

<b>Country</b>	<b>Kenya</b>
<b>Request ID#</b>	<b>2019000035</b>
<b>Title</b>	<b>Urban briquette making pilot project</b>
<b>NDE</b>	Kenya Industrial Research and Development Institute (KIRDI) Dr Kelvin Khisa Principal Research Scientist and CTCN Focal Point Coordinator <a href="mailto:Kelvin.khisa@kirdi.go.ke">Kelvin.khisa@kirdi.go.ke</a> / <a href="mailto:kelvinnamukhasi@gmail.com">kelvinnamukhasi@gmail.com</a> PO Box 30650 – 00100 Nairobi Kenya
<b>Proponent</b>	Greening Kenya Initiative Trust Mr. Peter Odhengo National Coordinator <a href="mailto:odhengo@gmail.com">odhengo@gmail.com</a>

#### Summary of the CTCN technical assistance

Kenya is facing an increasing energy demand mainly due to the growing population most especially in the urban areas. Biomass has always been predominantly the main source of energy in most of Kenyan households<sup>1</sup>. This form of energy advances deforestation. This fuels the climate change challenges we are facing globally. Additionally, Kenya has big challenges in waste management most especially in the ever-growing urban areas. There is thus need for innovative approach to tackle these two problems. Energy production from waste is gaining popularity as a feasible solution. It is thus with this background that Kenya requested for assistance to enable effective briquettes production from waste materials.

The objective of this technical assistance with thus aim to analyze the landscape of briquette production in a comprehensive way, identifying viable technologies, and including looking at the policy aspects and enabling environment to set up systems designed to encourage briquette production and use. The TA will also produce a thoroughly documented manual that can inform the development and standardization of briquette production in the country. This work will guide the manufacture of biomass-based briquettes from both organic municipal solid wastes and agricultural residues. This TA will thus contribute towards provision of sustainable form of energy that will also ensure climate change mitigation while promoting sustainable waste management

The key outputs and activities for this assistance will include;

Output 1; Inventory of raw materials that can be used for making biomass briquettes

- Develop an inventory of raw materials for use in the making of biomass briquettes;
- Characterization and selection of the raw materials; detailed characterizing of the identified available raw material.

Output 2: Identification of biomass waste-based briquettes making technologies

- Description, analysis, and comparison of the environmental sound available technologies suitable for briquettes making.
- Creation of an inventory identifying and detailing the most relevant strategic technologies that would be suitable for the identified raw materials.

Output 3; Development of a training manual.

<sup>1</sup> Ministry of energy (MOE) statistics



## Technical Assistance Response Plan – Terms of Reference

- production of a training manual

Output 4: Review of legal frameworks related to briquette production in Kenya

- Desk review of the existing policy and regulatory frameworks as well as governance structures related to briquettes production, identify gaps and opportunities that can be recommended to encourage investment and/or uptake of briquettes making and use.

Output 5: Analysis of the supply chain of the briquette making processes

- Assessment of the existing briquettes production chain
- Identification of scenarios for briquettes value chains

The final product of the assistance will be the basis to train and support green business champions to effectively initiate and manage viable briquette production activities, marketing services, as well as promotion of sales in a predictable and sustainable manner.

### Agreement:

*(If possible, please use electronic signatures in Microsoft Word file format)*

#### National Designated Entity to the UNFCCC Technology Mechanism

Name: KIRDI – Kelvin Khisa

Title: Principal Research Scientist

Date: June 25, 2019

Signature:

**Proponent** (signature of the Proponent is optional)

Name:

Title:

Date:

Signature:

#### UNFCCC Climate Technology Centre and Network (CTCN)

Name: Rajiv Garg

Title: Technology Manager

Date: June 26, 2019

Signature:

## **1. Background and context**

*Please provide a brief description of the background and context for the CTCN Response Plan. Please include national and sectoral information using recognized and publicly available sources. (maximum 2500 characters including spaces).*

The demand for energy in Kenya like in African Countries is increasing both for households, businesses and industry. Increasing populations, aggressive deforestation, expanding economies and a lack of regulation have led to increasing fuel prices and shortages, which often hits hardest the households and businesses most in need. In Kenya, approximately 80% of the population cooks with biomass (wood and charcoal). Within urban areas kerosene is the most widely used fuel (44.6% of the population) followed by charcoal (30.2% of the population), whilst in rural areas wood is predominantly used by 88.2% of the population<sup>1</sup>. Biomass fuels are also used for many institutional, commercial, and industrial applications; such as cooking in hotels and restaurants, space heating for poultry farmers, and heating applications in industrial boilers

With such a high dependence on fuel wood and charcoal for both households and business in Kenya it is not surprising that the country has experienced continued loss of forested areas over the past decades. Wood harvested for fuel is a significant driver of deforestation. Within urban areas, dependence on charcoal for cooking is high and charcoal vendors selling by the bag or tin are a common sight within the residential areas. However much of this charcoal is produced through unregulated and inefficient methods. In addition, around 10 to 15% of charcoal is wasted as dust which is often discarded (FAO)

Biomass briquettes offers an alternative fuel for many of these applications. Biomass briquettes are a form of solid fuel that can be burned for energy. They are created by compacting loose biomass residues into solid blocks that can replace fossil fuels, charcoal and natural firewood; for domestic and institutional cooking and industrial heating processes. Briquettes can be made from biomass residuals such as charcoal dust (which is waste from the production process), sawdust amongst other agricultural residues. Briquettes have the potential to be a source of renewable energy, if they are made from sustainably harvested biomass or agricultural residues.

Waste management poses a great challenge to most urban authorities in Kenya, especially Nairobi, due to its rapidly growing middle class. Where only a small percentage is collected effectively while majority is either dumped in illegal dumpsites near urban settlements or openly burned in open yards causing pollution. This is particularly the case for low income residents who cannot afford waste collection services. Inadequate urban waste management infrastructure has led to unsanitary waste disposal practices which in many cases results into emission of methane and carbon dioxide that contribute to climate change. In addition, urban settlements are the net consumers of charcoal which culminates into deforestation thereby reducing the availability of carbon sinks, yet the opportunities for using waste as an alternative source of renewable energy largely remains untapped. As a result, Urban women and youth groups as well as the private sector have the general tendency of overlooking the income generation opportunities associated with waste management that manifests itself in form of waste recovery, reuse, recycling, as well as composting. Uncollected urban waste causes severe urban health and environmental problems.

One such business opportunity worthy embracing is the manufacture of briquettes using a combination of urban organic wastes and agro residues in form of rice husks, coffee husks, bagasse, groundnut shells, macadamia shells and sawdust derived from the peri-urban socio-economic activities of the expansive City of Nairobi. Doing this will not only help clean the environment but also create the much-needed jobs and community wealth. It is a fore gone conclusion that our

overreliance on the wasteful linear economic development model is no longer sustainable and should therefore be replaced with the resource efficient circular economic development model that strives to as much as possible divert wastes from the landfill for the sole aim of job and wealth creation as well as mitigating the negative impacts of climate change. The Project will utilize waste for briquette production especially charcoal dust, sawdust and organic municipal solid waste (MSW). Charcoal dust is generated from inefficient handling of charcoal from the point of production, sales and consumption. It is estimated that approximately 2-5% of the charcoal produced is wasted as charcoal dust and ends up in dumpsites. In Nairobi, there are so many timber sales workshops that could serve as a source of saw dust for fuel briquette making. They generate a lot of waste in forms of sawdust and wood chips. The waste is either burnt or ends up in the dumpsites, but it can be utilized for briquette making and the same case applies to the organic MSW. The 3 waste streams provide opportunities to modernize biomass briquette for cooking without any further cutting trees for energy generation.

Such innovative interventions will help the country meet its nationally determined contribution (NDC) obligations on sustainable waste management; National Climate Change Action Plan (NCCAP 2018 – 2022, MTEP III 2018 – 2022, NAP 2015 - 2030) obligations on the adoption of low-carbon, resource efficient and climate resilient development pathways; and Green Economy Strategy and Implementation Plan (GESIP 2016 - 2030) plan on using wastes as a resource. In addition, the Climate Change Act of 2016 and the National Climate Finance Policy 2018 (sessional paper No. 3 of 2017), and the Green Climate Fund National Strategy for pipeline projects development 2019 all require the introduction of innovative climate change solutions for universal access to clean energy for all.

## **2. Problem statement**

There is a growing demand for wood and wood products, particularly charcoal which is the fuel of choice in many urban areas. This making deforestation an actual or potential problem. There is thus no doubt that supply of a substitute for fuelwood in the household sector has emerged as a policy priority in many countries including Kenya. More so, Waste management poses a great challenge to most urban authorities in Kenya, especially Nairobi, due to its rapidly growing middle class. The city suffers from inadequate waste management infrastructures which results from illegal dumping and burning of waste, which results to toxic emission that are hazardous to humans and the environment at large.

Briquettes are believed to offer an alternative fuel which is clean and environmentally friendly. The operations of the briquette sector in Kenya is quite diverse with some areas having highly mechanized processed while others are manual. The briquette sector is dominated by sole proprietors and limited companies where several biomasses are used to produce them for examples sugarcane waste, charcoal dust, macadamia shell, sawdust, coconut waste and rice husks amongst others<sup>2</sup>. There are however a lot of challenges in this sector as some;<sup>3</sup>

- i. No comprehensive studies have been undertaken to accurately estimate the volume of unused

<sup>2</sup> A report by Energy 4 Impact, Assessment of the briquettes market report - 2013

<sup>3</sup> Some of the challenges are also presented in the Assessment of the Briquette Market in Kenya 2013 by GVEP supported by Swedish International Development Cooperation Agency (Sida) -GVEP International is a non-profit organization that works to increase access to modern energy and reduce poverty in developing countries

agricultural waste in Kenya. Data is available for researchers to work backwards from crop production volume records estimating the amount of non-crop organic matter produced for a certain type of crop, based on agricultural statistics (e.g. maize stocks and cobs for a certain tonnage of maize seed). However, competing uses and weight losses from processing (e.g. drying, carbonization) need to be considered to accurately estimate the amount of feedstock available in the country, and the true cost and supply characteristics.

- ii. Lack of knowledge on technologies that would effectively ensure consistency in production both in quality and quantities
- iii. lack of demonstrated viable business models with a pre or post briquette production carbonization process, producing a briquette which is suitable for domestic and commercial consumption.
- iv. lack of adequate institutional and legal frameworks that help implement the laws in place and promote the clean and renewable energy sources. In the briquette case there are no regulations or standards developed to guide the production and the quality of briquettes.

The sector is experiencing challenges, and much should be done to make it prosper as it's the significant contributor to future impacts of climate change that is caused by environmental pollution. Traditional biomass and mostly Charcoal produces very high volumes of carbon dioxide which is one of the gases that is detrimental to the environment while also exacerbating deforestation. There is thus great need to promote sustainable forms of energy, which includes but no limited to briquette use.



*(Guidance: Please note that multiple activities lead to one Output, and multiple Outputs lead to one Outcome. There can be several Outputs, but only one Outcome description capturing the CTCN technical assistance. Deliverables are the products or services to be delivered to the NDE/Proponent/CTCN based on the Activities and the Outputs.)*

**Outcome:** (Guidance: The Outcome articulates changes in the institutional and behavioural capacities for climate technology development or deployment. Activities and Outputs contribute to the Outcome, but the Outcome is not within the direct control of the CTCN activities). (maximum 400 characters including spaces)

[illegible]











## Technical Assistance Response Plan – Terms of Reference

### 4. Resources required and itemized budget:

Please provide an indicative overview of the resources required and itemized budget required to implement the CTCN technical assistance, including for M&E-related activities, using the table below. Important to note that minimum 1% of the budget should explicitly target gender specific activities related to the technical assistance (please see section 10 for further information on gender). Once the Response Plan is completed, a Response Implementation partner(s) will be selected by the Climate Technology Centre (CTC). A detailed activity-based budget for the CTCN assistance will be finalized by the CTCN and selected Implementer.

Activities and Outputs	Input: Human Resources (Title, role, estimated number of days)	Input: Travel (Purpose, national vs. international, number of days)	Inputs: Meetings/events (Meeting title, number of participants, number of days)	Input: Equipment/Material (Item, purpose, buy/rent, quantity)	Estimated cost <i>Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan</i>	
					Minimum	Maximum
Output 1: Development of implementation planning and communication documents	5 - 7 days @ 500 per day				2500	3500
Output 2; Inventory of raw materials that can be used for making biomass briquettes	25 days -30 days @ 500 USD per day				12500	15000
Output 3: Identification of biomass waste-based briquettes making technologies	20-25 days @ 500 \$ /day				10000	12500
Output 4; Development of a training manual.	30-40 days @500\$ day				15000	20000



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Output 5: Review of legal frameworks related to briquette production in Kenya	10- 15 days @500\$ day				5000	7500
Output 6: Analysis of the supply chain of the briquette making processes	10-15 days @500\$ day				5000	7500
<b>Estimated range of costing for the entire Response Plan</b>					<b>50000</b>	<b>66000</b>

### 5. Profile and experience of experts

Based on the required Human Resources identified in section 4 (Resources required and itemized budget) please provide a description of the required profile of all involved experts for the implementation of the CTCN Response Plan.

Experts required	Brief description of required profile
<i>Please use the same titles for all experts as applied in section 4.</i>	<i>Please provide a short description of expertise and experience needed (education, sectors of expertise, years of experience, country experience, language requirements, etc.).</i>
International expert	education and experience: -Master's degree with a minimum of 10 years expertise in waste management, charcoal value and supply chains, briquetting, sustainable land management; gender studies, climate change adaptation and mitigation; training; country experience- Kenya/Anglophone Africa -language skills: excellent command of oral and written English.
National expert- waste Management, charcoal value and supply chains	- minimum 5 years of experience post relevant master's degree; expertise in waste management, recycling and waste technologies -Expertise in charcoal value and supply chains, climate change - Experience with data research and collection, stakeholder engagement - Experience with organizing and facilitating meetings and workshops - Excellent communication skills in English in speech and writing
Gender mainstreaming expert	- A graduate degree in social studies, psychology, economics, political science or other relevant discipline with focus on the field of gender issues in a developing country context



## Technical Assistance Response Plan – Terms of Reference

- At least 7 years working experience with gender mainstreaming issues in a developing country context
- Understanding of the local socio-economic context and the role of women in the Kenya urban and peri-urban setting
- Excellent communication skills in English in speech and writing

**6. Intended contribution to impact over time**

The anticipated long-term impact of successful implementation of this assistance is to accelerate the development, deployment and diffusion of sustainable wood fuels systems in order to reduce reliance on unsustainable wood fuel (charcoal and firewood which is the predominant source of fuel). This TA will also promote sustainable waste management. The aim of the CTCN technical assistance is to remove a key barrier that faces this sector which is technology deployment for effective briquettes production. Through this TA activities there will be expected transformation in the sector as a result of deployment of suitable technology for the briquettes production, capacity building of the technical practitioners based on the training manual developed through this assistance and harmonization of standard and policies supporting this industry.

This TA is expected to have quantifiable impact on energy and waste management in GHG emission reduction. This is notable as through this TA the briquette produced from waste will replace biomass-based fuel (charcoal and firewood) thereby reducing deforestation.

As the assistance also includes analysis of the supply chain of the briquette making processes, scenarios generated through this activity will advise those interested in this sector to pursue a sustainable business model that will enhance their livelihoods.

Thus, in a nutshell this assistance will have an impact on the livelihoods of thousands of people as well as a measurable reduction of the demand for charcoal from wood, which will lower the emission of greenhouse gases. In consequence, the project will lead to lasting benefits for livelihoods and climate resilience as well as mitigation benefits.

**7. Relevance to NDCs and other national priorities**

*Please identify relevance and contribution from the technical assistance to the Nationally Intended Contributions (NDC) and other relevant national prioritized efforts (TNAs, TAPs, NAPs, NAMAs, etc.). (maximum 2500 characters including spaces)*

Kenya strives to be a newly industrialized middle-income country by 2030. This development is expected to increase emissions from the energy sector. The current energy mix, however, is mainly clean with deliberate efforts by Government towards enhancing geothermal, wind, solar and other clean energy development. However, the main source of fuel in most rural and urban households are largely wood based (charcoal and firewood). These fuel sources contribute to forest degradation which greatly undermines climate change mitigation efforts. This TA will thus contribute towards addressing this challenge by introducing a form of fuel that is clean as the briquettes raw materials will be mainly from agricultural waste. This will thus simultaneously address challenges being faced especially on urban centers on waste management. The waste sector is among priority sectors in climate change mitigation. This thus demonstrates that this TA will contribute towards the target GHGs emissions cut by 30% by 2030 relative to the BAU scenario.

The Kenya NDC supports the implementation of the National climate change Action Plan (2018 – 2022) will continue to implement the NCCAP (2013-2017), and subsequent action plans beyond this period to achieve this target. This will include the promotion and implementation of the following mitigation activities relevant to this TA;

- Make progress towards achieving a tree cover of at least 10% of the land area of Kenya.
- Clean energy technologies to reduce overreliance on wood fuels.
- Sustainable waste management systems.

This TA through its promotion of sustainable fuels and sustainable management of waste will also advance the achievement of the MTEP III 2018 – 2022, NAP 2015 - 2030) obligations on the adoption of low-carbon, resource efficient and climate resilient development pathways; and Green

Economy Strategy and Implementation Plan (GESIP 2016 - 2030) plan on using wastes as a resource. In addition, the Climate Change Act of 2016 and the National Climate Finance Policy 2018 (sessional paper No. 3 of 2017), and the Green Climate Fund National Strategy for pipeline projects development 2019 all require the introduction of innovative climate change solutions for universal access to clean energy for all.

### 8. Linkages to relevant parallel on-going activities:

National Biomass Briquettes Program, being implemented by Hivos in partnership with Greening Kenya Initiative Trust (GKIT). The project aims to stimulate the emergence and development of a market-oriented biomass briquette sector. The program seeks to establish a sustainable briquette manufacturing sector in Kenya by developing a supply chain ranging from production to establishing standards for domestic and industrial use. This will support community-based green enterprises to create sustainable source of income that will improve local livelihoods, while contributing to responsible use and protection of the environmental and reducing the negative effects of climate change. 2018-2022, cost; \$10 million.

Scaling-up briquette commercialization in Kenya being implemented by Practical Action East Africa. The aim of the project is to increase accessibility to briquettes as alternative affordable cooking fuel to at least 40,000 consumers in Mombasa, Nairobi, Nakuru and Kisumu counties leading to re-use of waste biomass.

There are also several other efforts being implemented by private entities and research institutions. This technical assistance will endeavor to review ongoing works in this sector and will make use of this projects under implementation as a stepping stone in order to recommend the most suitable technologies that can be used by different groups and as well as develop a comprehensive training manual that would be used by the existing briquettes producers to guide them to produce high quality products while enhancing their business model to become more profitable.

### 9. Anticipated follow up activities after this technical assistance is completed:

From this assistance several follow up activities are envisioned based on the key deliverable herein;

- Capacity building through training of technicians/community groups or individual working across this briquettes sector; this would include training on the suitable technologies; training on most ideal business models to maximize returns.
- Other activities would include a follow-on enactment of regulatory recommendation made from the TA analysis of existing legislation; this help to spark growth in briquettes production arena.
- Development of briquettes quality standardization and quality testing centers
- Certification of the testing centers

### 10. Gender and co-benefits:

Imbedded in design of the activities:	<p>A gender mainstreaming analysis is mandatory to include for all technical assistances. A gender expert will be assigned to carry out an assessment and evaluation regarding gender mainstreaming during the implementation of the TA. Apart from this gender assessments, the TA through its execution of the activities under section 3 will endeavour to ensure gender consideration in the proposed recommendations.</p> <p>In the long-term impact, this TA is envisioned to advancing the well-being of all genders.</p>
Gender and co-	<i>Please describe all gender aspects, women's equality and other co-benefits</i>

benefits intended as result of the activities:	<i>expected as a result of the CTCN technical assistance.</i> If the follow up activities are well planned an increased number of women are expected to benefit from the result of this TA. For instance, consideration technologies that are friendly to them. Capacity building of the business models that are suitable.
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## 11. Main in-country stakeholders in implementation of the technical assistance activities:

Using the table below, please list and describe the role of in-country stakeholders, participants and beneficiaries who will be involved in or directly consulted during implementation of the assistance.

In country stakeholder	Role in implementation of the technical assistance
<i>KIRDI</i>	National Designated Entity (NDE); review and final approval of documents and activities
<i>Ministry of environment and Forestry Ministry of Energy and petroleum</i>	Line ministry responsible for the activities; important role in implementing and scaling up the TA
<i>Greening Kenya Initiative Trust</i>	Request proponent and main counterpart; provide information to implementer, review and approval of document and activities, facilitator
<i>Representatives from universities and other research and development institutions</i>	Participate in meetings and provide inputs
<i>Private sector working in this sector (material/equipment suppliers/producers/distributors)</i>	Provide information on the briquettes value chain

## 12. SDG Contributions:

Instructions: Please complete the grey section below for **a maximum of three SDGs** that will be advanced through this TA. A complete list of SDGs and their targets is available here:

<https://sustainabledevelopment.un.org/partnership/register/>.

Goal	Sustainable Development Goal	Direct contribution from CTCN TA (1 sentence for top 1-3 SDGs)
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	
3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	Through the TA demand for charcoal briquettes will substitute the need for charcoal and other wood fuels as cooking energy source
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	

	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	<i>All TAs should indicate relevance to Goal 13 and at least one target below (13.1 to 13.b).</i>
	13.1 - 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
	13.2 - Integrate climate change measures into national policies, strategies and planning	
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	
14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Briquette production from biomass/agricultural waste will reduce demand for charcoal produced as a result of cutting tree thus sustainable management of forest
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

## 13. Classification of technical assistance:

Please indicate primary type of technical assistance. Optional: If desired, indicate secondary type of technical assistance.

Please tick off the relevant boxes below	Primary	Secondary
<input type="checkbox"/> 1. Decision-making tools and/or information provision	X	<input type="checkbox"/>
<input type="checkbox"/> 2. Sectoral roadmaps and strategies	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 3. Recommendations for law, policy and regulations	<input type="checkbox"/>	X
<input type="checkbox"/> 4. Financing facilitation	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 5. Private sector engagement and market creation	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 6. Research and development of technologies	X	<input type="checkbox"/>
<input type="checkbox"/> 7. Feasibility of technology options	<input type="checkbox"/>	X
<input type="checkbox"/> 8. Piloting and deployment of technologies in local conditions	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 9. Technology identification and prioritization	<input type="checkbox"/>	<input type="checkbox"/>





## Annex 1. Guidance Note for the Response Plan template

*Please note that all CTCN technical assistance contributes to strengthening the capacity of in country actors.*

### **14. Monitoring and Evaluation process**

*Upon contracting of the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. The monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation. The CTCN Technology Manager responsible for the technical assistance will monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) NDE about overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance; and (iii) the CTCN Director about timeliness and appropriateness of the delivery of the activities and outputs.*