Mandatory Outputs -Deliverable 1

(Monitoring & Evaluation, Impact Statement and Implementation Plan)

Project: Develop revised national building codes with enhanced energy efficiency parameters for existing and new public and residential buildings in the Kyrgyz Republic

Prepared for: United Nations Support Office in Nairobi (UNSOS)

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Monitoring & Evaluation (M&E) Plan

Objective of the M&E Plan and Impact Statement:

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

Basic Information	
Title of response plan	**Develop revised national building codes with enhanced energy efficiency parameters for existing and new public and residential buildings in the Kyrgyz Republic - Implementation of GCF Project**
Technical assistance reference number	**RFP NUMBER: 3100004641** **CTCN reference: 2020000011**
Country/ countries	**Kyrgyz Republic**
NDE focal point and organisation	**Civic Foundation 'UNISON'**
Sector(s) addressed	**Public policy in energy efficiency of public and residential buildings**
Technologies supported	**Certification and standardization of energy efficiency parameters for existing and new public and residential buildings in the Kyrgyz Republic**
Implementation period and total duration	**15 months**
Total budget for implementation	**USD 248,400**
Designer of the response plan	**Climate Finance Center (CFC) of the Kyrgyz Republic**
Implementer of response plan	**Civic Foundation Unison**

(A) Outputs and Activities as described in the Response Plan	(B) Indicator	(C) Expected results	(D) Method and frequency for data collection	(F) Comments
Output 1: Add title from the Response Plan (e.g. CTCN planning and monitoring documents)	*Select relevant indicators from the Closure Report (at least one core indicator, section B). You may also define additional relevant indicators to be added.*	*Add the expected quantitative or qualitative target/value of the indicator (e.g. number of studies, policy recommendations, etc.).*	*Describe the expected method and frequency for data collection (e.g. survey, head count at a training workshop, application of a standard methodology etc.)*	*Describe any assumptions made or anticipated challenges for collecting quantitative and qualitative data*

Activity 1.1				
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.				
Output 1: TA coordination mechanism established and inclusive stakeholder working group formed	Anticipated number of direct and indirect beneficiaries as a result of the TA	1.a. Number of participants in the coordination mechanism	Closure Report	Multiple stakeholders, involved in the working group for revising building codes, are highly engaged and interactive whilst developing and adopting the regulatory (SNiPs);
Activity 1.1: Map relevant stakeholders and establish a stakeholder working group	Two working groups, at least 15 experts from stakeholder institutions	1.1.a. 15 people Government – 10 Private sector – 3 Civil Society – 2 Academic sector – 1 Men – 10 Women – 15	Data aggregation in the quarterly report by head count	
Activity 1.2: Conduct an inception meeting	One inception meeting, at least 25 participants with the group of participants	1.2.a. 25 people Government – 10 Private sector – 5 Civil Society – 5 Academic sector - 5 Men – 15 Women – 10	Data aggregation in the quarterly report by head count	
Output 2: International best practices and gaps in the current legal and regulatory framework related to public and residential buildings analyzed. Diagnosis of technological needs (clean energy and building materials)	One Analytical report by revieing the existing best international experiences	2.a. Up to 40 pages desk review Report by revieing the existing best international experiences	Identify all key gaps and opportunities revealed to work on within TA	All necessary literature, including but not limited to the government documents,
Activity 2.1 Benchmarking of international best practices in energy performance related to building codes from countries with similar socio-economic, geographic and climatic	5 international best practices related to building codes applicable to Kyrgyzstan reviewed	2.1.a. 5 international best practices reviewed and benchmarked - (EU-EPBD, CEN; ISO, ASHIRE, Russian Federation)	TA Closure report	

conditions. Identify most relevant provisions for the Kyrgyz Republic.				analytical reports, etc. are available to TA Consultant to complete activities for output 2.
Activity 2.2: Conduct a gap analysis of existing national policies, laws, regulations and guidelines related to energy efficiency in buildings	One desk review Gap Analyse Report of the national polices (up to 40 pages)	2.2.a. 15 of valid national regulations reviewed for gaps analysis on energy efficiency of buildings analyzed	TA Closure report	
Activity 2.3: Conduct a gap analysis of the selected three building codes (boiler installations, HVAC and multicompartment residential buildings – energy performance provisions)	One Analyse Report of the technical codes together with task 2.2.a	2.3.a. 3 national technical codes are gap analyzed and included into the Analyses	TA Closure report	
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	At least 3 databases are created: 1. Energy efficiency technologies 2. Renewable energy technologies 3. Low-carbon building materials	2.4.a. Up to 20 technologies and materials are selected	TA Closure report	
Activity 2.5: Conduct a stakeholder working group meeting	Two working groups, at least 15 experts from stakeholder institutions	2.5.a. 1 Stakeholder working group meeting 30 people Government – 20 Private sector – 5 Civil Society – 3 Academic sector - 2	Report upon activity completion	
Output 3: First drafts of the three selected building codes developed	3 building codes are drafted/amended and discussed within TA	3.a. 3 drafts of the building codes are developed	TA Closure report	All stakeholders acknowledge the importance of defined activities, deliverables, outputs, and deadlines of the
Activity 3.1: Develop first drafts of the three building codes	3 drafts of the building codes are developed	10 national and 3 international experts involved in drafting/revising the building codes	TA Closure report	
Activity 3.2: Conduct	1 Stakeholder working	3.2.a.	TA Closure report	

stakeholder working group meeting to review and discuss the first drafts of the building codes	group meeting	30 people Government – 20 Private sector – 5 Civil Society – 3 Academic sector - 2		development and launch of the new building codes
Output 4: Official review of the first drafts conducted and revised building codes finalized	1 workshop conducted and 5 comments are incorporated	4.a. At least 35 participants attend official review workshop	TA Closure report	All stakeholders involved in the review of the building codes are respectful to each other and cooperate equally and professionally
Activity 4.1: Circulate first drafts of the three building codes and collect official feedback	At least 15 national institutions confirmed on receiving three draft building codes for feedback	4.1.a. At least 15 national institutions involved: Government – 10 Private sector – 3 Civil Society – 2 Academic sector - 1	TA Closure Report	
Activity 4.2: Conduct an official review workshop	1 an official review workshop	4.2.a. 40 people Men – 20 Women – 20 Government – 25 Private sector – 10 Civil Society – 5 Academic sector - 5	TA Closure report	
Activity 4.3: Incorporate comments and develop second drafts of the three building codes	5-10 comments received into second draft of three building codes	4.3.a. At least five constructive proposals/comments from stakeholders are incorporated	TA Closure Report	
Activity 4.4: Circulate second drafts and collect official feedback	10 national ministries and governing authorities, 5 private entities received second draft of building codes for final feedback	4.4.a. At least 5 government entities and 5 private sector institutions confirmed on receive of second drafts of building codes	Data aggregation upon activity completion	
Activity 4.5: Incorporate comments and develop final drafts of the three building codes	5-10 comments received into second draft of three building codes	4.5.a. At least 5 officially received comments are incorporated into final draft of three building codes	Report upon activity completion	
Output 5: Effective mechanism and tools to implement the revised building codes	At least 3 applicable mechanisms and tools developed for implementation of revised	5.a. 15 experts are involved and 2	Report upon activity completion	

designed	building codes			
Activity 5.1: Develop an institutional framework for an effective implementation of revised building codes	One institutional framework recommendation is developed	5.1.a. At least 15 experts invloved from public, construction, and clean energy sectors work out new institutional framework within TA Government – 10 Private sector – 3 Civil Society – 2 Academic sector - 1	TA Closure Report	The Government of KR is interested to allocate budget for implementation of the newly designed building codes and approves all relevant methodologies accordingly
Activity 5.2: Develop a methodology on assessing the energy performance baseline of existing buildings in the country	1 methodology designed for assessment of Energy Performance of Buildings	5.2.a. At least 5 tools (e.g. energy-related metrics, EPB standards, data-bases, etc.) are applied for assessment methodology of Energy performance baseline of buildings	Report upon activity completion	
Activity 5.3: Develop an energy audits in buildings methodology for new and existing public and residential buildings	1 energy audit methodology developed within the TA	5.3.a. At least 15 experts involved from public, construction, and clean energy sectors work out new institutional framework within TA Government – 10 Private sector – 3 Civil Society – 2 Academic sector - 1	Report upon activity completion	
Activity 5.4: Workshop for policy makers and implementing agencies	1 official endorsement was obtained by relevant state entity for institutional implementation and coordination mechanism of three building codes	5.4.a. Up to 50 participants of the workshop (at least 30% women) were introduced with all TA deliverables (three building code drafts, two methodologies, and institutional framework)	Report upon activity completion	
Activity 5.5: Develop a user manual on revised building codes	1 User Manual on Revised Building Codes is developed	5.5.a. User manual on Revised Building Codes are developed (15 pages)	TA Closure Report	
Activity 5.6: Prepare and conduct an awareness raising	1 Awareness raising seminar is conducted (1 press release, 10 social	5.6.a. Around 70 participants (30% are women), including	Data disaggregated by gender is included	

seminar on gains from increasing energy efficiency in existing buildings	media posts, 4 mentions of the media)	building owners, tenants, professionals, construction firms, local administrations, etc. attended the event	in the TA Closure report	

- End of M&E Plan -

Regulatory Impact Assessment Outline

Regulatory Impact Analysis (RIA) is a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives. It is an important element of an evidence-based approach to policy making. Analysis conducted by international institutions (e.g. OECD) shows that conducting RIA within an appropriate systematic framework can underpin the capacity of governments to ensure that regulations are efficient and effective in a changing and complex world.

The Consultant will assess the impact expected from adoption of the new building codes in Kyrgyzstan. By extrapolating current market trends, and adoption of reasonable and conservative assumptions, including but not limited to rate of renovations of buildings, new construction, investments in the building sector and growth of national GDP, the Consultant will assess the impact from adoption of the new building codes. The impact will use relevant impact metrics, definitions and methodologies used for impact assessment of building regulations and legislation internationally (i.e. in Europe with regards to national building codes adopted for transposition of the EU Directive on Energy Performance of Buildings[1], the relevant European technical standards[2] as well as the North American ASHRAE standards[3]). The impact assessment will cover any economic, environmental and social benefits in terms of reductions of Green House Gasses (GHG), energy savings, impact on energy supply infrastructure, rates of employment in the sector, economic value, health and well-being of building occupants.

The impact metrics will follow the Guidance on Monitoring and Evaluation Guidance for Technical Assistance Implementers, as developed by the Climate Technology Centre & Network[4].

Findings will be presented in the Impact Statement as attached in Annex A.

[1] *Directive* (EU) 2018/844 of the European Parliament and of the Council on the energy performance of buildings

[2] *European Committee for Standartisation (CEN) responsible for development of European Norms (EN) standards*

[3] *American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)*

[4] *Climate Technology Centre & Network: Monitoring and Evaluation Guidance for Technical Assistance Implementers, March 2020*

Impact Statement	
Challenge	People spent about 90% of their time indoors during the pandemic and that proportion is even higher today. According to the research[5], one in six citizens of developed countries lives in unhealthy homes[6]. This proportion is even higher in Kyrgyzstan. The built environment impacts our physical, mental and community health through a variety of factors including indoor and outdoor air quality, reduction of air-pollution, and enhanced thermal comfort. Kyrgyz cities and particularly Bishkek have been identified among most air-polluted cities in the World[7] during 2020 due to excessive use of coal during heating season in buildings of substandard thermal protection and low energy efficient systems. High concentration of air-pollution and particular smaller fractions of Particular Matter or *PM2.5*, which encompasses fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller, has a negative health implication on all the residents in Kyrgyz settlements. The Covid-19 crisis highlighted this connection even more as many are now working from home. Buildings represents an enormous investment opportunity to create genuine impact, such as improved health, quality of life and social resilience across all communities. A comprehensive strategy for energy efficiency in buildings can transform disadvantaged areas into attractive, livable and healthy spaces. The built environment supports people, business and communities while being the largest consumer of final energy and raw materials. Therefore, opportunities for delivering impact within energy efficient construction and renovation of buildings are significant. Impacts expected out of better energy efficiency in the sector will have net positive environmental and economic impacts at both microeconomic level for individual residents of buildings, but also improve the quality of life in local communities and deliver a net positive macroeconomic benefit. Investing in energy efficiency will generate significant carbon reductions, reduce energy bills, improve resilience of buildings and local communities to climate change hazards, and will create opportunities for local jobs and upward socioeconomic mobility, reduce health risks and will increase competitiveness of local construction industry and professionals.
CTCN assistance	The Assignment supported by the CTCN assistance aims to support Kyrgyzstan with development of three buildings codes addressing key regulatory provisions related to introduction of advanced energy efficiency in new construction and renovation or retrofit of existing buildings: • 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

[5] Healthy Homes Barometer, 2020

[6] Healthy Homes Barometer defined "unhealthy buildings" as "*having a leaking roof or damp floor, walls or foundation, a lack of daylight, inadequate heating during the winter or overheating problems"*

[7] The Third Pole: https://www.thethirdpole.net/en/pollution/record-breaking-air-pollution-chokes-bishkek-and-almaty/

	requirements designed to regulate the energy use in all new and existing public and residential buildings. Introduction of these building codes is expected to improve energy performance of buildings by 40 to 60% compared with the minimum requirements as per current regulations. Taking into account that buildings are the main final energy consumer, the largest investment opportunity and that they impact the quality of everyday life of everyone, the impacts expected out of CTCN assistance will have significant micro and macroeconomic significance, and broader social and environmental benefits.
Anticipated impact	Following impact indicators will be assessed: • I.1.A: Anticipated metric tons of CO2 equivalent (tCO2e) emissions reduced or avoided as a result of CTCN TA (disaggregated by annual and life of project), in: o Annual carbon emission reductions in [tonnes of CO2 reductions per year] o Lifetime carbon emission reductions in [tonnes of CO2 reductions over lifetime] • I.1.C: Anticipated number of beneficiaries as a result of TA, in [number of citizens benefitting from improved living conditions]
Anticipated co-benefits from the TA	Apart of the key impact indicators as outlined above there are significant co-benefits expected from the TA. The Team intends to assess and quantify the following ones: Environmental co-benefits: • Annual final energy savings in [GJ per year] • Annual primary energy savings in [GJ per year] • Primary energy savings over lifetime in [GJ] • Annual reduction of air-pollution in [tonnes of PM2.5 per year] • Air-pollution reduction over lifetime in [tonnes of PM2.5] Social co-benefits: • Job opportunities within local communities [Jobs per year] Economic co-benefits: • Annual savings of homeowners from energy bills in [USD per year]
Gender aspects of the TA	Women compose 50.2% of total population and youth 25.7% of the Kyrgyz population. We, therefore, believe that their voices matter and are important. The Consultant will develop a detailed implementation plan for all activities, deliverables, outputs, deadlines and responsible persons/organizations. The gender aspect is important in order to ensure fair and just gender balance and inclusive dialogue during public consultation and stakeholder engagement. The Team has put together a diversity and inclusion plan, including gender policy documents to ensure consideration and inclusion of minorities in the stakeholder working group and its active participation. At least 30% of the committee should represent women. This is important in the context of the Assignment since energy efficiency provisions define the quality of indoor environment and particularly of thermal comfort in buildings. Women and children being traditionally and to larger extent involved in home-based activities and work are therefore affected deeper by the quality of the indoor environment.

Anticipated contribution to NDC	The draft NDC from June 2021 identifies energy efficiency improvements in new and existing buildings among key priority areas for climate mitigation actions. The key actions identified are as follows: *Action 1.1. Reduction the use of coal by fuel switch to gas in households and boiler houses* as part of *Objective 1 Reduction GHG in energy sector* • *Objective 1.7 Energy efficiency anticipate entire set of actions in buildings and/or related to energy efficiency improvements of building services:* *Action 1.7.1 Scaling-up installation of energy efficient stoves in households* *Action 1.7.2 Energy efficiency improvement of small-size boilers and fuel switch from coal* *Action 1.7.3 Construction of new energy efficient buildings* *Action 1.7.4 Energy efficiency improvements in existing buildings* • The cumulative impact of these actions is expected to reach 4.4 mill tCO2 per year by 2025 and 7.4 mill tCO2 per year by 2030. This represents 85% and 78% by 2025 and 2030 respectively.
The narrative story	In 2012, the Kyrgyz government passed a Law on Energy Performance in Buildings (EPB) in line with EPBD EU, 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 lack of the political will, provisions under this law have not been effectively enforced. As an effort to increase energy efficiency in buildings, EBRD provided the TA support on development of the sub-law regulations on *Energy Certification of Buildings, Regular Inspection of Boilers and Heating Systems, establishment of the State Energy Register, procedures on the Accreditation of the Independent Specialists on Energy Certification of Buildings*. EBRD supported the revision of the *SNiP 23-01:2013 on Thermal Protection of Buildings*. Other building codes could not yet be revised despite multiple attempts. *The Roadmap on implementation of the EPB law* implementation supported by EBRD 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. 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.
Contribution to SDGs	The present TA is expected to contribute to a larger number of SDGs since an action to improve the buildings and the quality of the indoor environment, which buildings are providing, will affect all of us and for almost all human and economic activities sheltered by buildings. The Team has picked up three SDGs where a direct and substantial impact is expected: • SDG11: Make human settlements inclusive, safe, resilient and

	sustainable: Buildings constitute the key part of any human settlement since they shelter and provide an enabling environment for all human and economic activities. The TA will affect all categories of buildings: residential, public, commercial and buildings used for production and services with objectives to make buildings more energy efficient and climate resilient. Energy efficiency effectively makes building services also more reliable and less vulnerable to risks of interruptions of supplies of external resources . Improvement of energy efficiency goes hand in hand with improvement of health&safety standards and makes buildings more reliable from operation point of view contributing that way to making settlements more sustainable. • **SDG12: Ensure sustainable consumption and production patterns**: Energy efficiency means effectively achieving the same or better impact by lower use of energy. This definition applies for buildings too, and with regards to both quantities of energy needed to ensure indoor environment at the level required as well as for the quality of the indoor environment. That way improvement of energy efficiency of buildings and building services have a direct and explicit contribution to SDG12. **SDG13: Take urgent action to combat climate change and its impact**: Buildings sheltering almost all human and economic activities are the largest energy end-use consumer globally with almost 40% of global energy consumed in buildings. The energy is needed both for human and economic activities as well as for creating an enabling environment in buildings (including proper indoor air temperature, humidity, sufficient quality and quantity of fresh air, drinking and technological water as well as for lighting and visual comfort). A transition to more efficient buildings, will result in significant direct emission reductions as well as indirect reductions due to lower amount of energy at generation points and needing a transportation and distribution to end users. It is estimated that over 50 to 60% of energy can be saved in buildings at cost-effective way, which at global level means over quarter of global CO2 emissions.
Reference to knowledge products	The Team intends to use the following TEC knowledge products: - **Global Impact Reports** with regards to impact assessment of buildings and broader energy efficiency - **Climate Smart Cooling Solutions for Sustainable Buildings** – presentations and proceedings from the TEC events over the past year **Integrating gender considerations** presentations and proceedings from TEC capacity building events.