

Maji Bora Multi Country Small Scale Safe Water Supply Programme of Activities (PoA) PoA Design Consultation

Key Programme of Activities (PoA) Information

The Project Developer, Griot Ltd, focuses on investing in nature-based solutions and actions that aim to conserve biodiversity, restore ecosystems, and ensure sustainable natural resource management and livelihoods for communities. Communities have always been integral to Griot's work, and female empowerment has been paramount. Further, to substantiate these actions, Griot now intends to initiate a small-scale Programme of Activities (PoA) under the Gold Standard to create another genuine positive impact on the climate and people's health and livelihoods. This PoA aims to reduce greenhouse gas (GHG) emissions from emissions-intensive sources, including burning non-renewable biomass for water treatment.

Since man first harnessed fire, we have been dependent on fire and fuel in some way or another for cooking, boiling water, supplying electricity, running big machinery, driving cars, and even travelling to space. The fuel types available to us have varied greatly, with the first fuel type being wood fuel and evolving to charcoal, coal, petroleum, natural gas, etc. Today, 275 million people still live highly dependent on wood fuel for their livelihood and where their firing of wood fuel exceeds the ability of nature to regrow, resulting in unsustainable harvesting and forest degradation. Of these 275 million people, nearly 34% live in Africa, where emissions from firing wood fuel are estimated to account for more than 50% of the continent's total emissions¹.

The countries in the Programme's boundary, Kenya, Burundi, and Tanzania, are among the African countries with the most significant increase in charcoal and wood fuel demand and with the highest projected rates of emissions increase from burning wood fuel by 2040. On the other hand, these countries (Kenya, Burundi, and Tanzania) are among the countries with the highest fractions of non-renewable biomass resources. Almost 50% of wood fuel harvesting in these regions is unsustainable². Two of these target countries in the Programme's boundary i.e., Burundi, and Tanzania, are classified as Least Developed Countries (LDCs). Since their industrial and economic ecosystems are underdeveloped, these countries are highly vulnerable to economic and environmental shocks, especially now with the global concern about climate change. Griot has been implementing similar programmes in Kenya and desires to cascade the learning and experience to the LDCs in the region.

¹<https://cleancooking.org/wp-content/uploads/2022/08/Accelerating-Clean-Cooking-as-a-Nature-Based-Climate-Solution.pdf>

²<https://cleancooking.org/wp-content/uploads/2022/08/Accelerating-Clean-Cooking-as-a-Nature-Based-Climate-Solution.pdf>

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In the Programme's boundary, three-stone fires and inefficient stoves are used for boiling unsafe water, fueled primarily by wood fuel in rural areas. These inefficient three-stone fires and stoves consume more non-renewable biomass resources, thus increasing deforestation rates. With this PoA, the need for boiling unsafe water, hence the extensive usage of non-renewable biomass, and the emissions associated with biomass burning will be reduced.

Moreover, in 2020, 2 billion people, corresponding to 26% of the global population, needed more safely managed drinking water. For Tanzania, out of its population of 59 million people, 16 million people (28% of the population) lack access to safe water. With a population of 53 million in Kenya, about 28 million people lack access to safe water³. Most households in the Programme boundary travel long distances to collect water, usually from an unsafe natural source. Most of the time, this responsibility falls on women and girls in these households. The fact that collected water has to be transported long distances to households to be stored pollutes the collected water already; and again, to obtain safe drinking water, the burden of boiling water weighs more on women in the household using inefficient techniques such as three-stone fires exposing them to harmful air pollutants and affecting the health of women and their babies adversely during pregnancy and after birth.

Programme Objective

This PoA aims to rehabilitate broken, non-functioning boreholes, install new solar-powered pumps, solarisation of boreholes, and conduct ongoing maintenance and repair for the project's lifetime to eliminate the need for long-distance travel to collect water from unsafe natural sources. In addition to supplying safe water to communities, the PoA will also address indoor air pollution from open fires and aim to eliminate the increase in forest degradation due to wood fuel collection. The PoA is expected to affect an initial estimation of **1,000,000** people.

Entities Involved in the PoA

Griot UK Ltd is the Coordinating/Managing Entity (CME) that holds the ownership right of the carbon certification products (in this case, carbon credits, VERs) and is responsible for complying with the Gold Standard Rules and Requirements. All emission reductions/removals will be granted to the company.

First Climate Markets AG will act as a Project Representative and work closely with the CME to prepare the necessary documentation for the certification processes and help monitor the implementation of the Programme Activities.

³ <https://water.org/our-impact/where-we-work/kenya>
<https://water.org/our-impact/where-we-work/tanzania/>

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Geographical Boundary of the Programme

Activities under this PoA will be located in three different countries, Kenya, Burundi, and Tanzania.

In Kenya, the following regions are targeted: Kilifi and Kwale counties on the Coast; Turkana, Trans-Nzoia, Uasin Gishu, Nandi, Baringo, Laikipia, Nakuru, Narok, Kajiado, Bomet, and Kericho counties in the Rift Valley region; Marsabit, Isiolo, Meru, Tharaka-Nithi, Embu, Kitui, Makueni, and Machakos counties in the Eastern region; Nyeri, Nyandarua, and Murang'a counties in Central Kenya; and Nyamira, Kisii, Migori and Homa Bay counties in South Nyanza region; in Kenya are included in the PoA.

The districts to be included in Burundi and Tanzania will be decided later. The first VPAs will be implemented in Kilifi and Turkana Counties of Kenya beginning in July 2023.

Duration of the Programme and Implementation Plan

Griot Ltd UK will implement the project activities and be responsible for the operation and maintenance. First Climate will help Griot to coordinate the activities relevant to the Gold Standard certification processes. With over twenty years of experience, First Climate is a leading service provider of climate protection solutions for achieving climate objectives. First Climate will help Griot set up emission reduction monitoring, regular baseline, project surveys and relevant quality tests.

Three physical local stakeholder meetings for Turkana County will be held on the 21st, 22nd, and 23rd of June 2023, and one physical local stakeholder meeting will be held on the 27th of June in Kilifi County. The rehabilitation activities are estimated to start in July 2023. The programme's duration is 20 years, with ongoing maintenance and repair activities. In addition to the PoA-level Design Consultation, on-site meetings will be held within the scope of each future VPA before implementation begins in the project area. The implementation plan for the Maji Bora Multi-Country Small-Scale Programme of Safe Water Supply is given below.

Implementation Plan for the Maji Bora Multi-Country Small-Scale Programme of Safe Water Supply				
Geographic Boundary	Technology/ Measure	Target Group	Scope	Start Date
Kenya (Kilifi, Turkana, Kitui, Makueni)	Rehabilitation/ Installation of Boreholes	Rural Communities/Households	Approx. 719,000 beneficiaries	July 2023
Burundi	Rehabilitation/ Installation of Boreholes	Rural Communities/Households	Approx. 120,000 beneficiaries	July 2024

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Implementation Plan for the Maji Bora Multi-Country Small-Scale Programme of Safe Water Supply				
Tanzania	Rehabilitation/ Installation of Boreholes	Rural Communities/Households	Approx. 125,000 beneficiaries	July 2024

The first real case VPA will be the safe water supply project implemented in Turkana West and East sub-counties, and two regular VPAs in Turkana South and Central sub-counties and Kilifi County will be included under the real case VPA as shown in the table below.

Implementation Plan for the Maji Bora Multi-Country Small-Scale Programme of Activities (PoA) Safe Water Supply				
Proposed VPAs	Geographic Boundary	Project Activities	Physical LSC Meeting Date	Implementation Date
Turkana Real Case VPA1	Turkana West, Turkana East sub-counties		21/06/2023 22/06/2023 23/06/2023	July 2023
Turkana Regular VPA1	Turkana South, and Turkana Central sub-counties	Rehabilitation of 100 hand pumps; Rehabilitation of 12 solar pumps; Solarisation of 12 handpumps.	21/06/2023 22/06/2023 23/06/2023	July 2023
Kilifi Regular VPA2	Magarini, Ganze, Malindi and Kilifi North sub-counties	Rehabilitation of 200 hand pumps; rehabilitation of 15 solar pumps.	27/06/2023	July 2023

Details of the Technologies to be implemented.

Rehabilitation of the existing Boreholes

The Programme will identify and assess the extent of damage and what repairs are required for broken boreholes used as the primary source of drinking water in rural communities that had previously had to travel far to collect water. Comprehensive remediation of the assessed boreholes will be conducted, including flushing all sediments from the boreholes, replacing and/or repairing all broken and worn-out parts, re-assembling the pump, and reinstalling the borehole components and ensuring the borehole is pumping water optimally. The borehole components will be disinfected through chlorination to ensure a clean water supply. Extensive WASH training will be conducted in the community to ensure consistent practices of safe water collection from

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the borehole, hygienic handling, and secure storage at home. Water quality monitoring will be conducted to ascertain any contamination in the borehole after the rehabilitation. Quarterly monitoring visits will be undertaken to all boreholes to check on functionality, monitor water yield and use, and perform necessary repairs or sensitization.

The hand pumps that need rehabilitation are mostly of Afridev type with the average flow rates (L/min at specific head) of 23.3 L/min at 10 m, 18.3 L/min at 15 m, 15.0 L/min at 20 m, 11.7 L/min at 30 m. The hand pump shown in the below figure withdraws water from varying depths of 10-30 m. The pump requires a concrete slab to be constructed underneath the pump to reduce the amount of loose, contaminated water that would otherwise flow through the soil and down into the water supply. The rehabilitated boreholes will supply 60 liters of safe water per household daily.



Solarization of the Boreholes

Solarisation of the boreholes will include three essential pieces of equipment: pumps, control units and solar modules.

Three types of pumps are being considered for the new solar pump installations: Submersible Grundfos, Dayliff, and Pedrollo-type pumps with sub-motors will be employed. Submersible pumps are specifically suitable for water supply from boreholes. They feature a hydraulic design that incorporates impellers which, together with resistant component materials, provide high resistance to sand content in the pumped water.

Solar pumping inverters will be employed as control units, delivering an optimal pump output with complete motor protection, detecting water level and overflow, and preventing idle running. More specifically, Dayliff Sunverter 3 type is being considered as it is the latest update of the established Sunverter range of advanced AC/DC inverters

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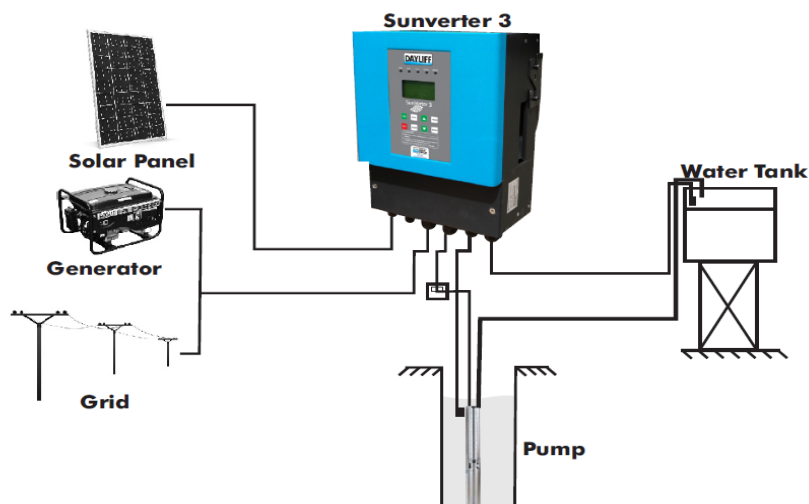
specially designed for solar-powering AC motors in various water-pumping applications. Dayliff Sunverter 3 type has a hybrid capability that enables concurrent operation with direct AC power from mains or generator supply while prioritizing solar supply. It is adaptable to all AC motor types and retrofitted to existing AC supply installations in solarisation projects.

Solar PV modules to be used will consist of high-efficiency crystalline solar cells to provide the required energy to run the pump even at low irradiation levels. Solar modules will be made of high transmission rate tempered glass with an anti-reflection coating to increase the power output and provide mechanical strength.

Moreover, a well-designed solar PV support structure is paramount to the long-term durability of any solar installation. Structures will be strong and secure and endure the substantial forces of the panel weights and high wind speeds.



An exemplary flow scheme of the process to be employed is given below:



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Interaction with Other Similar Initiatives/Programmes

The CME will ensure no overlapping of the programme activities with other registered programmes and project activities. Each technology unit will receive a unique ID to prevent double counting.

Target End-Users

The PoA targets mainly rural communities and households and, to some extent, peri-urban communities. Rehabilitation/Installation of boreholes will occur in rural communities with a non-functioning borehole for at least 3 months and where households boil their water to obtain safe water.

Contribution to SDGs and Compliance with Safeguards

The contributions of this proposed PoA to the relevant SDGs` targets, SDG impacts, and monitoring parameters for each contribution are explained in the table below. Each VPA under this PoA will at least contribute to the three SDGs explained below.

Contributions to SDGs	SDG Targets	SDG Impacts	Parameters that will be monitored for contributions
SDG 1 End Poverty in All Its Forms Everywhere	Target 1.4 By 2030, Ensure that all men and women, the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance.	Indicator 1.4.1 Proportion of the population living in households with access to basic services.	Reduction of costs for buying fuel materials for boiling water & Increased access to basic services (safe water supply).
SDG 3 Good Health and Well Being	Target 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil	Indicator 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation, and lack of	Reducing smoke emissions from boiling water decreases household air pollution and improves well-being, especially for women and

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Contributions to SDGs	SDG Targets	SDG Impacts	Parameters that will be monitored for contributions
	pollution and contamination.	hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	children. The number of beneficiaries having access to safe water and the amount of safe water provided will be monitored in the scope of the programme activity.
SDG 4 Quality Education	Target 4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.	Indicator 4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months by sex	WASH training will periodically be provided. Training topics will also include the benefits of WASH practices.
SDG 5 Gender Equality	Target 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.	Indicator 5.4.1 Proportion of time spent on unpaid domestic and care work by sex, age and location.	Women and girls can spend more than 8 hours a week on fuel and water collection ⁴ . Water collection can take time away from their education and decreases the chances of income generation by other means. Women, particularly, are exposed to the pollutants released by boiling water with inefficient stoves fueled by biomass fuels (i.e., wood, charcoal). Women and children account for over 60% of all premature deaths

⁴ <https://www.unicef.org/press-releases/unicef-collecting-water-often-colossal-waste-time-women-and-girls>

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Contributions to SDGs	SDG Targets	SDG Impacts	Parameters that will be monitored for contributions
			from household air pollution ⁵ . Time spent collecting water will be investigated per household daily, and the responsible person's gender and age for fetching the water will be monitored.
SDG 6 'Ensure availability and sustainable management of water and sanitation for all'	Target 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all. Target 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.	Indicator 6.1.1 Proportion of population using safely managed drinking water services Indicator 6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water	Water quality tests will monitor pollutants, and disease occurrences will be investigated by baseline and project surveys. Number of beneficiaries having access to safe water in the project activity
SDG 8 Decent work and economic growth	Target 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.	Indicator 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities Indicator 8.5.2 Unemployment rate, by sex, age and persons with	Rehabilitation/installation of boreholes will help create new pathways for local economic empowerment. Locals can earn income from participating the training activities related to WASH activities while building capacity and know-how among the communities. The number of

⁵ <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>

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Contributions to SDGs	SDG Targets	SDG Impacts	Parameters that will be monitored for contributions
		disabilities	employment and the number of local employment will be monitored.
SDG 13 Climate Action	Target 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.	Indicator 13.3.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	Using three-stone fires and inefficient stoves for boiling water to obtain safe water emits black carbon and other pollutants and contributes to climate change, sea ice melt, and deforestation. The reduction in fuelwood requirements will reduce GHG emissions and air pollutants.
SDG 15 Life on Land	Target 15.2 By 2030, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation.	Indicator 15.2.1 Progress towards sustainable forest management	Eliminating the need for boiling water to obtain safe water can reduce or remove the pressure on local forests for wood collection and potentially increase biodiversity. Fuel wood saved compared to The baseline will be monitored.

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Moreover, the PoA will comply with all safeguards, and the first two real case VPAs will monitor the following Gold Standard`s safeguarding principles throughout its lifetime:

Principle 3. Community Health, Safety and Working Conditions:

Incidences of waterborne illnesses will be monitored through the Annual Monitoring Project Survey.

The project will carry out a WASH programme, including WASH training at the beginning of the project and subsequent WASH follow-up training.

Principle 6.2 Negative Economic Consequences: To ensure the long-term sustainability of the water points and avoid unexpected breakdowns and spending, training will be conducted at the project`s beginning on conducting minor maintenance.

For any questions and comments concerning the proposed project, please contact:

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