Technical Assistance Response Plan – Terms of Reference

Country	**Zimbabwe**
Request ID#	**2024000021**
Title	Development of a Decarbonization Roadmap in the Cement Sector through Advanced Technology Upgradation and Enhanced Standards
NDE	Climate Change Management Department, Ministry of Environment, Climate and Wildlife Ms Munashe Mukonoweshuro NDE Focal Point munamuko@gmail.com 11th Floor, Kaguvi Building Cnr S.V Muzenda, Harare
Proponent	**Zimbabwe:** Ministry of Industry and Commerce Mr Patrick Tuluzawu Director ptuluzawu@gmail.com Climate Change Management Department, Ministry of Environment, Climate, and Wildlife Mr T.J. Kamuruko Climate Change Mitigation Officer tapiwakamuruko@gmail.com

Summary of the CTCN technical assistance

Cement is the most widely consumed building product in the world. Due to the huge volume produced, cement production is responsible for around 7 to 8% of man-made CO2 emissions. As of 2024, Zimbabwe cement manufacturers have an installed capacity of approximately 2,600,000 tonnes of cement annually, against a national demand of roughly 1,600,000 tonnes. There is increasing demand of cement and concrete linked to urbanization and infrastructure development in the country.

The cement and concrete industry counts as hard-to-abate sector. However, there are a number of decarbonization options for cement production. On the path to decarbonizing cement and concrete at a national level, Zimbabwe is confronted with challenges related to a lack of transparency on economically viable decarbonization options, of standards and incentives, and of governance.

In order to guide the decarbonization of the cement and concrete industry in Zimbabwe, a national decarbonization roadmap is required that identifies and prioritizes effective technology and policy levers. Furthermore, the introduction or updating of cement standards is to be conducted.

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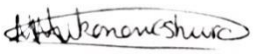
Agreement:

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

National Designated Entity to the UNFCCC Technology Mechanism
Name: Munashe Mukonoweshuro
Title: Climate Change Scientist

Date: 29/08/30324

Signature: 

Proponent (signature of the Proponent is optional)
Name: Patrick Tuluzawu
Title: Director

Date: 27/08/2024

Signature: 

Proponent (signature of the Proponent is optional)
Name: Tapiwa Junior Kamuruko
Title: Climate Change Mitigation Officer

Date:28/08/2024

Signature: 

UNFCCC Climate Technology Centre and Network (CTCN)
Name: Jonathan Duwyn
Title: Officer in Charge

Date:

Signature: 

Jonathan Duwyn
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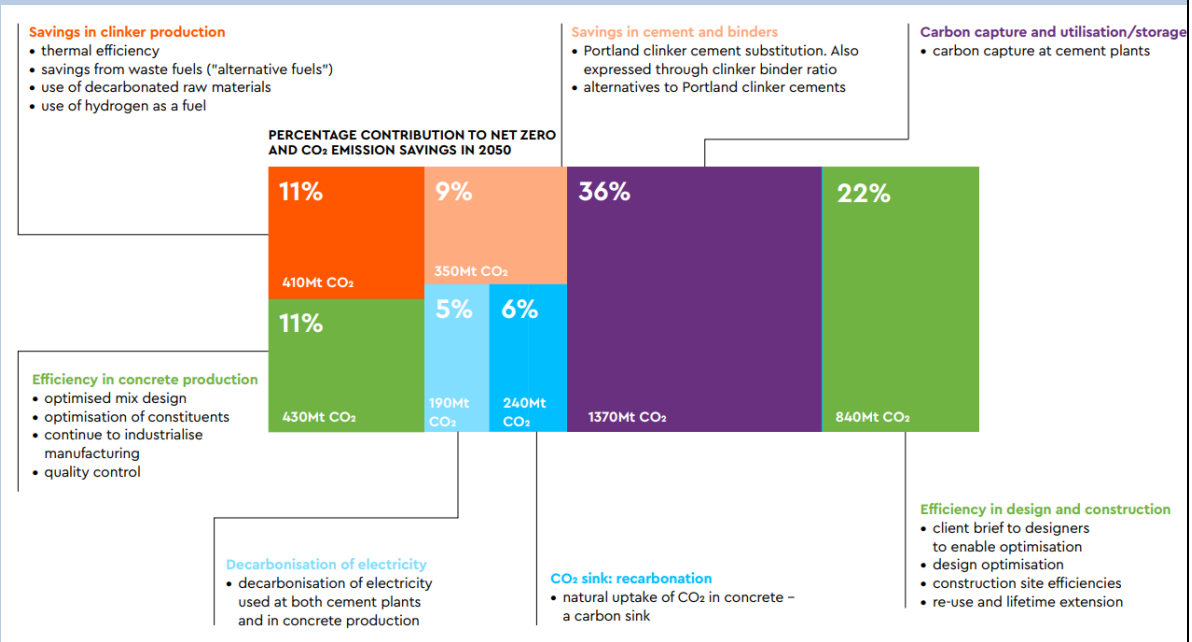
1. Background and context

Cement is the most widely consumed building product in the world. Due to the huge volume produced, cement production is responsible for around 7 to 8% of man-made CO2 emissions. In 2020, the level of cement consumption worldwide reached 4.2 billion tons with a constant growth trajectory for the next decades due to rapid urbanization and population increase.

The Paris Agreement is a legally binding international treaty on climate change which was adopted by 196 Parties at COP 21 in Paris on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

The Global Cement and Concrete Association (GCCA) representing 80% of the world cement capacity outside China, has decided to follow the 1.5 degrees Celsius objective. In order for the cement industry to achieve this objective GCCA has elaborated a global Roadmap that is to be adapted to each country individually, the "Net Zero Accelerator Roadmap". The roadmap will follow and thus tackle all the levers identified by GCCA.

The graphic below, produced by the GCCA in the context of their Concrete Future Roadmap to 2050, illustrates the different decarbonization options for cement production in more details.



In line with the GCCA roadmap, the IEA emphasizes that reduction levers such as carbon capture and clinker content reduction in cement have been determined to provide the largest cumulative CO2 emissions reductions.

Further among the principal CO2 reduction levers for the cement industry developed by the International Energy Agency (IEA), reducing clinker in cement is by far the most effective. Limestone calcined clay cements (LC3) are blended cements that combine clinker, calcined clay, limestone, and gypsum, and offer equivalent mechanical performance to Ordinary Portland Cement (CEM I/OPC), with the benefit of decreasing clinker factors to 50% amongst other benefits. Such technology has also the advantage of using locally available raw material in countries relying so far on imported clinker or cement.

Another important immediately available lever is the use of Alternative Fuels instead of nonrenewable coal and pet coke. Some cement plants in Europe generates up to 90% of their energy needs from Alternative Fuels whether it is municipal waste, agricultural waste, industrial waste, etc. Such waste has generally much less CO2 emissions than standard fuels. In case of biomass the IPCC considers the emissions to be "0". Using locally available waste instead of imported nonrenewable fuel will also reduce the emissions from freight and save hard currencies for the local central banks.

Finally, depending on the age and technology of the production units, energy efficiency levers like for example waste heat recovery, clinker cooler, co-generation shall be assessed.

Context in Zimbabwe

As of 2024, Zimbabwe cement manufacturers have an installed capacity of approximately 2,600,000 tonnes of cement annually, against a national demand of roughly 1,600,000 tonnes. Yet, over the last years, production and demand was fluctuating, leading to temporary supply shortages and rising prices. Overall, there is an increasing demand of cement and concrete linked to urbanization and infrastructure development. A new 1 billion USD cement plant project has been launched in 2024, and other manufacturers are investing in refurbishment projects to further increase production capacities.

Industry related GHG emissions have been steadily increasing without effective tracking and systematic reduction actions. In 2020, the Environmental Management Agency (EMA) of Zimbabwe ordered Lafarge Cement Zimbabwe to cease operations due to a discharge of abnormal dust emissions from the kiln stack into the

environment, until concerns are rectified. This is not a one-off case, but the overall infrastructure lacks important environmentally friendly upgrades, and the governance and monitoring, evaluation and enforcement (MV&E) requires significant improvement.

In order to guide the decarbonization of the cement and concrete industry in Zimbabwe, a national decarbonization roadmap is required that identifies and prioritizes effective technology and policy levers. Furthermore, the introduction or updating of cement standards is to be conducted. The collaboration of the public and private sector in the development of such a roadmap will be key to its success.

2. Problem statement

Founded on the national and sectoral context as detailed in the section above, please include a brief problem statement clarifying the main problems and barriers for climate change mitigation and/or adaptation in terms of climate technologies that the CTCN Response Plan will address and overcome. (maximum 1250 characters including spaces).

On the path to decarbonizing cement and concrete at a national level, Zimbabwe is confronted with challenges related to a lack of transparency on economically viable decarbonization options, of standards and incentives, and of governance. These challenges are further detailed below:

- **Decarbonization options**: Multiple decarbonization options are available with some being technically mature and others still in an R&D phase, and with a higher and lower CO2 reduction potential. Countries require transparency on viable options for the national context as the choice strongly depends on production volumes, technology setup and raw material.
- **Standards and incentives**: Outdated or a lack of standards and policies for cement and concrete products, but also for energy performance of buildings lead to excess material usage, energy inefficiency and a lack of transparency.
- **Governance**: A clear and actionable decarbonization roadmap, as well as monitoring, verification, and enforcement (MV&E) with regards to transparency on CO2 emissions and reduction targets is fundamental for the path to decarbonize cement and concrete.
- **Stakeholder alignment**: Decarbonizing the cement and concrete industry requires extensive dialogue between regulators and the industry in order to agree on GHG emissions reduction targets, a technology implementation roadmap and related policies and incentives that are required.

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3. Logical Framework for the CTCN Technical Assistance:

(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.)

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
***Objective**: To develop a comprehensive and endorsed national decarbonization roadmap for the cement and concrete industry in Zimbabwe together with effective Monitoring, Verification and Enforcement (MV&E) of decarbonization actions and cement standard updating*												
Outcome: *Enhanced national capacities for the decarbonization of the national cement and concrete industry in Zimbabwe through a clear roadmap, effective MV&E framework and updated cement standards*												
Mandatory Output: Project management *All implementers must undertake the following project management activities at the beginning of, during and at the end of the CTCN technical assistance.*												
Activity A: Pre-implementation A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organisations and detailed budget to implement the Response Plan. The detailed work plan and budget must be based directly on this Response Plan; Based on the work plan, a monitoring and evaluation (M&E) plan with specific, measurable, achievable, relevant, and time-bound indicators used to monitor and evaluate the timeliness and appropriateness of the implementation. The monitoring and evaluation plan should apply selected indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment (please refer to item iv below and section 14 in the Response Plan). This M&E plan also includes a CTCN Impact Description formulated in the beginning of the technical assistance which will be revised in the Closure and Data Collection report once the technical assistance is fully delivered (templates will be provided). Furthermore, a gender evaluation and gender action plan (GAP) will be prepared and followed throughout the technical assistance (a template will be provided).[1]												

[1] Additional information is available under Section 10 of the response plan.

Activity B: Implementation A project steering committee will be formed, consisting of the implementing team (international and local consultants), the NDE, the project proponent(s), and CTCN. This project steering committee will meet at least on a bi-monthly basis in order to report project progress and discuss any questions and challenges.												
Activity C: Post-implementation A Closure and Data Collection report completed at the end of the technical assistance (a template will be provided). Project-end communication and dissemination activities will be conducted in collaboration with the CTCN Secretariat, which will include: • Development of a press release • Delivery of a knowledge sharing webinar • Organization of a dialogue with financial institutions for potential follow-on support -												
Mandatory deliverables: Deliverable A: Detailed work plan; M&E plan; gender assessment and gender action plan Deliverable B: Project Steering Committee meeting reports Deliverable C: Closure and Data Collection report; press release, webinar, dialogue with financial institutions	X X		X		X		X		X		X	X
Output 2: Coordination of a Project Working Group												
Activity 2.1: Establishment of a Project Working Group Identify major stakeholders of the cement and concrete sector in Zimbabwe and establish a Project Working Group (PWG) to be consulted during the development of this project. The PWG members will facilitate data collection, provide inputs to the produced documents, and approve deliverables. Representatives from the public sector, standards authority, and industry will be included in the PWG. A maximum of 15 individuals will be selected as part of the PWG. The PWG should have a fair gender distribution.												

Activity 2.2: Kick-off workshop and regular meetings of Project Working Group A 2-day project kick-off workshop will be organized. The first day will host an inception workshop with a larger audience of a maximum of 30 individuals with the purpose to introduce the project and build initial understanding of cement sector emissions and decarbonization. The second day will be the PWG kick-off meeting to discuss implementation modalities in terms of data collection and capacity building, and next steps. Thereafter, regular PWG meetings will be organized, with an indicative timing in month 5 (linked to Technology prioritization workshop (Activity 4.2.)), month 8 (linked to Roadmap and policy development workshop (Activity 5.1.) and public consultation workshop (Activity 7.2.)), and month 12 (linked to Capacity building workshop (Activity 6.3.)). The final PWG meeting will be used to publicly launch the national cement decarbonization roadmap. The workshops will be organized over 1-2 days depending on the required agenda. Meeting room costs (estimated at 1,000 USD per day), transport allowance for participants based in Harare (20 USD per participant per day), and logistical support for participants based outside Harare (100 USD per participant per day) will be covered by the implementing partner.	
Deliverable 2: • Deliverable 2.1: Member List and ToRs of Policy Working Group • Deliverable 2.2: Meeting material, Meeting report incl. list of attendees (disaggregated by gender and institution)	
Output 3: Analysis of the current national cement and concrete industry	
Activity 3.1: Identification of current CO2 emissions of the cement and concrete industry This activity aims to establish a baseline of current CO2 emissions in Zimbabwe's cement and concrete industry, adhering to IPCC standards. Currently, CO2 emissions from the cement sector based on the IPCC Tier 1 method exist, and efforts are currently under way to move to Tier 2 or 3 which will be supported by this project.	

The following types of data will be collected for that purpose:
 	
● Facility data: Details of active cement and concrete production facilities, including production capacities and types of cement produced.
● Emissions data:
  ○ Direct Emissions: CO2 emissions from fuel combustion in kilns, calcination of limestone, and on-site energy use.
  ○ Indirect Emissions: CO2 emissions from electricity consumption.
  ○ Emission Factors: IPCC default emission factors will be used, adapted to local conditions where necessary.
 	
The data collection will be facilitated by PWG members, including from cement manufacturers. This will include access to existing secondary data, and additional collection of primary data through exemplary inventories will be conducted.	

Activity 3.2: Analysis of the cement market environment An analysis of the market environment of the cement industry in Zimbabwe will be conducted, identifying factors that influence production, demand, and supply. This may include (1) market factors, such as current and projected production and demand, (2) economic and policy factors, such as active stakeholders, investments and existing policies, as well as (3) the technological landscape in terms of current infrastructure, and decarbonization options that have been piloted.	
Deliverables 3: ● Deliverable 3: Cement Industry Assessment Report	
Output 4: Evaluation of appropriate low-carbon cement technology options and decarbonization levers	
Activity 4.1: Identification of appropriate technology options and decarbonization levers along the value chain This activity aims to identify and evaluate suitable technology options and decarbonization levers throughout the cement value chain in Zimbabwe, focusing on those identified by the Global Cement and Concrete Association (GCCA) at a global level. For that purpose, potential technologies along the value chain will be evaluated for	

their suitability in the Zimbabwean context through a multi-criteria assessment, including broader technical and economic feasibility, environmental impact, social acceptance and regulatory alignment.													
Activity 4.2: Technology prioritization workshop This workshop will serve to discuss the identified technologies and their multi-criteria assessment in order to prioritize the most relevant technology options to consider for the decarbonization roadmap. This workshop will be organized jointly with a PWG meeting, as per Activity 2.2. Meeting room costs (estimated at 1,000 USD per day), transport allowance for participants based in Harare (20 USD per participant per day), and logistical support for participants based outside Harare (100 USD per participant per day) will be covered by the implementing partner.													
Activity 4.3: Technical and economic viability assessment of prioritized technology options This activity evaluates the technical and economic feasibility of prioritized technology options for decarbonizing the cement industry in Zimbabwe. The assessment will look more thoroughly at the technical feasibility of each technology, focusing on its compatibility with existing cement production infrastructure, readiness for deployment, and potential operational challenges. Furthermore, the economic feasibility will include evaluating on a high level the costs associated, including capital investment, operational expenses and maintenance, as well as potential cost savings and returns, and GHG emissions reduction. This integrated assessment allows to further prioritize the identified technologies for the national deep decarbonization roadmap.													
Deliverables 4: • Deliverable 4: Technical and economic viability assessment; workshop report incl. list of attendees disaggregated by gender and institution													
Output 5: Development of a national decarbonization cement and concrete roadmap													
Activity 5.1: Roadmap and policy development workshop													

A workshop will be conducted to prepare the national deep decarbonization roadmap for cement and concrete. This workshop will include sessions on technology roadmap development and the identification of policy requirements, particularly targeting the private sector. Furthermore, sessions related to policy development and capacity building will be organized, particularly targeting the public sector. This workshop aims to establish a dialogue and mutual agreement between regulators and industry in terms of national cement and concrete decarbonization. This workshop will be organized jointly with a PWG meeting, as per Activity 2.2. Meeting room costs (estimated at 1,000 USD per day), transport allowance for participants based in Harare (20 USD per participant per day), and logistical support for participants based outside Harare (100 USD per participant per day) will be covered by the implementing partner.												
Activity 5.2: Development of the national decarbonization roadmap for cement and concrete A comprehensive national decarbonization roadmap for the cement and concrete industry in Zimbabwe will be developed. The roadmap will outline strategic actions, technology development and policies required to achieve significant CO2 emissions reductions in the sector. The development of the roadmap involves synthesizing insights from previous activities, including technology assessment and prioritization, stakeholder consultations, and policy evaluations. It integrates these findings to establish a clear and actionable strategy for deep decarbonization of the cement and concrete sector. The roadmap will include, inter alia: ● Objectives and targets for sectoral decarbonization ● References to existing industry and climate policy environment ● Market context ● Strategic actions, including technology implementation, required policies and incentives, capacity building, etc. ● Timelines including milestones on a short-, medium-, and long-term ● Roles and Responsibilities ● Resource requirements												

Deliverable 5: • Deliverable 5.1: Workshop reports incl. list of attendees disaggregated by gender and institution • Deliverable 5.2: National decarbonization roadmap												
Output 6: Operationalization of roadmap												
Activity 6.1: Development of an MV&E Framework This activity focuses on creating a Monitoring, Verification, and Evaluation (MV&E) Framework to track and assess the progress of decarbonization efforts in the cement and concrete industry in Zimbabwe. The framework will provide a structured approach for monitoring CO2 emissions of the sector, as well as technology and policy implementation in accordance with the decarbonization roadmap. As part of the MV&E Framework, templates and procedures for CO2 emissions monitoring in the cement sector will be prepared in line with existing reporting requirements, and supporting ongoing efforts by the Climate Change Management Department. The framework will also outline procedures for regular monitoring and reporting, including the frequency of assessments and the roles and responsibilities of stakeholders involved in data collection and analysis. It will also establish protocols for evaluating the outcomes of decarbonization initiatives, ensuring that progress is accurately assessed, and adjustments are made as needed.												
Activity 6.2: Development of a GCF concept note One Green Climate Fund (GCF) concept note will be developed to secure funding for a pilot project for a prioritized cement decarbonization technology with an advanced Technology Readiness Level (TRL of 9) for implementation in Zimbabwe. Key stakeholders will be consulted to identify and select a suitable pilot project that addresses key decarbonization challenges in the cement industry. This selection will focus on projects that offer significant potential for emissions reduction and practical implementation.												

Once the pilot project is identified, the concept note will be developed, detailing the project's objectives, scope, anticipated impacts and proposed institutional arrangements. It will outline the specific technologies or strategies to be tested, the project's size and duration, the expected outcomes, as well as detailed budget plan, specifying the funding requirements and how GCF support will be allocated. Additionally, it will describe the monitoring and evaluation framework to assess the pilot project's effectiveness and impact.												
Activity 6.3: Capacity building workshops A 2-day capacity building workshop will be organized to strengthen capacities on the cement decarbonization roadmap and MV&E activities. The first day will focus on the MV&E Framework, including CO2 emissions monitoring and reporting procedures and requirements. The target audience is cement plant staff, auditors, Ministry of Industry and Commerce, the Climate Change Management Department, and Environmental Management Agency. A total of 20 participants will be targeted. The second day will focus on the national cement decarbonization roadmap, including the agreed policy requirements and decarbonization actions. The target audience is cement plant management, Ministry of Industry and Commerce, Climate Change Management Department, Environmental Management Agency, Ministry of Finance and financial institutions (e.g. national and international development banks). A total of 20 participants will be targeted. The workshops will feature presentations, interactive sessions, and discussions to ensure effective knowledge transfer and engagement. The workshops will be organized in conjunction with the ongoing PWG meetings, as per Activity 2.2. Meeting room costs (estimated at 1,500 USD per day), transport allowance for participants based in Harare (20 USD per participant per day), and logistical support for participants based outside Harare (100 USD per participant per day) will be covered by the implementing partner. The capacity building workshops should have a fair gender distribution.												
Deliverable 6: ● Deliverable 6.1: MV&E Framework												

• Deliverable 6.2: One GCF concept note • Deliverable 6.3: Workshop material, Workshop report incl. list of attendees disaggregated by gender and institution												
Output 7: Updating of cement standards												
Activity 7.1: Review and preparation of an updated cement standard A draft cement standard in line with international standards (e.g. European norm EN 197-5) will be developed for Zimbabwe. A review of existing local standards and practices, as well as international standards will be conducted. This review will identify gaps and areas for alignment, ensuring that the draft standard integrates international requirements while addressing local conditions. Following the review, the draft standard will be developed to include specifications and criteria that align with international standards, adapted to fit the Zimbabwean context. This includes defining cement composition, performance characteristics, and environmental impact criteria.												
Activity 7.2: Public consultation process and workshop to endorse draft standard The draft standard will be published for a public consultation process and a workshop will be organized to review and endorse the draft cement standard in Zimbabwe, aligning with international standards. The process begins with a public consultation of 2 months to gather feedback from a broad range of stakeholders, including industry professionals, regulatory bodies, and the general public. This consultation will involve distributing the draft standard for review and inviting comments and suggestions to ensure it meets the needs and expectations of all relevant parties. Any national technical committee for industrial standards will be engaged if existing. Following the consultation, a workshop will be held to discuss the feedback, address any concerns, and make final revisions to the draft standard. The workshop will provide a platform for stakeholders to engage in detailed discussions, provide additional insights, and reach consensus on the draft standard.												

This workshop will be organized in conjunction with the ongoing PWG meetings, as per Activity 2.2. The workshop will host a maximum of 30 individuals. Meeting room costs (estimated at 1,500 USD per day). transport allowance for participants based in Harare (20 USD per participant per day), and logistical support for participants based outside Harare (100 USD per participant per day) will be covered by the implementing partner. The public consultation workshop should have a fair gender distribution.												
Activity 7.3: Finalization of the draft standard Based on the public consultation process and workshop, a final standard will be developed incorporating all the feedback and recommendations.												
Deliverable 7: • Deliverable 7: Final standard, public consultation and workshop report incl. list of attendees disaggregated by gender and institution												

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 5% 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** *Please accumulate the costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan*

					Minimum (USD)	Maximum (USD)
Output 1: Project management					**3,400**	**3,740**
Activity 1.1: Pre-implementation	IE1: 1 day NE1: 1 day NE2: 3 days				1,300	1,430
Activity 1.2: Implementation	IE1: 2 days NE1: 2 days				1,400	1,540
Activity 1.3: Post-implementation	IE1: 1 day NE1: 1 day				700	770
Output 2: Coordination of a Project Working Group					**45,232**	**49,755.20**
Activity 2.1: Establishment of a Project Working Group	IE1: 2 days NE1: 2 days				1,400	1,540
Activity 2.2: Kick-off workshop and regular meetings of Project Working Group	IE1: 15 days IE2: 15 days IE3: 6 days NE1: 15 days NE2: 6 days NE3: 6 days	3 international missions for IE1 and IE2, including 1,500 USD travel budget per person per mission. Local travel within Harare (allowance of 20 USD) of NE1, NE2, NE3 and 20	1 in-person inception workshop and PWG kick-off meeting (2 days). 3 in-person PWG meetings (1-2 days depending on agenda). The last PWG meeting is planned to be used as	Media material	43,832	48,215.2

		stakeholders, and local travel from outside Harare (allowance of 100 USD) for 10 stakeholders for 1 in-person inception workshop. Local travel within Harare (allowance of 20 USD) of NE1, NE2, NE3 and 10 stakeholders, and local travel from outside Harare (allowance of 100 USD) for 5 stakeholders for 4 in-person PWG meetings.	public launch of the national cement decarbonization roadmap. At least 3 of the workshops/meetings will be attended in person by IE1 and IE2. Meeting room cost of 1,000 - 1,500 USD per day.			
Output 3: Analysis of the current national cement and concrete industry					**28,200**	**31,020**
Activity 3.1: Identification of current CO2 emissions of the cement and concrete industry	IE1: 5 days IE2: 15 days IE3: 5 days NE1: 20 days	National travel for data collection purposes for NE1 and up to 3 stakeholders for 3 days, including travel cost			17,700	19,470

		(100 USD per person per day).				
Activity 3.2: Analysis of the cement market environment	IE1: 5 days IE2: 10 days NE1: 15 days				10,500	11,550
Output 4: Evaluation of appropriate low-carbon cement technology options and decarbonization levers					**24,100**	**26,510**
Activity 4.1: Identification of appropriate technology options and decarbonization levers along the value chain	IE2: 5 days NE1: 15 days				5,500	6,050
Activity 4.2: Technology prioritization workshop	IE1: 1 day IE2: 1 day IE3: 1 day NE1: 1 day NE2: 1 day NE3: 1 day	International and national travel optional. Local travel within Harare and from outside Harare covered through Activity 2.2	In-person meeting for the Technology Prioritization Workshop. This will be held in conjunction with the 2nd PWG meeting. An additional day may be added on a needs basis.		2,100	2,310

			Meeting room cost of about 1,000 USD covered through Activity 2.2.			
Activity 4.3: Technical and economic viability assessment of prioritized technology options	IE1: 5 days IE2: 20 days NE1: 10 days NE2: 10 days				16,500	18,150
Output 5: Development of a national decarbonization cement and concrete roadmap					**29,100**	**32,010**
Activity 5.1: Roadmap and policy development workshop	IE1: 1 day IE2: 1 day IE3: 1 day NE1: 1 day NE2: 1 day NE3: 1 day	International and national travel covered through Activity 2.2. Local travel within Harare and from outside Harare covered through Activity 2.2	In-person meeting for the Roadmap and Policy Development Workshop. This will be held in conjunction with the 3rd PWG meeting. An additional day may be added on a needs basis. Meeting room cost of about 1,000 USD		2,100	2,310

			covered through Activity 2.2.			
Activity 5.2: Development of the national decarbonization roadmap for cement and concrete	IE1: 10 days IE2: 25 days IE3: 5 days NE1: 25 days NE2: 5 days NE3: 5 days				27,000	29,700
Output 6: Operationalization of roadmap					**33,820**	**37,202**
Activity 6.1: Development of an MV&E Framework	IE2: 10 days IE3: 15 days NE1: 10 days				14,500	15,950
Activity 6.2: Development of a GCF concept note	IE1: 5 days IE2: 5 days NE1: 2 days NE2: 5 days				6,400	7,040
Activity 6.3: Capacity building workshop	IE1: 9 days IE2: 9 days IE3: 2 days NE1: 2 days NE2: 2 days NE3: 2 days	International and national travel covered through Activity 2.2. Local travel within Harare (allowance of 20 USD) of NE1, NE2, NE3 and 20 stakeholders, and local travel from outside Harare (allowance of	2-day in-person meeting for the Capacity building workshop. This will be held in conjunction with the 4th PWG meeting.		12,920	14,212

		100 USD) for 10 stakeholders for capacity building workshop.	Meeting room cost of about 1,000 USD per day.			
Output 7: Updating of cement standards					**16,460**	**18,106**
Activity 7.1: Review and preparation of an updated cement standard	IE1: 2 days IE2: 15 days NE1: 5 days				9,500	10,450
Activity 7.2: Public consultation process and workshop to endorse draft standard	IE1: 1 day IE2: 1 day IE3: 1 day NE1: 1 day NE2: 1 day NE3: 1 day	International and national travel covered through Activity 2.2. Local travel within Harare (allowance of 20 USD) of NE1, NE2, NE3 and 20 stakeholders, and local travel from outside Harare (allowance of 100 USD) for 10 stakeholders for public consultation workshop.	1-day In-person meeting for the Public Consultation Workshop. This will be held in conjunction with the 3rd PWG meeting. An additional day may be added on a needs basis. Meeting room cost of about 1,500 USD per day.		5,060	5,566
Activity 7.3: Finalization of the draft standard	IE1: 1 day IE2: 2 days NE1: 2 days				1,900	2,090
Estimated range of costing (USD) for the entire Response Plan					**180,312**	**198,343.20**

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
International experts	
Project coordinator (IE1)	**Education:** ● Master's degree or higher in Environmental Science, Engineering, or Project Management. **Work Experience:** ● 10+ years of experience in managing large-scale environmental or industrial projects in the cement and concrete industry. ● Proven track record in leading multidisciplinary teams. **Skills:** ● Strong leadership and organizational skills. ● Excellent communication and stakeholder engagement abilities. ● Proficiency in project management software. ● In-depth knowledge of decarbonization strategies and sustainability practices.
Industry decarbonization expert (IE2)	**Education:** ● Master's degree or higher in Environmental Policy, Law, Sustainability, or a related field. **Work Experience:** ● 10+ years of experience in environmental policy development and implementation. ● Extensive experience with decarbonization projects in the cement industry.

	Skills: • In-depth knowledge of environmental regulations and decarbonization strategies for the cement sector. • Strong research and analytical skills. • Ability to draft policy documents and guidelines. • Familiarity with global best practices and standards (e.g., IPCC guidelines, EN-197-5). • Effective communication and advocacy skills.
MV&E specialist (IE3)	**Education:** • Master's degree or higher in Statistics, Economics, Environmental Science, or a related field. **Work Experience:** • 8+ years of experience in MV&E for environmental or industrial projects. • Experience with developing and implementing M&E frameworks, including data collection and reporting processes aligned with IPCC guidelines. **Skills:** • Strong analytical and data management skills. • Ability to design KPIs and performance metrics. • Effective reporting and presentation skills.
National experts	
Industrial expert (NE1)	**Education:** • Bachelor's degree or higher in Engineering, Material Science, or a related field. **Work Experience:** • 3+ years of experience in the industrial sector. • Extensive knowledge of industrial production processes and technologies.

	Skills: • Technical knowledge in industrial processes. • Strong analytical and problem-solving abilities. • Familiarity with industry standards and regulatory requirements. • Ability to assess and recommend technological upgrades.
Financial analyst (NE2)	**Education:** • Bachelor's degree or higher in Finance, Economics, or a related field. **Work Experience:** • 3+ years of experience in financial analysis and project financing. • Experience with green finance and funding mechanisms. **Skills:** • Strong financial modeling and analysis skills. • Ability to prepare detailed financial plans and budgets. • Experience with funding concept note writing, e.g. for the Green Climate Fund
Gender expert (NE3) **International consultant also accepted*	**Education:** • Bachelor's degree or higher in Gender Studies, Sociology, social sciences, or a related field. **Work Experience:** • 3+ years of experience in gender analysis and mainstreaming gender in projects. • Experience working on gender issues within environmental or industrial sectors. **Skills:** • Strong understanding of gender equality and women's empowerment principles.

	• Ability to conduct gender impact assessments. • Excellent communication and training skills. • Experience with stakeholder engagement and advocacy.

6. Intended contribution to impact over time

The project aims to significantly reduce CO2 emissions in Zimbabwe's cement sector, enhancing resilience to climate change and promoting sustainable industrial practices.

- **Carbon Abatement:** By implementing advanced technologies and decarbonization strategies, the project will drive substantial reductions in CO2 emissions from the cement industry.
- **Economic Impact:** Enhancing efficiency and productivity in the cement sector will contribute to national economic growth and create green jobs, fostering socio-economic development.
- **Health and Environmental Benefits:** Reducing emissions will improve air quality and public health for communities living near cement plants, leading to broader environmental benefits.
- **National Contributions:** The project aligns with Zimbabwe's Nationally Determined Contributions (NDCs) under the Paris Agreement and other national development plans.

7. Relevance to NDCs and other national priorities

The **Vision 2030** highlights the need to become an upper-middle income society by the year 2030. Page 30 highlights the need for innovation, technological advancement, research and development in order to boost productivity, competitiveness and efficiency levels in the manufacturing industry. The decarbonization of cement production is key to its scalability in order to provide sustainable infrastructure and housing.

The **National Development Strategy (NDS) 1** is an economic blueprint for Zimbabwe to move towards an 'Empowered and prosperous upper middle-income society by 2030'. One of the more specific objectives of the Strategy is to 'Ensure sustainable environmental protection and resilience' with key priorities being Housing Delivery; Transport, Infrastructure & Utilities and Climate Resilience and Natural Resource Management' (p. x-xi, Chapter 6 p.112)

As highlighted in Zimbabwe's **Revised NDCs** from 2021 (page 25, chapter 4), the assistance will enhance the ability to implement the mitigation actions related to cement production, specifically clinker substitution with blast furnace sludge or fly ash. Key to this will be capacity building to both private players as well as government such that good governance structures to decarbonize in this sector can be developed and implemented.

The 2022 **Low Emissions Development Strategy** (chapter 4, pages 12-17) of Zimbabwe prioritize clinker substitution in the production of cement as one of the key actions to mitigate emissions. Using the Marginal Abatement Cost modelling methodology, the LEDS highlight the high costs associated with implementing this action, as such, the technical assistance under this project is paramount in developing the necessary capacity for skills development, technology transfer and resource mobilisation to implement this mitigation action.

8. Linkages to relevant parallel on-going activities:

Individual cement manufacturers are investing in the refurbishment of infrastructure such as kilns in order to increase productivity and energy efficiency. However, there are no systematic initiatives for decarbonization in the cement and concrete sector in Zimbabwe.

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

Following the completion of this technical assistance, several follow-up activities will ensure sustained impact and continued progress towards decarbonization and climate resilience in Zimbabwe's cement sector.

- **Implementation of the Roadmap:** Cement manufacturers will implement the advanced technologies and best practices identified in the decarbonization roadmap, investing in new equipment, optimizing production processes, and adopting alternative fuels and raw materials.
- **Policy and Regulatory Actions:** Government agencies will implement the policy recommendations, update regulatory frameworks, introduce incentives for sustainable practices, and enforce the new cement standards aligned with international recommendations.
- **Capacity Building:** Organize additional training sessions and workshops to enhance the skills and knowledge of industry stakeholders, including technical training for new technologies and workshops on regulatory compliance.
- **Monitoring and Evaluation (M&E):** Operationalize the MV&E framework to continuously track and report on the progress of decarbonization initiatives, involving regular data collection, analysis, and reporting.
- **Financial Mobilization:** Secure further financing for large-scale decarbonization projects through national and international funding sources, including the Green Climate Fund (GCF) for which a concept note will be developed.
- **Stakeholder Engagement:** Conduct annual review meetings with stakeholders to assess progress, share best practices, and update strategies. Engage in public consultations to gather feedback and build support.

Role of NDE and Project Proponents:

- **National Designated Entity (NDE) / Ministry of Environment:** General oversight. Conduct MV&E activities, including monitoring of GHG emissions. Report on the outcomes and impacts of the decarbonization efforts, ensuring alignment with national climate goals.
- **Project Proponents:** Lead the implementation of the roadmap. Coordinate with cement manufacturers, ensure adherence to new standards, and drive the adoption of recommended technologies and practices

10. Gender and co-benefits:

Imbedded in design of the activities:	A gender action plan will be designed at the outset of the technical assistance. Key activities imbedded in the implementation will be: • Inclusive Participation: Actively involve women in all stakeholder consultations, workshops, and decision-making processes to ensure diverse perspectives and equitable representation.

	• Targeted Training: Equal share of women in capacity building activities to build their technical skills in the cement sector. • Gender-Sensitive Policies: Develop and implement gender-sensitive policies and practices within the project framework to promote gender equality and prevent discrimination.
Gender and co-benefits intended as result of the activities:	As a result of this technical assistance, the following gender and co-benefits are expected: • Enhanced Employment Opportunities: Increase job opportunities for women in the cement industry. • Skill Development: Empower women through specialized training, enhancing their capabilities and career prospects in the sector. • Health Improvements: Reduction in CO2 emissions will lead to better air quality and improved health outcomes for communities, particularly those near cement plants. • Economic Growth: Drive national economic growth through increased efficiency and productivity in the cement sector, creating direct and indirect jobs. • Environmental Protection: Promote environmental sustainability by reducing emissions, conserving resources, and adopting greener production methods. • Innovation and Knowledge Transfer: Foster innovation and facilitate the transfer of best practices and technologies, benefiting not only the cement sector but potentially other industries as well.

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
National Designated Entity – Climate Change Management Department	Technical assistance coordination, oversight and data provision, standards shaping
Request Applicant - Ministry of Industry and Commerce	Technical assistance coordination, stakeholder engagement, data and research input, standards shaping, action planning and operationalization of standards
Ministry of Finance and Economic Development	*Data provision*
Ministry of Energy and Power Development	Data and research input, standards shaping
Environmental Management Agency (EMA)	Data and research input,
Cement producing industry	Data and research input, standards shaping, action planning and operationalization of standards
Standards Association of Zimbabwe (SAZ)	Development and adoption of standards

Media	Communication and knowledge distribution on standards and decarbonization of the cement and concrete sector
NGOs and Development Partners	Stakeholder engagement, potential follow-up funding

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	
	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, in particular 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	This project aims to support the decarbonization of cement and concrete in Zimbabwe which count as hard-to-abate sectors.
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient and sustainable	This project aims to support the decarbonization of cement and concrete in Zimbabwe which are critical industries for buildings and infrastructure.
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	*All TAs should indicate relevance to Goal 13 and at least one target below (13.1 to 13.b).*
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	
	13.2 - Integrate climate change measures into national policies, strategies and planning	The TA will develop standards which all cement manufacturers within the country will be mandated to abide by.
	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	This project aims to support the decarbonization of cement and concrete in Zimbabwe. The decarbonization roadmap and MV&E plan will support climate change-related planning and management.
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	
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*
☐ 1. Decision-making tools and/or information provision	☐	☐
☐ 2. Sectoral roadmaps and strategies	X	☐
☐ 3. Recommendations for law, policy and regulations	☐	X
☐ 4. Financing facilitation	☐	☐
☐ 5. Private sector engagement and market creation	☐	X
☐ 6. Research and development of technologies	☐	☐
☐ 7. Feasibility of technology options	☐	☐
☐ 8. Piloting and deployment of technologies in local conditions	☐	☐
☐ 9. Technology identification and prioritisation	☐	X

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; and (ii) the Lead Implementer about the knowledge and learning gained through delivery of technical assistance. Furthermore, the NDE together with the project proponent(s) will complete a periodic post-implementation questionnaire to track the impact of the activities beyond the technical assistance end date.

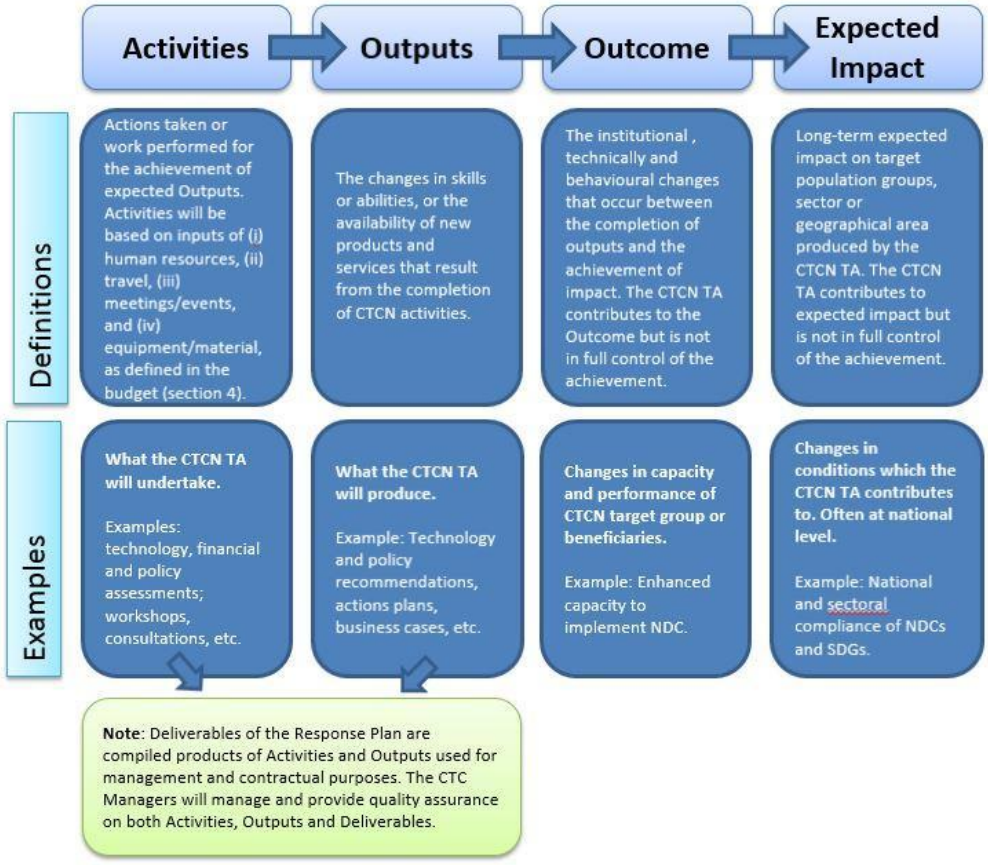
Annex 1: Guidance note for designing a Response Plan (to be deleted when submitting the Response Plan)

1. Objective of the Response Plan

The Response Plan is developed by CTCN specialists in response to a country request for technical assistance. It constitutes the Terms of Reference of the CTCN technical assistance that will be provided to the country and it provides the formulation of and subsequent basis for the monitoring and evaluation of the Response Plan implementation, as well as its expected outcomes and anticipated impacts.

2. Results chain and Logical Framework Approach to be defined in the CTCN Response Plan

The result chain is the causal sequence that stipulates the necessary flow of actions and processes to achieve desired objectives and results – beginning with inputs, moving through activities and outputs, and culminating in individual outcomes. The outcome will contribute to the desired impact in the society. The Logical Framework Approach is an analytical process used to support objectives-oriented project planning and management. It provides a set of pre-defined concepts which are used as part of an iterative process to aid structured and systematic analysis and management of the CTCN technical assistance.



3. Role of the Response Planning Design Team

The Response Planning Design Team is selected by the Climate Technology Centre (CTC). The composition of the team depends on each particular request but may include the National Designated Entity (NDE), the request Proponent, Climate Technology Manager of the CTCN, experts from the CTCN Consortium, UNIDO and UNEP experts from regional offices and other experts as needed.

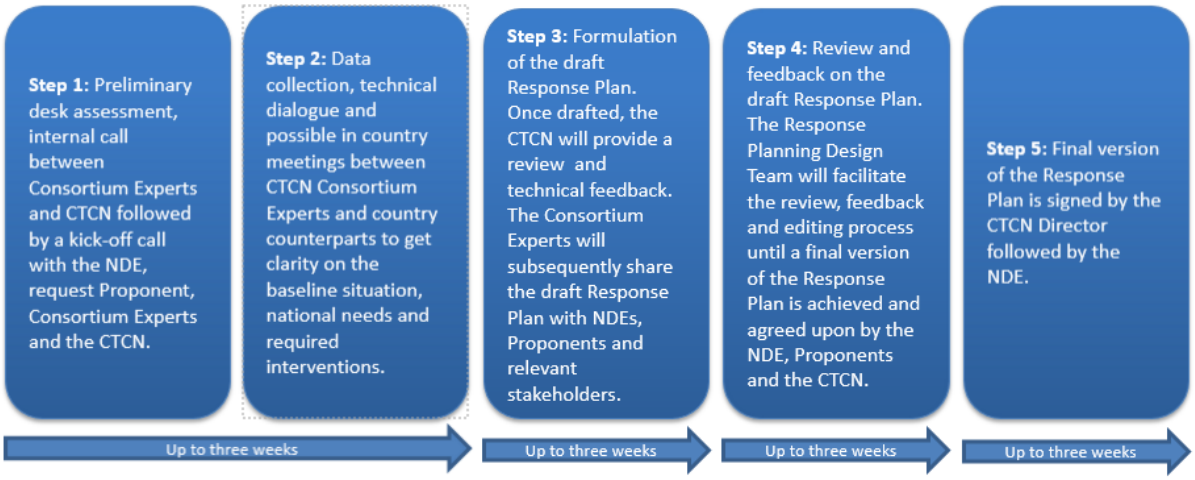
The role of CTCN Consortium experts is to lead the design of the Response Plan. The NDE will provide overall guidance on national context and priorities whereas the request Proponent will provide more detailed information on the sector, barriers and requested assistance. The Climate Technology Manager of the CTCN will provide quality assurance of timeliness and appropriateness of the Response Plan.

The Response Planning Design Team will draft all sections of the Response Plan template building on the information contained in the CTCN Request, based on expertise on the given topic and potentially further data collection, as required. This will be done by the CTCN Consortium Experts in consultation with the NDE, request Proponent and relevant stakeholders. The Response Plan has to be agreed to and approved by the NDE and the CTCN Director. This Response Plan will serve as the basis to identify, select and engage an expert institution from the Climate Technology Network or Consortium to lead the implementation of the CTCN Response Plan in the requesting country.

To the extent possible, staff from UNEP and UNIDO Regional, Sub-Regional and/or National Offices should be involve in all stages of formulation of the Response Plan to maximize synergies and avoid overlap with ongoing initiatives, as well as ensure relevance to regional and national context.

4. Process for designing the Response Plan

The Response Planning process should be completed over a period of up to 60 working days (12 weeks). Indicative steps and related timelines are laid out below:



5. Design Considerations

Annex 1. Guidance Note for the Response Plan template

In order to maximize the impact of the technical assistance provided by the CTCN and provide an effective M&E process, the Response Plan should integrate as much as possible the considerations below:

Climate Technology focus: The Response Plan should have a clear focus on climate technologies, and identify activities that enable the identification, development, deployment or diffusion of one or several specific technologies (including equipment, techniques, knowledge and skills).

Barrier removal / Problem solving: The activities should contribute to address the specific problem statement identified in the Request. The barriers identified should be those hampering the identification, development, deployment or diffusion of one or several climate technologies or climate actions. Therefore, it may be necessary to limit the CTCN Response Plan to a set of activities for technical assistance commonly agreed with the NDE (and Proponent when needed) compared to the original request submitted. The CTCN will liaise with NDEs and Proponent in case the scope of the technical assistance deviates from the original request.

Use of the CTCN assistance by stakeholders: The Response Plan should identify clearly how the products of the CTCN assistance will be used in the short term once support is delivered, by who and when, to ensure it will lead to specific impacts in the country. The activities should engage the stakeholders that will use the concrete results of the assistance to deploy the technologies, including from the private sector, the public sector, research institutions, etc.

Within the scope of CTCN resources: The cost of the technical assistance provided by the CTCN cannot exceed USD 250,000 per Response Plan. Therefore, it may be necessary to prioritize activities and limit the CTCN Response Plan to a set of priority activities commonly agreed with the Proponent and the NDE to remain under this value. Under section 4 of the Response Plan template, an indicative activity based budget should be presented. The proposed budget is indicative and should present an estimated costing range per activity, output as well as a total costing range for the delivery of the Response Plan. Once the Response Plan is finalised and published for tendering, interested parties will provide competitive offer against the indicative budget.

CTCN activities and outputs should be linkable to monitoring and evaluation indicators: All proposed activities and outputs must be linkable to monitoring and evaluation indicators that are specific, measurable, achievable, relevant, and time-bound. The monitoring and evaluation process and corresponding indicators will be developed by the Lead Implementer as part of the work plan and will allow the CTCN technology Manager to monitor the timeliness and appropriateness of the implementation.

Synergies with existing efforts: The Response Plan should focus on activities that are not already being fully supported or that are in the process of being fully supported by another national, regional or international organization. Synergies and complementarity also require that the CTCN assistance is not duplicating past activities. It is possible in the Response Plan to indicate co-financing from the government, the Proponent or another stakeholder, that will maximize the effectiveness of the CTCN assistance.

Gender mainstreaming: The CTCN mission is to build or strengthen developing countries' capacities to identify technology needs, to facilitate the preparation and implementation of technology projects and strategies taking into account gender considerations. The Response Plan must therefore describe how gender considerations will be included and monitored within the proposed activities, and any gender co-benefits that will be gained as a result of implementing the CTCN technical assistance.