ENGINEERS WITHOUT BORDERS DENMARK

August 2021

CLIMATE RESILIENCY PROJECT

Flood Risk Management in the Communities: Kaningo and Pottor, Ward 446, Suburban Freetown, Sierra Leone

Partnership:
Engineers Without Borders Denmark, World Hope International and National Skill Pool

FIRSTLY,

THANK YOU

We would like to thank our financial supporters - especially Ramboll Fondation, Reinholdt W. Jorck og Hustrus Fond, and CISU Civilsamfundspuljen. Without you, this project wouldn't have been possible. Thank you for your support in putting climate resiliency on the agenda in Sierra Leone and making a difference.

Project Manager Marianne Skov
on behalf of the team

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INTRODUCTION

PROJECT BACKGROUND

In August 2017 a devastating mudslide followed by several flash floods occurred in suburban Freetown, the capital of Sierra Leone, claiming more than 1000 lives and displacing over 5000 people. Engineers Without Borders Denmark (EWB-DK) assisted with establishing new water points in Kaningo and Pottor, which are two communities affected by the mudslide and heavy rainfalls. The communities were evaluated as extremely at risk due to a combination of their exposure to climate-related hazards and vulnerability, in particular their lack of organisation, experience and skills.

By realising the communities' particular need for building resilience to climate-related risks, EWB-DK decided to deviate from traditional engineering projects and develop this climate resiliency project by exploring community-based adaptation through participatory methods.

As a primary objective, the project aimed to raise community awareness of climate-related risks and build climate-adaptive capacities to reduce vulnerability to future natural hazards with a particular focus on mitigating the risks of floods. Developing and strengthening the organisational capacity of a key implementing partner, a local civil society organisation (National Skill Pool) was defined as a second objective.

The project has built upon existing community structures and established stakeholder relationships and introduced a bottom-up approach to risk reduction. Participatory methods have formed the backbone of the project, e.g., through the establishment of community resilience committees (CRC), which has led to a strong community engagement.

The project has created new relationships, and strengthened existing for the exchange of knowledge and coordination of actions between communities, public agencies and external partners.

SPONSORSHIPS AND PARTNERSHIPS

Donors

Our cooperative and generous donors, Civil Society in Development (CISU), Ramboll Foundation, Reinholdt W. Jorck og Hustrus Fond, as well as individual private donors, formed the strong, financial foundation for the project.

The fact that EWB-DK chose to soften its image as a hardcore engineering NGO and explore new paths by integrating climate resiliency through participatory methods has triggered particular interest and support from donors.

Implementing Partners

The invaluable and strong partnerships between EWB-DK and Sierra Leone Civil Society Organisations (CSO), World Hope International (WHI) and National Skill Pool (NSP) interconnected skills and capacities that were equally essential for developing and implementing the project.

While EWB-DK has been responsible for project management, finance and administration, facilitation of the partnership's cooperation, project monitoring and evaluation, WHI and NSP have played the roles as locally rooted and committed implementing partners. The partnerships combined the local community engagement of NSP with the professional approach of WHI.

Kaningo and Pottor communities
Lumley, Southern Freetown, Sierra Leone

December 2019 to February 2021

USD 183,000 (DKK 1.26 million)

Civil Society in Development (CISU)
Ramboll Foundation
Reinholdt W. Jorck og Hustrus Fond
Individual private donors

Engineers Without Borders, Denmark
World Hope International, Sierra Leone
National Skill Pool, Sierra Leone
University College Copenhagen, Denmark

While NSP is driven by the commitment and personal engagement of young people rooted in the same or similar neighbourhoods, as the Potter and Kaningo communities, WHI was able to dedicate experienced professionals to take local leadership during project implementation. NSP has benefited greatly from WHI's professional guidance, support and capacity building, that made it possible for NSP to take the leading role in collecting data for the baseline study and act as the responsible duty bearers for other core tasks throughout the project.

Strategic collaborator

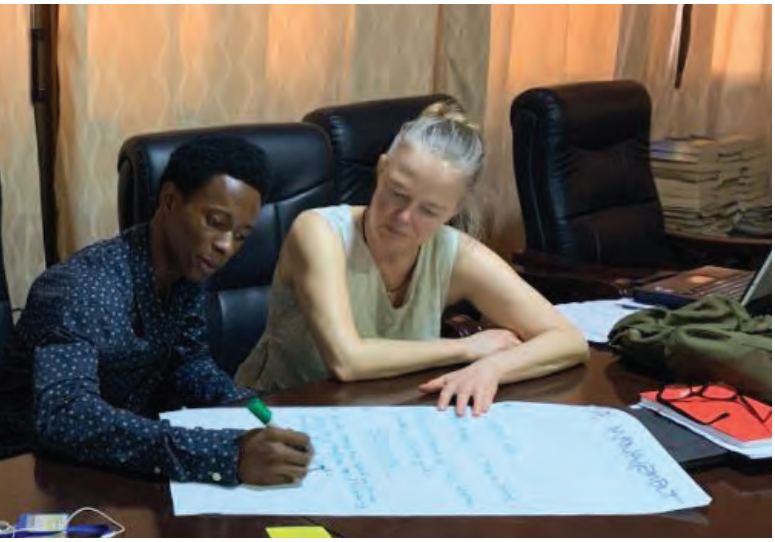
As the climate resilience project has been built on a key condition of a bottom-up approach and strong, local community engagement, EWB-DK chose to take advantage of a unique opportunity and collaborate with a research and teaching capacity in the field of participatory methods from University College Copenhagen (UCC). Through seminars in Denmark and Freetown with the attendance of project coordinators and implementing partner representatives participatory methods were explained and demonstrated. The participatory approach was instrumental to a successful project implementation.

Strategic partner

During implementation the project has enjoyed vital attention and support from the local Freetown City Council representative, the Ward 446 Councillor. The climate resilience project coincides with related city council initiatives. This genuine concern from city authorities laid the foundation for continuous support for this and future projects.

The project activities aligned well with the city strategy: Transform Freetown, initiated by Mayor Yvonne Aki-Sawyerr. Transform Freetown outlines and groups multiple challenges and targets into four major clusters: Resilience, Human Development, Healthy City and Urban Mobility, creating 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".

In line with the agenda of Transform Freetown, the climate resilience project has had participatory community based organisation as it's starting point. A special attention has been given to resilience: 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, in this project special attention is also paid to water supply and sanitation, as well as waste management, including collection, disposal and recycling.



WHO'S AT RISK?

NATURAL HAZARDS PROFILE

Sierra Leone is prone to multiple natural hazards, including extreme rainfall, heat waves, storm surges, drought and landslides, which threaten key economic sectors and increase the potential for wider environmental degradation.

Irregularities in rainfall patterns are causing more severe rainfall events and pronounced drought, leading to among other things large-scale erosion and a decrease in water quality. Extreme rainfall also exacerbates the risks of flooding and triggers landslides.

Increasing temperatures cause more extreme heat events, such as heat waves, prolonged drought, and increase the urban heat island effects, which will have a large influence on food security and human health. In particular, pests, weeds, crop loss and crop failure, along with the spread of diseases are among the expected consequences. In addition, dry conditions and unsafe infrastructure are likely to exacerbate the risk of wildfires.

Rising sea levels put pressure on the coastal communities and river outlets. An increase in the frequency of storms and strong winds are expected; factors which only increase the exposure of the most vulnerable.

Sierra Leone is in a weakened position to tackle climate change and the associated impacts. The population relies heavily on agriculture and natural resources, which are over-exploited and sensitive to climate change causing great environmental degradation. Coupled with high rates of poverty and unemployment, Sierra Leone is critically vulnerable to the impacts of climate change.

Hazard	Projection
Rainfall	>4000 mm annually: More intense, shorter onset, and irregular rainfall pattern
Temperature	1-2.5 °C increase by 2060: Both increase in night and day temperatures
Sea level	0.1-0.56 m by 2100
Storm surge	More intense and more frequent storms (June - September)

VULNERABILITY PROFILE

This section serves to describe the vulnerability profile of the two communities Pottor and Kaningo, the sites of project implementation. We got to know the communities by having a strong presence and close partnership collaboration. Information has been gathered through knowledge sharing with individual members of the communities as well as the local partners, who already had widespread insight in the vulnerabilities of the communities due to their local background.

Community survey

To collect baseline data, the project team conducted a household survey in the two community sites of Pottor and Kaningo. The survey was the first initiative to practice the participatory approach, asking questions on the communities' needs and wishes as well as their understanding of community-related climate change risks. NSP conducted the survey in the beginning of the implementation phase, March 3rd until March 20th 2020, before any other activities were rolled out, thus revealing and mapping key data before any actual intervention. Survey results supported the participatory identification, planning and implementation of local community-driven mitigation and adaptation interventions in order to address the nexus between climate risks and poverty.

The survey covered seven main themes: (1) Basic data on the interviewees and their household, (2) productivity/ economic opportunities, (3) access to basic services, (4) attitude towards vegetation/tree planting, (5) solid waste handling, (6) natural hazards, and (7) climate change perception and awareness. A total of 55 questions were asked to the interviewees and all interviews were geolocalised in order to also reflect on geospatial issues.

In total, 729 interviews were undertaken. Out of these 703 accepted to respond and 26 declined. The interviews were conducted in Pottor and Kaningo with 61% (426) of the respondents living in Kaningo and 39% (277) living in Pottor.

The communities

Kaningo and Pottor are two communities situated in ward 446, in the southern part of Freetown. The two communities differ with respect to socio-economic composition, organisational setup and culture. In particular, the topography and the vulnerability to climate hazards differ considerably. Kaningo remains relatively isolated due to its location in hilly terrain. Access is difficult on rough, unpaved roads, the area lacks water services, and the electricity supply is often uncertain. Pottor is located at the edge of a swampy lowland on the south-western side of a ridgeline, and infrastructure is limited and often damaged. Kaningo is more well-functioning in regard to organisational setup of community groups than Pottor. Pottor is also the poorer of the two communities.

Despite these differences, they have a similar vulnerability profile when it comes to climate hazards that affect both communities with an increasing frequency and intensity.

This vulnerability context includes: Lack of access to clean drinking water, uncontrolled settlements, poor living conditions, lack of education, limited waste collection and handling, high unemployment rates of up to 60%, especially among the youth, and limited enforcement of laws and regulations.

In addition flood exposure is increasing due to great morphological and cross-section changes of rivers due to sedimentation, and rapid deforestation.

To sum up, the combination of their exposure to climate related risks and their lack of organisation, experience and skills, is what have made them particularly at risk to climate change. This context has served as the foundation for the project, to mitigate climate risks while strengthening the capacities of the communities in regard to educating and organising themselves better in preparing for future climate change.

Socio-economic conditions

Sierra Leone has a very young population with almost 40% of the population being under the age of 15 years and the average age being 46 years. The two communities are no exceptions when it comes to this demographic trend; in fact the proportion of young people is even higher with the majority being between 20-29 years old, and the average age being 34 years.

Most of the households in both Pottor and Kaningo consist of 4-6 members, about a third of the households are between 2-3 members, while some households consist of 7 members or more. Looking at the differences between Pottor and Kaningo, there are slightly more large households in Pottor (7 members or more). Vulnerable groups identified in regard to climatic shocks are elderly, children and people with disabilities. A small number of households accommodate people with either mental or physical disabilities. Both populations are in general low-educated with a majority of people not having any formal education, which creates a vulnerability to understanding early warnings of extreme weather conditions or the implications of climate change.

A majority of the houses in Kaningo and Pottor are either made from corrugated iron/zinc plates (52%) or concrete/bricks (45%), while very few are made out of wood (2%). Living in a zinc plate house makes you more vulnerable to extreme heat and flooding. Houses built of zinc plates have a higher risk of severe damage and loss when flooded as beyond the structural damage and loss of belongings, people are more likely to suffer greater personal losses like loss of family members, loss of income, and diseases.

In Pottor, the zinc plate houses situated in the coastal areas and near the inland floodplain swamps are the most exposed. In Kaningo, zinc plate houses near the riverbanks have a high risk of severe damage in comparison to the houses located up the hill side.

In regard to drinking water supply, 32% of our sample rely on multiple sources, 13% use piped water to the

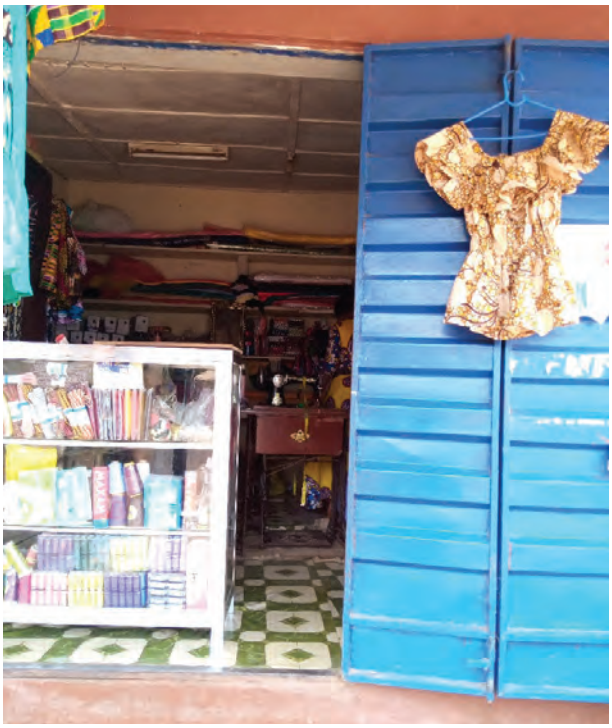
household, 12% have a private protected well, 11% share a protected well, 10% use a borehole attached to a hand pump/stand post, 10% use surface water from rivers and streams, 2% use other sources, and 1% buy water. Looking at the main differences between Pottor and Kaningo, the results show that more households in Pottor have piped water (18% vs. 9%), while Kaningo households have more private protected wells (16% vs. 6%), private unprotected wells (7% vs. 3%), and shared unprotected wells (11% vs. 6%).

The most common type of toilet is pit latrine (65%), followed by water-sealed toilets with a cistern (17%). 8% use water-sealed toilets without cistern and 6% use the river. The remaining 3% use other types or did not want to specify which type, which is an important observation.

A crossing between drinking water supply source and sanitation facilities revealed that out of the 45 people using the river for sanitation, 4% use surface water as drinking water. In Kaningo, more people have pit latrines (72% vs. 56%) and water sealed toilets with cistern (18% vs. 15%), while in Pottor a larger percentage of interviewees have water sealed toilets without cistern (11% vs. 7%) or use the river (14% vs. 1%).

A majority of the interviewees dispose of their waste in the river/drainage canal. Most of the respondents mentioned that they would like a dumpsite closer to their property, 4% would only like to have one if it is a mobile dumpsite, and the remaining 4% don't want one or do not have an opinion. If a dumpsite was placed near their homes, 94% of the respondents said they would use it. Only 3% said they wouldn't.

Nearly all of the respondents answered that waste is a key problem in the community. When asked which issues are caused by waste, 34% responded that there were no issues, and 21% did not know what these could be. The remaining mentioned sickness (17%), no one takes care of their trash (10%), flooding caused by waste filling in water ways (7%), flies (3%), and unsafe water (3%). A large number of interviewees always attend community cleanup events, some attend them sometimes and a few never attend them. The results show that there are more people "always attending these" in Pottor than in Kaningo (78% vs. 66%). Overall, there is a large interest and consensus for increasing the number of community cleanup events.



EXPERIENCE WITH AND PRIOR KNOWLEDGE ON CLIMATE-RELATED RISKS

Community recognition of climate change and experience with the related natural hazards and risks are the main focus areas of this project and a precondition for community action. Therefore, it was important to extract data from the baseline survey about the level of climate change awareness among the targeted population.

While it was evident that the Kaningo and Pottor communities have 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 induced from the experience. The baseline study made it evident that community knowledge of climate change in Kaningo and Pottor was limited before the startup of the project. Only 20% of respondents stated that they know what climate change is. The perception of weather and climate is mainly, that weather is the day-to-day conditions and that climate is a more long-term change. However, their explanations for these perceptions were limited or non-existing. The lack of knowledge makes them vulnerable to shocks and stressors from climate change since they have limited capital to mitigate the risks that come with e.g. flooding or heat waves.

The most common natural hazard experienced among the sample is flooding. The impacts from flooding in houses vary, with several units having experienced multiple consequences. According to the baseline, the most common frequency of flooding is every year, which confirms that flooding is a major issue for the inhabitants, from which they might lose property or income, and experience damages to their houses each time a flood occurs.

Their general knowledge of prevention of natural hazards is limited. The majority of respondents do not know about prevention measures and have not received information on the topic. However, the remaining units that do have ideas on prevention of e.g., flooding, show a good understanding of how to prevent it, suggesting to clean up channels, planting more trees, constructing more drainage systems, building retaining walls, etc. In line with the limited number of respondents with knowledge of prevention measures, the majority stated not to currently or previously use any prevention measures against flooding and other natural hazards. The majority of respondents are to some extent worried about possible consequences of future natural hazards, and only some answered not to be worried/preoccupied.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COMMUNITY ENGAGEMENT

PARTICIPATION AND INCLUSION

Community engagement is centred around participation, promoting inclusive project involvement, awareness raising and ownership. It's 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 (CCG). It has been an important focus to ensure ownership and get community members' engagement from day one.

Project meetings and consultations have been carried out on a regular basis by NSP and WHI, to ensure project support and community engagement. Cultural traditions entail discussions in different groups and committees, to ensure proper and common grounds for discussions, and that concerns and support are being voiced and addressed. Open and inclusive communication provided continuous support from the communities, which enabled a high level of local anchoring and possibility for participation in both the planning and execution phases of various activities and investments. Community transect walks have been conducted and seasonal calendars etc. have been developed.

Two CRC were formed, one in each community, to ensure local representation and climate project ambassadors. The creation of stewardships promoted a special role enabling the members of the CRC to engage on behalf of the project. Members were selected across gender and age in the two communities, yet with a strong representation of young people, who have been guided by internal community stakeholders - the elderly council and spiritual leaders, and supported by local partners.

The multi-hazard exposure of the affected communities has been on an increase due to erroneous actions by the government and other climate change agencies. In disaster prone communities many citizens lack the basic knowledge of mitigation and disaster management skills, which threatens lives and increases vulnerability to risks. Training was conducted on risk mitigation with regard to natural hazards and climate change. Training on search and rescue was likewise given to members upon their request to assist community members in need. Miss Kumba Kamara, a youth female CRC member of Kaningo attending the training, stated "We are very much thankful and grateful for providing us this capacity building training on search and rescue techniques during flooding, community preparedness and disaster risk reduction management, whipping and lashing ropes, tying knots and training swimming skills. The training is timely and it has added more knowledge to the Climate Resilience Committee in dealing with flooding situations in our communities, especially in critical situations". Based on participatory methods, transient walks, seasonal calendars and various other joint activities were carried out.

The climate community groups were formed ad hoc and in relation to the scope of the activities. The CCG are therefore very dynamic groups and most of them have been able to scale their engagement depending on activity, budget and COVID-19 restrictions. Some interventions were a one-time event, whilst others took place more regularly.

Most interventions have resulted in adding and updating existing community bye-laws, formulating a common set of rules and guidelines for the community.

One of the larger awareness raising events was the commemoration day of August 14, 2017 (the day of the twin disaster of flooding and landslide). On this date in 2020, a day of reflections was organised honouring the loved ones and looking ahead. The day involved gatherings with speeches and food plus a community event where residents got together to plant bamboo trees to minimise the risk of future landslides and flood events. Chief Kalma of Kaningo stated: "I'm very much thankful and grateful to all implementing partners and donors for celebrating the August 14 Commemoration Day in our community. This has made us to remember our loved ones that lost their lives on that fateful day and this has been the first time our lost ones are remembered in this way. The commemoration day will serve as an eye opener for us all to know our roles and responsibilities in fighting this global challenge – climate change - in our communities. By planting bamboo trees in our communities, trees will help prevent erosion, flooding, landslide and can be environmentally friendly in combating climate change effects in our community. Each and every member of the community will put hands on to make sure that these trees are well taken care of and each and every member has a role to play in preventing hazards in their community. Once again, I am very much grateful and thankful to actors and those present to make this occasion possible", he concluded.

MITIGATING CLIMATE RISKS THROUGH

COMMUNITY INTERVENTIONS

GETTING THE CONVERSATION STARTED

A list of climate adaptation measures was compiled in a climate adaptation catalogue to be used as a dialogue tool, proving existing technologies and tools to mitigate the risks of climate change. These were developed based on the vulnerability profile of the two communities by the EWB-DK project team. In close dialogue with partners and community members, a selection of interventions was identified, planned, designed, and implemented by local volunteers supervised by WHI and NSP.

COMMUNITY INTERVENTION: TREE PLANTING

What was the activity scope?

The activity scope was to plant 1100 fruit trees in Pottor and Kaningo in a variety of species such as avocado, coconut, tamarind, lemon, guava, coffee, mango, cashew, almond, orange, cacao and palm kernel. The tree planting intervention addresses community resilience to climate change hazards as well as enables local socio-economic benefits.

Why did we implement it?

Planting of fruit trees enables socio-economic benefits to vulnerable communities by enhancing resilience to erosion, flooding and mudslides, providing shade and wind shelter for people in the vicinity of the trees along with the possibility of future food supply and income generation.

Who implemented the activity?

The tree planting was initiated through training of, collaboration with, and engagement from community members, facilitated by CRC, NSP and WHI staff and volunteers. Geotagging was done by NSP volunteers in KoboCollect to monitor and control the implementation process and the subsequent tree growth monitoring. Sourcing of trees was done by the project agriculturist and manager of a greenhouse nursery in the vicinity of Freetown.

Who was engaged?

In May and June 2020, a total of 197 community members (96 women and 101 men) took action and participated in the fruit tree planting. Six NSP volunteers spent multiple days in the field carrying out the mapping of the specimens. Tree planting started in May 2020 and finished in June, while the monitoring continued until the end of the project.

What were the challenges faced?

Monitoring of both tree planting and tree growth was insufficient due to challenges related to optimistic time management, first-time users, lack of smartphone capacity, poor network coverage and bandwidth for training and upload to server. Due to this not all trees have been captured and monitored properly.

What is the sustainability of the activity?

EWB-DK, WHI and NSP developed a time plan for monitoring the growth and possibilities for expansion of the tree planting initiative, including vegetable farming. Community members are trained in basic nursing of trees and vegetables, including cultivation, pest management, smart farming practices, market linkages, agri-business skills, and importance of vegetation cover to mitigate flood, heat and erosion as a part of the capacity building. Eventually, communities agreed to distribute equal shares of harvested fruits between neighbours, and the remaining fruits to be sold and used in tree caretakers' households.

The ownership targets a diverse population of women, men, youth, people with disabilities, teachers, etc. Furthermore, a nursery shed was built in the later stages of the project aiming at continuing and improving agronomic practices and training to build capacity further in the community beyond the EWB withdrawal from the project activities.

Story of change

One of the beneficiaries is Madam Aminata Fallah. She expressed great joy in participating in the tree planting farmer field training that covered economic potential and agronomic practices of fruit tree planting and growth as well as insights in health and climate benefits. Madam Aminata Fallah underlined that the fruit tree intervention addresses the hunger issue and that it would bring income to pay for medical bills and school fees.

As the training progressed and more and more trees were planted, more people showed eagerness to take responsibility for cultivation of the planted trees because

> These trees will help their community to be protected from future hazards

the benefits were imminent. One of the youth volunteers highlighted the importance of fruit tree planting:

"These trees will help their community to be protected from future hazards and the trees will serve as windbreakers, control erosion, generate income and be environmentally friendly. I'm urging all beneficiaries and end-users to put hands on deck for the success of this project."

COMMUNITY INTERVENTION: STORM WATER DRAINAGE CHANNEL CONSTRUCTION

What was the activity scope?

The activity scope was to construct a large storm water channel, 86 m long and 1.5 - 2.5 m wide at an existing waterway, plus two footbridges across the channel. The channel will reduce flood extent in Pottor community when heavy rains occur. Frequent cleaning of the channel was agreed upon in the community and written into the community by-laws along with the general maintenance requirements and responsibility of the community.

Why did we implement it?

To EWB-DK it was apparent that the construction of channels to control water from rainfalls to a certain extent would reduce risk of flooding. Further, when engaging with the local community through WHI and particularly NSP, they also acknowledged it as a proper intervention to reduce flood-related damages. The intervention was implemented to control flash flows from heavy rainfall runoff from the steep mountain hillsides, resulting in flooding of vulnerable households to be reduced or, in best case, prevented, thus, protecting local dwellings.

Who implemented the activity?

The implementation was coordinated and implemented by the three partners EWB-DK, WHI and NSP. WHI and NSP together with CRC and local community members identified the challenges and the WHI engineer designed the construction. Together with skilled labour workers and NSP, WHI mobilised community members and facilitated the preparation and construction of the channel.

Who was engaged?

35 men and 5 women participated in the excavation, concrete foundation, the casting of the channel as well as bridge construction.

What were the challenges faced?

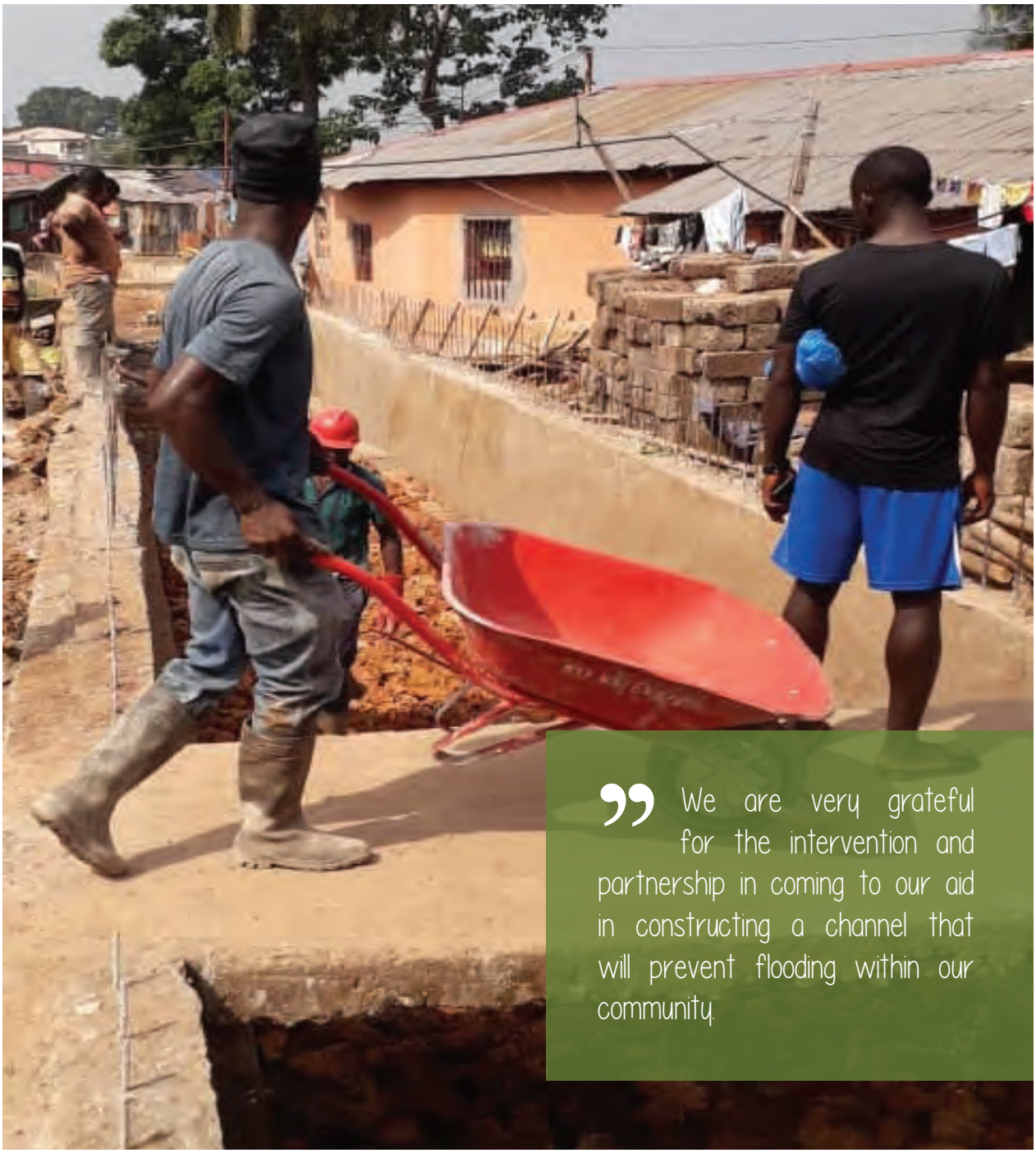
Initial challenges were related to a delay in the disbursement of funds. Pre-finance arrangements were made with WHI for timely delivery of project activities. Later, internal community disputes and attempted theft of materials resulted in fights amongst residents and the councillor was brought in to resolve the matter. Later, illegal discharge connections were made to the channel by the surrounding houses. Everything was discussed and tackled by community stakeholders, CRC, WHI and NSP. Total funds allocated for the channel were later found insufficient to capture the total stretch highly exposed to flooding. Additional funding must be raised for future flood protection. The stretch completed is, however, well-functioning and has gained great attention from community members and FFC.

What is the sustainability of the activity?

To keep the newly built channel functioning it is necessary that it remains cleared of waste. Further, regular maintenance of the concrete surface is important to prevent the channel from deteriorating over time. To ensure maintenance, cleaning is carried out on a regular basis. The by-laws have been extended to include weekly cleanings of the channel in the wet season and monthly in the dry season.

Story of change

Locals supported the idea of implementing a storm water drainage channel and requirements to keep it clean. In July and August, heavy rainfall occurred and the newly built channel saved several houses from flooding more than once. Only one larger event caused flooding of a house downstream. Madam Marvelous Scott said that the community was very pleased and happy about the timely construction of the channel in the Pottor community. In an interview conducted by WHI Climate resilience project Manager she said: “Before this time we have been losing our properties, houses, outbreak of diseases and cholera. Sometimes even our children cannot go to school due to the flooding caused by poor drainage channels. We



> We are very grateful for the intervention and partnership in coming to our aid in constructing a channel that will prevent flooding within our community.

women and children suffer most of the loss and not much attention has been given to us by the municipality, but today we are very grateful for the intervention and partnership in coming to our aid in constructing a channel that will prevent flooding within our community." She urges all community members to judiciously take care of the facility by continuously maintaining it.

Pottor Community Chair Lady added: "The timely intervention by the climate resilience project has helped prevent loss of lives and properties from getting destroyed or damaged. During the wet season, we have all been well informed through community engagement and awareness with the help of megaphones provided to volunteers by the climate resilience project".

COMMUNITY INTERVENTION: WASTE COLLECTION IN WATERWAYS

What was the activity scope?

The activity scope was to clean selected locations at the bridge cross-section in existing channels and floodplains of waste. CRC, together with community volunteers and NSP did extensive cleanup events to raise awareness on the matter and promote cleaner and safer communities. Local community members partook in the monthly "mandatory" cleaning by the city, as well as these ad hoc cleanup events.

Why did we implement it?

The communities are overwhelmed with large amounts of waste which pose massive challenges and health risks. Collection of waste improves flow capacity of existing water drainage channels, reduce the risk of flooding and spreading of diseases.

Who implemented the activity?

NSP took major responsibility for gathering the sufficient number of people to carry out the activity ad hoc. The project supplied the tools and equipment for waste cleaning of channels and this was handed to the local community. Waste management training was also provided.

Who was engaged?

In April 30 men and 10 women took part in clearing the channels and collect waste, while later in June, 101 men and 96 women contributed.

What were the challenges faced?

Funds allocated were not sufficient to clean all waterways, nor the community as a whole. Before the project commenced the community had limited cleaning tools and equipment, and the project therefore bought and distributed tools and equipment for safe removal of waste at selected critical locations.

What is the sustainability of the activity?

The local communities realise the benefits of increased capacity of the channel system through a reduced risk of flooding in relation to heavy rainfalls. Additionally, awareness raising regarding health risks from inappropriate waste disposal is expected to promote more clean and healthy communities. There is a risk that the sustainability of activities is limited, due to a continued influx of waste disposals, unless more regulated disposal opportunities are established and awareness raising campaigns are conducted repeatedly.

Story of change

Although locals were aware that inappropriate waste disposal must be avoided, insufficient dump sites and lack of funds forced people to practice illegal dumping. Therefore, they coordinated mobile dumpsites from where garbage was moved to a permanent dumpsite. Training sessions concluded that more frequent trucking would result in more effective waste collection. Mr. Ibrahim Conteh, who has worked for the community chief of Kaningo for more than 15 years, showed great interest in the CRC and willingness to work actively with the project activities in the Kaningo community. He proudly commented on the timely intervention of the project. He further explained that for many years the people living within Mamie Queen bridge in Kaningo had been experiencing the highest prevalence rate of malaria infection in the neighborhood due to mosquito bites. In addition, road damages incurred frequently during the wet season due to flooding caused by waste dumped in drainage channels. Through the intervention of the CRC, community volunteers were able to clear all debris leading to less flooding. Additional results are fewer breeding grounds for mosquitos and minimised odour from garbage dumped near houses.

Pa Alimamy Bangura, who has been the local chief for the Kaningo Community for over 20 years, was very pleased and thankful for the timely intervention of project activities, especially the method and strategy being used in the implementation process and the uniqueness of the activities. Pa Alimamy acknowledged CRC, youths

and other stakeholders present during the handing over ceremony of the tools from local partners: “For over ten years they have been facing challenges on channels and waste clearing tools and equipment, and now that these tools and equipment have been provided by donors to be taken with great care in our generated Community Tool bank. We promise the tools and equipment will be taken well care of and will make sure that these tools will serve them for many years to come”. He added that the problem mostly is a result of flooding and the lack of tools and equipment for cleaning channels and drainages within the community.

COMMUNITY INTERVENTION: VEGETABLE GROWERS

What was the activity scope?

The activity scope was to improve knowledge and cultivation of vegetables to improve resiliency through improved self-supplying abilities. Farmers received agricultural guidance from a WHI specialist on vegetable production activities to increase their awareness and uncover socio-economic benefits. Assorted seeds were supplied to start up cultivation.

Why did we implement it?

To promote farming in low lying swamps, to enhance single parents' and/or women's and their families' livelihood, and to increase opportunities for the communities to be self-sufficient.

Who implemented the activity?

The activity was implemented through a collaboration of CRC, NSP, and WHI in Pottor.

Who was engaged?

About 40 men and 40 women contributed to the community engagement in the initial phase. Once the community realised the project was sustainable, engagement spread and the numbers rose to 50 men and 100 women.

What were the challenges faced?

Crude methods for cultivation is still a challenge for the vegetable growers and many cannot afford high yield crops and vegetables. There is also a lack of knowledge about post-harvest and land preparation to increase yield. Due to some areas still being prone to flooding some of the vegetable growers can't cultivate their vegetables in all fields.

What is the sustainability of the activity?

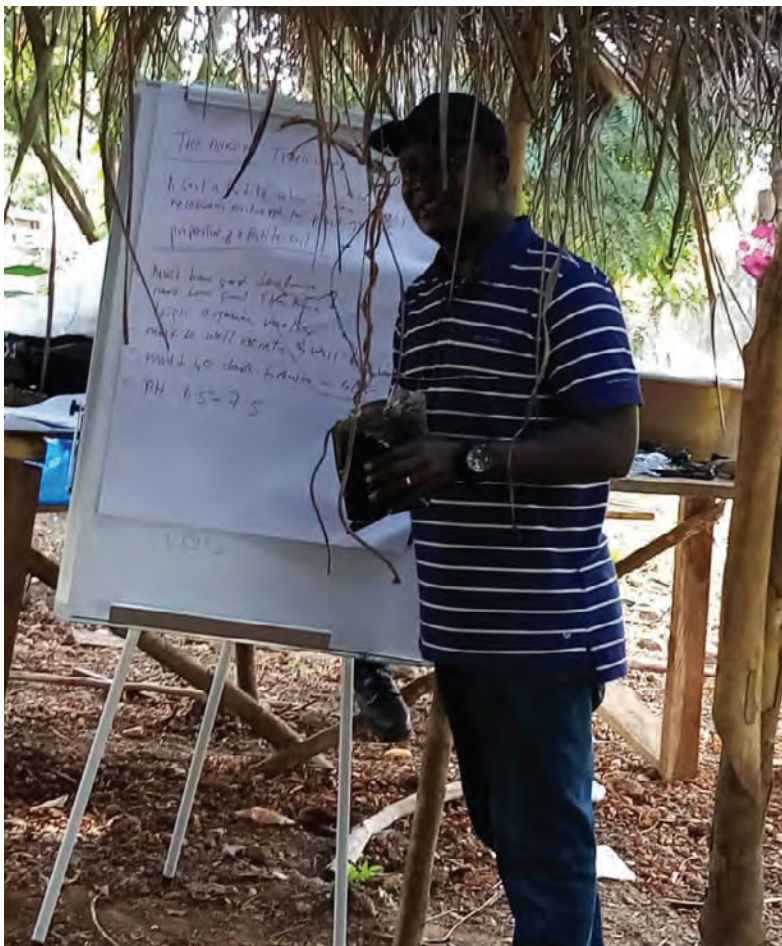
The vegetable growers received training in agronomic practices to build capacity for future farming and dissemination to others. Especially training around pest management control, smart farming practices, market linkages, agri-business skills and importance of vegetation cover to mitigate heat and erosion during flooding formed part of the capacity building. Further, circular practices such as recycling of waste compost and manure as organic fertiliser reduce costs and improve output from vegetable growing.

Story of change

From the initial capacity building training on the modern agronomic practices of vegetable production and fertilizer from manure production, local vegetable growers improved knowledge. After months working with this intervention, the partners succeeded in improving yields by encouraging growers to use surplus seeds for second sewing when the rain sets in. Mr. Omar, one of the farmers in Pottor who benefited from the distribution of seeds, stated: "I am very much thankful for providing them with agricultural inputs, especially the high quality vegetable seeds and tools that were provided for them. They were able to get a very good yield and part of the crops harvested were used to improve family food and proceeds from the sale of those crops are used to pay for medical bills and the purchase of school materials for their school children".

Madam Mary, a single mother of four, applauded Mr. Omar and added: "I am very much grateful and thankful to the climate resilience project team for helping me to improve my vegetable acreage and skills in vegetable cultivation. Gaining knowledge on the use of organic kitchen waste as manure has enabled a good yield and harvest, which has led to a good market price for my vegetables".

> Crops harvested were used to improve family food and proceeds from the sale of those crops are used to pay for medical bills and the purchase of school materials.



COMMUNITY INTERVENTION: TREE NURSERY SHED

What was the activity scope?

The activity scope was to build a nursery facility for economic fruit tree seedlings. The activity was further intended as a pilot project to engage people with physical disabilities. Beneficiaries received training on cultivation and capacity building of economic fruit trees.

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, utilising local materials, such as loam and compost soil, manure, polythene bags. Monitoring and supervision were carried out by NSP, WHI and CRC members.

Types of economic fruits trees sourced are: Lemon, orange, mango, tamarind, kalanbula, cashew, guava, cacao, sweet sap, etc. The project is allowing the selling of some fruit trees; some will go to members interested in and willing to plant trees and have their own piece of land, whilst some will be sold to the public. Proceeds of sales are to be used for future expansion of the nursery shed.

Why did we implement it?

A tree nursery shed has been established for capacity building training for vegetable growers. 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 flooding, and finally, generating climate resilient communities. As an add-on people with physical disabilities were chosen to be the main caretakers of the seedlings, which yielded a new workplace for this marginalised group in the community.

Who implemented the activity?

WHI climate resilience project manager in collaboration with the NSP team taught people with physical disabilities. A total of 10 people took part in the creation of the facility in Pottor (six males and four females).

Who was engaged?

To build the nursery shed, 15 women and 25 men were involved from the vegetable growers community in Pottor. The beneficiaries are women, people with disabilities, youths, elderly and community stakeholders.

What were the challenges faced?

It was difficult to find land for the construction and to protect the facility against theft.

What is the sustainability of the activity?

The small selected group of caretakers received training in tree nusery and agronomic practices to build capacity for future tree growing. When nurtured sufficiently and with the right commitment and demand, this small-scale business can supply the community with trees for planting to mitigate the impacts of flooding, erosion and heat.

Story of change

Amongst the beneficiaries is Madam Adama Kamara, who is married to a petty trader and a mother of three children. She has dwelled in the suburb for more than 15 years and is greatly dependent on agricultural activities for her livelihood (growing potatoes, pepper, krain-krain, cucumber, etc.) .

Madame Adama said: "I am very grateful to the climate resilience project for capacitating on economic fruit tree nursery agronomic practices. This has empowered me to start a tree nursery shed from my little savings I am getting from my vegetable activities in order to make huge sales and more money to support my husband in taking

care of our school going children, improve food and pay our medical bills. With the help of the climate resilience project in our community many people have learned about tree planting which has a great role in our community in terms of flooding, erosion, windbreakers, and food benefit and with this, I am very confident that this will be another source of income generating activity at a very simple and effective manner."

> "This has empowered me to start a tree nursery shed from my little savings (...) and make more money to support my husband in taking care of our school going children, improve food and pay our medical bills.

MONITORING AND REPORTING

MITIGATING THE RISKS

When implementing a humanitarian development project, multiple risks threaten the project's phases and success. COVID-19 was an additional challenge. In order to operate in a changing climate with various project risks and shifting prognoses for the disease spreading and political action, the project management team kept in close dialogue and debated risks and opportunities.

In general, challenges such as lack of community engagement and partner capacity were real threats to the foundation of the project execution, as the project was built on the principles of participatory and collaborative learning. Through an intensive partnership start-up seminar, followed by bi-weekly project manager meetings and access to and flexibility of resources, the team managed to execute activities and implement interventions. The ability to uphold a strong presence in the community and the possibility of scaling activities and interventions enabled strong community commitment.

COVID-19 forced frequent and continuous collaboration and monitoring to be closely followed through phone calls, online video calls, WhatsApp and KoboCollect. As another consequence of the pandemic and following local health and safety proposals, fewer participants were allowed in awareness raising activities and community engagement sessions. Nonetheless, this approach confirmed to the community that EWB-DK would not abandon them. The commitment was rewarded with a growing interest in being a part of project activities and interventions. This was not another "white elephant" project. The intervention was timely and the urgency acknowledged.

The time schedule was further changed and prolonged due to delayed supplies, land disputes, sudden flooding, and inadequate planning, reporting and communication between partners. Even so, the project objective has been met and the outcomes achieved.

MONTHLY REPORTING, BI-WEEKLY PROJECT MANAGEMENT MEETINGS

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, and 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, NSP and WHI, to fill out in order for all partners to have insights into how the project was coming along.

The reporting template has worked as a good reference tool at the recurring meetings within and between the involved partners.

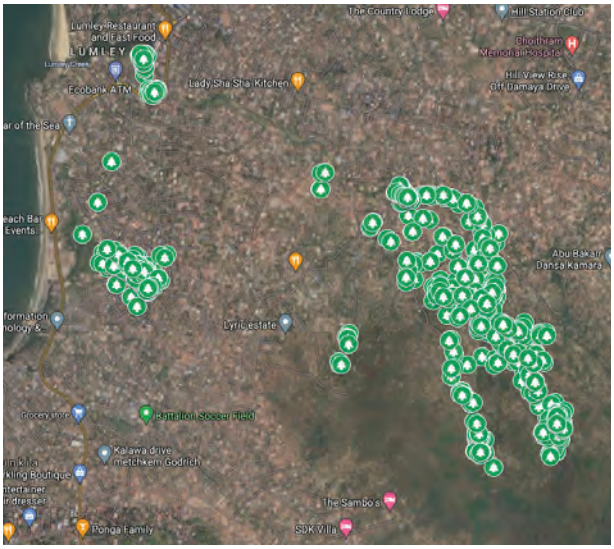
Bi-weekly the project team from EWB-DK conducted a project management meeting with an update on the project, where relevant activities and assigned tasks were discussed. The frequency of the meetings was adapted to the level of involvement that was needed for the particular phase of the project.

Frequent meetings were scheduled as well as more informal conversations between the EWB-DK project manager and the local partners to ensure knowledge-sharing and a clear understanding of where the project was heading throughout the whole period of implementation.

MONITORERING WITH KOBOCOLLECT

In order to maintain a thorough monitoring system, the online tool KoboCollect has been used throughout the project. The tool allows a clear and visual collection of data to be stored on a common platform for all partners to use. It entails a map where any activity such as tree planting or survey conduction were plotted by the executing partner of the activity. The tool was also available offline which made it possible for the implementers of an activity to use it in the field. In this way, all partners were updated at all times on each activity, and data was saved for monitoring purposes.

Challenges of using the tool were met along the way. Especially in the start-up phase, NSP members had to learn how to use the tool, offline as well as online. Through training and continued communication, they learned how to utilise the full potential of KoboCollect.



REVIEW – STARTUP, MIDTERM AND FINAL

Thorough reviews of the project were conducted in the startup, midterm and final phases 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. It also facilitated the alignment of project objectives, goals and targets.

Due to the COVID-19 pandemic, monitoring visits on site were impossible to schedule. Instead, reviews were conducted online in the lead up to all meetings related to monitoring and other important activities. The project team had great success with 3-day sessions, reviewing, evaluating and re-scheduling activities and interventions. Both a mid-term seminar and final review seminar were conducted online in a seminar-debate format.

Start-up seminar

In the startup phase, the foundation was laid for a successful and relevant project with sufficient monitoring in place. During a field visit where all implementing partners were present together with the strategic collaborator from UCC, the following activities took place:

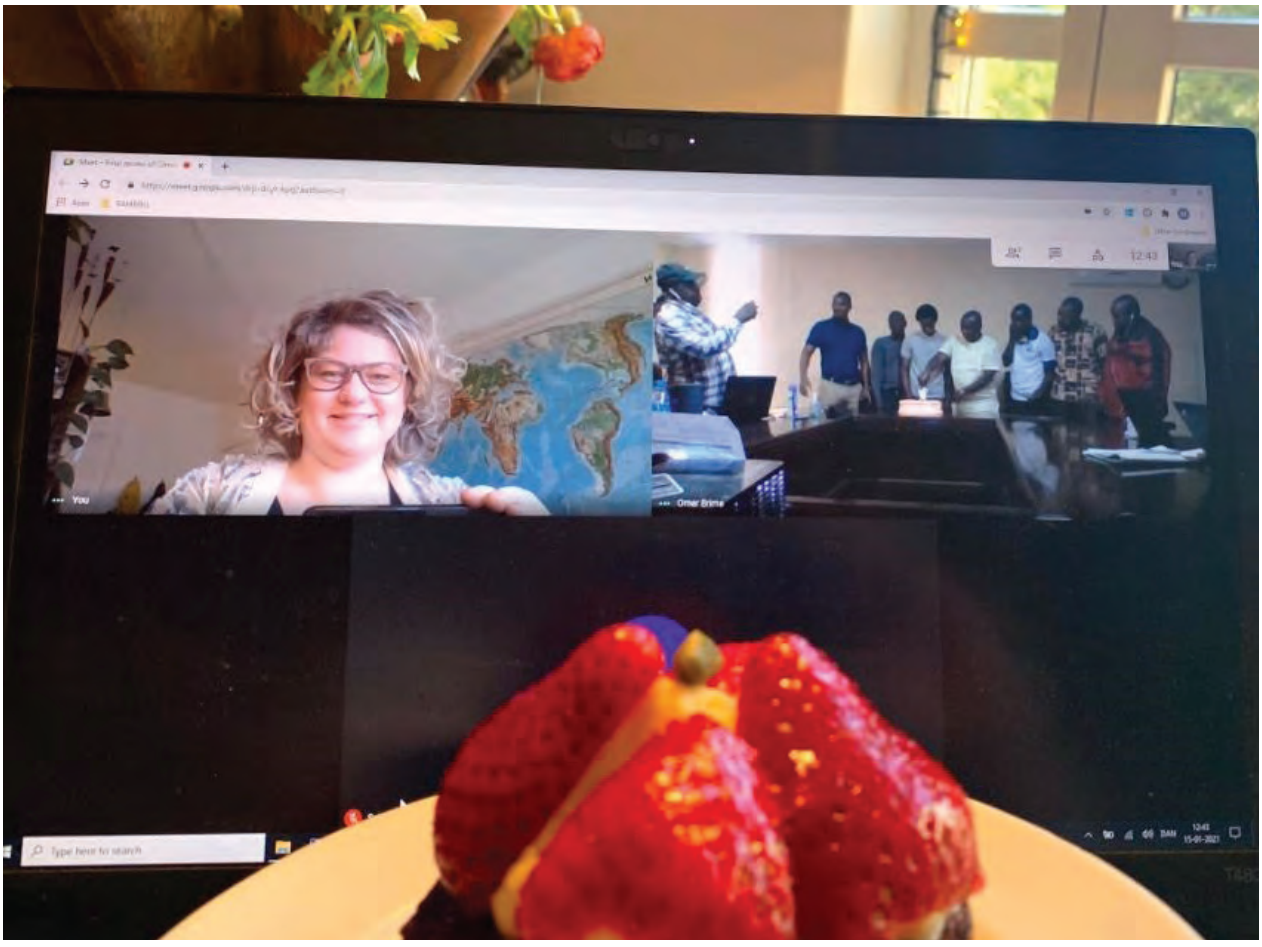
- The project team made a transect walk to get an overview of the area, which enabled a risk mapping screening of the two communities.
- With local knowledge, a seasonal calendar was made with relevant information for the success of the project.
- The project team further came up with the budget and time schedule for the project, ensuring clarity for all partners.
- Furthermore, a workshop was held, sharing relevant knowledge and training of certain tools that were important for the partners on-ground to learn before starting the project.

Midterm review

Halfway through the implementation phase of the project, a midterm review was conducted in order to ensure that the activities were running according to schedule and achieving the desired results. In an online 3-day session, the implemented activities and interventions were evaluated. All implementing partners participated and shared their experiences. The partnership and the roles of each partner were evaluated as well, which initiated important discussions and led to a common agreement on necessary adjustments, both in regard to future methods of communication as well as to the project time schedule.

Final review

Finally, a review of the total project activities and interventions, evaluation of the local framework approach, learnings, etc. were done, highlighting key successes and challenges. Potential for future collaboration was discussed both in relation to community development, advocacy, empowerment, capacity building, and partnership development.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PARTNER DEVELOPMENT

PARTNER COOPERATION

Sierra Leone has little experience in addressing climate change, and our in-country partners have little knowledge on the topic of climate change. As such they haven't previously been engaged in disaster risk reduction or issues evolving environmental degradation.

The triple partner cooperation was to begin with to some degree hampered and challenged by the three partners' unfamiliarity with each other and the unclear distribution of roles and project responsibilities. This confusion changed for the better and after some time, all three parties found a mutual appreciation of the partnership collaboration. Lack of in-field monitoring and capacity building was in some aspects a disadvantage for the learning environment, but also accelerated learning in other aspects.

Eventually, at the final project review all partners agreed, that it had been a fruitful collaboration and a relevant and timely intervention. Further needs will be identified amongst the partners and future project collaboration opportunities within the topics of climate change will be identified.

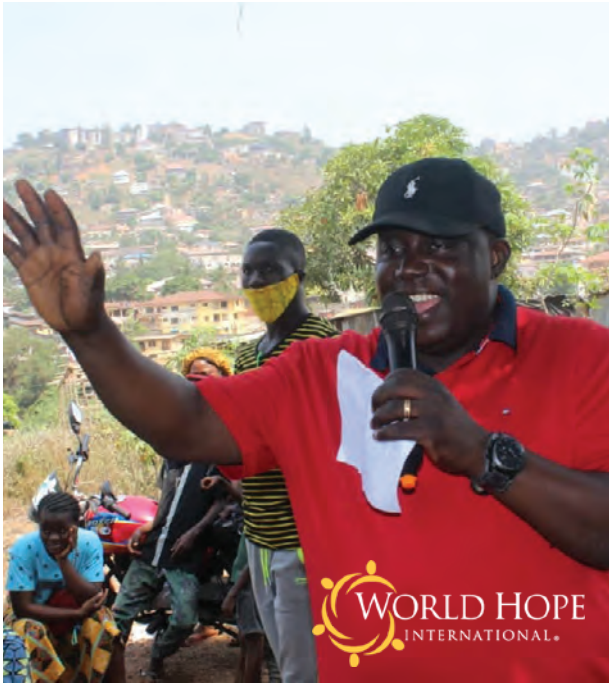
LEARNINGS OF NSP

At the initiation of the partnership, NSP was characterised by a strong local engagement and dedication, while the organisational and professional capacity was rated as limited. NSP had prior knowledge on community engagement, but no experience with project management or financial management.

During the course of project implementation, NSP has acquired knowledge and developed skills and capacities within:

- Climate change
- Community engagement
- Participatory approaches
- Collaboration in a partnership context - especially in relation to international donors
- Improved technological know-how
- Operation of smartphones and applications for field use
- Collection and registration of baseline data
- Monitoring of activities

LEARNINGS OF WHI



WHI has a long presence in Sierra Leone, and is backed by an international WHI-network. WHI acts with a self-conscious, professional approach responsible for local project implementation, financial handling and documentation. Nevertheless, WHI has harvested a number of learnings through its involvement in the project:

- Climate change
- Triple partnership collaboration
- Mentoring capacity building
- Bottom-up, participatory approach
- Transparent and regular project reporting and communication

LEARNINGS OF EWB-DK

The climate resilience project is the first of its kind conducted by EWB-DK. While the project team had professional knowledge on climate change and risks, neither the EWB-DK secretariat nor the project team had any previous experience with planning and/or implementing this type of capacity building and development project.

The project team and the EWB-DK secretariat joined forces to define the project objectives, work out a logical framework approach and formulate compliant project proposals to appropriate donors. With valuable assistance from partners and University College Copenhagen, the project team succeeded in integrating the participatory approach and community-based adaptation. Nearly two years after the conception of the climate resilience project, EWB-DK finally embarked on the implementation.

The EWB-DK project group volunteers have experienced a steep learning curve, venturing into unfamiliar fields of study. EWB-DK has recognised the growing importance of working with community resilience to climate change, either as a main project driver or as a sub-objective, while at the same time recognising EWB-DK's own abilities and the organisational capability of developing and managing projects in this field.

EWB-DK learnings have been numerous, including but not limited to:

- A deeper and more diversified knowledge and understanding of climate change community effects and the building of resilience
- Remote project management
- Cross-culture relations
- Participatory approach
- Partnership building in triple partner set-up
- Clear communication and clear roles

This learnings has encouraged EWB-DK to include climate resilience elements as important parts of scope and objectives in new projects in Sierra Leone, which as of June 2021 are now in a start-up phase.

EWB-DK will use the momentum of the successful, joint partnership approach to continue collaboration with WHI and NSP in future projects, consolidating partnerships at a higher level of professionalism.

The climate resilience project team will readily share learnings with regard to climate resilience, participatory approaches, and partnership building with fellow EWB-DK staff and volunteers to give future EWB-DK projects a renewed base of knowledge and experience.

PROJECT SUSTAINABILITY

MOVING FORWARD WITH NEW KNOWLEDGE

Sustainability is what makes a project leave lasting traces beyond immediate outputs. Securing sustainability of all investments, financial as well as human resources and public engagement, must be a primary focus during all phases of the project cycle.

We trust that the combination of

- strong community involvement and engagement through participatory methods,
- building and reinforcement of local civil society organisation capacities,
- locally rooted, professional leadership, and
- support and concern from local authorities

form the basic preconditions for the sustainability of the climate resiliency project outcomes.

Throughout the implementation phase of the project, there has been a hand-over procedure of responsibilities from EWB-DK and WHI to our local partners NSP as well as to the community. After the completion of activities, the people involved were instructed in maintaining and sustaining outputs of the activity. This was subsequently supervised by project partners during the remaining part of project implementation. A thorough and structured hand-over process is expected to ensure that project outputs will be sustained far into the future.

UN SUSTAINABLE DEVELOPMENT GOALS

OUR CONTRIBUTION TO THE UN SDGS

This project supports the goals of the UN Agenda 2030, also known as the Sustainable Development Goals (SDGs). The project touches upon many of the goals from alleviating hunger and improving sanitation to supporting economic growth and improving well-being. In the following sections, the impact on three particular goals are described: SDG 1 - No Poverty, SDG 13 - Climate Action, and SDG 17 - Partnerships for the Goals.

Goal 1: No poverty

Sierra Leone is a poor country with high rates of unemployment. This is due to a number of factors, including the high exposure to natural hazards, which cause disasters that exacerbates poverty. Poverty adds to people's general state of vulnerability because of low socio-economic capacity and well-being. This project especially contributed to target 1.5.

Target 1.5 is to: "Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters."

Through the establishment of climate resilience committees (CRCs), the two communities developed well-organised groups that through training obtained the capacity to identify risks, start addressing climate challenges and initiate climate adaptation interventions. Increased resilience towards climate related shocks including vulnerability to suffering economic losses has been achieved through awareness raising, mitigative measures such as the drainage channel, and capacity building of the CRCs.

Furthermore, the project has enabled small business opportunities for locals in Kaningo and Pottor. The intervention aimed at training members of the community in planting fruit trees and growing vegetables with the purpose of selling the harvest at the local market is expected to contribute to reducing poverty. As a positive side effect, the intervention also contributes to SDG 8 - "Decent work and economic growth" by creating opportunities for people to have an income and thereby boost the local economy. In addition, the intervention is meant to improve food security, thus enhancing family health (SDG 3).

Goal 13: Climate action

Over the past years, Sierra Leone has experienced climate effects such as increased temperatures and more extreme weather. The climate resilience project focused mainly on taking urgent action to combat the impacts of climate change, thus contributing significantly to SDG 13.

More specifically, the project has added to target 13.1 and target 13.3 as explained in the following paragraphs.

Target 13.1 is to "strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries". Through capacity building and training, the CRCs are able to identify specific challenges to community livelihoods and risks in relation to water contamination in the event of flooding. This resource will be useful for the communities far into the future, by maintaining the committees and continuing ongoing training on climate change risks, which ensures they can pass learnings on to the next generations.

Target 13.3 is to "improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning". This project focused on raising awareness and educating the local population on climate change through training activities and the formation of CRCs. By sustaining and sharing the increased awareness and knowledge of climate change risks, the communities of Kaningo and Pottor are better prepared to secure their assets and reduce the consequences of similar events in the future.

Goal 17: Partnerships for the goals

The project contributes to SDG 17 by making an effort to create strong partnerships in the combat of climate change and poverty, both locally and globally, focusing on North-South as well as local-international cooperation. In particular, the project has contributed to target 17.9 and target 17.16 as explained in the following paragraphs.

Target 17.9 is to "enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation". The three partners, EWB-DK, WHI and NSP formed a North-South collaboration that through awareness raising, training and formation of CRCs built capacities in the two communities. National institutions in Freetown were not directly involved in the planning of the project but functioned as strategic partners during implementation. The project partnership and the building of capacities supported urgent and relevant strategic initiatives that are aligned with SDG 17.

Target 17.16 is to "enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilise and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries". The partnership mobilised local people and NGOs to strengthen local climate resilience through shared knowledge, the expertise made available, and the continuous support by the two international partners. Based on this first partnership between the three collaborators, a road to future collaboration, targeting vulnerable communities in Freetown, has been paved. Thus, this project stands out as an example of "enhancing partnerships for sustainable development."

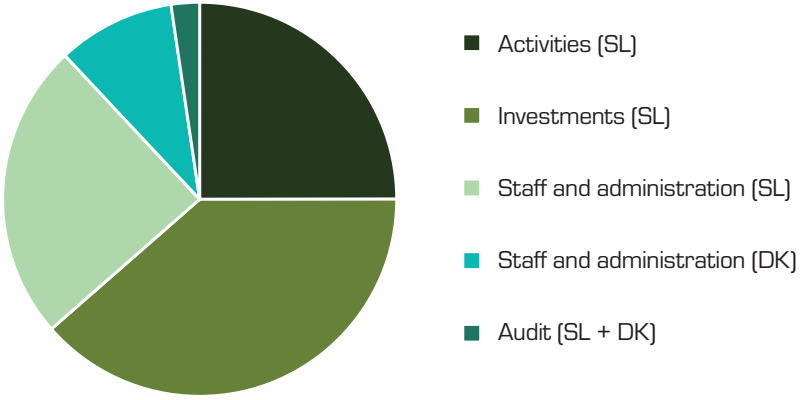
FINANCE

FINANCIAL REPORTING

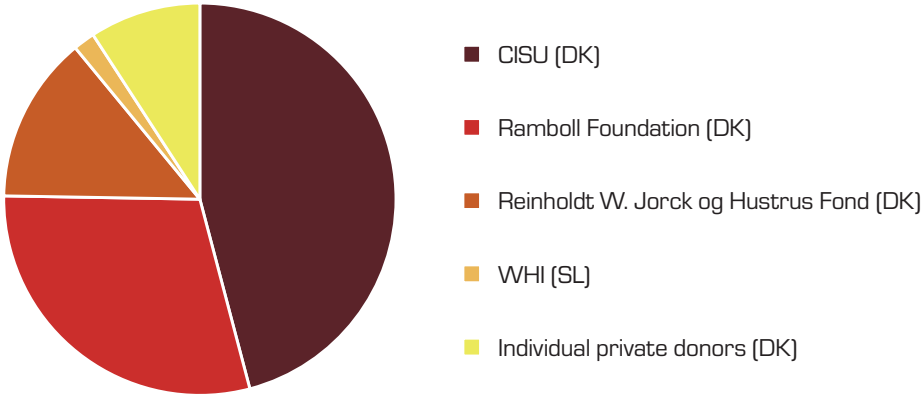
Financial reporting has been carried out on a monthly basis and will be finalised by external audits, both in Sierra Leone and Denmark. Funds spent and the supporting documents fulfil requirements and local laws.

Economic spending is split as follows:

FUNDS DISTRIBUTION



DONOR DISTRIBUTION



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