

## Monitoring & Evaluation (M&E) Plan and Impact Statement Template

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### Objective of the M&E Plan and Impact Statement:

- The M&E Plan and Impact Statement must be designed based on the Technical Assistance Response Plan and must enable the Implementer to complete the Closure Report at the end of the assistance.

### Process for filling in the template:

- The Implementer must identify relevant quantitative and qualitative indicators as specified in the Closure Report. A sub-set of indicators to monitor and assess must be chosen among these.
  - The Implementer may also identify other specific, measurable, achievable, relevant, and time-bound indicators suitable to monitor Activities, Outputs and anticipated Outcomes from the technical assistance and add to the M&E Plan and Impact Statement.
  - During implementation of the TA or FTA, the Implementer must collect all relevant data as described in the Monitoring & Evaluation Plan. Aggregated data on selected indicators as well as an updated version of the Impact Statement will be presented in the Closure Report at the end of the assistance.
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Basic Information	
Title of response plan	Urban briquette making pilot project - Kenya
Technical assistance reference number	2019000035
Country/ countries	Kenya
NDE focal point and organization	Kenya Industrial Research and Development Institute (KIRDI) Dr. Kelvin Khisa Principal Research Scientist and CTCN Focal Point Coordinator Kelvin.khisa@kirdi.go.ke / kelvinnamukhasi@gmail.com PO Box 30650 – 00100 Nairobi Kenya
Sector(s) addressed	Renewable Energy Waste Management Forestry
Technologies supported	- Biomass Briquettes (carbonized and non-carbonized) under the renewable energy sector and the bioenergy technology group. Carbonized briquettes are suitable for household use, space warming in hotels and poultry farming while non-carbonized are

	<p>preferred for industrial use.</p> <ul style="list-style-type: none"> <li>- Municipal Solid Waste- part of the TA was to access the viability of solid waste as a raw material for briquette production. Utilization of the identified waste for briquette production will aid in achieving waste management</li> <li>- Sustainable Forest Management –briquettes are viewed as alternatives fuels to firewood in industries and charcoal in households and enterprises. Uptake of briquettes would potentially reduce deforestation and contribute towards sustainable forest management.</li> </ul>
Implementation period and total duration	<p>Planned Implementation period: 9 Months, Total duration: October 2019 to December 2020</p>
Total budget for implementation	<p><b>Instruction:</b> In addition to financial value of the technical assistance, please also include if any pro bono or in-kind support has been provided by both the implementer and/or the national counterparts.</p> <p><u>\$ 65,008</u></p>
Designer of the response plan	Greening Kenya Initiative Trust
Implementer of response plan	EED Advisory ( <a href="http://www.eedadvisory.com">www.eedadvisory.com</a> )

(A) Outputs and Activities as described in the Response Plan	(B) Indicator <i>Select relevant indicators from the Closure Report (at least one core indicator, section B). You may also define additional relevant indicators to be added.</i>	(C) Expected results <i>Add the expected quantitative or qualitative target/value of the indicator (e.g. number of studies, policy recommendations , etc.).</i>	(D) Method and frequency for data collection <i>Describe the expected method and frequency for data collection (e.g. survey, head count at a training workshop, application of a standard methodology etc.)</i>	(F) Comments <i>Describe any assumptions made or anticipated challenges for collecting quantitative and qualitative data</i>
<b>Output 1: Development of implementation planning and communication documents</b>				
Activity 1.1	N/A- Internal Report	Internal Report	Review of the CTCN templates and proposed methodology for the implementation of the study	Delays at the beginning of the project due to the COVID-19 pandemic. This was however resolved by adopting virtual methods of data collection
Activity 1.2	N/A- Internal Report	Internal Report	Review of the CTCN templates and proposed	

			methodology for the implementation of the study	
Activity 1.3	N/A- Internal Report	Internal Report	Review of the CTCN templates and relevant secondary literature	
<b>Output 2: Review of legal frameworks related to briquette production in Kenya</b>				
Activity 2.1: Review of existing and proposed policy and regulatory frameworks and Identification of gaps and opportunities that can be recommended	Number of documents developed to inform other policies, strategies, and plans on climate change mitigation (sectoral strategies, national development plans, etc.)	(1) Report on policy and legal frameworks analysis including identification of gap and opportunities.	<ul style="list-style-type: none"> <li>- Literature review</li> <li>- KIs with sector experts</li> </ul>	
<b>Output 3: Identification of biomass waste-based briquettes making technologies</b>				
Activity 3.1 Description, analysis, and comparison of the environmentally sound available technologies suitable for briquettes making	Number of technical documents strengthened, revised or created	(1) Report on the identified technologies for suitable briquette making including all analysis and finding of the 2 activities (5.1 and 5.2)	<ul style="list-style-type: none"> <li>- Semi-structured Interviews with briquette producers and briquetting machines fabricators and distributors</li> <li>- Online searches</li> <li>- KIs with sector experts</li> </ul>	
Activity 3.2: Creation of an inventory of the technologies for the identified raw materials				
<b>Output 4: Analysis of the supply chain of the briquette making process</b>				
Activity 4.1: Assessment of the existing briquette production chain	Number of other information materials strengthened, revised or created	(1) Baseline report on the existing briquettes value chain.	<ul style="list-style-type: none"> <li>- Semi-structured Interviews with briquette producers and briquetting machines fabricators and distributors</li> <li>- Online searches</li> <li>- KIs with sector experts</li> </ul>	
Activity 4.2: Identification of	Number of other information	(1) Report detailing	<ul style="list-style-type: none"> <li>- Semi-structured Interviews with</li> </ul>	

scenarios for briquette value chains	materials strengthened, revised or created	scenarios for briquettes value chain.	briquette producers and briquetting machines fabricators and distributors - Online searches - KIIs with sector experts	
<b>Output 5: Inventory of raw materials for making biomass briquettes</b>				
Activity 5.1: Develop an inventory of raw materials for use in the making of biomass briquettes	Number of technical documents strengthened, revised or created	(1) Inventory report of the technologies for the identified raw materials.	- Semi-structured Interviews with briquette producers and briquetting machines fabricators and distributors - Online searches - KIIs with sector experts	
Activity 5.2: Characterization and selection of the raw materials				
Activity 5.3	N/A – Internal report.	(1) Closure and data collection report.	Review of the TA outputs	

*Note: The information in the table below will be used by the CTCN for public communication of the achieved and expected results of the Technical Assistance through the CTCN website [www.ctc-n.org](http://www.ctc-n.org) and other communication channels. See for example: [https://www.ctc-n.org/sites/www.ctc-n.org/files/benin\\_a\\_ag\\_forestry.final\\_.pdf](https://www.ctc-n.org/sites/www.ctc-n.org/files/benin_a_ag_forestry.final_.pdf)*

<b>Impact Statement</b>	
Challenge	Wood fuel is the predominant cooking fuel in Kenya with 75% of households indicating its use. Demand for biomass in urban areas is deemed to increase due to rapid urbanization leading to unsustainable depletion of forests and carbon stocks. Additionally, the population pressure and limited resources has led to a waste management menace. Waste to energy is a feasible solution to alleviate the two problems. Kenya has requested technical assistance to promote briquette production from waste.
CTCN assistance	<ul style="list-style-type: none"> <li>- Identification of suitable raw-materials and technologies for briquette production resulting in the development of an inventory for the most relevant strategic and environmentally sound technologies for production of briquettes</li> <li>- Development of a briquette production manual</li> <li>- Review of legal frameworks related to briquette production in Kenya</li> <li>- Analysis of the supply chain of the briquette making processes</li> </ul>
Anticipated impact	<ul style="list-style-type: none"> <li>- Accelerate the development, deployment and diffusion of sustainable wood fuels systems to reduce reliance on unsustainable wood fuel,</li> <li>- Contribute towards the abatement of the current 4.9 MtCO<sub>2</sub>e emissions due to the use of wood fuel by urban households in Kenya</li> </ul>

<p>Anticipated co-benefits from the TA</p>	<p><b>Instruction:</b> Please describe expected co-benefits as described in the response plan and in the relevant deliverable.</p> <ul style="list-style-type: none"> <li>- Sustainable production and large-scale uptake of briquette will contribute to curbing deforestation and forest degradation and contribute to climate change mitigation by having more trees to absorb carbon.</li> <li>- Briquette production is viewed as one of the pathways that can be used for waste management resulting to cleaner environments and healthy societies. Utilization of this waste for briquette production will aid in addressing the health concerns and environmental issues associated with waste generation.</li> <li>- Development and growth of the briquette sector will also contribute to creation of jobs. Different job opportunities exist across the briquette production value chain including; raw material suppliers, brokers/intermediaries of both raw materials and briquettes, workers in the briquette production sites, distribution points and salesmen.</li> <li>- Mitigation of 1,152 tonnes of CO<sub>2</sub> if 20,000 tonnes of briquettes replaces the use of fossil fuel in industries</li> </ul>
<p>Gender aspects of the TA</p>	<p>The TA was aimed to benefit all genders (men and women). Both men and women can utilize the technologies discussed for briquette production. Although the findings of this study show that, the proportion of women in briquette making is relatively high. Besides the Bioenergy Strategy that has taken into consideration gender concerns, most energy policies do not explicitly address gender issues in access to energy for clean cooking. As indicated in the Bioenergy strategy, women have not in the past been actively involved in design of energy interventions hence limiting uptake of new technologies. They have also not been included in most public awareness and sensitization related to energy issues. In the context of clean cooking, this would limit their awareness on existing alternative fuels and cooking technologies and eventually the choice of the same. Deliberate effort in ensuring the key agents of change (e.g women) are integrated into the briquette production value chain will contribute to uptake of briquette in households as an alternative fuel.</p> <p>Implementation of this recommendation will contribute to consideration of gender issues in the formulation of energy policies especially on the clean cooking sector which is seen as one of the ways to increase uptake of briquettes at the household level.</p>
<p>Anticipated contribution to NDC</p>	<ul style="list-style-type: none"> <li>- TA will contribute towards the target of GHGs emissions cut by 30% by 2030 relative to the BAU scenario</li> <li>- Encourage the use of clean energy technologies to reduce overreliance on wood fuels</li> <li>- Sustainable waste management systems</li> <li>- Contribute towards achieving a tree cover of at least 10% of the land area of Kenya</li> </ul>
<p>The narrative story</p>	<p>Kenya requested support from the Climate Technology Centre and Network (CTCN) to develop and design an effective system to promote briquette production and usage. A review of the cooking fuels within the country indicates that 70% of the population uses wood as a primary or secondary source of cooking fuel with a prevalence of 26% for urban households. Due to the phenomenon of stacking, the use of charcoal is prevalent in urban households at 47%. Projections for wood fuel demand supply in 2020 indicate a deficit between demand and sustainable supply of 33,856,589 tonnes/yr . The high demand for wood fuel has led to illegal logging and deforestation.</p>

	<p>Moreover, 10% of the daily charcoal produced forms charcoal dust which is discarded. Additionally, effective solid waste management has been on the decline due to lack of capacity to expand the services at a pace matching the population growth rate. This has resulted in the collection of less than 40% of the total waste produced. The availability of biomass waste in urban areas coupled with a need for sustainable energy presents a business opportunity of converting waste to energy through the production of briquettes.</p>
<p>Contribution to SDGs</p>	<p>SDG 7 – By 2030, ensure universal access to affordable, reliable and modern energy services. Through the Technical Assistance demand for charcoal briquettes will substitute the need for charcoal and other wood fuels as cooking energy.</p> <p>SDG 13 – Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries – By introducing renewable energy from waste briquettes, the TA will contribute to Kenya NDC strategies on climate mitigation through reduced deforestation and waste management.</p> <p>SDG 15 – Briquette production from biomass/agricultural waste will reduce demand for charcoal produced through cutting trees thus enhancing sustainable management of forests</p>