CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

Technical Assistance Response Plan - Terms of Reference

Country	**Kyrgyz Republic**
Request ID#	**2020000011**
Title	*Develop revised national building codes with enhanced energy efficiency parameters for existing and new public and residential buildings in the Kyrgyz Republic*
NDE	Climate Finance Centre (CFC) Mr. Kanat Abdrahmanov, Director E mail id: kanat.adbrahmanov@gmail.com
Proponent	Climate Finance Centre (CFC)

Summary of Climate Technology Centre and Network (CTCN) technical assistance

In the Kyrgyz Republic, nearly 85% of the housing stock, 77% of the administrative buildings and over 60% of public buildings such as schools and hospitals were built before 1991 (Green Economy Development Programme for 2019-2023, 2019). These buildings were built according to building codes' requirements developed during the Soviet era, which are no longer in line with today's energy efficiency performance benchmarks and technological advances. As a result, the country's buildings feature high heating losses (70%), which puts heavy pressure on the national energy demand.

The present technical assistance (TA) proposal aims to tackle this major national challenge through updating national building codes with improved energy performance parameters. As per the country's request, the TA will revise the following three building codes:

- Boiler Installations;
- Heating, Ventilation and Air Conditioning (HVAC); and,
- Multicompartment Residential Buildings, or building envelop (energy consumption and performance part only).

The revised building codes will set mandatory minimum energy performance requirements designed to regulate the energy use in all new and existing public and residential buildings. Existing above-mentioned building codes cover both new buildings and existing buildings that undergo energy equipment renovation in 5 functionality building types, namely: residential family buildings, residential multicompartment buildings, administrative buildings, schools and kindergartens. These will constitute the focus of the present TA.

The TA will unfold through the following sequence of outputs:

1. TA coordination mechanism established and inclusive stakeholder working group formed;
2. International best practices and gaps in the current national legal and regulatory framework related to public and residential buildings analysed. Most relevant clean energy technologies and building materials identified;
3. First drafts of the three selected building codes developed;
4. Official review of the first drafts conducted and revised building codes finalised;
5. Effective mechanism and tools to implement and enforce the revised building codes designed.

Agreement:

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

National Designated Entity to the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism

Name: Mr. Kanat Abdrahmanov,
Title: Director
Date:
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Climate Technology Centre and Network (CTCN)

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Date: 15-02-2021
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Technical Assistance Response Plan - Terms of Reference

1. Background and context

The energy sector accounts for the largest share (61.1%) of total greenhouse gas (GHG) emissions in the Kyrgyz Republic (USAID, 2017). The **building sector in particular constitutes over 70% of the total electricity consumption and contributes to 35% of the country's GHG emissions** (World Bank, 2019). Indeed, most of the country's existing building stock has been constructed 75 to 35 years ago, during the Soviet era. Lack of maintenance and timely retrofit brought these buildings into an obsolete condition, which results in significant high heat losses. Such losses increase the energy demand per square metre up to 3 to 5 times in comparison with countries of the European Union (EU) (UNDP , 2008).

In addition, **new building stock is growing at a rapid pace**. Domestic migration from rural to urban areas coupled with a population growth of 14% between 2009 to 2017 made the urban housing demand increase by 27 % during the same time period (Green Economy Development Programme for 2019-2023, 2019). As a result, between 2006 and 2015 the electricity demand in the country increased by 52%. Public and residential buildings account for nearly 70% of this increase (International Energy Charter , 2018).

Combined with low energy efficiency in the building stock, this increase made the country's electricity consumption grow faster than its electricity generation capacity. Over 90% of the country's electricity is generated through hydropower. Since 35% of urban heating comes from electricity, its demand triples during the winter months, from November to March (World Bank, 2015). This leads to a 20 to 25% gap in heating supply in public and residential buildings and, hence, to a low comfort level in many buildings. At the same time, this also makes the country dependent on energy imports. Due to seasonal winter domestic shortage in electricity generation, heavily dependent on hydro power plants, 40% of the fuel for electricity generation is imported from neighbouring countries, to meet the country's electricity needs (UNECE, 2018).

The Third National Communication estimates that **energy efficiency improvements could reduce the country's energy consumption by 30 to 50%.** In particular, potential for energy savings in public and residential buildings through energy efficiency measures and energy saving technologies is nearly 40%. The Green Economy Development Programme hence identifies energy efficiency in buildings as one of its six priority focuses.

2. Problem statement

Existing building stock of the Kyrgyz Republic is largely in a dilapidated condition. Approximately 85% of the housing stock, 77% of public administrative buildings and over 60% of public buildings such as schools and hospitals were constructed before 1991 (Green Economy Development Programme for 2019-2023, 2019). Building components such as walls, heating systems and roofs have a low energy efficiency performance causing **heat losses in buildings to reach 70%.** At the same time, these buildings are compliant with existing Construction Norms and Regulations of the Soviet Union (SNiP), which calls for their urgent revision.

Since 1991, the country attempted a revision of building codes to improve the energy efficiency standards in buildings. In 2009, Thermal Engineering (Thermal Protection in Buildings - SNiP KR 23-01:2009) was revised for all new and existing buildings. However, other existing building codes remain outdated:

- The Boiler Installations code dates back to 1978;
- The Heating, Ventilation and Air Conditioning Installations code dates back to 1991;
- The Multicompartment Residential Buildings code (building envelope) dates back to 2004. A revision was attempted in 2012, but the draft has not been adopted.

To improve the energy performance in buildings and reduce the energy demand, there is an urgent need to incorporate energy efficient technologies and materials into buildings' design and construction. Some of the Commonwealth of Independent States (CIS) members, namely Belarus, Kazakhstan and the Russian Federation have adopted revised their building codes with enhanced energy performance standards in 2016, 2013 and 2017 respectively. Based on the learnings and best practices of these countries, the government of the Kyrgyz Republic aims to develop revised building codes that incorporate energy performance standards in line with the latest international standards to the extent relevant for the country's specific context.

The country has already laid down legal and regulatory foundations for the building codes to be revisited. A Law on Energy Conservation was enacted in 1998 and amended 2019 with the assistance from the European Bank for Reconstruction and Development (EBRD). The main objective of this law is to increase energy efficiency at each stage of the energy generation, transmission, distribution and consumption. In particular, Article 15 mandates establishing energy consumption norms in buildings and updating them at least every three years. This article is yet to be implemented.

In 2012, the government also passed a Law on Energy Efficiency in Buildings, which emphasises on regulating the energy consumption in buildings by introducing minimum energy efficiency requirements for new buildings and retrofits in existing buildings. Due to insufficient institutional capacities and unclear guidelines, provisions under this law have not been effectively enforced. As an effort to increase energy efficiency in buildings, the UNDP and GEF supported the country through the program Improving Energy Efficiency in Buildings in the Kyrgyz Republic, which resulted in the adoption of a revised SNiP 23-01:2009 on Thermal Protection of Buildings.

Other building codes could not yet be revised despite multiple attempts. The UNDP program on Improving Energy Efficiency in Buildings and the World Bank's project Roadmap for Implementation of Energy Efficiency in Public Buildings identified legislative challenges, capacity and knowledge limitations as well as multiple institutional, financial and technological challenges as **major barriers**. In particular:

- **Legislative challenges**: Amendments to the Law on Energy Conservation adopted in 2019 still lack a regulatory framework such as administrative acts to enforce it;
- **Capacity and knowledge limitations**: Governmental agencies and implementing authorities have limited understanding of technical specifications required for developing energy efficiency building codes. There is a lack of qualified professionals such as energy auditors, accredited energy efficiency architects and engineers who can conduct the mandatory energy certification of buildings as well as implement, evaluate and enforce energy efficiency standards in buildings;
- **Institutional challenges**: The energy sector is currently overlooked by the State Committee on Industry, Energy and Subsoil Use, which comprises an Energy Efficiency and Renewable Energy division hosting only a few experts. This number appears insufficient to conduct the amount of required work in updating and enforcing energy efficiency provisions. Limited cross-sectoral cooperation and insufficient coordination also lead to a lack of effective energy

efficiency policies' implementation. There is a need for an institutional framework with well-defined roles and responsibilities for each member to effectively implement and enforce energy efficiency building standards;

- **Financial challenges**: The perception of a high capital cost and slow return on investment limits investment into in 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;
- **Technology limitations**: Lack of energy efficiency technology suppliers and limited locally available technologies creates difficulties in sourcing reliable and efficient energy saving appliances and technologies that can effectively reduce energy consumption in buildings.

The present TA seeks to help the country overcome these challenges and develop revised national building codes with enhanced energy performance standards for the following building components: heating, ventilation and air conditioning installations (HVAC); hot water systems (boiler installations); building envelopes for multicompartment residential buildings (energy consumption related provisions only). The building codes will cover five categories of buildings, namely residential family building, residential multicompartment buildings, administrative buildings, schools and kindergartens as stipulated in the regulation on the Energy Certification of Buildings adopted in 2012.

3. Logical Framework for the CTCN Technical Assistance:

	Month[1]														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
***Goal**: Contribute to meeting the country's objective of reducing its energy consumption by 30 to 50 % by increasing energy efficiency in buildings through revised building codes.*															
***Outcome**: Three national building codes for public and residential new and existing buildings revised with enhanced energy efficiency parameters for boiler installations; heating, ventilation and air conditioning installations; and building envelop for multicompartment residential buildings (energy performance part).*															
Mandatory Output: Develop communication documents and implementation work plan															
Mandatory activities: *All implementers must undertake the following activities at the beginning and at the end of the CTCN technical assistance.* **Activity i**: A detailed implementation plan for all activities, deliverables, outputs, deadlines and responsible persons/organizations, including a gender study and an itemized budget for implementing the Response Plan. The detailed implementation plan and budget must be based directly on this Response Plan. **Activity ii**: Based on the work plan, a monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators should be developed to evaluate the timeliness and appropriateness of implementation. The indicators selected in the monitoring and evaluation plan should be aligned with the Closure and Data Collection Report template. This will enable the implementer to complete the CTCN Closure and Data Collection Report at the end of the technical assistance (please refer to Activity 1.4 and Section 14 of the Response Plan); **Activity iii**: A two-page description of the expected impact of the CTCN technical assistance prepared at the start of the assistance, updated at the end of the technical assistance (a template will be provided).															

[1] The project timeline can be adjusted according to the level of development of the participating country.

Activity iv: A CTCN Closure and Data Collection report completed at the end of the technical assistance (a template will be provided).																
Mandatory Deliverables:																
i) Implementation plan	X															
ii) Monitoring and evaluation plan	X															
iii) Impact description document (initial and final version)	X															X
iv) Closure and Data Collection Report																X
Output 1: TA coordination mechanism established and inclusive stakeholder working group formed																
Activity 1.1: Map relevant stakeholders and establish a stakeholder working group The activity will identify relevant stakeholders among governmental institutions at the national and sub-national levels, building and construction sector professionals, energy efficiency and renewable energy technology experts, 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 three selected building codes' revisions' process.	X															
Activity 1.2: Conduct an inception meeting An inception meeting will be organised to present the goals, milestones, anticipated deliverables and the role of the stakeholder working group. Outcomes of the inception meeting will be fed into the implementation plan elaborated under Activity i of the Mandatory output.	X															
Deliverable:																
1.1 Stakeholder mapping report containing a complete stakeholder list.	X															
1.2 Inception meeting report.	X															
Output 2: International best practices and gaps in the current national legal and regulatory framework related to public and residential buildings analysed. **Diagnosis of technological needs (clean energy and building materials)**																
Activity 2.1 Benchmarking of international best practices in energy performance related to building codes from countries with similar socio-economic, geographic and climatic conditions. Identify most relevant provisions for the Kyrgyz Republic. International best practices in building codes related to boiler installations, HVAC and building envelop will be reviewed. Focus will be placed on the relevant EU Energy Directives and recently revised building codes of the Commonwealth of Independent States' (CIS) members. Particular attention will be dedicated to recently revised building codes of Belarus, Kazakhstan and the Russian Federation. New energy		X														

performance standards for the Kyrgyz Republic will be developed in accordance with these best practices under Output 4.																
Activity 2.2: Conduct a gap analysis of existing national policies, laws, regulations and guidelines related to energy efficiency in buildings The activity will conduct a gap analysis to identify limitation of existing policies, laws, regulations and guidelines to help the country improve on the implementation of the existing legal and regulatory energy performance provisions and of the revised building codes. This activity will include reviewing parameters of the current classification of buildings into 7 energy performance classes (A to G) and identify optimal and feasible minimum class requirements.			X												
Activity 2.3: Conduct a gap analysis of the selected three building codes (boiler installations, HVAC and multicompartment residential buildings – energy performance provisions) Conduct a gap analysis to identify limitations of the current versions of the three building codes (SNiPs) of focus in the frame of this TA. The assessment will elucidate current energy efficiency and renewable energy provisions for buildings and identify parameters with insufficient energy efficiency and renewable energy requirements to be updated to match modern technologies, international standards and best practices in building codes analysed under Activity 2.1.				X											
Activity 2.4: Create a database of most relevant clean energy technologies and building materials to be deployed in public and residential buildings of the country An assessment will be conducted to map available energy efficiency and renewable energy technologies and building 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 building materials relevant for the country's energy performance goals and holding an optimal deployment potential on the Kyrgyz market will be created. This database will help finalise energy performance parameters for the revised building codes in a grounded and realistic manner.				X											
Activity 2.5: Conduct a stakeholder working group meeting 1 A stakeholder meeting will be conducted to discuss the outcomes from Activities 2.1 to 2.4. Based on the findings, the stakeholder working group will finalize energy performance targets and select the approach (prescriptive, performance based or combined approach) for the revised building codes. Energy performance targets will also take into consideration the ambitions and goals of national energy efficiency policies.					X										
Deliverable:																
2.1 Technological diagnosis of most suitable international best practices in buildings codes for HVAC, boiler installations and multicompartment residential buildings		X														
2.2 Outline of findings of gap analysis existing national policies, laws, regulations and guidelines related to energy efficiency in buildings			X													

2.3 Outline of findings of gap analysis of the three selected building codes			X												
2.4 Database of most relevant clean energy technologies and building materials to be deployed in public and residential buildings			X												
2.5 Stakeholder working group meeting report that includes finalised energy performance targets and approach for each building code				X											
Output 3: First drafts of the three selected building codes developed Based on the Output 3, first drafts of the three building codes will be developed.															
Activity 3.1: Develop first drafts of the three building codes First drafts of the three building codes will be formulated based on the Deliverables from Outcome 2. They will include revised minimum energy performance requirements for parameters such as thermal value (U-value) for walls and roofs, air-conditioning systems, energy efficiency of boiler systems, lighting efficiency or renewable energy inputs for new and existing public and residential buildings. The drafts will be circulated for comments to the stakeholder working group prior to the meeting scheduled in Activity 3.2.						X									
Activity 3.2: Conduct stakeholder working group meeting 2 to review and discuss the first drafts of the building codes A meeting with the stakeholder working group will be organised to gain technical insights on the first drafts of the three building codes. Based on comments and inputs, first drafts will be revisited.						X									
Deliverable:															
3.1 Firsts drafts of the three building codes for HVAC, boiler installations and multicompartment residential buildings						X									
3.2 Stakeholder meeting report and revisited first drafts of the three building codes						X									
Output 4: Official review of the first drafts conducted and revised building codes finalised															
Activity 4.1: Circulate first drafts of the three building codes and collect official feedback First drafts of all three building codes will be circulated to all concerned national ministries, governing authorities and to the stakeholder working group for official feedback and comments.							X								
Activity 4.2: Conduct an official review workshop The workshop will allow for a discussion on comments received so that joint decisions can be taken on points of debate.							X								
Activity 4.3: Incorporate comments and develop second drafts of the three building codes Comments and inputs from governmental authorities and stakeholder working group on the first drafts will be incorporated into second drafts of the three building codes.								X							
Activity 4.4: Circulate second drafts and collect official feedback First drafts of all three building codes will be circulated to all concerned national ministries, governing authorities and to the stakeholder working group for final feedback and comments.									X						

Activity 4.5: Incorporate comments and develop final drafts of the three building codes Comments and inputs from governmental authorities and stakeholder working group on the first drafts will be incorporated into third and final drafts of the three building codes.										X						
Deliverable:																
4.1 Compiled feedback and comments on first drafts of the three building codes							X									
4.2 Official workshop review report							X									
4.3 Second drafts of three building codes								X								
4.4 Compiled feedback and comments on first drafts of the three building codes									X							
4.5 Final drafts of three building codes									X							
Output 5: Effective mechanism and tools to implement the revised building codes designed																
Activity 5.1: Develop an institutional framework for an effective implementation of revised building codes To facilitate successful implementation of the revised building codes, an institutional framework will be developed. The activity will assess the existing institutional framework related to the buildings, construction and clean energy sectors and recommend how roles and responsibilities over the revised building codes' compliance evaluation, monitoring and enforcement are to be distributed. A most effective and feasible institutional framework will be developed. It will include suggestions on a mechanism for an effective inter agency coordination.											X					
Activity 5.2: Develop a methodology on assessing the energy performance baseline of existing buildings in the country To assess the energy performance progress associated with implementing the revised building codes, it is essential to establish an energy performance baseline of existing public and residential buildings. Conducting a baseline assessment may not fit into the timeline of the present TA, however this activity will take a first step towards it by creating a methodology indicating how to proceed.												X				
Activity 5.3: Develop an energy audits in buildings methodology for new and existing public and residential buildings In order to successfully implement the revised building codes, energy audits of buildings will need to become a business as usual practice. This cannot happen without a transparent methodology and a sufficient number of trained energy auditor. This activity will develop a methodology for energy audits in buildings.													X			
Activity 5.4: Workshop for policy makers and implementing agencies The workshop will present the finalised three building codes' draft, the proposed institutional implementation mechanism and the two methodologies for a discussion and a preliminary approval. Following this workshop, the agreed upon institutional implementation and coordination mechanism may seek official endorsement.														X		

Activity 5.5: Develop a user manual on revised building codes This manual will help professionals understand the changes from the old building codes and comply with the revised building codes step by step. It will contain practical information such as a clean technologies database developed under Activity 2.4, a registry of certified energy auditors by locality and case studies.														X	
Activity 5.5: Prepare and conduct an awareness raising seminar on gains from increasing energy efficiency in existing buildings Energy efficiency in buildings targets cannot be reached without a focus on retrofitting the existing building stock. The seminar will hence target owners, tenants, professionals, construction firms and local administrations. It will elucidate latest governmental plans on energy tariffs and present energy efficiency as an opportunity to reduce the energy cost and increase the level of comfort inside the buildings. It will include examples of a cost benefit analysis based on selected case studies in the Kyrgyz Republic and, possibly, in other CIS countries.														X	
Deliverable:															
5.1 Institutional implementation framework outline											X				
5.2 Methodology on assessing the energy performance baseline of existing buildings in the country												X			
5.3 Energy audits in buildings methodology for new and existing public and residential buildings													X		
5.4 Workshop report														X	
5.5 A user manuals on revised building codes														X	
5.6 Seminar report														X	

4 Resources required and itemized budget:

Provide an indicative summary of the necessary resources and detailed budget required to implement the technical assistance of the CTCN, including monitoring and evaluation activities, with the help of the following table. It is important to note that a minimum of 1 per cent of the budget must be explicitly aimed at gender-specific activities related to technical assistance (see Section 10 for more information on gender). Once the response plan is completed, the Climate Technology Centre (CTC) will select the implementers responsible for implementing the response. *The CTCN and the chosen lead implementer will need to agree on a detailed activity-based budget.*

A detailed version of the budget is included in a separate Excel sheet submitted along with the present document.

Activities and Outputs	**Input: Human resources** *(Title, role, estimated number of days)*	**Input: Travel** *(Purpose, national vs. international, number of days)*	**Inputs: Meetings and events** *(Meeting title, number of participants, number of days)*	**Input: Equipment and resources** *(Item, purpose, buy/rent, quantity)*	**Estimated cost (US $)** *Please indicate the cumulative cost of the activities and outputs and provide an estimated cost range for each activity and the entire Response Plan.*	
					Minimum	**Maximum**
Mandatory Output: Development of the work plan and related communication documents	I1 9days N1 16 days N2 1 days	None	None	None	2,000	7,000
	National Coordinator:	Lump sum @1000USd / month for 18 months			18,000	18,000
Output 1: TA coordination mechanism established and inclusive stakeholder working group formed	I1 4 days N1 10 days N2 6 days N3 3 days N5 4 days	Travel for inception meeting (Activity 1.2) USD 2,200 international travel +	Stakeholder Working Group (WG) meeting 1 (Activity 1.2): USD 1,500 logistics	None	10,000	12,000

		USD 2,000 local travel				
Output 2: International best practices and gaps in the current national legal and regulatory framework related to public and residential buildings analysed. Most relevant clean energy technologies and building materials identified	I1 31 days I2 24 days N1 60 days N2 17 days N3 30 days N5 2 days	Travel for Stakeholder Working Group (WG) meeting 1 (Activity 2.5): USD 4,400 international travel + USD 2,000 local travel	Stakeholder Working Group (WG) meeting 1 (Activity 2.5): USD 1,500 logistics	None	45,000	50,000
Output 3: First drafts of the three selected building codes developed	I1 18 days I2 12 days N1 35 days N2 10 days N3 22 days	Travel for Stakeholder Working Group (WG) meeting 2 (Activity 3.2): USD 4,400 international travel + USD 2,000 local travel	Stakeholder Working Group (WG) meeting 2 (Activity 3.2): USD 1,500 logistics	None	30,000	35,000
Output 4: Official review of the first drafts conducted and revised building codes finalised	I1 33 days I2 17 days N1 60 days N2 12 days N3 32 days N5 2 days	Travel for official review workshop (Activity 4.2): USD 4,400 international travel + USD 2,000 local travel	Official review workshop (Activity 4.2): USD 1,500 logistics	None	45,000	50,000

Output 5: Effective mechanism and tools to implement and enforce the revised building codes designed	I1 53 days I2 16 days N1 95 days N2 27 days N3 35 days N4 15 days N5 8 days	Travel for workshop for policy makers (Activity 5,4) USD 2,200 international travel + USD 3,000 local travel Travel for awareness raising seminar (Activity 5.6): USD 4,000 local travel	Workshop for policy makers (Activity 5,4): USD 1,500 logistics Awareness raising seminar (Activity 5.6): USD 1,500 logistics	None	75,000	78,000
Estimated cost range for the entire Response Plan (US$)					**225,000**	**250,000**

5 Profile and experience of experts

Experts required	Brief description of required profile
International experts	
Team leader and energy efficiency technology expert (boiler systems, HVAC and building envelopes) – I1	PhD or Master's degree in building physics, civil or mechanical engineering. At least 12 years of experience in a lead role in implementing national and international development projects related to energy efficiency in buildings. Experience with coordinating and liaising with multiple national and international agencies. Experience with developing building codes and improving energy efficiency standards in buildings highly desirable. Experience with CIS countries highly desirable. Familiarity with national energy efficiency policies and programs of the Kyrgyz Republic desirable. Qualified women candidates are highly encouraged to apply.
Legal Expert – I2	Master's degree or above in construction law or environmental law 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 with CIS countries highly desirable. Familiarity with national energy efficiency policies and programs of the Kyrgyz Republic desirable. Qualified women candidates are highly encouraged to apply.
National experts	
Energy efficiency technology expert (boiler systems, HVAC system and building envelopes) – N1	Master's degree in mechanical engineering with a focus on energy efficiency and renewable energy or related field. At least 10 years of experience in improving energy efficiency in buildings. Strong familiarity with the context, challenges and opportunities in the building sector of the Kyrgyz Republic. Detailed knowledge of buildings related energy systems, locally available building energy efficiency technologies and exiting building planning and construction norms is essential. Experience with developing energy efficiency building codes is desirable. Qualified women candidates are highly encouraged to apply.
Architect – N2	A Master's or Bachelor's degree in building construction, architecture or other related field from a recognized university, with at least 10 years of experience in the energy efficiency in buildings sector. Detailed knowledge of local and regional construction sector trends and requirements, good knowledge of local construction practices and construction materials. The expert should be able to contribute towards

	developing technical specifications for building codes related to the building envelop. Qualified women candidates are highly encouraged to apply.
Legal expert – N3	Master's degree in construction law or environmental law or energy law, at least 8 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 is essential. Qualified women candidates are highly encouraged to apply.
Capacity building and skills development consultant - N4	A Master's or Bachelor's degree in skills development or other related field. At least 8 years of experience in training professionals in the clean energy and/or building or construction sector. Experience in developing training manuals and professional training modules is essential. Knowledge of construction requirements and building planning procedures highly desirable. The consultant will be involved in developing training materials and conducting trainings for professionals. Qualified women candidates are highly encouraged to apply.
Gender Expert – N5	A Master's or Bachelor's degree specialising in gender studies or other related field from a recognized university. At least 8 years of experience in mainstreaming gender benefits in development programs. Knowledge of energy efficiency and building sectors highly desirable. Qualified women candidates are highly encouraged to apply.
National Project Coordination	Engineer in Architecture, Construction and Housing, Town-planning, Construction and Engineering Design. Knowledge of energy efficiency and building sectors highly desirable Demonstrated experience in working with the proponent agencies.

6 Intended contribution to the expected impact of the technical assistance

The Kyrgyz Republic aims to tackle the challenge of an increasing energy deficit by enhancing energy efficiency of new and existing public and residential buildings. A study conducted by the International Energy Charter for the Kyrgyz Republic estimates that residential buildings' energy efficiency potential is nearly 88% of their annual energy consumption, whereas public and commercial buildings' potential is over 46% of their annual consumption. According to the Green Economy Development Programme, the potential for energy savings from public and residential buildings is nearly 40%.

The TA aims to develop revised building codes (HVAC, boiler installations and multicompartment residential buildings) for all new and existing public and residential buildings in the Kyrgyz Republic. The revised energy efficiency building codes will promote the use of energy efficiency and renewable technology in the building sector thus contributing to realising the country's energy efficiency potential.

7 Relevance to NDCs and other national priorities

The **Nationally Determined Contribution (NDC)** submitted by the Kyrgyz Republic intends to reduce GHG emissions by 13.75% from the projected business-as-usual baseline by 2030. In 2014, the primary energy supply in the Kyrgyz Republic was nearly equally distributed between coal, oil and hydro power (International Energy Charter, 2018). The total final energy consumption was majorly split between oil products, electricity and coal fuel into a 38%, 30% and 19% share respectively. The public and residential sector accounted for nearly 70% of the electricity demand. Increasing the use of renewable energy technologies and energy efficiency measures, to be mainstreamed into revised building codes, will contribute to achieving the national energy efficiency and renewable energy targets.

The country's **Program on Energy Conservation and Energy Efficiency Policy for 2015–2017** aimed to achieve energy savings of 2.23 million tons of coal equivalent by increasing implementation of energy efficiency measures by 2017. The program was designed to reduce energy intensity by 30% and reduce the annual electricity consumption by 5% (International Energy Charter , 2018). The present TA will a posteriori contribute to this objective.

Improving energy efficiency in buildings is one of the key priorities for the Kyrgyz Republic. The county has adopted a number of laws to increase energy efficiency measures:

- The **Law on Energy Conservation** in 1998 was amended in 2019. It contains a provision on mandatory energy certification for all new buildings and buildings undergoing technical upgrading. Lack of revised building codes and an insufficient number of certified energy auditors significantly slowed down the implementation of this provision (World Bank, 2019). The present TA will tackle these gaps.
- The **Law on Energy Efficiency in Buildings** adopted in 2012 regulates the energy consumption in buildings by introducing minimum energy efficiency requirements for new buildings and buildings undergoing technical upgrading. It prescribes a mandatory periodic monitoring of energy consumption in boilers, heating systems and hot water supply systems installed in all residential, public and administrative buildings (World Bank, 2019). This monitoring will be made possible by the outcomes of the present TA.

Adopting updated building codes aligned with national energy efficiency goals and targets will create a required ground for a successful achievement of these goals and targets.

8 Links to relevant parallel activities:

The country has benefitted from a number of programs aiming at improving the energy performance in buildings. The present TA intends to build upon successes and lessons learned of past programs and to synergies with on-going programs.

The **UNDP implemented a program on Improving Energy Efficiency in Buildings** between 2008 and 2014. The program was designed to reduce energy consumption and associated GHG emissions in the building sector by nearly 40%. The project has been successful in developing a new building code SNiP KR 23-01:2009 on thermal performance in buildings. The stringency of the code requirement increases for larger and more compact buildings, for example the energy requirement for a 2-storey building is 96 kWh/ m² while a 12-storey and higher buildings are capped at 64 kWh/m². It is mandatory for all new and existing buildings, however the implementation of this new building code continues facing barriers. A number of other targets fixed by the project were not met, such as revising other building codes. The TA incorporates lessons learned from the project by including an output on creating an institutional implementation mechanism designed to facilitate implementation of the revised building codes.

In 2019, the Roadmap for Implementation of Energy Efficiency in Public Buildings was developed by the World Bank. Public buildings are responsible for nearly 10% of the country's primary energy consumption. An assessment by World Bank shows that implementing energy efficiency measures in public buildings has the potential to save approximately 60% of total energy consumption. The roadmap assesses the exiting institutional and regulatory framework and identifies barriers to increasing energy efficiency implementation efforts in public buildings. The assessment outcomes and identified barriers can guide will guide the present TA.

The country is part of an ongoing United Nations Economic Commission for Europe (UNECE) program on **Enhancing National Capacities to Develop and Implement Energy Efficiency Standards for Buildings in the UNECE Region**, which was initiated in July 2020. The program focuses on improving energy efficiency in residential buildings. In this frame, a gap analysis is being conducted in the country to understand limitations to implementing and enforcing high-performance standards for residential building. The findings of this gap and barrier analysis will guide the present TA in developing effective and implementable energy efficiency building codes for the Kyrgyz Republic.

The UNDP currently prepares recommendations on increasing energy efficiency in buildings and financing energy efficiency investments through a dedicated revolving fund under its under its **Environment, Climate Change and Disaster Risk Management** mandate. These recommendations should be ready by the end of 2020. The present TA will incorporate the recommendations developed under the UNDP program.

Finally, the **Kyrgyz Republic Development Program for 2018-2022** prioritizes a sustainable development of the energy sector through a reliable energy supply to the population and to the economy. Revised electricity and heating tariffs for public and non-residential buildings have been identified as one of the key means to meeting this priority. The revised policy will aim to increase the electricity tariffs by over 50% and the heating tariffs by over 80%. Such a drastic increase, if or when implemented, is likely to drive costumers towards more energy efficient technologies and appliances

in buildings (UNECE, 2018). The government also aims to apply a strict approach on collecting electricity payments from all categories of consumers. The present TA will timely set a favourable environment to investments into clean energy technologies in buildings.

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

The Kyrgyz Republic is planning to:

- Follow up with relevant authorities to ensure and facilitate the adoption of the revised building codes;
- Form a sufficient quantity of energy auditors specialised in the building sector;
- Put in place relevant communication materials and broadly disseminate knowledge and requirements related to the revised building codes among relevant stakeholders.

Potential futures activities could include:

- A socio-economic analysis of the actions proposed;
- The realization of an GHG inventory of the reduction of emissions that could be reduced by each actions;
- Knowledge disseminated and capacity of stakeholders engaged into implementing revised building codes enhanced.

10 Benefits in terms of gender and co-benefits:

Imbedded into the 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 TA will facilitate women's participation in the following ways: • Implementing team: women candidates will have a preference among equally qualified candidates during the consultant selection process; • Decision making: a minimal quota of women taking part to the stakeholder working group will be put in place. Preferably, and if feasible versus technical qualifications available in the country, a quota of 30% women members selected for the stakeholder working group will be applied; • Capacity building: all capacity building workshops will include women participants. Preferably, and if feasible versus technical qualifications available in the country, a quota of 30% women participants will be applied; • Awareness raising activities will have a specific part targeted to all relevant women stakeholders such as tenants, building owners, construction sector professionals and urban planners.
Gender and co-benefits of the activities:	Anticipated gender benefits of the project are: • Through the implementation of this TA, women in the Kyrgyz Republic will gain access to a more reliable energy supply and an improved quality of life;

	• Increased demand for energy efficient technologies and building materials will create green jobs women can apply for. Other anticipated co – benefits that will improve general quality of life are: • Improved energy security: reduced energy demand through increased energy efficiency will reduce the country's dependence on electricity imports; • Financial savings: domestic electricity tariffs for residential buildings are up to 3 times lower than the cost of imported electricity from neighbouring countries. Implementing the energy efficiency measures can reduce energy consumption in buildings and lower the electricity imports in the winter season, hence contributing to significant financial savings. • Increased level of thermal comfort and quality of life: Increasing energy efficiency in building will reduce heat losses and increase residents' thermal comfort.

11 Main national stakeholders in the implementation of the technical assistance activities:

National Stakeholder	**Function in the implementation of the technical assistance**
State Agency for Architecture, Construction and Housing (Gosstroi)	Gosstroi is in charge of developing and implementing state policies on energy conservation and energy efficiency in the construction and building sector. Two national institutes operate under Gosstroi: • **State Design Institute on Town-planning and Architecture**, in charge of developing national construction standards; • **State Institute on Earthquake Resistant Construction and Engineering Design**, in charge of developing engineering standards for buildings , in particular boiler installations and HVAC standards. Gosstroi and the two above-mentioned institutes are hence primary stakeholders and beneficiaries of the present TA, and will need to be tightly involved in all steps of its implementation.
State Committee for Industry, Energy and Subsoil Use	The State Committee for Industry, Energy and Subsoil Use is in charge of energy efficiency and renewable energy policies and regulations through its Energy Efficiency and Renewable Energy division. It will play an instrumental role in Outputs 2, 5 and 6.
State Inspectorate for Environmental and Technical Safety	State Inspectorate for Environmental and Technical Safety implements

	environmental and safety policies. It can provide guidance and critical inputs to environment and safety parameters related to new provisions of the three building codes.
The Climate Finance Centre of the Kyrgyz Republic	The Climate Finance Centre is the accredited National Designated Entity (NDE) to the CTCN, acts as a Secretariat to the Coordination Council on Green Economy Development and Climate Change (CCGEDCC) and assists the Ministry of the Economy in fulfilling its role of the National Designated Authority (NDA) to the Green Climate Fund (GCF). Its primary role is to bring climate finance into different economic sectors of the country. As such, the CFC will provide strategic guidance on provisions and requirements the revised buildings codes will need to contain in order to facilitate climate finance inflows into the construction and building sectors of the country.

12 Contribution to the SDGs:

Goal:	Sustainable Development Goal	Direct contribution from CTCN TA
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 lifelong 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 the revised building codes 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	Revised building codes will facilitate the use of renewable energy and energy efficiency technologies. This will contribute to making the national energy supply cleaner and more modern.
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	Revised building codes are likely to incorporate renewable energy provisions into the building design.

		This will contribute towards increasing the share of renewable energy in the total national 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 revised building codes 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 technical assistance should indicate relevance to SDG 13 and at least one of the following targets (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 faciliate implementation of revised building codes 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 tick the relevant boxes below	Primary	Secondary
☐ 1. Decision-making tools and/or information provision		
☐ 2. Sectoral road maps and strategies		
☐ 3. Recommendations for legal reforms, policies and regulations	X	
☐ 4. Financing facilitation		
☐ 5. Private sector engagement and market creation		X
☐ 6. Research and development of new technologies		
☐ 7. Feasibility of technology options		X
☐ 8. Piloting and deployment of technologies in local conditions		
☐ 9. Technology identification and prioritization		

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

14 Monitoring and evaluation process

Upon contracting the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. This 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) THE COUNTRY on overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer on the experience and knowledge gained through the technical assistance; and (iii) the CTCN Director on the timeliness and appropriateness of the activities and outputs.

Abbreviations and acronyms

CFC	Climate Finance Centre
CIS	Commonwealth of Independent States
CTCN	Climate Technology Centre and Network
EBRD	European Bank for Reconstruction and Development
EU	European Union
GCF	Green Climate Fund
GHG	Greenhouse Gases
HVAC	Heating, Ventilation and Air Conditioning
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDE	National Designated Entity
SNiP	Construction Norms and Regulations of the Soviet Union
TA	Technical Assistance