100	40	40

Table 11: Outputs from Education and awareness Campaigns in Schools

Environmental Clubs Competitions:

Through environmental club competitions, the project engaged students from 20 high schools on proper solid waste management through Arts and Poetry competitions. Through the competitions, over 5,000 students were reached. These were engaged in disseminating messages of clean and green environment through arts and poetry in their schools, homes and communities. Competitions were attended by students, teachers, representatives from city corporations, EPA and Cities Alliance.

Journalism Training:

The Project organized a training for journalists and High School Teachers to build their capacity in promoting, reporting, and covering stories on solid waste management, climate change and their impact on the environment. The capacity of teachers was built to train students, who in term could engage their peers and create awareness on healthy solid waste management practices. The capacity of journalists was built to disseminate accurate information and messages about solid waste management, climate smart behavior and ₃R.

3.6.3 OUTREACH ACTIVITIES FOR GREATER MONROVIA POPULATION ON CLIMATE CHANGE, SWM AND 3R:

Community awareness campaigns

The project implemented awareness campaigns in over 50 communities on proper solid waste management and measures to curb the spread of Covid-19 within informal settlements. This was done through mobile car public address systems; community drama activities; outdoor campaigns and radio broadcasts targeting the population within Greater Monrovia. Public address mobile systems were used to air preventive messages in the local pidgin and Liberian English, posters and educational messages were printed and distributed within communities in Greater Monrovia. The project donated protective

equipment to NACOBE, including masks, gloves, handwashing kits, megaphones and reflective jackets to enhance their operations, but also engage in awareness creation on solid waste management practices. The donation benefitted 40 CBEs.



Left: A comedian addressing people within a trading center on the importance of proper SWM. Right: A Community drama Group during an awareness activity on healthy solid waste management

Community Forums:

As part of the outreach activities, the project implemented several community forums as participatory engagement tools for citizens to discuss climate change and solid waste management challenges at community level and solutions to addressing these challenges. The forums mobilized community leaders, youths and women to come up with solutions to their own solid waste, climate and environmental challenges.

Community Engagements:

The project supported several community engagement meetings, with community members and leaders on improving solid waste management. The meetings promoted engagement of community members in planning along with community leadership on the implementation of the community clean up campaigns, and mapping out areas of focus for garbage collection and temporary disposal sites. Over 8,000 people were reached.



Community leaders, staff from city corporations and EPA during a community engagement meeting

Community Clean-up Campaigns:

The project conducted 14 community clean-up campaigns, 6 in Monrovia and 8 in Paynesville. The campaigns were designed to empower communities to take up the challenge of reducing the increasing behavior of improper disposal of solid waste in their communities. The clean-up campaigns were conducted by community residents, their leaders, city corporations and Cities Alliance. Fourteen (14) communities benefited from the clean-up campaigns. Communities selected were those seriously challenged by solid waste problems. Community leaders mobilized communities to collect all garbage within their homes and neighborhood, and dispose it to temporary collection points. City authorities then moved into communities collecting garbage from the temporary collection points.



L-R: A CBE dumping at a temporary collection point, as trucks from MCC prepare to load and take the waste to a transfer station. On the right, community members clearing a blocked drainage channel

3.6.4 OUTREACH EVENTS: RADIO SHOWS, CLEANEST SCHOOL COMPETITION, BEACH CLEANING CAMPAIGNS

Radio talk shows

The project aired several talks shows and serial radio drama episodes in Liberian pidgin on two radio stations with expanded reach and coverage in Greater Monrovia. The talk shows and drama episodes addressed areas of climate resilient solid waste management practices and innovative approaches of converting waste to energy such as the 3Rs principles.

Beach clean-up Campaigns:

Several informal communities in Greater Monrovia are located at the sea. Prior to the project, several households would collect garbage and dump at the beaches located on the sea. This led to huge accumulation of waste at the sea and water. To address this challenge, the project conducted two (2) Beach clean-up campaigns to clean and remove garbage from the beaches, and educate and sensitize communities on the danger of dumping garbage in water bodies and wetlands.

<u>Cleanest school and community competitions:</u>

Within the 20 high schools, the project conducted cleanest school competitions that aimed at maintaining a clean, green and healthy school environment. A similar approach was adopted for communities that were highly challenged with waste management. The winners from these competitions were awarded prices to motivate their peers to work harder. The overall objective was to appreciate the importance and benefits of proper solid waste management.

Implementation of the above awareness activities had significant impact on individuals, households and communities in Greater Monrovia;

- (i) Behavior change: Awareness activities instilled a sense of behavior change among individuals and communities. The population is more aware about the importance and benefits of proper waste management, and climate smart behaviors.
- (ii) As a result of the awareness campaigns, several communities have established sanitation taskforces to enforce better waste disposal practices within the communities.
- (iii) The journalism training resulted into organization of local journalists into a Waste Management Reporters' Network, and establishment of a social media platform where reports on climate change and waste management are uploaded and disseminated to the public.
- (iv) Through environmental club competitions, the project-built capacity of students as champions and change agents on proper SWM within schools, households and community level.
- (v) Increased citizens' awareness on the benefits of proper solid waste practices as several stories on solid waste management, climate change, clean and green environment are now reported through the Waste Management Reporters' Network.
- (vi) As a result of the awareness campaigns, there is more commitment by residents to ensure proper waste disposal. Communities are more desirous to adopt appropriate SWM practices.
- (vii) The community clean-up campaigns provided an opportunity to remove huge garbage backlog that had accumulated within the communities over time, and changed community members' perception on the importance of solid waste management

Table 12: Outputs from awareness and sensitization campaigns

Result Area	Indicator	Mid-Term	End-line
	% Of HHs reached with awareness and sensitization on good solid waste management practices	15%	26%
Awareness and	% Of HHs that reported that the awareness campaigns were beneficial to their households and community	87%	93%
sensitizations	% Of HHs that reported to have made changes in waste management practices based on learnings from campaigns	68%	70%
	% Of HHs with knowledge about 3R	6%	27%

Awareness and sensitization campaigns registered several contextual and unintended outcomes;

- Some of the temporary disposal sites created during community clean-up campaigns have turned into permanent disposal sites, creating health and environmental risks to surrounding homes.
- Through awareness campaigns, platforms for information sharing, dissemination and awareness have been established amongst local governments, community leadership and their constituents.
- Awareness activities brought together communities to find solutions to their own solid waste challenges, which has enabled bonding, building social cohesion and unity among residents.
- Better understanding of the role of CBEs in solid waste management and the obligation of residents to pay for waste collection services.

Several factors facilitated attainment of outcomes and results from awareness campaigns;

- Appropriate and effectives models of delivering messages were developed for different audiences.
 Role plays, drama, jingles and simple Liberian English were adopted to deliver messages for easy comprehension by different audiences such as children, petty traders, residents etc.
- Project's ability to adapt to new demands. The project recognized that women and children are key players in SWM at household level, and integrated social and child protection issues in awareness and sensitization messages, which was not part of the original design of awareness campaigns.
- Engaged community leaders to understand waste management challenges within communities prior to the awareness campaigns, and tailored messages to address these specific challenges.
- Implemented awareness campaigns through adoption of community led-approaches. Communities were supported to develop awareness plans, identify key themes and topics for awareness activities, and engaged local leaders in delivering messages to communities.

Despite the enormous success registered from awareness and sensitization campaigns, several challenges were encountered:

- The outbreak of COVID-19 affected implementation of several awareness and sensitization activities. Education campaigns in schools and outreaches were grossly affected. COVID-19 resulted into closure of schools which affected school education campaigns.
- From awareness activities, several communities and households expressed the desire to subscribe to CBE to improve on primary solid waste management within their communities, however, coverage of CBE services remains low, with several communities not reached with CBE services.
- Continuity of awareness activities remains a challenge. These have been wholly funded by the project, and while several of these activities can be integrated into city corporation work plans, cities need to be provided budgets for municipal waste management to ensure continuity.
- The rainy season affected awareness and sensitization activities, particularly crowd pulling which is key for awareness activities. Many people remained in their homes due to the weather.

Several lessons were learnt implementing awareness activities:

- Awareness and sensitization activities should be a continuous process due to the ever-increasing population within Greater Monrovia. As new people come in, they need to be educated
- Success of awareness activities was primarily because the project engaged community leaders to identify most challenged communities, and their problems to design awareness campaigns.
- Mainstreaming Child Protection issues in awareness and sensitization campaigns showed the project's ability to adapt to changing environments, community needs and priorities.

VOICES FROM STAKEHOLDERS

"The community clean-up campaigns had significant impact on our community. Our leaders mobilized us to collect all the garbage we had in our homes and bring them to a central place where city authorities would pick it. This left our community garbage free, clean and tidy. We have already had discussions amongst our block members such that every last Saturday of the month, we have a cleanup in our block, and call a CBE to come and take it for disposal. We shall mobilize resources amongst ourselves to pay the CBE" **COMMUNITY MEMBER**

"One of the benefits has been behavior change in waste management practices by community members, attributed to the awareness campaigns. During these campaigns, we were encouraged to get involved in processes of ensuring clean and green environment. Residents from my community (Soniwein Community) promised not to throw wastes in the drainage, but would rather take their wastes to the designated disposal sites, and subscribe to CBEs. When you come to our community, this has been achieved, you don't find garbage littering everywhere as it used to be. People's behavior towards waste collection and disposal has changed for the better" **COMMUNITY MEMBER**

"We have set up of a Sanitation Taskforce in the Gaye-Town Community to vigorously enforce the practice of proper waste management. Whoever is caught throwing garbage in drainages, swamps or just disposing waste anywhere other than designated points is arrested by the taskforce and be made to pay a fine. In addition to the pay, this person has to do community service. We take him to the Block where he stays and ask him to clean for at least one week" **COMMUNITY MEMBER**

MOST SIGNIFICANT STORY 2:

TITLE OF STORY: BEHAVIOR CHANGE ENHANCEMENT IN SWM PRACTICES

Alexander B. Faryombo is a resident of ELWA Community in Congo Town. "I've been a resident of this community for 7 -years now. For the past 7-years, our community has had one of the worst solid waste disposal practices. Before, residents collected waste and disposed it in nearby wetlands, the sea and in drainages. In the night, residents would dump garbage at the beaches and sometimes in people's compounds, which made the community so dirty. Because of this, our community was exposed to unending disease outbreaks, and the environment kept on deteriorating. It was common practice for residents to dump garbage at the nearby beaches, and the beaches were losing their clients because of the hygiene.

In 2019, Cities Alliance and leadership from Congo Town organized a beach clean-up campaign for ELWA Community. Our local leaders told us that the surrounding beaches were reducing the staff employed because customers are no longer coming to the beach because of their hygiene. Because the beaches were employing people from our community, our reckless waste disposal behavior made our colleagues lose jobs. By the time the sensitization meeting was ending, I saw residents starting to clean the community, removing garbage from trenches and the beach without anyone telling them to do so.

The beach clean-up exercise changed the behavior of community members towards waste disposal. Today, you don't see people disposing waste at the beach. This installed a sense of behavior change and residents have become more responsible in disposal of waste.

MOST SIGNIFICANT STORY 3:

TITLE OF STORY: AN ADVOCATE, COMMUNITY CHAMPION AND CHANGE AGENT IN SWM

Alice T. Saylee, is a student of Cyber-ed Christian School, Congo Town and a member of the school environmental club. She is a beneficiary of the school awareness campaigns conducted by Cities Alliance to reach out to students and work with school age children as agents of change in their communities. "Before Cities Alliance reached out to my school, SWM was not a priority issue for my community. It was an ordinary issue that we lived with on a day-to-day.

During one of the school assemblies, the school principal informed us that Cities Alliance was planning to visit the school to conduct awareness on proper solid waste management through the School Environmental Club. Messages were delivered through a drama group and a renown comedian which attracted so many students to attend. As I went back home, I looked at the waste dumped on the road side and trenches. I realized we were heading into a serious crisis if we continued disposing waste this way. From that time on, I decided to champion efforts to improve waste disposal within my community. I decided on becoming an agent of change based on the lessons I learnt from the awareness exercise at school.

I've utilized the time schools have been under lock down to reach out to communities educating them about proper SWM, climate change and the importance of having a clean and safe environment. This has increased awareness, increased knowledge and simulated a sense of behavior change regarding SWM.

MOST SIGNIFICANT STORY 4:

TITLE OF STORY: MY HOME, A CENTER OF EXCELLENCE IN THE COMMUNITY REGARDING SWM

Cities Alliance visited our school to educate us about climate change and the benefits of proper SWM. During the session, the facilitators asked us to take 2 minutes and make a reflection of how we manage trash at home. After 2 minutes, she asked those that are happy with the way trash is managed at their homes to raise their hands. I couldn't raise mine because our waste disposal practices were lacking. After the session, we were tasked to go back to our homes and start educating households on the benefits on proper waste collection and disposal.

However, I approached it differently - the first thing was to make my home a center of excellence such that as I educate and sensitize community members, I can make reference to our home. So, I concentrated on making my home a center of excellence in waste management. I ensured that we have waste bins within our home where we dispose garbage. I convinced by parents to contract a CBE to collect our garbage. Once I succeed in this, I then went into households sensitizing them about proper SWM, referencing my home as a center of excellence, a best practice that they could adopt.

Many homes adopted this, and have become more responsible in managing waste. People believe by seeing. It made it easy for my message to reach the people because I had somewhere to make reference to, which was my home. When the schools re-open, I will bring several of my classmates to our home to learn about what we've done so that they can also do the same in their homes and communities.

MOST SIGNIFICANT STORY 5:

TITLE OF STORY: ESTABLISHMENT OF SANITATION TASKFORCES WITHIN COMMUNITIES

David Varla, is a resident of Wood Camp Community in Paynesville, and the community chairperson. "It has been a common practice for residents to dump their waste in the surrounding wetlands. Before, garbage used to be littered along the streets, trenches and walkways within communities. While we used to have community clean-up exercises, these had not happened for some time, leaving the community heavily littered and dirty.

Cities Alliance worked with PCC to conduct an awareness outreach within our community. The awareness focused on making residents understand the danger of indiscriminate waste disposal. During the awareness exercise, residents were engaged to provide solutions on how to address waste challenges within the community. Several proposals were made, but one key suggestion was to form a sanitation taskforce within the community, responsible for promoting hygiene and sanitation, and penalize residents who engage in indiscriminate waste disposal. One week after the awareness, we set-up the sanitation taskforce.

Setting up the sanitation taskforce has greatly improved waste disposal with our community. Prior to the awareness exercise, it was common practice to find garbage in the nearby wetland, trenches and on streets. This has significantly reduced because residents know once the sanitation taskforce gets to know that you dump in a non-gazetted place, then you will be fined.

3.7 COMPONENT 4: INTEGRATED SOLID WASTE MANAGEMENT SYSTEM AND CAPACITY

Intermediate Outcome: Integrated SWM Systems and Capacity Improved and Integrated Plans and capacity to Manage and fund SWM for Greater Monrovia.



3.7.1 INTRODUCTION:

This aimed to ensure an integrated SWM system and capacity improved, and integrated plans and capacity to manage and fund SWM for Greater Monrovia. To achieve this, the project supported capacity development activities; developed a stakeholder platform that brings together national, city, local governments, private sector and communities; linked to the City Development Strategies (CDS) and designing and implementing a participatory M&E system with a community monitoring component.

3.7.2 CAPACITY DEVELOPMENT AND INSTITUTIONAL STRENGTHENING OF AN INTEGRATED SOLID WASTE MANAGEMENT TEAM WITHIN GREATER MONROVIA

To address capacity challenges within the public sector, the project partnered with the Institute for Housing and Urban Development Studies (Erasmus University of Rotterdam) to conduct capacity building trainings for government officials, partnering with the Liberia Institute of Public Administration (LIPA). The University developed training handbooks and the SWM training modules that were delivered to the trainees. However, due to COVID-19, the SWM training was conducted online.

Capacity building for National, City and Local Governments:

A total of 109 government officials benefitted from the SWM training (23% were females). The table below provides a summary of the beneficiary institutions and number of staff that benefited.

SNo	Institution	Beneficiaries	Male	Female
1.	Monrovia City Corporation	6	4	2
2.	Paynesville City Corporation	3	3	-
3.	Environmental Protection Agency	2	1	1
4.	Ministry of Internal Affairs	1	-	1
5.	WASH Commission	4	4	-
6.	Township Commissioner + Technical Staff	53	45	8
7.	LIPA	6	6	-
8.	SDI/YMCA	1	1	-
9.	UNOPS-Cities Alliance	2	1	1
10.	Others ²³	31	23	9
	Total	109	88	21

Table 13: Capacity	y Building for National, C	ity and Local Governments in	Solid Waste Management
	,		

Capacity Building for NACOBE and CBEs:

The project conducted a Capacity Needs Assessment (CNA) to assess the institutional and organizational capacity of NACOBE and CBEs to deliver their mandates. The assessment of CBEs focused on establishing their capacity to effectively conduct primary solid waste management, while that of NACOBE focused on the institution's capacity to provide leadership, governance and oversight to the CBEs. Results from the assessments informed the design of capacity building trainings for both NACOBE and CBEs. The table below provides a summary of the different trainings conducted.

²³ This includes staff from NPHIL, University of Liberia, HFHI, NHA, UNOPS-Cities Alliance, Stella Maris Polytechnic University, Smythe Institute of Management, African Methodist Episcopal University, Tubman National Institute, Liberian Observer Corporation, and United Methodist University

Table 14: Capacity Building Trainings conducted for NACOBE and CBEs

SNo	Type of Training	Beneficiary	No. of Beneficiaries
1.	Business Development	NACOBE/CBEs	40
2.	Solid Waste Management	CBEs	40
3.	Monitoring and Evaluation	CBEs	40
4.	Financial Management	CBEs	40
5.	Quality Service Delivery	CBEs	40
6.	Records Management	CBEs	40
7.	Human Resource Management	CBEs	40

The capacity building trainings had significant impact at individual, institutional and sector level

- (i) The training in solid waste management directly responded to capacity challenges, needs and priorities of the public sector at national, city and local government.
- (ii) Better technical capacity for government officials: Public institutions and Individuals working in the waste sector are better equipped with knowledge to effectively respond to the systemic solid waste challenges in Greater Monrovia.
- (iii) Enhanced capacity of NACOBE and CBEs to deliver their mandate. The knowledge gained from the trainings above have enhanced financial, records and human resource management for the CBEs; CBEs have a better understanding of the solid waste concepts, while NACOBE has better capacity to lobby, advocate, supervise and monitor CBE operations.
- (v) The training in financial management provided CBEs an opportunity to view SWM with an entrepreneur perspective, unlike before where they considered their work as a community service.

3.7.3 DEVELOPING A STAKEHOLDER PLATFORM THAT BRINGS TOGETHER NATIONAL MINISTRIES, GREATER MONROVIA LOCAL GOVERNMENT, PRIVATE SECTOR, AND COMMUNITIES.

The project established a Solid Waste Technical Working Group (TWG), that brings together players within the waste sector to discuss and make proposals on addressing challenges within the sector. Institutions include MIA, EPA, WASH Commission, City Corporations, NACOBE, Cities Alliance, and HFHI among others.

The establishment of the stakeholder platform registered several positive outcomes;

- (i) Enhanced coordination of partners and stakeholders within the waste sector.
- (ii) SWM partnerships established the partnership with HFHI resulted into a joint clean-up campaign in Peace Island and donation of a tri-cycle to City Sanitation Services, a local CBE in Peace Island, as a mechanism of strengthening institutional and community solid waste management capacities.
- (iii) National recognition. The TWG group participates in weekly WASH Commission radio programs aimed at creating awareness among residents on proper WASH practices; and is part of the COVID-19 solid waste management taskforce established by MCC to avert the spread of COVID-19.
- (iv) The platform has been an important avenue for information sharing and dissemination, providing feedback to stakeholders, sharing challenges and any new developments within the sector.

3.7.4 LINKED TO THE CITY DEVELOPMENT STRATEGIES, DEVELOP A COSTED SOLID WASTE STRATEGY FOR THE GREATER MONROVIA AREA.

The LCP supported the development of the Greater Monrovia Urban Development Strategy. The strategy highlights SWM challenges, and proposes several interventions in addressing these challenges. These include implementation of recycling and composting projects to reduce the waste dumped on the streets, water bodies, skip buckets and landfill; Identification and inclusion of Recycling and composting projects within the Greater Monrovia Urban Development Strategy provided a long-term link between the strategy and the SWM strategy. A costed SWM strategy has been incorporated into the CDS.

3.7.5 DESIGN & IMPLEMENT A PARTICIPATORY M&E SYSTEM WITH A COMMUNITY M&E COMPONENT.

The project implemented a participatory M&E approach comprising of various stakeholders such as city corporations, CBEs and the TWG; developed comprehensive CBE bi-annual data collection tools, directly linked to the M&E strategy and Management Information System. 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, logical linkages between intended inputs, planned activities and expected results. An Integrated M&E Plan exists and defines how to Monitor and Evaluate the Project with a component on the role of the community in Monitoring and Evaluating performance incorporated into the plan; and appropriate data collection instruments developed to support project Monitoring and Evaluation.

VOICES FROM STAKEHOLDERS

"One of the most successful areas of the project has been the capacity building. The project identified capacity challenges within the public sector right from national, city and local government regarding solid waste management. The trainings were delivered successfully and addressed the capacity gaps within the public sector" **EUROPEAN UNION**

"The project ensured that the capacity of several public institutions is built. Government officials from city corporations, EPA, WASH Commission and my own ministry have been trained in solid waste management. The project also supported several workshops targeting community leaders to go and create awareness within their communities so that residents can understand the importance of proper waste management" **DEPUTY MINISTER FOR INTERNAL AFFAIRS**

"Capacity building trainings had significant impact to our operations as government institutions. The knowledge and lessons learned during the trainings have been applied in our day-to-day office work, particularly in solving waste management problems. We are currently putting together Solid Waste Standards and Guidelines using the knowledge acquired through the capacity building training" **EPA**

"The project did well in enhancing coordination amongst government institutions and the private sector to tackle solid waste challenges through the Technical Working Group. This platform was established to engage government, cities and private players to have constant communication and share ideas on how we can address the challenges in the sector. We will do our best to ensure this platform and its benefits continue beyond the project" CITY CORPORATIONS

"Collaboration and coordination have greatly improved because of this project; this is something that was lacking particularly with NACOBE. We now see a better coordinated sector" **NACOBE**

MOST SIGNIFICANT STORY 6:

TITLE OF STORY: ENHANCED CAPACITY OF THE PUBLIC SECTOR TO DELIVER CLIMATE RESILIENT SOLID WASTE MANAGEMENT SERVICES

Abayomi Grant is the Solid Waste Management Specialist with the EPA. "I was appointed to this position in 2008 but didn't have any training in SWM. My first degree is in Biology, however, our mandate as EPA is to regulate the waste sector. We are responsible for setting standards, guidelines and policies for waste management, through consultation with partners and stakeholders. With this background, a training or qualification in SWM is very important to effectively support the institution to deliver its mandate. However, I assumed this role without any training or qualification in solid waste management.

Within the first 1-2 years, my job was challenging mainly because of my education background. However, when Cities Alliance introduced the PSW project, it presented an opportunity for me to improve my knowledge about the sector. We received a capacity building training from the project to enhance our knowledge about SWM. This was my first ever training in SWM. While I've received other trainings in SWM, the training from Cities Alliance set the foundation for me.

Today, a lot has been achieved by EPA, and the waste sector. The sector lacked key policy documents which made regulation, supervision and monitoring challenging. However, using the knowledge gained through the capacity building training by Cities Alliance, we have developed two documents (in draft form awaiting final validation). These include the National Solid Waste Standards and Regulation which were never in place.

MOST SIGNIFICANT STORY 7:

TITLE OF STORY: ENHANCED COORDINATION OF PARTNERS AND STAKEHOLDERS IN THE SECTOR

There are several stakeholders working within the waste sector in Liberia. However, as an institution responsible for regulating the WASH sector, we didn't know who was who, what they were doing and where they worked. Our long-term plan was to establish a sector working group to convene together all stakeholders in the sector so that we can brainstorm together, on how best we could improve or address the challenges within the sector.

The Technical Working Group established by the project helped us to solve the challenge of coordination of partners and stakeholders. It had stakeholders such as City corporations, MIA, EPA, WASH Commission, HFHI and may others. This gave us a platform to discuss with stakeholders and make proposals on addressing challenges in a participatory way. This has been a major achievement for the project because we have been able to have partners align their activities and interventions on the solid waste priorities of government.

As the project comes to an end, the waste sector is better coordinated. With this coordination, we have seen more players and development partners coming in to support government to address some of the waste sector challenges. We have the World Bank, EU, Cities Alliance and many other stakeholders who have come into the sector to work with us to improve SWM.

OCED-DAC CRITERIA 1: RELEVANCE:

1. How appropriate was the project design to the achievement of the overall and specific objectives?

Considering the environment and context in which the project was delivered, the design was to a large extent appropriate to deliver the intended results. The project did not create any new structures but rather focused on working with, and empowering existing structures at national, city and community level such as the Ministry of Internal Affairs, WASH Commission, EPA, city corporations, NACOBE, CBEs, and school environmental clubs. These have the potential to influence attainment of project objectives. The EU, through the World Bank Trust fund, funded the EMUS Project (2009-2016). The project was effectively designed to address illegal dumping by CBEs, although not wholly mitigated because of the problems down the value chain and skip system; Partly, the project objectives were to engage in recycling and composting. The project was however, unable to undertake these interventions because capacity for soft skills (awareness, sensitization and education on recycling and composting) needed to be strengthened. The design was therefore hinged on addressing these challenges, to create longer term impact. Considering that municipal authorities are largely using land filling to solve the solid waste problem; these interventions were timely.

In addition; recycling and composting solutions were designed to, among others, promote job creation and enhance livelihoods. Considering the proportion of unemployed youths in Liberia, this was ideal as it complemented government efforts to address unemployment particularly among the youth. The design consolidated and built on successes and lessons from the EMUS and IMPAC Projects, engrossed on working with CBEs which was a key entry point into the waste sector, particularly at household level, which further enhanced PPP. In addition, Behavior change outcomes are better enhanced through outreach and awareness activities - the project was appropriately designed to influence behavior change at household and community level through education campaigns for schools and communities; and outreach activities for Greater Monrovia population on climate smart behavior, SW and ₃R.

However, the project could have been delivered better if (i) had adopted bottom-up approaches; (ii) focused on being an entrepreneurship project rather than a community and climate change project that mainly focused on the soft skills rather than hard skills (iii) paid keen attention on the interaction with the secondary component to create an effective value chain, and (iv) enhanced community participation in SWM to enable them come up with solutions to their own waste challenges.

2. To what degree did the interaction between different project components contribute to achievement of outcomes in addressing systemic Solid Waste challenges? How could this have been improved?

At sector level, interaction between the primary and secondary components could have been enhanced. Implementation of technical review meetings, experience sharing and joint action planning could have bridged several gaps within the solid waste management value chain. At project level, interaction of components was evident. Attainment of outcomes was non-linear, which enhanced component interaction and attainment of intended results, particularly for component 3. Despite the descoping of component 2, there was strong interaction between Components 1 and 2. With component 1 focused on enhancing the capacity of CBEs to conduct primary waste collection, component 2 leveraged achievements in component 1 - focusing on the next steps after collecting waste i.e., sorting, recycling and composting. Synergies were strong and positive prior to descoping the component. In addition, the evaluation found that Component 3 leveraged existing SWM challenges at community level to develop awareness and sensitization activities that addressed community-specific challenges.

Synergies were also evident across component 1 and 3; awareness and sensitization activities promoted and encouraged households to subscribe to CBEs, promoted healthy solid waste management practices, encouraged waste separation at source, and promoted climate smart behavior. Waste disposal practices evidenced in component 1 informed the development of tailored awareness and sensitization messages; while components 1,2 and 3 jointly interacted to contribute to results observed in Component 4 - ensuring an integrated solid waste management system is available in Greater Monrovia.

Interaction of project components could have delivered better results if (i) Interaction between primary and secondary components was enhanced (ii) monitoring and evaluation enhanced under component 2 to fast-track activity implementation, and (iii) a project steering committee established to enhance interaction and coordination of components at project and sector level.

3. How responsive to the needs and priorities of local stakeholders were project processes including project design, implementation, monitoring and delivery? what can be learned and what could be strengthened in the future?

Despite the numerous waste sector challenges, the project made efforts to address several needs and priorities of local stakeholders. The Project did not reinvent the wheel, but rather focused on addressing gaps that remained from the EMUS and IMPAC Projects. While these projects focused on collecting and taking waste to the landfill, Cities Alliance focused on addressing grass root collection (from households) working with CBEs. Capacity of national, city and community stakeholders was built to address gaps in SWM. A total of 109 government officials were trained in SWM and other disciplines; and a curriculum developed for SWM, which will be useful in future capacity building activities. The knowledge gained was crucial in sharpening the Draft National Solid Waste Management Strategy.

In addition, city corporation were supported to develop community solid waste management guidelines. Although still in draft form, these will help improve solid waste management at community and household level once finalized; in anticipation of an increase in the volume of waste at skip buckets due to an increase in CBE activities, the project procured and distributed 60 skip buckets to city corporations; the project supported horizontal expansion of CBEs to improve coverage of waste collection services (14 CBEs at baseline compared to 55 at end-line); provided waste collection start-up tools and equipment (tricycles, pushcarts and wheelbarrows) to CBEs to boost waste collection; capacity building trainings were conducted in several areas including solid waste management, human resource, records and financial management, and quality service delivery among others; implemented a loan facility and established a revolving fund for CBEs to improve access to finance and credit in the longer term.

The project supported 3 feasibilities studies focusing on vertical and horizontal expansion of CBEs; costed feasibility models and action plan for implementing composting and recycling options for primary waste collection in Greater Monrovia; implemented several intensive public awareness and sensitization activities to educate the population in Greater Monrovia on climate smart behavior, solid waste management, 3R and foster behavior change (attitude and practices) in solid waste management.

Several priorities however need to be addressed in the short and longer-term. These include (i) Sorting, recycling and composting solutions (ii) construction of a transfer station in Paynesville (iii) capacity of SMEs/CBEs further enhanced to engage in composting and recycling solutions (iv) strengthening waste sector governance in terms of policies and guidelines, and (v) formulation of guidelines that make it mandatory for households to subscribe to CBEs and pay for waste collection services.

Several lessons were learnt; (i) launching the loan and Grant facilities early in the project would have had
stronger impact, providing adequate time for learning and integration of learning into practice (ii) extending the project duration, say for 2 additional years would have enhanced attainment of project results. Minimal activities were implemented in the 1st year, while COVID-19 slowed down implementation for close to a year. Ideally, close to 2 of the 4-years were lost. Compensating the lost time would have enabled better attainment of results. In addition, the project assumptions should have been sharpened to be more realistic. For instance, the assumption that an increase in the waste volume at the skip buckets would be matched by corresponding levels of emptying the buckets was underestimated.

4. 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?

Several interventions were implemented to enhance the capacity of national, city and local government, the private sector and communities in building effective climate adaptation systems. At community level, the project supported 20 community forums; supported awareness and sensitization activities on climate change and climate smart behavior; built the capacity of community leaders, and CBEs to sensitize communities about the importance of protecting the natural and built environment. As a result, community clean up campaigns, school awareness activities, community outreaches and beach clean-up campaigns were implemented. The feasibility studies conducted identified the need for a National Waste Management Policy to regulate the Waste Sector. By Evaluation, a draft was in place, shared with stakeholders for review. The studies provide effective models and market demand analysis for composting and recycling systems, determining initiatives which can be implemented as pilot projects to diversify the economic model of the CBEs and waste minimization.

At local government level, the capacity of township commissioners and their technical staff was built as change agents and champions in advocating for climate smart behavior, climate change and healthy SWM. In addition, staff from the city corporations were trained on SWM and climate smart behavior. The staff have been very instrumental in supporting awareness and sensitization activities. At National level, the Project worked directly with the Ministry of Internal Affairs, EPA and WASH Commission. These are the institutions responsible for governance of the sector. The project-built the capacity of staff from these institutions on climate change, climate smart behavior and SWM. The trainings were conducted directly by the Erasmus University of Rotterdam.

Several lessons were learnt; there were changes in government priorities with resources diverted to fight COVID-19, which affected response towards building effective climate adaptation systems particularly with the secondary component; while working with technical personnel within national, city and local government structures is key in ensuring continuity of project benefits.

OECD-DAC CRITERIA 2: EFFECTIVENESS:

5. To what extent has the Programme achieved its intended results, and how effective were the various components?

Of the four (4) intermediate outcomes, one was achieved, two were partially achieved, while one was not achieved. The environment and context within which the project was delivered affected attainment of full-scale results. Intermediate Outcome 1 focused on improving access to sanitation through more sustainable and efficient solid waste collection. The percentage of Households receiving PSW collection services improved by 4% (36% at baseline to 40% at end-line), which was however below the project target of 45%. The number of CBEs active in waste collection increased from 14 at baseline to 55 at end-line, however not adequate to improve coverage of waste collection services in Greater Monrovia.

Intermediate outcome 2 focused on reducing greenhouse gas emission through improving extracting, sorting and re-use of solid waste in greater Monrovia. Due to descoping of recycling and composting interventions, the outcome was not achieved. Intermediate outcome 3 focused on improving awareness of climate change and climate-resilient SWM in Greater Monrovia population with a focus on youth. The proportion of households in Greater Monrovia reached by awareness campaigns on SWM improved by 26% (o% at baseline to 26% at end-line), surpassing the project target of 10%. Awareness and sensitization activities conducted were central to changing community behavior towards solid waste management. The education campaigns in schools targeting youth, and the educational excursion to solid waste management facilities raised awareness, increased knowledge and stimulated a sense of behavior change. To greater extent, the outcome was achieved.

Intermediate outcome 4 focused on ensuring integrated plans and capacity to manage and fund SWM for Greater Monrovia is attained. Analysis of the maturity scale for the indicator showed that there is existence of an Integrated SWM small initiatives/lessons learnt but neither included nor implemented in community level planning. The capacity of national, city and local government officials has been built, which has improved capacity to manage SWM initiatives. The outcome is partially achieved. The goal of the project is to ensure that 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 percent of households with planned forms of garbage disposal improved from 36% at baseline to 87% at end-line), surpassing the project target of 45%.

Attainment of project outcomes was however hugely affected by the environment and context in which the project was delivered. (i) Nearly 2 of the 4-years of implementation were lost due to delayed kick-off of the project and the outbreak of COVID-19; (ii) the shift in government priorities, diverting resources to fighting COVID-19 could have affected its commitment to fulfill the counterpart funding pledge for the CLUS project which directly affected secondary SWM and indirectly primary SWM; (iii) the high penetration of Zogos into the primary waste sector provided stiff competition to CBEs, which forced CBEs to start collecting waste from business entities and institutions. **Several other factors that influenced non-achievement of project outcomes are discussed in Evaluation Question 6, below.**

6. What were the major factors influencing achievement or non-achievement of outcome/intermediate outcome(s)/expected results/outputs?

Factors that influenced attainment of outcome include; (i) the project leveraging the LCP with wellestablished partnerships with national, city and local governments; and communities to improve primary solid waste services (ii) leveraging existing community structures established by the Country Programme to conduct impactful public awareness and sensitization activities (iii) adopting a coherent and clustered CBE model that was a success with previous projects, (iv) built on lessons and successes from the EMUS and IMPAC Projects, (v) adopted community-led implementation approaches, and (vi) established a platform that brought together players in the waste sector to discuss and deliberate on SWM issues.

However, several factors influenced non-achievement of project outcomes (i) the secondary component did not effectively address the challenge of impromptu waste collection at skip buckets, yet success of the primary component was dependent on a functional secondary component (ii) minimal buy-in from city corporation into the CBE model; (iii) capacity gaps among SMEs/CBEs in composting and recycling solutions which needs to be strengthened (iv) the outbreak of COVID-19 affected implementation of several activities; (iv) in Paynesville, land for construction of the transfer station was identified late in the project, the remaining timelines were not sufficient to have the transfer station, (v) the inability

for households to pay for waste collection services due to the impact of COVID-19 affected efforts to expand CBE services, as they resorted to collecting waste from business entities; (vi) absence of a project steering committee - having one would help provide strategic leadership and direction for the project; and (vii) high staff turnover within the project team affected implementation.

7. How adaptable has the project been to external and contextual challenges (including the economic and political situation, and the Covid-19 pandemic), and to learning and feedback generated during implementation. How could this have been improved?

To some extent, the project was adaptable to external and contextual challenges. COVID-19 affected several activities; however, the project adopted several approaches to address this. For instance, capacity building and training activities were conducted virtually (online); the project leveraged community structures established by the LCP to conduct awareness and sensitization activities; adopted more of radio talk shows to create awareness and sensitization activities; leveraged the CBE network to reach out and conduct awareness and sensitization activities at household level as they collected garbage. While the major objective of the awareness activities was to address challenges around poor waste management and climate changes, awareness activities were redesigned to include awareness on measures to avert the spread of COVID-19. In addition, the project recognized women and children as key players in solid waste management at household level, therefore integrated and aligned child and social protection issues in awareness messages and sensitization activities.

However, certain external and contextual challenges were beyond the project's control. For instance, the project had moved a long way, and could not align to some of the priorities of the new government as this had huge implications on implementation approaches; while the project had less control on the Zogos who highly penetrated the primary waste sector. In terms of lessons learned: (i) developing more realistic assumptions would have contributed to better results (ii) enhancing monitoring of risks and assumptions in the log frame would help address internal and external factors that influenced non-achievement of outcomes; while (iv) enhancing coordination of the primary and secondary components would help address gaps in the solid waste management value chain.

OECD-DAC CRITERIA 3: EFFICIENCY:

8. To what degree was value for money prioritized during Programme implementation

The project was keen on ensuring money was spent the right way, for the intended purpose and on planned activities. For instance, considering this was the first project Cities Alliance fully implemented on its own without partners, Cities Alliance also didn't have a fully-fledged office in Liberia at the time of award of the project, the institution could have used the resources on salaries and getting in new staff to grow their Liberia Office. However, the project was purely focused on delivering the project outcomes.

"I've not worked with many institutions that ensure money is spent the right way. Cities Alliance was so keen on ensuring money was spent the right way and on intended priorities. The organization was incredibly diligent in finding the best possible solution to use the money. So financially speaking, it was very good management" **EUROPEAN UNION**

In addition; (i) the project always sought "No Objection" from the donor on any expenses and activities not in the work plan before resources could be spent (ii) ensured due diligence was conducted for all operations including tenders to suppliers, consultants and civil works (iii) the project could have revised the criteria for awarding grants to SMEs/CBEs for the purpose of having grants awarded. However, the project had realized that the capacity of SMEs/CBEs needed further enhancement to utilize the grants for the right purpose. Rather than having the resources put to waste, the project made a decision not to award grants. It was in the interest of the project to support construction of a transfer station in Paynesville. However, the land identified was in a swampy area, therefore required a relatively longer period to have the facility constructed. In addition, a defect notification period of one year is required after completion of the facility. Because the project was in the final stages, this was cancelled, partly to avoid shoddy works being done due to tight timelines, which could lead to resources being put to waste. However, this should have been planned in the early stages of the project.

Other mechanisms include; putting in place a management committee comprised of MIA, PCC, MCC, Foundation for Women, Eco Bank and NACOBE to ensure loans given to CBEs are used for the right purpose; NACOBE worked out arrangements with CBEs such that those that have similar items to be procured (i.e., tricycles, pushcarts) can be procured from a single vendor to increase bargaining power and lower the cost; the project conducted training in financial management for CBEs, partly aimed at ensuring that resources advanced to CBEs are used optimally; robust financial management and accountability systems were put in place to ensure resources are used economically during implementation; Cities Alliance undertook rigorous UNOPS procurement processes to ensure competent contractors are hired at reasonable costs and value for money clauses are included in all contractor contracts; while for all civil works, processes MUST conform to, and should be compliant with the UNOPS engineering standards, which provide for high quality construction and value for money.

OECD-DAC CRITERIA 4: IMPACT

9. What were the intended/unintended outcomes and impacts of the project? Specifically, what were the outcomes for direct stakeholders and participants? At a minimum, this analysis should include both quantitative and qualitative changes, and identify differential outcomes based on gender and age

Impact was attained in several areas (i) better organization of the primary waste sector reflected in better organization of CBEs through their association, NACOBE. (ii) better technical capacities of individuals and institutions working in the waste sector (iii) the capacity building trainings conducted for CBEs on financial and record Management improved record management practices for CBEs. As a result, more CBEs now maintain records of business transactions (iii) the project established a revolving fund (loan facility) for CBEs, which will go a long way in enhancing access to finance and credit for CBEs in the longer term (iv) enhanced coordination of partners and stakeholders within the waste sector (v) procured and distributed 60 skip buckets within Greater Monrovia, which improved waste storage at community level (vi) the community forums were central in delivering messages about healthier SWM, enhanced community participation in coming up with solutions to their own waste challenges, which created a sense of ownership for sustainable solid waste management.

In addition, the intensive public awareness and sensitization campaigns led to behavior change among informal communities; while working with school age children as agents of change in their communities is a long-term investment in changing behavior and practices of individuals and communities towards sustainable SWM; improved coverage of CBE services (horizontal expansion) from 14 CBEs at the start of the project to 55 by end-line; and as a result of the capacity building, city corporations have come up with framework documents to support solid waste management. Community solid waste management action plans have been developed and recently validated. These will enhance the capacity of waste collectors at household level to have efficient solid waste collection systems.

Impact level indicators showed that (i) the percentage of Households with planned forms of garbage disposal in selected communities improved from 36% at baseline to 87% at end-line; (ii) the percentage of recycled waste going to landfill (organic & inorganic) was not measured, but is believed to have increased due to descoping of sorting, recycling and composting solutions.

Regarding attainment of Intermediate outcome 1, the percentage of Households receiving primary solid waste collection services in Greater Monrovia improved by 4% (36% at baseline to 40% at end-line). For intermediate outcome 2, the proportion of households sorting solid waste for re-use at collection improved by 5% (0% at baseline to 5% at end-line). For intermediate outcome 3, the proportion of households in Greater Monrovia reached by awareness campaigns on solid waste management improved by 26% (0% at baseline to 26% at end-line), surpassing the project target of 10%. With intermediate outcome 4, the maturity matrix ranking showed that there is existence of an Integrated SWM small initiatives/lessons learnt but neither included nor implemented in community level planning

Several contextual and unintended outcomes were observed (i) failure for households to pay for waste collection services has compelled CBEs to start collecting waste from business entities so that they can earn incomes to enable them sustain their businesses (ii) CBE activities increased the volume of waste that goes to skip buckets, which was never matched by corresponding levels of emptying (iii) due to impromptu emptying of skip buckets, communities have demanded city corporations to remove buckets from collection spots provided by the communities. These spots have turned into disposal sites, causing health and environmental risks to surrounding households and communities; (iv) the number of collection points at community level have been reduced by the city corporations, who have decided to retain a few points that they can effectively manage with the limited resources at their disposal.

SNO	IMPACT AND OUTCOME THEMES	LEVEL OF IMPACT	NATURE OF IMPACT	REASON FOR SELECTION	
1.	Capacity of the public and private sector enhanced to deliver climate resilient SWM services	 Individual CBE Institutional Sector 	 Intended 	 Addressed capacity gaps within the public and private sector 	
2.	Improved Book keeping, Records and Financial management	■ CBE	 Intended 	 Initially a cross cutting challenge across CBEs 	
3.	A cohesive, clustered and well- coordinated CBE Network	CBESector	Intended	 Organize a CBEs network that was initially not cohesive 	
4.	Enhanced Behavior Change in Solid Waste collection and disposal practices	IndividualCommunity	Intended	 The impact was significant and cut across several communities 	
5.	Formation and establishment of sanitation taskforces at community level to monitor waste disposal practices in communities	 Community 	 Unintended 	 These are key in enforcing proper waste disposal practices and behavior 	
6.	Enhanced unity and social cohesion among community members.	 Community 	 Unintended 	 Instilled a sense of collective responsibility 	
7.	Students, advocates, community champions and change agents in solid waste management at community level	IndividualCommunity	 Intended 	 Built a generation of young people that will influence behavior change in the long term 	
8.	Enhanced coordination of partners and stakeholders within the waste sector	 Sector 	 Intended 	 A serious challenge initially lacking in Liberia 	
9.	Establishment of the loan facility and revolving fund	CBESector	 Intended 	 This is the first of a kind to be established in Liberia 	

Table 15: Summary of Results and Outcomes for direct beneficiaries and participants (MSC Stories)

However, impact could have been stronger if (i) there was stronger acceptance and buy-in of the CBE model by municipal authorities; (ii) government fulfilling its commitment to provide counterpart funding for the secondary component; (iii) prompt emptying of skip buckets (iv) operations of Zogos in the primary waste sector limited (v) capacity of SMEs/CBEs strengthened to engage in recycling and composting solutions (vi) loans provided to CBEs early in the project (vii) environment made more conducive for CBEs to expand their operations, and (viii) stronger linkage between the primary and secondary solid waste management components.

OECD-DAC CRITERIA 5: SUSTAINABILITY:

10. To what degree will the identified outcomes be sustained following closure? What specific recommendations to the Cities Alliance and implementing partners relating to future programming would improve or ensure the institutional sustainability of the SWM Programme initiatives?

To an extent, some of the project results will be sustained. (i) strengthening the institutional capacity of NACOBE leaves behind a coherent and clustered CBE network, better placed to lobby, monitor and supervise CBE operations. However, sustainability of the model is threatened by the high penetration of Zogos into the sector. (ii) the loan facility has been established as a revolving fund and a committee set up to manage the facility and follow-up utilization of the funds. In addition, tools and SOPs have been developed to support repayment tracking, reporting and fund management. This will ensure sustainability; (iii) knowledge gained through the capacity building trainings remains relevant in addressing the systemic solid waste challenges in Liberia (iv) the modules and curriculum developed on SWM will be used for future capacity building trainings; (v) while city forums can be replicated through community level settlement forums established by the LCP.

However, to ensure institutional sustainability of the results (i) there is need to further improve coverage and expansion of CBE services (ii) there should be deliberate efforts by city corporations to create an enabling environment for CBEs to operate; (iii) permit CBEs to dump waste at transfer stations; (iv) formulate, implement and enforce policies and guidelines that make it mandatory for households to subscribe and pay for waste collection services (v) future programs should support sector governance particularly development of policies and guidelines on solid waste management; while (vi) government needs to appropriate resources to city corporations to cater for municipal solid waste management.

OECD-DAC CRITERIA 6: EQUITY

11. To what degree was gender mainstreaming evident in the analyses, design, structures, services and results of the SWM project (for example, in access to leadership roles and the services provided), and how could this have been improved?

There is evidence of gender mainstreaming right from design through execution of the project. (i) Within the project structure, gender is mainstreamed into project activities and results (ii) the project ensured female owned CBEs were recruited into the project – 20% of the CBEs were female owned (ii) project staff were trained and capacitated to execute their work in a gender-responsive manner as well as all internal policies, mechanisms and processes (iv) as part of the Programme's commitment to gender equality, a Gender Equality Strategy was developed by Cities Alliance and adopted by the project. (v) UNOPS has set a target of having 1:1 staff ratio for gender (vi) In addition, the M&E framework has gender sensitive indicators with focus on generating, analyzing and presenting gender disaggregated data. In addition, the number of females employed by CBEs almost tripled (i.e., 82 at baseline to 221 at end-line). The Project created awareness and sensitization, mainstreaming gender in all such activities; while Cities Alliance has zero tolerance policies to discrimination on any accounts, including gender.

5.1 INTRODUCTION:

The foregoing chapters have presented and discussed findings from the Evaluation; the Results Based on the analysis of Evaluation Questions and Objectives; and lessons learnt. This final chapter draws some conclusions and makes recommendations for future similar Projects.

5.2 CONCLUSION:

In spite of the numerous difficulties, challenges and environment within which the project was implemented; the 4-year period of working with CBEs, has established some catches onto which further programing can be hinged and built on. Even with the rest of the value chain not effective, the project kept going, working with the CBEs to improve primary solid waste services. While the sector has registered success in several areas in recent years, however more remains to be done for the solid waste removal system to be resilient, effective and sustainable. With the thin tax base, and low revenue collection by municipal authorities, the capacity for the public sector to adequately address solid waste management challenges remains low. With government allocating minimal resources to municipal solid waste management, several waste management activities are being funded by donors. This kind of environment and context require that resilient and sustainable SWM adopt Public-Private-Partnerships or having fully private arrangement (concession). However, with a concession, entities that will venture into waste collection services.

The biggest population in Greater Monrovia however, leaves within informal settlements; these are deprived persons, with no jobs or livelihoods; yet are the biggest generators of waste in the city. At the same time, these are unable to pay for waste collection services. With this, very few private investors would venture into solid waste management. Therefore, Public-Private-Partnership remains the most feasible alternative as it's a cost share model. While city governments have not taken advantage of Public-Private-Partnership, it's important that CBEs keep the spirit of being private entities which is revenue based, and look at their operations from an entrepreneurship and business lens, ready to generate revenue and grow their enterprises.

Through Public-Private-Partnership, the CBE model will enhance efficient and sustainable primary solid waste management if; (i) City governments recognize CBEs as important partners and stakeholders in the waste sector; (ii) willingness from city governments to operationalize the principals of Public-Private-Partnerships; (iii) city governments constrain operations of the CBEs in areas which they don't have capacity (iv) licensing processes for CBEs revisited to allow entry of more CBEs into the sector (reducing the high registration fees); (v) CBEs permitted to directly dispose to the transfer stations to reduce the burden that city corporations have in emptying skip buckets; (vi) develop and enforce guidelines that make it mandatory for households to subscribe and pay for waste collection services; and (vii) engagement of community leaders in SWM activities. These will be key in enforcing household payment for waste collection services.

While it's appreciated that city corporations need to generate revenue to improve municipal solid waste management, they should focus on specific places such as markets, offices and large businesses, and not taking charge of garbage collection in slum communities where revenues are low. They should allow the private sector to take charge of primary waste collection services, and create a conducive environment for the private sector to engage in recycling and composting solutions. In Europe and many countries

across the globe, recycling and composting interventions are private sector driven, this should be adopted in Liberia. There is need to build trust between government and the private sector, and create an enabling environment for them to deliver efficient and sustainable primary SWM services.

While municipal authorities are using land filling to solve waste problems in Greater Monrovia, dump sites are not the way to go with waste management, recycling and composting is. This should be the direction and priority of government. Government should ensure that it has the right minimum funding available for the waste sector, complement this with investment from the private sector, and create an environment for the private sector to thrive. Continuous efforts should be made to expand CBE coverage to reduce illegal dumping, offer durable solutions to improve solid waste management, prolong the longevity of the landfill, improve livelihoods and create jobs. Vertical expansion of the CBE system into composting, recycling & reuse is the way to achieve these objectives.

5.3 **RECOMMENDATIONS:**

5.3.1 RECOMMENDATIONS TO THE DONOR

- (i) As the EU plans its next steps and priorities for the sector, there is need to reconsider support and investment in sorting, recycling and composting programs, building on experiences and lessons learnt from the project; and supporting sector governance activities particularly policy development to enhance sector governance, regulation and oversight.
- (ii) More resources and investments be directed in supporting improvement in the solid waste management infrastructure in Greater Monrovia. The available infrastructure needs to be enhanced to adequately address the increasing waste volume in Greater Monrovia. There is need for a transfer station in Paynesville; and constructing sorting, recycling and composting infrastructure.

5.3.2 RECOMMENDATIONS TO GOVERNMENT:

- (i) There need for government to consider restrictions on packaging and controls on products in order to reduce solid waste generation rates. It should consider increasing tariffs on plastic as a way of discouraging their production and use.
- (ii) Strengthening Public-Private-Partnerships in delivery of solid waste services. The project has demonstrated that private sector engagement is vital in stimulating improvements in solid waste management. There is need to strengthen and promote sustainable, self-supporting partnerships with the private sector; NACOBE and CBEs inclusive.
- (iii) Dump sites is a conventional way of solid waste management, recycling and composting is the way to go. Local and regional governments are requiring waste to be separated for recycling, and some have established mandatory recycling targets. To ensure sustainable and efficient solid waste management, recycling and composting should be the direction and priority of government.
- (iv) Budgetary allocation to municipal waste management activities. Government allocates minimal funding to SWM activities, with several initiatives donor funded. There is need for government to increase funding to city governments to improve municipal waste management, particularly secondary waste management.

- (v) Majority of the waste generated in Greater Monrovia is from informal communities. These are characterized with people without jobs and livelihood, and unable to pay for waste collection services. There is need for government to subsidize CBEs working in informal settlements.
- (vi) Efforts to reduce the per capita solid waste dumped in the landfill need to be enhanced through sorting, recycling and composting solutions. Government needs to create a conducive and enabling environment; and provide subsidies to the private sector to venture into such interventions.

5.3.3 **RECOMMENDATIONS TO CITY GOVERNMENTS:**

- (i) The CBE model is the most effective way to address the primary waste challenges in Greater Monrovia. There is need for city governments to recognize CBEs as vital players within the sector, provide them the necessary support to expand service coverage, build trust, and allow them to take charge of primary solid waste management.
- (ii) City corporations should enhance processes for conducting supervision and monitoring of CBE activities to ensure compliance and adherence to sanitation standards, and check their operations. This is currently happening on a minimal scale.
- (iii) There is need for city governments to work with EPA, WASH Commission and NACOBE to develop, implement and enforce guidelines that make it a mandatory requirement for households to subscribe to CBEs and pay for waste collection services. This will ensure protection of the CBE space from encroachment by Zogos, and increase revenue collection to sustain their enterprises.
- (iv) There is need to establish a system that ensures regular interaction of city governments with community members on the importance of proper waste management, and enable communities to contribute solutions to addressing their own waste challenges.
- (v) There is need to re-instate performance contracts for CBEs as a way of enhancing performance, and ensuring accountability.
- (vi) There is need for timely emptying of skip buckets; increase in the waste volume at the buckets should be matched by corresponding levels of emptying of the buckets by municipal authorities.

5.3.4 RECOMMENDATIONS TO CITIES ALLIANCE:

- (i) Future similar projects should ensure that interventions that involve civil works or construction are launched early in the project. This will provide adequate time for learning and integration of learning into practice to improve performance.
- (ii) Enhance Monitoring and Evaluation, particularly in conducting periodic analysis of the effect of project risks and assumptions on delivery of project objectives and proposed interventions.

5.3.5 <u>RECOMMENDATIONS TO PARTNERS (institutions/ organizations that might in the short or long run</u> implement similar programs/projects/ activities in SWM):

- (i) City governments have not taken full advantage of Public-Private-Partnership, partly due to inadequate capacity to operationalize the PPP. There is a need to support and guide city governments on setting clear strategic actions on how to operationalize and manage the PPP.
- (ii) Success of the primary system depends on the effectiveness of the secondary system, and vice

versa. Future programs should ensure that before venturing into SWM activities, both primary and secondary components are functional or support provide to ensure both are functional, preferably both primary and secondary components implemented by the same institution.

- (iii) The system in Liberia needs to be strengthened to adequately undertake recycling and composting solutions. The solid waste management value chain and market variables needed to develop the sector should be enhanced. There is need to further enhance the capacity of SMEs/CBEs to engage in recycling and composting activities. This will ensure long-term impact.
- (iv) The location of the composting stations should be well planned. Most of the farms and large-scale agriculture is done away from Monrovia. With urban gardening not happening, the composting stations need to be established near such farms for ease of getting market.
- (v) Entities intending to venture into recycling and composting solutions should initially pilot these interventions before full-scale roll out. It's therefore important to start small, learn from initial processes, integrate learnings into practice, and later roll-out on a larger scale. Demonstration projects could be adopted.

5.3.6 RECOMMENDATIONS TO NACOBE AND CBEs:

- (i) Individuals CBEs determine the fees charged to households, which in many cases are negotiated on an individual basis with communities and households. There is need for NACOBE to work with city authorities to come up with a uniform fee to be charged to households. The fee should be standardized to all households or clustered based on income pyramids.
- (ii) NACOBE should take interest on how CBEs are utilizing loans advanced; and ensure repayment of loans. Loan repayment is key in ensuring sustainability of the revolving fund. An opportunity of having a similar fund established might take a while to present, therefore the fund needs to be guarded desirously.

Annex 1: Project Performance based on the Monitoring framework

CNIe	Indiantau	Baseline	Baseline	Mid-Term	Final	Project	Gender disa	aggregation	Comments	
SINO	Indicator	Year	Value	Value	Evaluation	Target	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	% of Households with planned forms of garbage disposal in selected communities of Greater Monrovia.	2017	36%	83%	87%	45%				
2	% Of recycled waste going to landfill (organic & inorganic)	2017	33%	33%	-	25%				
Interm	ediate Outcome/ Component I: Collect n	nore waste	: Improved	access to sa	nitation thr	ough mor	e sustainabl	e and efficie	ent solid	
waste	collection in Greater Monrovia						1			
1.1	Percentage of Households receiving PSW collection services in Greater Monrovia	2017	36%	37%	40%	45%				
Outpu	Output: 1.1 Improved Coverage and effectiveness through CBEs:									
1.1.1	Number of CBEs registered with MCC, PCC, NACOBE, LIBA & active in PSW.	2017	14	40	55	35				
1.1.2	Number of communities served by CBEs in Greater Monrovia	2017	89	222	300	105				
1.1.3	Number of loans provided to CBEs by the Project	2017	0	0	21	35				
1.1.4	Number of grants provided to CBEs by the Project	2017	0	0	0	35				
1.1.5	Number of people employed by CBEs, by Gender	2017	299	381	537	330	316	221		
1.1.6	Number of CBEs that report improved revenue.	2017	0	14	5	35				
1.1.7	Number of households served by CBEs	2017	7,600	8,800	9,500	8,200				
Intermediate Outcome/Component 2: Extract and reuse plastic and organic matter: Reduced greenhouse gas emission through										
impro	ving extracting, sorting and re-use of soli	d waste in	GM			[1			
2	Proportion of solid waste sorted and recycled for re-use at collection	2017	0%	0%	0%	5%				
Outpu	t 2.1 Feasibility Studies									
2.1.1	Number of feasibility studies conducted.	2017	0	3	3	3				
Output 2.2 Recycling pilots: Sorting and Extracting										
2.2.1	Number of CBEs and SMEs supported (financial/ capacity) to enter 4R Market	2017	0	0	0	20				
2.2.2	Number of jobs created through 4R	2017	0	0	0	40				
2.2.3	Number of sorting stations supported	2017	0	0	0	3				
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	0	7			_	

		Baseline	Baseline	Mid-Term	Final	Project	Gender disa	ggregation	Comments	
SNo	Indicator	Year	Value	Value	Evaluation	Target	Male	Female		
2.3.2	Number of plastic recycling pilots established in selected communities and schools	2017	0	0	0	3				
Outcome/Component 3: Increased awareness and education on solid waste management: Improved awareness of Climate Change and										
climat	e resilient solid Waste management in th	e GM pop	ulation with	a focus on	youth.					
	Proportion of households in Greater									
з	Monrovia reached by awareness	2017	0	15%	26%	10%				
5	campaigns on solid waste	2017	Ū	1370	2070	1070				
	management.									
Outpu	t 3.1: Education campaigns for schools on	climate ch	ange and 3F	२						
211	Number of schools reached in	2017	0	0	20	20				
5.1.1	awareness campaigns	2017	0	0	20	50				
2.1.2	Number of education campaigns	2017	0	2	20	20				
3.1.2	targeting schools	2017	0	3	20	20				
	Number of vouths reached in									
3.1.3	awareness campaigns	2017	0	360	12,000	9,600	6,300	5,700		
Output	t 2.2 Outroach activities for CM population		ta shanga C	M/M and 2D	climate and	urt babavia				
Outpu	1 3.2 Outreach activities for GM population	i, on clima	te change s	www.and.3R,	climate sma	art benavic				
2.2.1	Number of outreach activities to	2017	0	7	22	10				
3.2.1	educate the general populations about	2017	0	/	22	10				
	the threat of climate change									
322	Number of print publications	2017	0	1	5	5				
J.L.L	developed and disseminated	2017	Ű	•	5	5				
	Number of audio/video materials									
3.2.3	developed and disseminated	2017	0	6	3	15				
Outpu	t 2.2 Pilot projects in schools and commun	nitios: dom	onstration n	rojocto						
Number of 2D demonstration projects										
221	in selected schools of Greater	2017	0	E	15	10				
5.5.1	Monrovia	2017	0	5	15	10				
	Number of 3R demonstration projects									
332	in selected communities of Greater	2017	0	З	З	15				
3.3.L	Monrovia	2017	Ū	5	5	15				
	Number of community members									
222	ongaged in the demonstration	2017	0	40	40	225				
5.5.5	projects	2017	U	40	40	225				
Outra	projects.			 				anana and f		
for Gr	ater Monrovia	ins and ca	pacity. imp	loved and it	itegrated pi		apacity to m	anage and i		
	Integrated Solid Waste Management									
	small initiatives/best practices have									
	been included at community level	2017	1	1	1	3				
	planning									
11	Maturity matrix:									
4.1	1-No integrated colid waste managemer	nt cmall ini	tiatives/less	one learnt in	cluded at co	mmunity	level plannin	a		
	2- Evistence of an Integrated SWM small	- No integrated solid waste management small initiatives/lessons learnt included at community level planning.								
	3 Existence of an integrated solid waste	managem	ent small ini		ons learnt in	cluded an	d implement	ed in comm		
	blanning							anity level		
Capacity Built of local government officials										
capac	Number of LGA staff trained on solid									
4.1.1		2017	0	0	109	32	88	21		
4.1.2	developed for municipal SM/M officials	2017	0	0	3	3				
	developed for municipal SWW officials						l			

SNo	Indicator	Baseline	Baseline	Mid-Term	Final	Project	Gender disa	ggregation	Comments
SINO	Indicator	Year	Value	Value	Evaluation	Target	Male	Female	
Oversight of the Project									
4.1.3	Number of Technical Committee meetings & SWM partnerships	2017	0	8	12	6			
M&E of the Project									
4.1.4	Development of a comprehensive M&E strategy for the Project	2017	0	1	1	1			
Learnings documented and shared									
4.1.5	Number of Programme Steering Committee (PSC) meetings organized	2017	0	3	6	12			

RFP_Section _II_Schedule of Requ

Annex 2: Evaluation Terms of Reference

MOST SIGNIFICANT STORY 8:

TITLE OF STORY: IMPROVED BOOKKEEPING AND FINANCIAL MANAGEMENT

Lionel T. Weah, is the proprietor of For You Too Inc, a Community-Based Enterprise operating in Paynesville. According to Lionel, the CBE has been in operation for 4 years. "My enterprise is among the newly established CBEs, with a coverage of approximately 200 households across 14 communities in Paynesville. When I started this enterprise, the first year was so challenging in terms of managing our finances. The enterprise would collect money from clients but we could not account for the money collected. While most of the money went to paying staff salaries and meeting day-to-day expenses, I wouldn't tell you with certainty how much collections we could collect in any particular month. Virtually every one within the enterprise would go and collect money from clients, and some workers were reporting less money than what they collect. Because of this, it become hard to sustain the enterprise within its first year of operation.

Cities Alliance conducted a several training for CBEs, but the most impactful training to me was the training on financial management. Our financial management procedures were very poor and because of this, it became challenge to sustain the business. However, these have greatly improved following the training. Through the training, we learnt that we needed to have a database of all the clients with all their details. It was evident that after the training, we needed to improve our accounting and book keeping practices. We were able to purchase cash books to monitor our inflows and collections, receipt books, invoices and many other accounting documents. The enterprise was able to assign specific persons who are responsible for collecting money from the clients, and each client who makes a payment has to be given a receipt. I had gotten to appoint where I had to go to bank and withdraw my own funds to pay my workers or meet day-to-day expenses of the enterprise. This changed after the training, because we monitor our incomes and expenses to the dot.

Today, my enterprise is self-sustaining, thanks to the financial management training. Over time, I've seen an improvement in the way finances are managed within the enterprise and as I speak, we can account for each single dollar that has gotten into the enterprise's account in the past three and a half years. This is helping us to grow and expand our operations. Previously, we could just go and pick money from the cashier without any documentation, but not anymore. We have put in place procedures that one has to go through before getting money from the cash office, there is paper work that one has to filled and approved by the CEO before money can be released.

MOST SIGNIFICANT STORY 9:

TITLE OF STORY: BEHAVIOR CHANGE ENHANCEMENT IN SOLID WASTE COLLECTION AND DISPOSAL PRACTICES

Hellen J. Toe is a resident of Buzzi Quarters in Monrovia. "Buzzi Quarters is one of the communities within Monrovia located close to a wetland. Within our community, the population keeps growing every. We have so many people coming from rural areas into our community. These people have no jobs and livelihood, therefore cannot afford to rent houses within the city, so end up coming to settle in this informal community because housing is usually cheap. While the population of this community keeps increasing, the size of community (land) remains the same. With an increase in population, residents are forced to reclaim the wetlands to create space. They collect garbage and dispose it into the wetland. Before, residents used to see garbage as a very important resource because they would use it to reclaim land, and also use it for back filling during the rainy season when the wetlands were flooding. Our leaders would speak to the residents to stop this practice, but they would only listen for a few hours, and after the leaders have left, they would do the same thing.

Recently, our community leaders mobilized us and informed us that a team from Cities Alliance was coming to create awareness about solid waste management. The team designed and delivered their messages so well through drama plays. This captured the attention of many people to participate in the exercise. We were over 500 people in attendance. We were taught about the dangers of using garbage in back filling and reclaiming land. Some of consequences they talked about were already happening to our community, for instance diseases, flooding etc. Since then, we have seen people's practices and behaviors transformed and changed. People have become responsible in the way they manage and dispose garbage. The awareness activity had very huge impact in changing behavior of residents regarding waste disposal.

While the practice of using garbage to backfill and reclaim wetlands still happens in our community, it is not as bad as it was before the sensitization exercise. For me, I would say it reduced by 60%. People have become more responsible in the way they manage their garbage, particularly dumping in the skip bucket provided by MCC. Some residents have subscribed to CBEs, who come and pick their wastes from the households. Since then, we have initiated clean-up activities within Buzzi Quarters every Saturday. The objective is to try as much as possible not to have garbage in our community because having garbage arounds attracts people to use it to reclaim land.

MOST SIGNIFICANT STORY 10:

TITLE OF STORY: ENHANCED UNITY AND COHESION OF COMMUNITY MEMBERS

Patrick T. Gayflor is a resident of Pipeline Community, Paynesville. "Previously, the issue of solid waste management has for long been managed at individual or household level. One evening as I returned home from work, I found a resident carrying a sack of garbage and throwing it directly into the trenches by the road. To my surprise, several residents and others passersby saw him dumping the garbage in the trenches and no one was bothered. They looked at him, and everyone continued with their business basically because everyone does that. Sometimes parents send their child to carry waste and dispose it anywhere including on access roads within the community. People didn't seem to care, and never bothered. Everyone was minding their business not knowing the unhealthy disposal of waste will one day catch up with us, not as individuals but as members of the community.

Cities Alliance partnered with PCC and conducted an awareness exercise. During the exercise, we were taught about the dangers of unhealthy solid waste management and the importance of proper solid waste management. The awareness emphasized that the issue of solid waste management can only be addressed if all community members be responsible for their actions, and looked at waste disposal as everyone's responsibility rather than an individual or city issue. Because of this exercise, we've seen our community come together to address solid waste challenges. Residents are now working together to solve waste challenges in our community. This enhanced unity and social cohesion amongst members. The bonding is stronger, and togetherness have grown over time.

The unity and social cohesion established has made communities realize that dealing with waste management challenges is not an individual challenge but a challenge for all community members who need to work together to ensure that the challenge is addressed. In our community, we have decided to have clean-up activities every Saturday. We work together to clean our homes and neighborhoods and have all the garbage disposed in one place, then call a CBE to come and take it for disposal. We contribute some little money amongst ourselves to pay the CBE. This has been adopted in several other nearby communities. While we do the clean-ups, we are also strengthening unity and social cohesion among community members. After the clean-ups, we actually take-off time to discuss and talk about other issues that affect our community such as adolescent health, security, access to safe water, politics and many other things.

MOST SIGNIFICANT STORY 11:

TITLE OF STORY: IMPROVED RECORDS MANAGEMENT AMONG CBES

Jestina K. Morris is the proprietor of JEMBA Inc. "The biggest changes that my enterprise has registered is improved records management by my staff. Prior to the project, my enterprise didn't give keen attention to record managements. This was a very big challenge that affected our business. What opened our eyes that we needed to do better in records management was actually the capacity needs assessment that Cities Alliance conducted. In that assessment they asked us several question and for each question they would ask, the required that provide evidence (means of verification) to the answers that you provide. For instance, they asked us how many communities and households we were working in, we gave them an answer but they followed up with another question asking for a database of the communities we work in and the households we served. However, we didn't have the database. They also asked us about issues to do with financial management, whether we had invoices, receipt books, cash books etc. and again, we didn't have any. This opened my eyes that my enterprise needed to do something about this.

To my surprise, after a short time, Cities Alliance informed us that they are organizing a capacity building training in records management, and I thought that this training was designed because of the gaps and challenges they found within my enterprise during the assessment. I was happy because the training directly responded to a challenge that I had purposed to addressed immediately. I attended the training together with other CBEs, and it was very beneficial. I have benefited from several activities supported by Cities Alliance, but I cannot mention any that has benefited me more than the Records Management training.

Following the capacity needs assessment, I had purposed to organize my enterprise, by ensuring that all documentation regarding our operations is made available. The training made my easier because what I learnt during the training, I just replicated it within my business. I was able to design receipt books, letter head papers, cash books, invoice books, file trading license but most important created a database for our clients. This is updated every time we register new clients or when clients unsubscribe. I was able to purchase a filling cabin in my office to ensure that the records are well filled and stored. An improvement in records management has enabled me to have the right information about our operations, and this has been key in aiding planning and decision making for the enterprise.