

### **STANDARD PROGRESS REPORT**

### **Reporting Unit:** Energy Environment & Natural Resources Management

### **Country:** Sierra Leone

### **No. and title:** Energy Efficient Production and Utilization of Charcoal (project #

###  00090575/ award # 00081156)

### **Reporting period:** 2016

### **I. PURPOSE**

In Sierra Leone alone, over 74Mt of charcoal were estimated to be consumed in 2012. The strong and growing demand for charcoal fuel is an important cause of deforestation. Although the Ministry of Energy (MOE) has developed the National Energy Plan and National Energy Strategy (2009), the capacity to translate these plans and strategies into pragmatic and business solutions remains weak. Given the unorganized nature of the charcoal business and the complexities involved in the value-chain of charcoal, this project was birthed for Energy Efficient Charcoal.

The project aims at the reduction of GHG emissions in the household and industrial sectors through integrated and sustainable biomass resource production and utilization, and promotion of sustainable biomass energy technologies using market based approaches.

The project seeks to accomplish its goal through three components with specific activities that are designed to produce outputs leading to the following outcomes, respectively:

1. Strengthened institutional capacity on biomass resource utilization at the national, regional and community level. Operational effective policy, legal, and regulatory frameworks and review mechanisms on biomass energy technology applications.
2. Increased number of investments on improved, more efficient charcoal and ICS production in Sierra Leone
3. The production and utilization of certified charcoal and certified improved cook stoves are common practices in Sierra Leone. Enhanced capacity of stakeholder in the value chain (producers, farmers, villagers, women, consumers, collectors).

The removal of barriers to sustainable production and utilization of biomass resources application of biomass energy technologies to support local economic, environmental and social development that leads to GHG mitigation is the main thrust of this project.

### **II. RESOURCES**

Core resources of $1,768,182 from the Global Environment Facility (GEF) with $ 598,344 provided for the current year.

### **III. RESULTS**

**Output 1.1 Adequately trained and capable decision-makers and relevant stakeholders leading efforts, communicating and managing more efficiently produced charcoal and improved cookstove utilization in an integrated manner.**

Activity 1.1.1. Creation, establishment and operation of Research, knowledge, Learning and Coordination

* To overcome the lack of coordination and high institutional memory loss, tools and equipment were procured for the Renewable Energy Center at Government Technical Institute. With these a Center of Excellence will be established to consolidate, preserve, coordinate and ensure continuing use of information and knowledge that are obtained and accumulated during the capacity development and other activities in this project.

Activity 1.1.3 Conduct of training on efficient charcoal production and utilization for key stakeholders.

* The capacity building of StovePlus Academy 2016 organised for cookstove entrepreneurs provided technical and commercial knowledge on different aspects for the scaling up of sustainable charcoal production and utilization and improved cookstoves.

**Output 1.2. Formulated, approved and enforced policies, laws and regulations on more efficient charcoal and improved cookstoves production.**

Activity 1.2.2. Support the government approval process of legal regulation and associated action plan

* The approval by Cabinet in May 2016 of both policy on Renewable Energy and a policy on Energy Efficiency, demonstrated substantial commitment of the Government to strengthening effective policy, legal and regulatory frameworks.
* In order to ensure enforcement of policies, laws and regulations on more efficient charcoal and improved cookstoves production, the existing Renewable Energy Policy and Energy Efficiency Policy is now being popularized to ensure public acceptance and adoption.

Activity 1.2.4. Development of legal regulatory frameworks on energy applications

* Dialogue initiated with a number of relevant Government Agencies with an interest in biomass (Ministry of Agriculture, Forestry & Food Security, National Protected Area Agency, and Environmental Protection Agency), has yielded good coordination of activities related to the charcoal/cookstove sector. This is establishing a working mechanism coordination among state actors and laying the foundation for further achievement of review mechanisms on biomass energy technology applications.
* Advert is placed for the review and modification of the national energy policy. This will set the stage for the approval of the National Household Energy Roadmap, as well as coordinating and guiding the implementation of an updated National Energy Plan and National Energy Strategy under the National Cooking Energy Action Plan.

**Output 2.5: Locally produced 14,000 energy-efficient stoves in rural households for cooking needs implemented and promoted for replication**

Limited progress was made in moving forward towards achieving an increased number of investments in improved, more efficient charcoal and improved cookstove production.

2.5.1. Preparation of design drawings, construction procedures and manuals for the construction and operation of energy-efficient stoves

* Criteria have been developed to determine potential success of improved cookstoves (e.g. in terms of energy efficiency, portability, cost, marketability).
* The capacity building of StovePlus Afrique is expected to result in substantial progress towards inventory and assessment of relevant community-based organizations, design and initial production of enhanced cookstoves and kilns. Beyond this, such training will be up-scaled by the project to inform further work towards achieving this outcome.

2.5.4. Conduct of training and awareness campaign on the use, maintenance and benefits of energy-efficient furnaces/stoves

* Successful initial engagements took place with relevant in-country private sector actors who are already producing cookstoves that are more energy efficient than traditional stoves (WestWind Energy, StovePlus, and Samu Ent.) as well as with Stoveplus that supported capacity building workshop for entrepreneurs from thirteen Africa nations on the production and utilization of energy-efficient stoves and the Global Alliance for Clean Cookstoves (GACC) to explore opportunities for cooperation and integration of successful approaches.
* Lessons learned and gained from the ‘stoveplus academy’ in the production (design and function), marketing and dissemination of stoves and charcoal kilns and the aspects showing best practices will be produced and documented as knowledge products.

**Output 3.2 Developed and implemented promotional schemes on the social, economic and environmental co-benefits of improved charcoal and improved cook stoves to create demand, generate good buy-in and willingness to pay**

Activity 3.2.2. Promotion of community-based woodlot establishment and management

* Progress to outcome 3 is largely due to the fact that the tree planting as an activity was discussed by stakeholder and strongly recommended during the project inception workshop. Initially, it was under the assumption that the World Agroforestry Centre (ICRAF) would contribute to addressing this part of the value chain through its Bio Climate Project which did not materialize as ICRAF closed its office in Sierra Leone during the Ebola crisis.
* Over 24 hectares of land has been planted with trees for sustainable production of charcoal in Makolerr, Mawoma, and Robana communities. An inter-cropping agroforestry approach was adopted which is ensuring both conservation and livelihood throughout the year.
* The community based forest has substantial political and technical support from the Ministry of Agriculture, Forestry and Food Security as well as the National Protected Areas Authority, in addition to full buy-in and ownership at community level.
* Project monitoring report showed high community involvement and participation, especially women who are central to charcoal production and utilization. This is key to the project success, and replicability. Beyond this, it will assure sustainability even after the end of the project.

**IV. CHALLENGES AND LESSONS LEARNT**

***Challenge:***

There was substantial delays in project implementation due to the impacts of the Ebola crisis. The crisis resulted in a complete shift of priorities both within Government partners and the UN, and an inability to implement project activities. As a result, the Project Manager for this project was only recruited in January 2016.

The required technical support from the Ministry was made available but with limited success which caused a substantial delay in approving and signing the Annual Work Plan by the key Implementing Partner, and project board meetings not held on time. This had implications for the timely delivery of activities, especially also since many of the activities planned for 2016 are dependent upon others for execution. Subsequently, project implementation progress did not follow initial planning, and as a result the AWP needed adjustment for each of the three Outcomes. UNDP Country Office repeatedly reached out to Ministry of Energy to encourage active engagement and support.

Since the World Agroforestry Centre (ICRAF) which was to contribute to addressing the supply side of the value chain through its Bio Climate Project did not materialize after the Ebola crisis, the project included an activity on woodlot establishment in response to the decision made during the inception workshop to address the gap identified due to the absence of ICRAF. This responsiveness and flexibility to this challenge has great potential for project sustainability.

***Lesson learnt:***

With request of the Government and recommended by participants of the Inception Workshop for the adoption of agroforestry, the pilot community climate smart woodlot has contributed substantially to achieving the overall objective of the project to bring economic, social and environmental benefits through the production of certified charcoal from sustainably sourced feedstock.

Gender consideration was taken into account to ensure that none of the sexes are marginalized in the community based agroforestry interventions. Men’s and women’s participation was high with both women and men engaged in all aspects of the woodlot establishment from transportation of pegs, to pegging, planting of seedlings and intercropping with food crops., However, men dominated in more energy demanding jobs such as cutting of pegs and digging of planting holes while women also dominated, the intercropping of the woodlots with food crops in target communities. There was stark gender division of labour and culturally entrenched when it came to weeding. Weeding was often confined to the women increasing their workload. In alleviating such burden, the project resorted to under-brushing which was done by the men.

Community Based Forest (CBF) – small scale bioenergy woodlots established in an agroforestry context of intercropping trees and priority food crops promoted community engagement due to them perceiving short term benefits of guaranteed food security as well as a potential early income while the trees grow to maturity in a few years before harvesting for firewood and charcoal.

### **V. FUTURE WORK PLAN**

* The project will work closely with ECREEE's West African Clean Cookstove Alliance (WACCA) initiative to strengthen their support in Sierra Leone especially in the development and harmonization of standard and label for cookstove.
* Create an inventory and assessment of relevant community-based organizations
* Identification of roles of community-based organizations and agreement on modalities and incentives for their participation.
* Design and implementation of the loan risk guarantee funding scheme for entrepreneurs in the stoves/furnaces supply chain business.
* Implementation of financing schemes and incentives for demonstrated kilns and cookstoves applications & services.
* Estimated budget required for the following year is $740,596.

### **VI. FINANCIAL IMPLEMENTATION**

Total approved budget over the full programme component period is US$ 1,768,182 while the budget for the current year is US$ 598,344. An overall delivery of RR% was achieved by the project.