



COOL COMMUNITIES

Climate Resiliency in Suburban Freetown, Sierra Leone

THANK YOU

The potentially destructive effects of climate change have become inevitable. This climate resiliency project in Freetown, Sierra Leone, running from 2021-2022 with a budget of DKK 1.1 million, took its starting point from EWB-DK's engagement in recovery interventions following the twin disaster in 2017 in suburban Freetown, and the climate resilience project initiatives taken since 2020. EWB-DK wishes to continue its work through this project, and address the following question: How can we help the people of Freetown become more resilient to heat threats in the future?

The main goal of the project was to increase community understanding of climate-related risks and to develop adaptive capacity to lessen vulnerability to future natural disasters, particularly heat. A second objective aimed at strengthening and developing a local civil society organisations' capacity to support the consolidation of local capacities and the sustainability of project results. A third objective focused on documenting the interventions to be shared as Blueprints amongst other local actors.

Setting an innovative course for EWB-DK's scope of engagement, EWB-DK succeeded in capturing the interest and support of generous financial donors, where the major contributions came from: Ramboll Foundation and CISU. The framework for the planning and execution of the climate resiliency project was a cooperative endeavour between EWB-DK, World Hope International, and the neighbourhood community-based organisation Skill Pool. Community engagement and ownership were fostered through a bottom-up, community-based approach to heat mitigation using participatory approaches.

Building on previously established communal Climate Resilience Committees and Climate Community Groups enabled unique opportunities for dialogues in and between the communities and implementing partners, accelerating the outreach and impacts across ward 446; more than 1,000 beneficiaries. In close cooperation with all parties, including strategic partners like



the Freetown City Council, the Cool Community project succeeded in conducting several significant community interventions: Climate change awareness raising events, the establishment of tree nursery sheds including water supply, tree planting, vertical gardens and urban farming, painting of lighter-coloured roofs on schools as well as other smaller initiatives will help the suburban communities prepare for and respond to future climate events with greater knowledge and resilience.

We would like to thank our financial supporters, staff and volunteers. Without you, this project would not have been possible. Thank you for your support in putting climate resiliency on the agenda in Sierra Leone and making a difference.

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INTRODUCTION

PROJECT BACKGROUND

The project "Climate resilience – cool communities, Freetown, Sierra Leone" has focused on mitigating urban heat effects to improve livelihood. It has provided tangible and sustainable improvements enhancing the climate resiliency of local communities in Freetown through empowerment and capacity building. The concept builds on the successful implementation of prior Engineers Without Borders (EWB-DK) engagements, especially project EWB-DK 119, which focused on climate change adaptation and in particular flood risk management.

The suburban communities in Freetown, where the aforementioned project 119 was also implemented, are highly vulnerable to climate change. Not only is it evident from field visits and community engagement activities, but a baseline survey across ward 446 with +700 people respondents, combined with interviews, further confirms this; the lack of knowledge of climate risks combined with the absence of mitigation efforts and the latest prognoses for climate change, highlight the urgency and timeliness of this intervention.

The overall objective of the project was to improve livelihood through enhanced climate resiliency towards heat hazards in ward 446. The project promoted a holistic approach with a strategy that consisted of parallel, and mutually supporting elements:

1. Awareness raising, training and capacity enhancement in disaster risk reduction and improving community resilience;
2. Implementation of pilot infrastructure projects consisting of preventive heat mitigation measures, e.g. tree planting, tree nursery sheds and painted 'cool' roofs;
3. Building a business model for developing a sustainable engagement in climate resiliency in the community.

The project's investments and activities were intended to support sustainable development. The key performance indicators relate to strengthening community organisation through Climate Resilience Committees (CRC), implementing initiatives that provide positive added value for at least 1% of households, as well as executing training and workshops for partners and collaborators. The project also focused on developing and strengthening communication and organisational capacity of partner organisations.

EWB-DK, World Hope International (WHI), and Skill Pool (SP-SL) collaborated to involve local people by disseminating knowledge and skills on heat mitigation. Additionally, the project has documented the interventions such as tree planting, and guidelines to setting up tree nursery sheds to be shared as Blueprints amongst other local actors. The project's core strategy was a bottom-up community-based approach using participatory methods, with the aim of fostering local ownership of the project-processes, and hence sustainable and improved climate change resiliency.



SPONSORSHIPS AND PARTNERSHIPS

- 
Ward 446: Kaningo, Juba, Pottor, Minnah, Marimbo, and Sahuna
Lumley, Southern Freetown, Sierra Leone
- 
April 2021 to September 2022
- 
DKK 1.1 million
- 
Civil Society in Development (CISU)
Ramboll Foundation
Individual private donors
- 
Engineers Without Borders, Denmark
World Hope International, Sierra Leone
National Skill Pool, Sierra Leone
University College Copenhagen, Denmark

Sponsors and partnerships have been essential and key factors in implementing a successful project. The cooperative and generous donors, Civil Society in Development (CISU), Ramboll Foundation as well as smaller private contributors have formed the strong, financial foundation for the project. The invaluable partnership between EWB-DK, WHI and SP-SL enabled the essential development and implementation of this Cool Communities project.

EWB-DK has been responsible for project management, and the facilitation of the partnerships' cooperation, project monitoring and evaluation. Furthermore, technical knowledge and knowhow has been disseminated and practised, such that the needed scientific foundation was created for the partnership members and collaborators.

WHI and SP-SL have played the roles as locally rooted and committed implementing partners. The partnership used the local community mobilizer skills by SP-SL, and WHI's professional approach to development. While SP-SL is driven by commitment and personal engagement of young people in the same or similar neighbourhoods of ward 446, WHI has been in charge of local leadership including financial management, technical design and material supply, as well as advocator during project implementation.

SP-SL has benefited greatly from WHI's professional guidance, support, and capacity building, which made



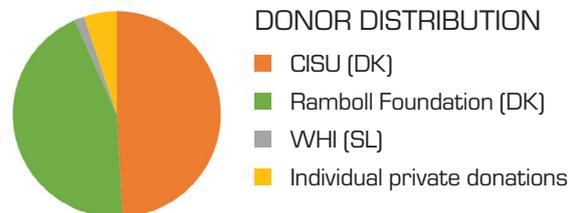
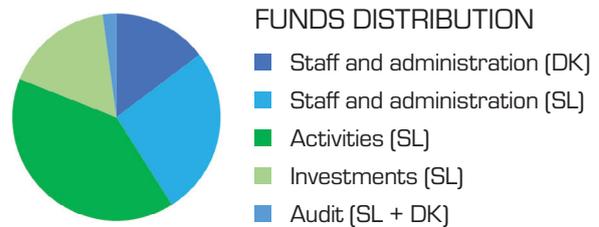
it possible for SP-SL to take the leading role in the field implementing, community-based activities and interventions.

The project activities aligned well with the city strategy “Transform Freetown” initiated by Mayor Yvonne Aki-Sawyer: Transform Freetown outlines and groups multiple challenges and targets into four major clusters: Resilience, Human Development, Healthy City, and Urban Mobility. The aim is to create a more resilient and transformed Freetown under the slogan: “Our city belongs to all of us, and we all have a role to play in making it the best it can be.”

During implementation, the project has enjoyed attention and support from the Ward 446 Councillor, the local Freetown City Council (FCC) representative as well as the newly appointed Heat Mitigation Officer. The climate resilience project coincides with related city council initiatives and this genuine concern from city authorities prepared the ground for continuous support for the initiated climate resilience activities and future projects.

In line with “Transform Freetown” the climate resilience project has had participatory engagements led by community-based organisations as its starting point. Special attention has been given to resilience, i.e., identification of risks and solutions to prevent and recover from disasters, as well as ensuring effective multi-stakeholder collaboration and strengthening of

environmental governance. With due respect to human health, special attention is paid to water supply and sanitation, as well as waste management. This project has piggybacked on the strategy, supporting targets addressing impacts of climate change, creating more resilient Freetonians.





FREETOWN ON THE RISE

CITY INITIATIVE

Freetown City Council has increased the focus on the adverse effects of heat and have by the support of The Adrienne Arst-Rocekfeller Foundation Resilience Center and as a part of the global Extreme Heat Resilience Alliance (EHRA) appointed a Heat Mitigation Officer, in 2021. For Mayor Yvonne Aki-Sawyer it has been important to “build dedicated capacity to protect vulnerable people and livelihoods from rising temperatures and to help build a culture of preparation and prevention.”

The Chief Heat Officer, Eugenia Kargbo, is responsible for leading and coordinating existing heat protection efforts and initiating new work that reduces the risks and impacts of heat stress and extreme heat for communities in Freetown. This role include developing and launching a Heat Health Task Force composed of internal and external stakeholders with a focus on heat risk reduction planning and response. The Chief Heat Officer will put special emphasis on protecting the health and livelihoods of community members who are particularly vulnerable to the impacts of extreme heat.

Project partners have multiple times met up with Eugenia Kargbo and taken part in larger public discussions and debates on the topic. Being from smaller disadvantaged communities, SP-SL knows the challenges and has in-depth knowledge and practical experience implementing heat mitigation measures and carrying out awareness raising.





WHAT'S AT

RISK?

NATURAL HAZARDS

Sierra Leone is prone to multiple natural hazards, including extreme rainfall, heat waves, storm surges, drought, and landslides. This threatens the livelihood of people, key economic sectors and increases the potential for wider environmental degradation.

Increased rainfall intensity, pronounced drought, large-scale erosion, and a decline in water quality are all results of irregular rainfall patterns. Extreme rainfall also exacerbates the risks of flooding and triggers landslides. Last, in 2017, a major landslide was recorded, killing thousands of Freetonians. It is not only extreme events that pose a threat; annual rains and floods, pushes already vulnerable communities in low-lying areas further into poverty.

Furthermore, rising temperatures cause more extreme heat events, such as heat waves and prolonged drought. Heat waves in cities are often exacerbated by the urban sprawl and cut down of forests, also known as the urban heat island effect. Overall, climate change will have an enormous influence on food security and human health. Pests, weeds, crop loss, and crop failure, along with the spread of diseases, heat stress, dehydration are among the expected consequences.

Heat is often referred to as the silent killer by WHO, as thousands die every year due to heat stroke and exhaustion. The struggles of heat are often overlooked, and many negative impacts and side effects are not acknowledged and addressed accordingly, causing the need for action to go undetected.



VULNERABLE COMMUNITIES

The project is situated in suburban Freetown, Sierra Leone, in ward 446. The area of engagement covers the six communities: Kaningo, Pottor, Juba, Minnah, Sahuna and Marimbo. EWB-DK got to know the six communities by having a strong presence and close partnership collaboration with the local city councillors and community-based organisations.

Ward 446 is situated in the south-western part of the capital, stretching from the coastal regions to the mountainous outskirts of Freetown. The way the communities have developed can seem disorganised and does not reflect a large government-administered urban plan. Hence, people live in clusters on hillsides and the floodplain with no concern for natural waterways, access to infrastructures, resources, and/or services.

The most vulnerable community members live on the floodplain in poorly constructed housing without proper foundations, as well as far up on the mountain ridge, away from all basic needs.

Climate change awareness among the targeted population

A past survey targeted over 700 residents in ward 446 showed limited understanding and insight into what climate change is and what the expected impacts are. Consequently, it demonstrated that natural disasters were already a threat today. In the baseline poll, 51% of respondents said they were "very worried" or "extremely worried" about the impacts of natural hazards.

Heat waves have been experienced by many within the recent year. Up to 17% had felt the impacts of heatwave through physical discomfort like heat rashes. Some respondents even experienced illness and not being able to work due to heat waves. Also, flooding is a huge challenge in ward 446 where more than 40% of the respondents have experienced annual flooding.

Since the baseline survey, information has continuously been gathered through knowledge-sharing with individual members of the communities, climate resilience committees as well as the local partners, who, because of their local roots, already have deep understanding of the communities' vulnerabilities.

A marginalised population

Approx. 23,000 people live in ward 446, and the area, compared to the neighbouring wards, is extremely poor



with a low income level, large households, and often only one primary household income source (39%). This also reflects the housing situations for most families who live in houses built primarily of body pan zinc plates, either with or without concrete foundation. Zinc plate houses compared to brick houses have a much higher risk of being damaged during floods, as well as being poor ventilators of air, causing unbearable, hot environments in the summertime. This can lead to heat stress and poor physical health.

A deeper insight

While the communities had experienced the effects of severe climate events, it was unclear whether knowledge and understanding of the interrelations between weather/climate, and the harmful events had been understood. Further, community engagement laid the foundation for putting extra effort into awareness raising.

Beyond the experiences related to heat hazards, excess vulnerabilities occur due to lack of clean drinking water, adequate living conditions, lack of education, limited waste collection, and waste management. Vulnerabilities are only increasing with low coping capacity and lack of action. Coupled with high rates of poverty and unemployment, Sierra Leone is critically vulnerable to the impacts of climate change.

Sierra Leone is in a weakened position to tackle climate change and the associated impacts. The weak governmental and institutional structures, combined with lack of funding hampers any action. Not only is day to day life a struggle for many, but the population also relies heavily on trade between the rural, agricultural provinces and the city. Natural resources are over-exploited and sensitive to climate change causing great environmental degradation.





IMPACT CREATION

SOLUTION SPACE

Community recognition of climate change and experience with the related natural hazards and associated risks were the focus areas of this project and a precondition for community action. In the following the project's strategic approaches and interventions are described covering community engagement, pilot mitigation actions, and a sustainable engagement in climate resiliency in the communities .

A list of well-known and proven climate adaptation measures was compiled in a climate adaptation catalogue, to be used as a dialogue tool and identification of suitable interventions to mitigate the risks of climate change locally.

The interventions and activities proposed were developed by the EWB-DK project team based on the constructed vulnerability profile of the communities, utilising surveys, first hand impressions, partner knowledge and technical expertise. In close dialogue with partners and community members, a selection of interventions and activities was identified, planned, designed, and implemented by local volunteers supervised by WHI and SP-SL.

It is instrumental for successful project implementation to establish close relationships and links of communication.

In the following, the different interventions will be described covering, tree planting, tree nursery sheds, vertical gardens and urban farming, cool roofs, cool plazas and corridors. All actions that have a positive influence on mitigating the effect of climate change. Actions that were possible due to the Climate Resilience Committees and, large community outreach and engagements by our enabling partners. More than community members and stakeholders have been engaged during the project.

INTERVENTIONS IMPLEMENTED:



Climate Resilience Committees
(6 committees with 12 members each)



Awareness raising activities
(+12 community activities with more than 400 attendants)



Tree planting (+1800 trees)



Tree nursery (3 sheds)



Urban farming (+57 installations)



Cool Roofs (2 schools)



Cool plazas and corridors (5 locations)



COMMUNITY INTERVENTION: CLIMATE RESILIENCE COMMUNITIES



What?

Climate Resilience Committee (CRC) in each community, have been established to ensure a direct interaction and link of communication between community members and partners.

Why?

Community engagement is centred around participation, promoting inclusive project involvement, awareness raising and ownership. The structure was put into place, in order to foster an open and inclusive communication. The project depended on high community engagement. It has therefore been essential to involve the community members from the initial phases, through stakeholder consultations and later the establishment of Climate Resilience Committees (CRC) and climate community groups.

Who?

The elected CRC members have been instrumental to the success. They have been elected by their community in conjunction with partners. The role of CRC-members is to be engaged in the project initiatives and take part in the implementation. The CRC compositions therefore spread across gender, age and religion.

How?

Their engagements have been as change agents and ambassadors for good climate action. Project meetings and consultations have been carried out on a regular basis, mainly led by SP-SL and backed by WHI, to ensure the needed project support and community engagement in activity implementation. Often, they have expressed their joy related to being a part of the project implementation and the opportunity to learn and engage, both inside and outside their own community. Many results can be attributed to the close contact, active community engagement, high interest for participation and partake, as well as improved neighbourship. This enabled a high level of local anchoring and possibility for participation in both the planning and execution phases of various activities and investments.

Lessons learned

Creating a space for voices to be heard has proven necessary and key. Respecting cultural traditions, entailing talks across different groups and committees, to ensure proper and common grounds for discussions, such that concerns and support are addressed and created. Despite the interest, coordinating across so many people and getting the needed action and feedback was not always easy. The more interactive and involving processes required longer time scales and flexibility than originally in the project implementation schedule. Despite economic incentives, time and resources was often a challenge and a constraint on the project progress rate.







COMMUNITY INTERVENTION: AWARENESS RAISING ACTIVITIES



What?

Awareness raising and advocacy training activities on various scales, from hosting large public awareness raising events such as the commemoration day of August 14 (the day of the twin disaster of flooding and landslide, 2017) to smaller community hearings, community marches, murals with statements on water towers, and festival participation.

Why?

To raise awareness of natural hazards, the effect of human activities and climate change in the communities and across the city administration.

Who?

More than 400 community members and volunteers from the various communities have contributed to events across administrative levels.

How?

On the recurring annual date of August 14, a day of reflections was organised in 2021 honouring the lost, loved ones, and looking ahead. The day involved gatherings with speeches, remembrance, and food for the affected communities, in particular Kaningo. Similarly, on October 13, 2021, the International Day for Disaster Risk Reduction was marked by gathering members from CRC, green NGO's, local school children, women urban farming groups, and stakeholders at Juba. Smaller events such as trying to embark on the global movement for "Fridays for future" were attempted, along with participation in a reggae festival with the focus on environment and climate. On a more local scale, the water towers of Juba and Pottor was painted with "tree growth" slogans to spark the everyday awareness.

Lessons learned

To balance the community gatherings which are expected to be backed by action. Despite the acknowledgement of actions needed to be taken, the poverty, and lack of resources and access to funds make it almost impossible to make the needed change to improve resiliency. Serving a meal and offering drinks were for some the only meal of the day.

Story of change

The communities appreciated the multiple interactions, celebrations, and memorial speeches, outlining the support needed for climate change mitigating activities in their community to prevent future disasters. Due to the activities, they feel more aware. One of the initiative outcomes was a local painter's desire to spread awareness across the community water towers, with uplifting statements on why trees should not be cut.





“ Its essential to meet, both to listen and be heard. Interaction and implementation of indigenous knowledge is key.

Councillor Abdul Turay





COMMUNITY INTERVENTION: TREE PLANTING



What?

More than 1800 trees were planted across the six different communities. The tree planting took place in the years of 2021 and 2022 in the ideal planting season of May, June, and July. The trees planted were of different sorts; coconut, banana, avocado, orange, cashew, lime, tamarin, almond, guava, and cacao, which are all native to Sierra Leone.

Why?

The main goal of this activity was heat mitigation through planting of trees. Trees lead to heat mitigation at community level by providing shade and decreasing temperatures. In addition, these trees will eventually serve as an extra source of food or income, because the fruit that the trees produce can be harvested to be eaten or sold. This will increase food security and livelihoods



of the involved community caretakers. As a third benefit the trees protect the nearby environment from climate hazards, such as flooding, erosion, and landslides.

Who?

More than 400 community members and volunteers from the various communities contributed in the tree planting.

How?

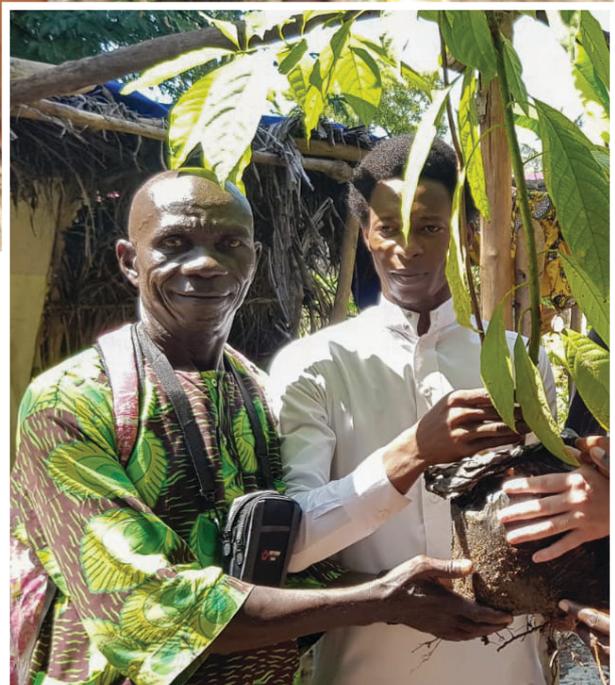
Tree planting was done through a bottom-up approach, to help mitigate climate change impacts, to reduce deforestation, and improve afforestation. A procurement team was formed, and they searched tree nurseries for the desired tree sorts. The tree planting was initiated through training of, collaboration with, and engagement from community members, facilitated by CRC, SP-SL and WHI staff, and volunteers. To track growth and community willingness to care for the trees, trees were monitored during the planting season and later followed ups, through registration in KoboCollect by the SP-SL volunteers.

Lessons learned

The road network is poor, and it is difficult to access some of the targeted communities. The volunteers and the staff therefore had to carry the trees to some of the locations, which is not ideal, slowing the implementation, and limiting the outreach. There were also some disputes during the distribution of the trees, because a lot of people wanted the trees, but SP-SL managed to solve it by raising awareness of the benefits the trees would have to the greater community, and not just the caretaker of the tree. During the monitoring there were also problems with connections to the internet, and GPS.

Story of change

Madam Adama is a mother of one child and one of the beneficiaries from the tree planting. She lives in Minnah community, one of the new communities that were added into the Climate Resilience project covering in ward 446. Her statement is as follows: "I'm very much happy to be part of the project. This is the first time of receiving free economic trees from NGOs to be planted in my community with no cost, I will make sure that my myself , child and community members protect these economic fruit trees as it has a lot of economic and environmental benefits especially in cooling the community and I am very much thankful to both SP-SL, WHI, and EWB-DK for including Minnah community."



“ ..these economic fruit trees
(...) has a lot of economical and
environmental benefits especially in
cooling the community



COMMUNITY INTERVENTION: TREE NURSERY



What?

Nursery facilities for economic trees, such as fruit tree seedlings, medicine, and furniture were established at four locations. Trees nursed were of different sorts such as lemons, oranges, mangoes, tamarinds, kalanbulas, cashews, guavas, cacaos, sweet sap, etc.

Why?

The overall goal of this activity was to promote sustainable heat mitigation by creating a foundation for sourcing and planting trees in the communities. The tree nursery shed facilities have also been established for capacity building training sessions for the urban vegetable growers. Where possible, promotion of business generation was done, allowing the caretakers to sell fruit trees, when the right size is reached. The division and thereby the split between 'ready to plant trees', were that some will go to further strengthening of project initiatives, other community



members who are interested in and willing to plant trees on their own piece of land, whilst some may be sold to the public authorities, and proceeds of sales to future expansion of the nursery sheds.

Who?

Approximately 60 women split into four groups of 15. One group for each of the four locations to run the tree nursery business.

How?

Local women's groups were formed and received training on cultivation and capacity building of economic fruit trees. Topics covered during the training were: Principles of establishing an economic fruit tree nursery, agronomic practices of fruit tree cultivation, the economic importance of fruit trees for mitigating heat, and finally, generating climate resilient communities. CRC was together with SP-SL mediating, organising the women and the training. Monitoring and supervision were conducted by SP-SL, WHI and CRC members. Additional training within business and entrepreneurship was offered, which many of the women were very happy to have, enabling them to better develop business plans and keep track of funds.

The nursery shed construction has been completed with local materials, such as thatch, sticks, rope, nails, etc. The potting, planting and later transplanting of seedlings were done, using local materials, such as loam and compost soil, manure, and polythene bags.

Lessons learned

Stable and all year around water supply was difficult to secure. A solution was the installation of a small-scale water supply system using local contributors who had their own well. Additional water supply by utilising tanks was therefore installed, not only to support the tree nurseries, but also the vertical gardens and urban farming activities. Furthermore, the increased interest to join the activities could not be accommodated due to a lack of funds, limiting the upscaling of livelihood generating businesses.

Story of change

Madam Sarah Marrah is a mother of six and a pastor at Marimbo community. She has been residing in the community for many years and has been a member of CRC. She has taken an active role in establishing vertical gardens activities and a tree nursery shed. Her statement is as follows: "It is a great opportunity for me to be part



of the implementation and beneficiary of the training session evolving around the tree nursery sheds, especially at this crucial time in the country when the cost of living is very high and local commodities are very expensive at the market. We have now learned new skills on how to grow trees in a cost-effective model and utilise modern methods that are very much suitable for our community, especially where the topography is not ideal for farming due to the rocky soil.”

“ We have now learned new skills on how to grow trees in a cost-effective model and utilise modern methods that are very much suitable for our community.



COMMUNITY INTERVENTION: URBAN FARMING



What?

Establishment of more than +40 urban vertical gardens in ward 446. To begin with the vertical gardens were made at schools in Freetown with immense success. After that the vertical gardens were embraced by more local people and established at private houses. The work stretched over 2 months; however, creation of vertical gardens can be done year around.

Why?

The main goal for implementing vertical gardens at households is that it can lead to heat mitigation at community level by producing cooler environments due to evaporation and shaded buildings, thereby decreasing temperatures. The vertical gardens can produce food for the family but also serve as an extra source of income since the vegetables produced can be harvested and sold. A secondary goal was to reduce dumping of plastic bottles and containers in the community by reusing it for the vertical gardens.



Who?

More than 200 women across four communities.

How?

CRCs together with community stakeholders identified women who were willing to join a women's climate group. Training was done to ensure that the volunteers obtained the necessary knowledge on why vertical gardens are a suitable measure to mitigate heat, how to build and take care of vertical gardens, and similar, relevant information such as generation of co-benefits. The vegetables produce a lot of seeds that the women are using for the following planting season. Additional training within business and entrepreneurship was offered, which many of the women were happy to have, enabling them to better develop business plans and keep track of funds.

Lessons learned

Besides challenges with the water supply, executing training seminars could cause problems with getting both volunteers and facilitators to the training location, because of the lack of transportation from their different locations.

Story of change - urban farming

Madam Fatmata is one of the vegetable growers who benefited. She is a mother of six. She has been using the proceeds from the sales of vegetables to pay medical bills, improve family food and sometimes pay school fees for her school going children.

Madam Fatmata says: "I am very much grateful and thankful to the Climate Resilience Cool Community project team for helping me to improve on my vegetable acreage and skills in vegetable cultivation and also gaining knowledge in using kitchen organic waste as manure in taking care of my crops and be able to get a good yield and bumper harvest, this has led to a good market prices for my vegetables."

Story of change - vertical gardens

The women of Marimbo community have become the leading champions in promoting vertical gardens. Five groups have been established and grow vegetables around their houses and community. The activities have formed better relations between community members as economic generating activities have created a better team spirit, as well as given more purpose and improved livelihoods. This has motivated other people in the community, and they are now coming to be part of the women group.



“ I am very much grateful and thankful to the Climate Resilience Cool Community project team for helping me to improve on my vegetable acreage and skills in vegetable cultivation



COMMUNITY INTERVENTION: COOL ROOFS



What?

An experiment of turning brown rusty school roofs into heat reflective surfaces was tested in Juba and Sahuna. The painting took place in the dry season of 2022.

Why?

The main goal of colouring the roofs in a lighter colour was to reduce indoor extreme temperatures in local schools, as light colours more reflect sunlight than dark colours. Furthermore, heat thermometers were installed in the classrooms to be used for educational purposes and increase awareness about heat.

Who?

The experiment was conducted at three classrooms across two different schools. Skilled painters implemented the intervention.

How?

The project team selected suitable schools, based on construction and current materials, and engaged the schools' principals in their ideas and their reasoning. The roof paintings were registered in KoboCollect by the SP-SL volunteers.

Lessons learned

No suitable white paint was available for the initial phase of implementation, so light blue paint was used instead. Later, after the decision to expand the search area and number of test sites, white paint was obtained and applied. In general, the roofing quality and thereby stability was limited, which limited the opportunities to scale up.

Story of change

The principal says: "The pupils of Juba Barracks School appreciate the work to cool down our classrooms, and we wish for our fellow students to experience the same in their classrooms. They have learned about heat and the challenges it poses. They have learned that building materials as well as colours have an impact on the experienced temperature. Additionally, they learned that temperatures can be measured, such actions can be taken accordingly."





” (The students) have learned about heat and the challenges it poses. They have learned that building materials as well as colours have an impact on the experienced temperature.



COMMUNITY INTERVENTION: COOL PLAZAS AND CORRIDORS



What?

Creating cooling corridors and plazas, which are linked areas of green (and sometimes blue) infrastructure. Six areas of tree planting in a straight line along heavily trafficked community roads were implemented.

Why?

The main goal of this activity was to reduce heat stress for pedestrians while walking to work, school, and other areas by creating shade, enhancing evapotranspiration, and improving urban ventilation. This reduces the air temperature locally, and thus reduces heat stress.

Who?

The skill pool volunteers.

How?

The Skill Pool Team identified community roads where tree planting at both sides of the streets was possible. Commitment from all landowners in the relevant areas was obtained to ensure sustainability.

Lessons learned

Tree planting is essential for creating shades and cooling. Even though the project has managed to plant more than 1800 trees and create several vertical gardens, the success of creating cool plaza and corridors is limited. A prerequisite for effective cool plazas and corridors is a thorough planning process and access to land. As tree planting is done rather sporadically as a bottom-up activity and not by using a unified plan with appointed plazas or streets with landowner rights it was challenging to make successful cool plazas and corridors on a large scale in this project. The choice of trees and the small sizes do, however, also challenge the liveability of the tree and the sustainability of the project initiative.

Story of change

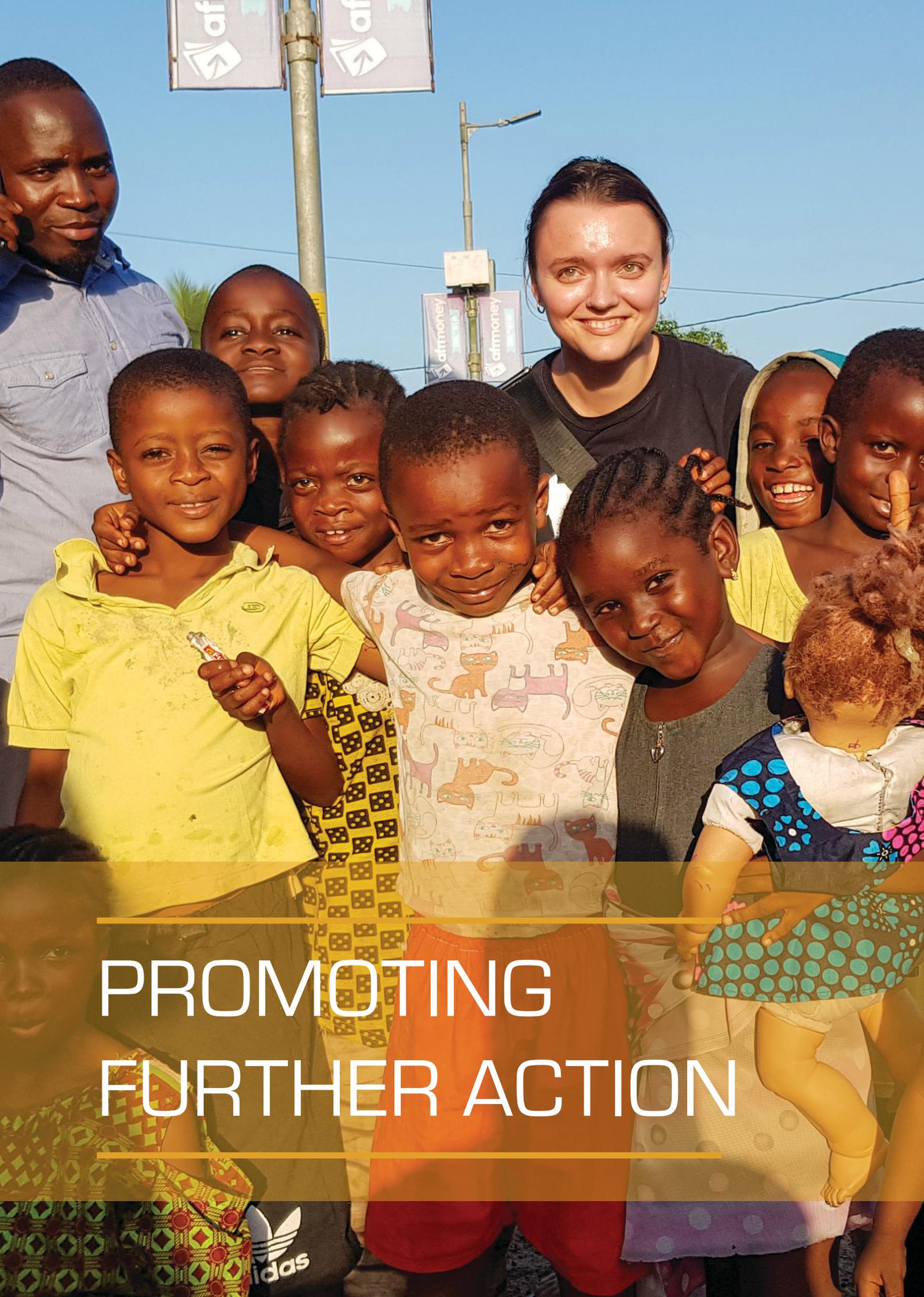
Daua Turay, a resident of Minnah community, stated the following: "Thanks for making us understand about climate. Since the cool corridor was introduced to us at Minnah, it has helped me and others in reducing the heat impacts. The plants create shade along the paths where



the trees are planted in a line along the roadside. I have started maintaining the trees for other communities to learn from them and to spread the word about cool corridors. I believe that the cool corridor will cool more and more, day by day. I thank the project team for their support in my community.”

“ I have started maintaining the trees for other communities to learn from them and to spread the word about cool corridors.





PROMOTING
FURTHER ACTION

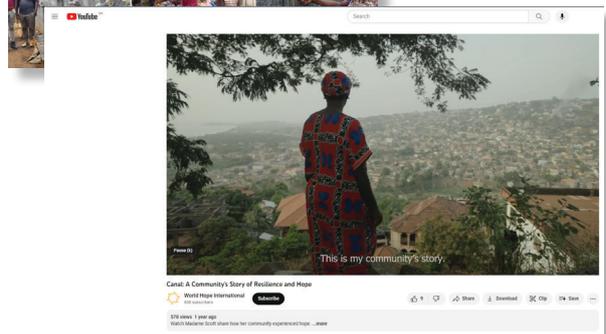


SPREAD THE WORD

To disseminate results and share the learnings and experiences, the project group has engaged with other NGOs and collaborators such as SEND, Opportunity Training Center (a school for impaired people), Sierra Leone Green School Club, Green Scenery, Freetown City Council staff, and elected councillors. Training sessions have been held and blueprints developed to document the selected mitigation and adaptation pilot projects activities and techniques .

Knowledge transfer is crucial for larger impacts to manifest. Raising awareness, advocating for action, elevating the knowledge base and discussion forums on climate change and possible mitigation actions, are the only way forward to a broader engagement. It has therefore also been a cornerstone of the project and a part of the overall objectives. .

Beyond local engagement, the EWB-DK project group has held multiple online seminars for other EWB-DK project groups as well as EWB-DK project manager meetings. EWB-DK has also shared information through social media platforms and used the project as an inspiration project at information evenings for new potential EWB-DK volunteers as well as a student case. Finally, the project has been documented in the EWB-DK annual report to share the approach and results.



BLUEPRINTS: PROOF OF CONCEPTS



What?

Development of blueprints for localised climate risk mitigation schemes such as tree planting, vertical gardens, and tree nurseries.

Why?

The main goal was to share knowledge of methods of climate mitigation and make it easier to copy or up-scale the climate resiliency project for further reach and benefit. The blueprints are to be shared with other EWB project groups and other NGOs, which will ensure the collected knowledge and expertise is not lost when the project ends. The blueprints have already been shared and are to be used in another EWB-DK project in the Kenema region, also in Sierra Leone.

Who?

Internal participation and development by WHI and SP-SL with assistance from EWB-DK. External participation and training of the NGO SEND.

How?

Blueprints were developed as a collaboration between the EWB-DK project group and our local partner organisations; WHI and SP-SL. This was done through seminars and a joint workshop. The blueprints were made as detailed PowerPoint presentations. PowerPoint is a common method for knowledge-sharing in these communities. The Blueprints were afterwards disseminated amongst local NGOs and collaborators. A workshop and a field trip to

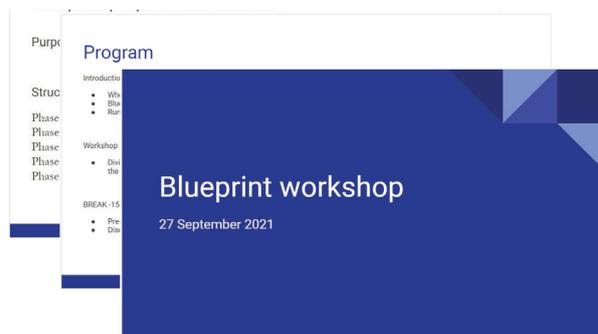
the community beneficiaries were organised as part of the external training session.

Lessons learned

An internal project team workshop was held partially online and partially on-ground. The workshop sparked great interest, however, it should have showcased more examples on what to include under specific points in the blueprints. As making and using a blueprint were new approaches to WHI and SP-SL, they had difficulties landing the level of detail needed, and discerning what was important. It would have been beneficial to have more workshops on the topic.

Story of change

Titty Kamara, an employee of the NGO SEND, took part in an introduction session to the blueprints including an associated exchange visit and in-field observations. To that she stated: "I have learnt a lot and have also been able to share my experiences gained in other projects. It is my first time being introduced to the concept of blueprints, and I hope to receive more training on the use and how to develop myself. I was also thrilled about all the vast knowledge of SP-SL and WHI on the topic of climate change - both mitigation and adapting activities e.g., tree planting, cool roofs, vertical gardens, and nursery sheds. The field trip gave me first handily access to practical knowledge and allowed me to have a one-on-one conversation with the women beneficiaries. I was impressed with the vegetables grown and the use of vertical gardens to grow seeds in rocky areas with the use of used plastic containers."





CAPACITY BUILDING OF COLLABORATORS



What?

Development and execution of training sessions in relation to sharing findings from the pilot project activities and the developed blueprints for localised climate risk mitigation and adaptation activities.

Why?

To create the action needed to mitigate the impacts of heat waves, an important step is outlining what can be done. The main goal was therefore to share knowledge of methods to easier spread and up-scale the climate resiliency project for further reach and benefit.

Who?

OTC, SEND, SP-SL, and CRC-members received training by WHI, SP-SL, and EWB-DK.

How?

Introduction slides to climate change prepared, and the Blueprints developed were presented. To better understand the need for finance, management priorities of governments, and why sufficient funds are scarce, a game made up around climate finance was played.

Lessons learned

Understanding the causes and effects of climate change is difficult, let alone to act to mitigate the risks. The level of the teaching materials including the blueprints, presentations and the climate-finance-game initially led to confusion, misunderstanding and difficulties understanding who had the responsibility to act. More change to the material, number of training sessions and larger inclusion of hands-on experience, led to better outcomes.



Story of change

Ekus Scotland, the founder and leader of Opportunity Training Center (OTC), a school for impaired people, took part in training sessions by EWB-DK and SP-SL introducing concepts of climate change, made small vertical gardens at the school facilities, received training in KoboCollect survey tool, and played the climate-finance-game. Eku says: "It was interesting to learn about the climate and see how the students engaged. Climate change training is important to Persons with Disabilities (PwDs) because it will help them to mitigate hazards of climate with reference to flooding and other hazards associated with climate change. PwDs should utilize the training on climate change because they are most vulnerable to hazards of climate change. Planting a tree in our courtyard and creating vertical gardens was a real joy. Having an impairment

makes life very challenging, but my students are now better prepared to take action. As a wheelchair user, I feel the heat and exhaustion that follows and that more cooling options must become accessible moving around in the hot streets. Shelter of shade and cool breezes are not always easy to find."

“ It was interesting to learn about the climate and see how the students engaged. Having an impairment makes life very challenging, but my students are now better prepared to take action.





PARTNERSHIP DEVELOPMENT

STORIES OF CHANGE

Partner capacity building, especially of SP-SL, was one of the main objectives of this project "148 Cool Communities". SP-SL has through the project gained a lot of responsibility and shown improved organisational leadership skills. SP-SL has improved within four primary areas: Information, communication, managing volunteers, and project management.

SP-SL and WHI have become more open towards each other, and the communication has improved. The dialogue has strengthened and is now smoother, which enables a better understanding of each other, their opinions, and responsibilities. Great internal communication reduces misunderstandings and enhances better collaboration.

One of SP-SL's many tasks in this project was to do community engagement and share information with the communities as climate ambassadors. How to reach people and explain the reason behind a given activity is essential yet require professional knowledge. SP-SL has worked hard to raise awareness and their knowledge within the field of climate change has increased during the project. SP-SL has gained knowledge through presentations held by EWB-DK, master classes as well as participating in a local learning session concerning climate change for young people.

Conducting a largely bottom-up implementation of project interventions, requires SP-SL volunteers to assist and co-organise the vast interests from community members along with concerns and protects. SP-SL volunteers have received training in the monitoring and evaluation tool: KoboCollect, as well as project management. SP-SL staff received HR training and developed a HR manual. This is a part of the major transition from being a Community Based Organisation (CBO) to a registered NGO.

Project management is still a great challenge to SP-SL. They organise activities but without actually planning them. Delegating tasks and responsibility among project members is improving, yet still challenging. SP-SL are now more familiar with elements from the typical project management toolbox such as time schedule and monthly progress reporting. In the SP-SL and WHI monthly progress reports, EWB-DK has encouraged them to rate activity status and highlight if something is not going according to the plan. This helps their planning and internal partner communication.



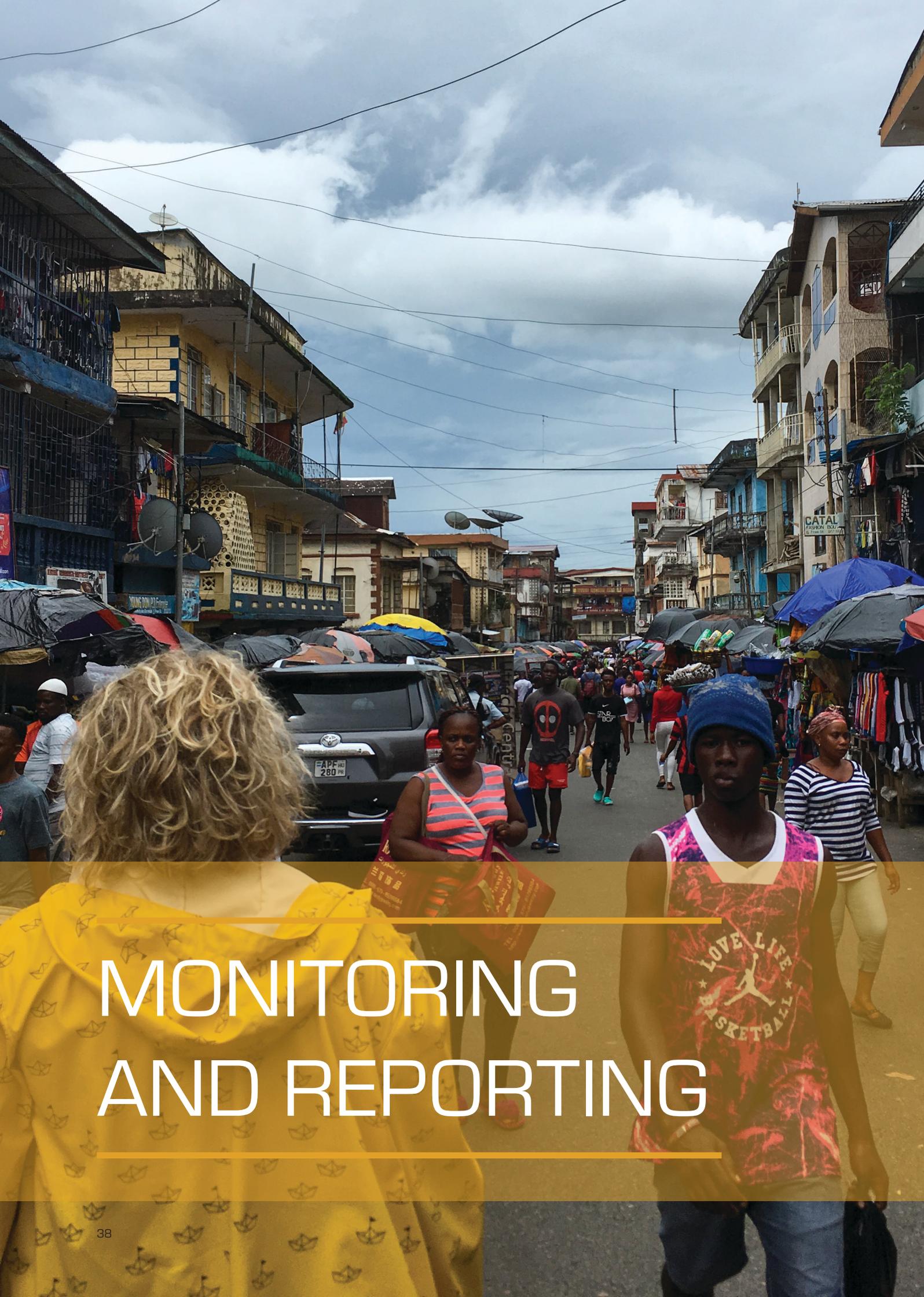
Idrissa Turay is the project assisting manager, and the project responsible manager at SP-SL. To the experience Idrissa Turay states: "I am very much grateful and thankful to both SP-SL, EWB-DK and WHI for the Climate Resilience Cool Communities project partnership, I have been able to acquire more Climate and project skills such as Sustainability and Climate Change, Environmental Education Climate the Science, Climate Change as a development agenda, Project Management and Reporting and institutional financial report for the organisation".



Alie Swazie Bangura, the Executive Director of SP-SL, has also taken part in the Climate Resilience - Cool Communities project. Learnings have evolved around climate change and project sustainability, to which he states: "I'm very much grateful to both SP-SL, EWB-DK and WHI for the Climate Resilience Cool Communities project partnership. Big thanks to all actors who have made this project implementation possible."



Jonathan Coker is in the finance department at SP-SL, where he has been in charge of funds management. To the experience Jonathan Coker states: "I am very much grateful and thankful to both SP and WHI for the Climate Resilience Cool Communities project partnership. I have been able to acquire more financial skills such as budgeting in excel spreadsheets and institutional financial reports for the organisation. And I have learned how to operate KoboCollect in terms of monitoring and supervising donor base project activities. Big thanks to all actors who have made this project implementation possible."



MONITORING AND REPORTING

PROJECT SUSTAINABILITY

Continuous reporting has been a key project element to maintain an overview of activities and implementation and evaluate continued progress according to schedule.

The intervention has been planned according to a logical framework approach that on one side sets up the primary objectives of the project, on the other side defines sub-targets and related indicators. This approach puts reporting routines into a structured framework with set milestones.

Several reporting mechanisms have been in place to maintain relevant and enlightened monitoring. A monthly reporting template was developed by EWB-DK for the local partners, SP-SL and WHI, to fill out for all partners to have insights into how the project was progressing. The reporting template has been working as a good reference tool at the continued meetings within and between the involved partners. Monitoring of activities was done using KoboCollect, allowing for geo-tagged pictures and recording of action.

Bi-weekly, the project team from EWB-DK has conducted a project management meeting with an update on the project, where relevant activities and assigned tasks have been discussed. The frequency of the meetings was adapted to the level of involvement that was needed for the particular phase of the project. Additional meetings were scheduled, as well as more informal conversations between the EWB-DK project manager and the local partners ensured a rich knowledge sharing of skills and a clear understanding of where the project was heading throughout the whole period of implementation.

Thorough reviews of the project were conducted in the start-up, midterm and in the final evaluations of the



project. This ensured a continuous review of activities and interventions in relation to the participatory community engagement processes and collaborative partner capacity building and facilitated the alignment of project objectives, goals, and targets.

Financial reporting has been conducted monthly to ensure the needed control, progress, and transparency in spending of funds. All funds have been audited and approved.

