CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical Assistance Response Plan – Terms of Reference

Country	**Pakistan**
Request ID#	**2022000025**
Title	Adoption of Green buildings in Pakistan to achieve Pakistan's Nationally Determined Contribution
NDE	Dr. Saima Shafique Director, Ministry of Climate Change 4th Floor, Local Government Complex, G-5/2, Islamabad, 44000, Pakistan Saimashafique76@gmail.com
Proponent	Ministry of Climate Change

Summary of the CTCN technical assistance

Pakistan's energy sector contribution to greenhouse gas emissions has remained historically high where the recent inventory of 2018 estimated the contribution of 44%. Considering global numbers, the construction sector is highly energy and carbon-intensive, currently producing between 25% and 40% of global carbon emissions. Around 8% of the overall global CO2 emissions come from the production of steel and concrete, for example.

Due to a lack of green building standards and regulations, the rapid urbanization across Pakistan has seen an infrastructural development which is not environmentally sustainable and responsible. A major initiative is required to be taken towards implementing green building standards with a clear methodology, monitoring verification and enhancement MV&E and financing. Pakistan has so far been constrained by the lack of awareness among people about the importance and advantages of adopting green building practices, as well as limited access to financing.

Accordingly, this request for technical assistance aims at introducing green building standards in Pakistan. This includes a baseline assessment of current infrastructure (incl. commercial, office and residential buildings), as well as the development of standards for new green building infrastructure and the conversion of existing infrastructure to net zero buildings.

Agreement:

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

National Designated Entity to the UNFCCC Technology Mechanism
Name: Dr Saima Shafique
Title: Director
Date: 12/09/2022
Signature:

Proponent 1 (signature of the Proponent is optional)
Name:
Title:
Date:
Signature:

Proponent 2 (signature of the Proponent is optional)
Name:
Title:
Date:
Signature:

Proponent 3 (signature of the Proponent is optional)
Name:
Title:
Date:
Signature:

UNFCCC Climate Technology Centre and Network (CTCN)

Name: Rose Mwebaza
Title: CTCN Director
Date: 14/09/2022
Signature:

1. Background and context

Pakistan's energy sector contribution to greenhouse gas emissions has remained historically high where the recent inventory of 2018 estimated the contribution of 44%. Recognizing that energy efficiency plays a critical role in achieving mitigation targets in energy sector, the policies that guide Pakistan's initiatives include Pakistan's Nationally Determined Contribution 2021, National Climate Change Policy 2021 and Sustainable Energy For All (SEforAll) National Action Plan 2019 where the aim is to double the energy efficiency rate by 2030.

Being the most rapidly urbanizing country in Asia, Pakistan's building sector offers great potential for transitioning to energy efficient sector. Considering global numbers, the construction sector is highly energy and carbon-intensive, currently producing between 25% and 40% of global carbon emissions. Around 8% of the overall global CO2 emissions come from the production of steel and concrete, for example.

Due to a lack of green building standards and regulations, the rapid urbanization across Pakistan has seen an infrastructural development which is not environmentally sustainable and responsible. A major initiative is required to be taken towards implementing green building standards with a clear methodology, monitoring verification and enhancement MV&E and financing. Pakistan has so far been constrained by the lack of awareness among people about the importance and advantages of adopting green building practices, as well as limited access to financing.

Accordingly, this request for technical assistance aims at introducing green building standards in Pakistan. This includes a baseline assessment of current infrastructure (incl. commercial, office and residential buildings), as well as the development of standards for new green building infrastructure and the conversion of existing infrastructure to net zero buildings.

The suggested measures will help in devising policies and economic measures to promote the construction of green and environment-friendly buildings. At length, green building standards will lead to drastic reduction in demand for energy and considerable monetary savings, including for the common people.

Similarly, to gear up towards a nation-wide revolution, it is advisable to begin the drive from the governmental buildings. In the given context, it is worthwhile to mention the pivotal steps to revolutionize the governmental buildings to green buildings in Pakistan may include the following:

- Quantification of potential savings from green building initiatives such as water, electricity consumption, and incorporation of renewable energy sources etc. This is also an initiative for developing synergies between the systems and enabling the net zero buildings concept.
- Reduction of the overall carbon emissions from the building. Use of sustainable material consumption to further ensures sustainable design, hence reducing the overall footprint of the existing and new buildings.
- Incorporation of environmental design which helps in encouraging implementation of new technology and innovative measures.
- Enhancing building values and aesthetics through environmental design while helping to

increase the land value and best practice measures for enhancing the life span of the building.

2. Problem statement

In the support of spearheading the green buildings infrastructure implementation and conversion to net zero buildings, it is important to note that the major impediments for the country primarily include the lack of clear and mandatory guidelines, inadequate financial and institutional resources, lack of awareness, as well as lack of knowledge and availability of technology options.

In more details, the largescale adoption of energy efficient technology in the national building sector (including residential, commercial and office buildings) is halted because of following reasons:

- **Lack of guidelines or standards for green buildings:** There are no quantitative targets and a legislative force within the building and construction sector, which results in a lack of motivation and incentives to stakeholders for the design, implementation and/or retrofit of energy efficient buildings. A stronger role from the government is required by putting in place instruments that promote and incentivize green buildings and sustainable materials.
- **Lack of financial resources and incentives to develop green building projects or retrofit buildings:** The perception by stakeholders of a high capital cost and slow return on investment resulting from a lack of knowledge, limits investment into energy efficient equipment and technologies. Lack of financial instruments such as subsidies, tax rebates or a dedicated revolving fund are major barriers to enforcing energy efficiency standards in buildings.
- **Inadequate resources and support to manage the trial of innovative equipment in the design and construction processes:** The energy efficiency baseline analysis and identification of best practices, as well as the introduction of standards is a complex process, involving multiple stakeholders and requiring experience at international level. Government institutions lack resources and support to lead this effort.
- **Lack of availability of environmentally sustainable materials and products locally:** There is a lack of development and availability of sustainable building materials and products locally that are energy saving, emissions reducing, safe, convenient and recyclable.
- **Lack of professional knowledge, qualified staff and technical expertise:** Governmental agencies and energy professionals have limited capacity and expertise to introduce and govern green building codes. This also includes the proper documentation of building performance data to enable developers to benchmark building sustainability measures.
- **Lack of awareness of the benefits of green buildings:** The low awareness on the benefits of green buildings on wellbeing, environment, and economy limits the prioritization of energy efficiency measures in construction and buildings. Effective dissemination of information, diffusion networks on sustainable construction and materials geared towards occupants / communities' wellbeing will be needed.

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	13	14	15
***Objective**:* The objective of this technical assistance is to introduce green building standards for enhanced energy efficiency in three building types (residential buildings, office buildings, and commercial complexes) and introduce effective mechanisms for their operationalization															
Outcome: Based on the introduced green building standards and their operationalization, Pakistan will contribute to its NDC targets by significantly reducing energy consumption and GHG emissions in the buildings and construction sector															
Output 1: Development of implementation planning and communication documents															
Activity 1: *All implementers must undertake the following activities at the beginning and at the end of the CTCN technical assistance.* i) 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; ii) Based on the work plan, a monitoring and evaluation 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); iii) A two-page CTCN Impact Description formulated in the beginning of the technical assistance and update/revised once the technical assistance is fully delivered (a template will be provided); iv) A Closure and Data Collection report completed at the end of the technical assistance (a template will be provided).															
Deliverable 1: i) Detailed work plan ii) Monitoring and evaluation plan iii) CTCN Impact Description iv) Closure and Data Collection report	X X X														X X
Output 2: Introduction of project coordination mechanism															

Activity 2.1: Map relevant stakeholders and establish a stakeholder working group Identify relevant stakeholders among governmental institutions at the national and sub-national level, building and construction industry, energy efficiency and renewable energy sector, private sector, civil society, academic institutions and beneficiaries. The working group shall maintain a gender balance and an adequate representation from vulnerable groups. It will provide a technical overview and a high-level guidance at every stage of the technical assistance.															
Activity 2.2: Conduct an inception meeting An inception meeting will be organized to present the goals, milestones, anticipated deliverables and the role of the stakeholder working group. The inception meeting will be held in-person, depending on the national regulations for in-person meetings at that moment. The inception meeting will be held in person, depending on the national regulations for in-person meetings at that moment. Travel costs and DSA for working group members, as well as the meeting room costs will be covered.															
Activity 2.3: Conduct of regular working group meetings Regular stakeholder working group meetings (Months 3, 6, 9, 12 and 15) will be held in order to provide input to and validate outputs, including the building and regulatory assessment, and technology and best practice identification (Output 3), the development of green building standards and policy guidelines (Output 4), the MV&E Framework (Output 5), and the financing mechanisms (Output 6). The quarterly meetings will be held in person, depending on the national regulations for in-person meetings at that moment. Travel costs and DSA for working group members will be covered and the meeting location will be provided by the government. International consultants will participate virtually.															
Deliverable 2: Deliverable 2.1: Stakeholder Map, List of stakeholder working group members Deliverable 2.2: Inception meeting report, including agenda and (gender disaggregated) list of participants Deliverable 2.3: Quarterly stakeholder working group meeting reports including agenda and (gender	X X		X			X			X			X			X

disaggregated) list of participants	
Output 3: Assessment of building groups and regulations in Pakistan, and diagnosis of technological needs	
Activity 3.1: Assessment of the current performance of building groups, capacities and existing regulations As a first step, this activity will assess the technology and energy performance of the three building types (1) residential buildings, (2) office buildings, and (3) commercial complexes in Pakistan with an additional focus on government buildings. In particular, the performance in terms of cooling, lighting, heating, and insulation will be studied. This will include, inter alia, an assessment of the building envelop, roofing, comfort system and controls, lighting and controls, and rooftop solar PV. As a second step, current capacities in terms of finance, technology and human resource will be assessed and capacity needs identified. Finally, an assessment of the legislative environment, including policies, institutions, regulations and governance will be conducted in order to identify regulatory and governance needs.	
Activity 3.2: Identification of international best practices and technologies International best practices, including technologies and regulations, in the building sector related to cooling, lighting, heating and insulation will be reviewed. Focus will be placed on relevant best practices and technologies successfully deployed in the Asia-Pacific region. Furthermore, an assessment will be conducted to map available energy efficiency and renewable energy technologies and buildings materials that can help achieve desired energy savings in new buildings and retrofits of existing buildings. Based on this assessment, a database of clean energy technologies and buildings materials relevant for Pakistan's energy performance goals and holding an optimal deployment potential on the national market will be created. This database will help finalize energy performance parameters for the revised building codes in a grounded and realistic manner.	
Activity 3.3: Gap analysis and evaluation of savings potential The activity will conduct a gap analysis to identify limitations of existing national legislations and capacities, as well as current performance levels of the three building types (residential buildings, office buildings, and commercial complexes) to help the country improve on the implementation of legal and regulatory energy	

performance provisions, and the adoption of clean energy technologies and building materials. Besides limitations, an evaluation of the savings potential through energy performance provisions and clean energy technologies and building materials will be conducted.															
Deliverables 3: Deliverable 3.1: Assessment report on building performance and regulations Deliverable 3.2: Benchmark report on international best practices and technologies Deliverable 3.3: Report on gap analysis and savings potential evaluation			X	X		X									
Output 4: Development of green building standards															
Activity 4.1: Development of draft green building standards and policy guidelines Under this activity, the draft green building standards and related policy guidelines will be developed for the three building types (residential buildings, office buildings, and commercial complexes) to cater for building design and evaluation, construction, technology implementation, retrofits, operation and maintenance. In this context, existing standards and regulations, such as standard building by-laws, will be aligned, integrated or updated with the new green building standards to be developed. The green building codes to be developed will be built on the results of the assessment, benchmark and gap reports of Output 3.															
Activity 4.2: Public consultation process The draft green building standards will be published for public consultation and provision of comments for a period of 2 months (if not required differently by guidelines of the Pakistan Standard & Quality Control Authority). At the end of the consultation process, a 1-day validation workshop will be held with a wider group of stakeholders. A maximum of 50 individuals can participate at the workshop. Workshop facilities and supply (food, beverages) will be covered but no DSA or travel compensation can be paid to workshop participants.															
Activity 4.3: Finalization of green building standards and policy guidelines Comments from the public consultation process as well as interactions with the stakeholder working group will															

be incorporated and a final draft of the green building standards and policy guidelines will be developed. The standards will be submitted to the Pakistan Standard & Quality Control Authority for official consideration.															
Deliverables 4: Deliverable 4.1: Draft green buildings standards and policy guidelines Deliverable 4.2: Public consultation report Deliverable 4.3: Final green buildings standards and policy guidelines									X		X	X			
Output 5: Development of effective mechanisms and tools for the implementation of building standards															
Activity 5.1: Development of an effective MV&E framework To facilitate the successful implementation of the green building standards, a monitoring, verification and enforcement (MV&E) framework will be developed. The activity will assess MV&E needs and how roles and responsibilities over the green building standards' compliance evaluation, monitoring and enforcement are to be distributed. This also includes the development of a methodology for assessing the energy performance baseline of existing and new buildings, as well as the development of energy audit methodologies and templates.															
Activity 5.3: Development of user manuals This activity will develop user manuals that will help professionals comply with the new green building codes step by step for retrofitting old buildings and for the construction of new buildings. It will contain practical information such as a clean technologies and materials database developed under Activity 3.2, a registry of certified energy auditors by locality and case studies.															
Activity 5.4: Delivery of a training the trainers programme This activity will include the delivery of a training the trainers programme on increasing the energy efficiency in existing and new buildings, targeting experts (including architects, engineers, constructors, and energy managers) with the objective to capacitate them to provide trainings. It will elucidate the newly developed green building standards and MV&E framework, provide an overview on the clean technologies and materials database (Activity 3.2), highlight cost-benefit opportunities and provide guidelines on training provision. The training the trainers programme will host a maximum of 20 participants and will take place in person over a															

period of 3 days, if not otherwise required my national regulations at the time of delivery. An equal participation of women shall be guaranteed.															
Deliverables 5: Deliverable 5.1: MV&E Framework Deliverable 5.2: User manuals Deliverable 5.3: Capacity building material, programme report including agenda and (gender disaggregated) list of participants												X		X	X
Output 6: Development of financing mechanisms to implement green building standards in existing government buildings															
Activity 6.1: Identification and development of most appropriate financing mechanisms and business models to transition to green government buildings To enable the transition to energy efficient new and retrofitted buildings in the government sector, financing mechanisms and business models will be identified and evaluated. This may include energy performance contracting, retrofitting loans, mortgages, guarantee facilities or other options. The most appropriate financing mechanisms and business models will be developed with implementation guidelines and timeframes.															
Deliverables 6: Deliverable 6.1: Report on recommended financing mechanisms															X

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	**Input: Human**	**Input: Travel** *(Purpose, national vs.*	**Inputs:**	**Input:**	**Estimated cost** *Please accumulate the*

Outputs	**Resources** *(Title, role, estimated number of days)*	*international, number of days)*	**Meetings/events** *(Meeting title, number of participants, number of days)*	**Equipment/Material** *(Item, purpose, buy/rent, quantity)*	*costing at Activity and Output level and provide an estimated costing range for each activity and the total Response Plan*	
					Minimum	**Maximum**
Output 1: Development of implementation planning and communication documents	IE1: 5 days NE1: 5 days				**USD 3,150**	**USD 3,500**
Activity 1.1: Formulation of i) Detailed work plan, ii) Monitoring and evaluation plan, iii) CTCN Impact Description, iv) Closure and Data Collection report.					USD 3,150	USD 3,500
Output 2: Introduction of project coordination mechanism	IE1: 14 days IE2: 8 days IE3: 8 days NE1: 18 days NE2: 5 days NE3: 6 days NE4: 5 days NE5: 6 days				**USD 72,900**	**USD 81,000**
Activity 2.1: Map relevant stakeholders					USD 4,500	USD 5,000

and establish a stakeholder working group						
Activity 2.2: Conduct an inception meeting		International travel of 3 days for IE1, IE2 and IE3 National travel of 1 day for NE1, NE2, NE3, NE4 and NE5 National travel of 1 day for inception meeting participants	Inception meeting, 1 day, 20 participants (+ 8 consultants)		USD 20,700	USD 23,000
Activity 2.3: Conduct of regular working group meetings		National travel of 1 day for NE1, NE2, NE3, NE4 and NE5 National travel of 1 day for working group participants	5 quarterly meetings, each 1 day, 20 participants (+ 5 consultants) Quarterly meetings will be in-person with international consultants (IE1 and IE2) joining virtually. The quarterly meetings will be hosted by the government.		USD 47,700	USD 53,000
Output 3: Assessment of	IE1: 30 days IE2: 15 days				**USD 39,600**	**USD 44,000**

building groups and regulations in Pakistan, and diagnosis of technological needs	IE3: 8 days NE1: 30 days NE2: 30 days NE3: 15 days					
Activity 3.1: Assessment of the current performance of building groups, capacities and existing regulations					USD 13,050	USD 14,500
Activity 3.2: Identification of international best practices and technologies					USD 11,700	USD 13,000
Activity 3.3: Gap analysis and evaluation of savings potential					USD 14,850	USD 16,500
Output 4: Development of green building standards	IE1: 23 days IE2: 23 days NE1: 23 days NE2: 21 days NE3: 18 days NE4 : 1 day NE5: 7 days				**USD 49,050**	**USD 54,500**
Activity 4.1: Development of draft green building					USD 23,760	USD 26,400

standards and policy guidelines						
Activity 4.2: Public consultation process		National travel of 1 day for NE1, NE2, NE3, NE4 and NE5	1 consultation process validation workshop, 1 day, maximum of 50 participants + 7 consultants International consultants will be joining virtually.		USD 17,910	USD 19,900
Activity 4.3: Finalization of green building standards and policy guidelines					USD 7,380	USD 8,200
Output 5: Development of effective mechanisms and tools for the implementation of building standards	IE1: 25 days IE2: 9 days NE1: 25 days NE2: 15 days NE3: 12 days NE4: 25 days NE5: 5 days				**USD 51,300**	**USD 57,000**
Activity 5.1: Development of an effective MV&E framework					USD 11,250	USD 12,500
Activity 5.2: Development of user manuals					USD 5,400	USD 6,000

Activity 5.3: Delivery of a training the trainers programme		International travel of 5 days for IE1 National travel of 3 days for NE1, NE2, NE3, NE4 and NE5 National travel of 3 days for training the trainers workshop participants	Training the trainers workshop, 3 days, 20 participants (+ 6 consultants)		USD 34,650	USD 38,500
Output 6: Development of financing mechanisms to implement green building standards in existing government buildings	IE1: 2 days IE3: 20 days NE1: 2 days				USD 9,000	USD 10,000
Activity 6.1: Identification and development of most appropriate financing mechanisms and business models to transition to green government buildings					USD 9,000	USD 10,000
Estimated range of costing for the entire Response Plan					**USD 225,000**	**USD 250,000**

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	
Team leader and energy efficiency technology expert (IE1)	• Master's degree or higher in civil or mechanical engineering with focus on building physics and green building designs • At least 10 years of experience in a lead role in implementing national and international development projects related to energy efficiency in buildings or the development/design of green buildings • Experience in carrying out or having been directly involved in at least one assignment of similar nature and complexity close to the present assignment • Experience with coordinating and liaising with multiple national and international stakeholders • Experience with developing building standards and improving energy efficiency in buildings • Experience in Asia-Pacific highly desirable
Legal expert (IE2)	• Master's degree or higher in construction, environmental or energy law • At least 10 years of experience in formulating and revising technical regulations, by-laws and norms • Knowledge of legislative and legal requirements in the construction and energy consumption in buildings sectors highly desirable • Experience in Asia-Pacific highly desirable
Energy efficiency finance expert (IE3)	• Master's degree or higher in civil or mechanical engineering or finance with focus on energy efficiency • At least 5years of experience in implementing national and international financing mechanisms for the uptake of new and retrofitted green buildings • Experience in carrying out or having been directly involved in at least one assignment of similar nature and complexity close to the present assignment • Experience in Asia-Pacific highly desirable

National experts	
Energy efficiency and technology expert (NE1)	• Master's degree or higher in mechanical engineering with a focus on energy efficiency and renewable energy or related field • At least 5 years of experience in improving energy efficiency in buildings • Strong familiarity with the context, challenges and opportunities in the building sector of Pakistan • Detailed knowledge of buildings related energy systems, locally available building energy efficiency technologies and materials, and existing building planning and construction norms • Experience with developing energy efficiency building standards is desirable
Architect (NE2)	• Bachelor's degree or higher in building construction, architecture or related fields from a recognized university • At least 5 years of experience in the energy efficiency in buildings sector or the development / planning of Green Buildings. • Detailed knowledge of local and regional construction sector trends and requirements, and good knowledge of local construction practices and construction materials • Experience with contributing towards developing technical specifications for building standards related to the building envelop
Legal expert (NE3)	• Master's degree or higher in construction, environmental or energy law • At least 5 years of experience in formulating and revising technical regulations, by-laws and norms • Knowledge of national legislative and legal requirements in the construction and clean energy sector
Capacity building and skills development consultant (NE4)	• Bachelor's degree or higher in communication, education, energy, engineering or related fields • At least 5 years of experience in training professionals in the clean energy and/or building and construction sector • Experience in developing manuals and professional training modules • Knowledge of construction requirements and building planning procedures highly desirable
Gender expert (NE5)	• Bachelor's degree or higher in gender studies or related fields • At least 5 years of experience in mainstreaming gender benefits in development programs • Knowledge of energy efficiency and building sectors highly desirable

6. Intended contribution to impact over time

The Sustainable Energy for All National Action Plan of Pakistan from 2019 has identified an over-reliance on oil and gas in the energy mix, and under utilization of renewable energies and energy efficiency measures and a lack of access to electricity of about 27% of the population.

Via this technical assistance, Pakistan aims to tackle the challenge of increasing energy demand and inefficient energy consumption of buildings through the introduction of green building standards for new buildings and building retrofits. Over time, this will promote the use of energy efficiency and renewable energy in the building sector, thus contributing to realizing the country's energy efficiency potential.

7. Relevance to NDCs and other national priorities

The updated Nationally Determined Contribution from 2021 prioritizes energy demand and supply management and engagement of private sector as key mitigation priorities. Specific actions include green building codes and certification for new and refurbished buildings, including revolving guarantee mechanisms for energy efficient appliances (p34). Furthermore, Pakistan prioritizes mandatory energy audits of large energy consuming industries and companies.

https://policy.asiapacificenergy.org/sites/default/files/Pakistan%27s%20Updated%20Nationally%20Determined%20Contribution%202021.pdf

The updated National Climate Change Policy from 2021 explicitly mentions "Development and adoption of "Green Building Code" may be expedited to help reduce negative impacts of climate and natural environment" as a key policy measure.

http://www.mocc.gov.pk/SiteImage/Policy/NCCP%20Report.pdf

The Sustainable Energy for All National Action Plan from 2019 targets the promotion of energy efficiency and conservation and more specifically, energy efficiency measures in buildings through energy building codes as a key component for a sustainable energy transition in Pakistan.

https://www.undp.org/sites/g/files/zskgke326/files/migration/pk/National-Action-Plan---Final-28th-Nov-2019.pdf

8. Linkages to relevant parallel on-going activities:

Energy efficiency has been prioritized throughout various policies that guide Pakistan's energy and climate initiatives include Pakistan's Nationally Determined Contribution 2021, National Climate Change Policy 2021 and Sustainable Energy For All (SEforAll) National Action Plan 2019 where the aim is to double the energy efficiency rate by 2030. Pakistan has implemented minimum energy performance standards for a series of appliances. However, no green building standards or regulations exist to date.

At present there are about 18 to 20 buildings in Pakistan which are LEED Certified and registered with the US Green Building Council. These include British Council Library in Lahore, NCC

Karachi, Mega Corporate Office – Karachi, Karachi Citiplan, World Bank Country Office – Islamabad, etc.

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

Following the completion of the technical assistance, Pakistan will conduct the following follow-up activities:

- Adoption of green building standards (if not done already during the runtime of the technical assistance)
- Translation of green building standards to provincial government laws, regulations and policies
- Incorporation of green building standards into energy efficiency documents and policies at both national and provincial level
- Operationalization of MV&E Framework and training of energy auditors/managers
- Introduction of financing mechanisms and business models
- Operational usage and distribution of the clean technologies and materials database
- Ongoing capacity building on clean technologies and materials database within industry and consumers

10. Gender and co-benefits:

Imbedded in design of the activities:	The project aims to actively involve women at each stage of its implementation and ensure that their participation is brought in at all levels of decision making. This technical assistance will facilitate women's participation in the following ways: • **Decision making:** Active involvement in decision making processes of female professionals within the built environment, manufacturing industry, and user groups • **Capacity building:** all capacity building activities will include women participants at an equitable basis • **Awareness raising:** Activities will have a specific part targeted to all relevant women stakeholders.
Gender and co-benefits intended as result of the activities:	As a result of the technical assistance, the following co-benefits for women, youth and other vulnerable groups are expected: • Women will gain access to a more reliable energy supply and an improved quality of life • Ongoing capacity building and skills enhancement will be provided to women in the construction sector • Business opportunities for women in the buildings and construction sector will be set forth

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
Ministry of Climate Change (NDE)	Technical assistance coordination, stakeholder engagement, standards shaping and development
Ministry of Housing and Works	Technical assistance coordination, stakeholder engagement, data and research input, standards shaping and development, action planning and operationalization of standards
Ministry of Energy	Data and research input, standards shaping and development
Other ministries: • Ministry of Finance, Revenue and Economic Affairs • Ministry of Industries and Production • Ministry of Planning, Development and Reform • Ministry of Science and Technology	Data and research input, standards shaping and development
Naya Pakistan Housing & Development Authority	Standards shaping and development, action planning and operationalization of standards
Pakistan Standard & Quality Control Authority	Development and adoption of standards
Engineering, planning and architecture institutions	Policy shaping and development, action planning and operationalization of standards, research and implementation
Private Sector (Manufacturing Industries)	Assisting in the identification of market needs and exploring new economic opportunities, input into financial measures and instruments to stimulate green building uptake
Universities and research institutions	Data and research input, stakeholder engagement
Media	Communication and knowledge distribution on standards and green buildings
NGOs and Development Partners	Stakeholder engagement, potential follow-up funding
Commercial, Development and International Banks	Private sector mobilization and stakeholder input, input into financial measures and instruments to stimulate development of green buildings

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)	Implementation of green building standards will contribute towards reducing energy consumption in existing buildings and energy demand in new buildings, thus making energy supply more reliable and sustainable.
	7.1 - By 2030, ensure universal access to affordable, reliable and modern energy services	Green building standards will facilitate the use of renewable energy and energy efficiency technologies. This will contribute to making the national energy supply cleaner and modern.
	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	Implementation of the green building standards will generate new opportunities for international cooperation on energy efficiency and renewable energy technologies.
	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	
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	*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	
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Capacity building and awareness raising activities will facilitate implementation of the green building standards in existing and new buildings, thus contributing to climate change mitigation.
	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	
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	☐	☐
☐ 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	☐	X
☐ 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; (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.

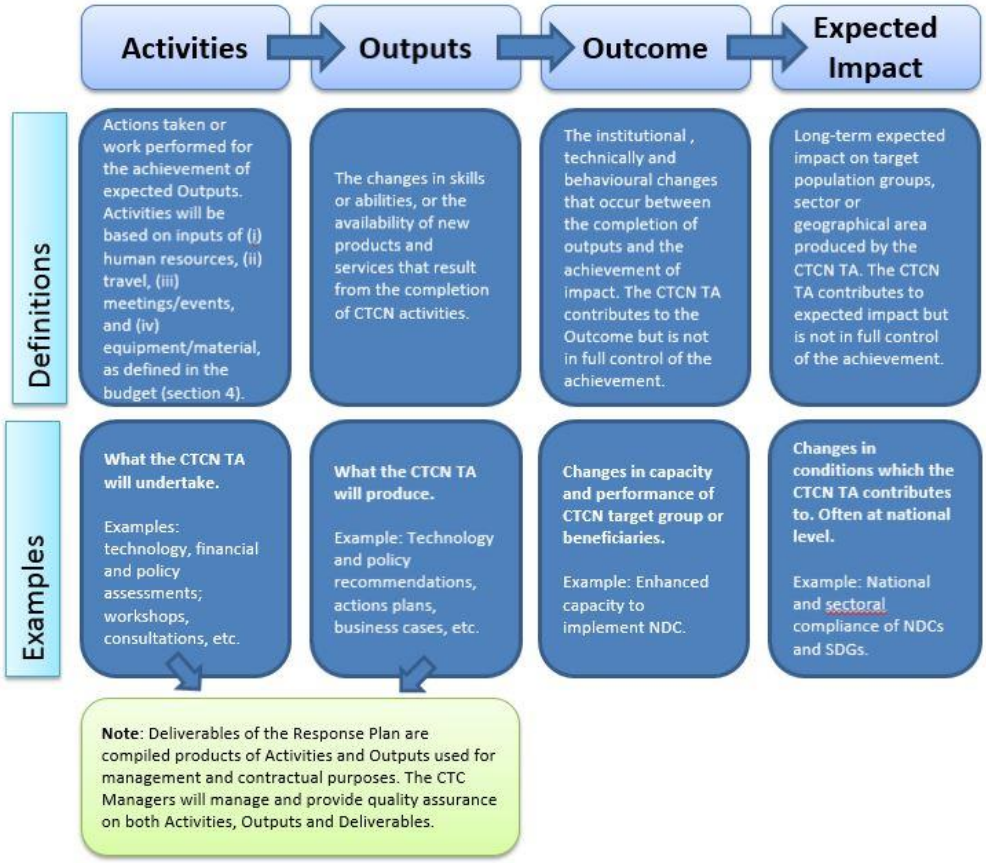
Annex 1: Guidance note for designing a Response Plan (to be deleted when submitting the Response Plan)

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.

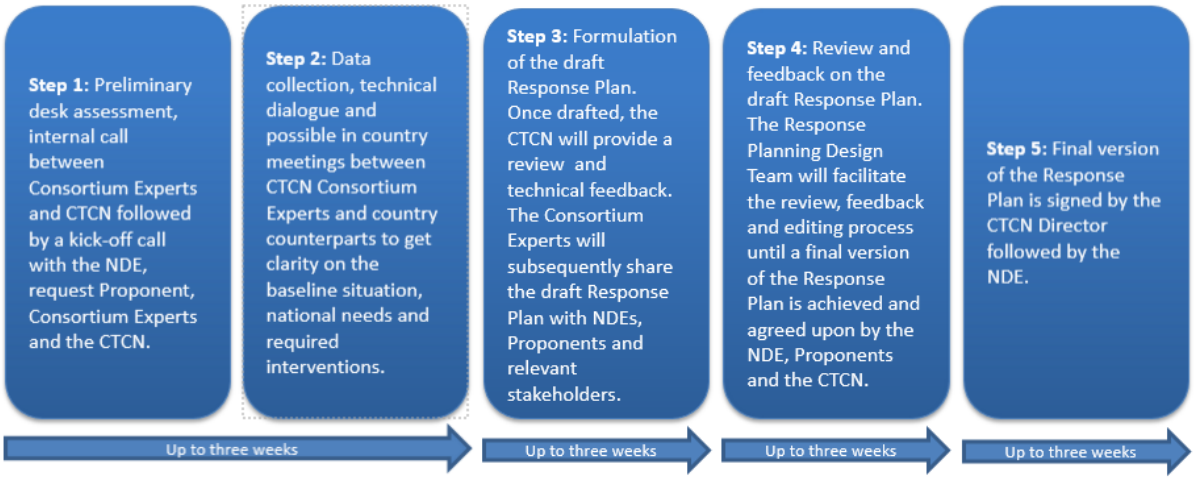
The role of CTCN Consortium experts is to lead the design of the Response Plan. The NDE will provide overall guidance on national context and priorities whereas the request Proponent will provide more detailed information on the sector, barriers and requested assistance. The Climate Technology Manager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