United Nations Development Programme

Government of Kazakhstan

Ministry of Industry and Construction (MIC)

Terminal Evaluation of UNDP-GEF Project: Nationally Appropriate Mitigation Actions for Low-carbon Urban Development (NAMA Project)

(GEF ID number 5059, UNDP PIMS ID: 4760)

Climate Change Mitigation

Final Report

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ABBREVIATIONS

Acronym	Meaning
AAO	Association of Apartment Owners
ADB	Asian Development Bank
APR	Annual Project Report
AWP	Annual Work Plan
BMC	Building Management Company (a type of (public)-private MMC focused on building management)
CAST	City of Almaty Sustainable Transport (project)
CCHCA	Committee for Construction and Housing and Communal Affairs
CDR	Combined Delivery Reports
CEO	(GEF) Chief Executive Officer
CER	Certified emission reduction
CIS	Commonwealth of Independent States
CHP	Combined Heat and Power
CO	UNDP Country Office
CO_2	Carbon dioxide
COP	Conference of Parties
CP	Country Programme
CPD	UNDP Country Programme Document
CSO	Civil Society Organization
CTA	Chief Technical Adviser
DREI	Derisking Renewable Energy Investment
DH	District Heating
EADB	Eurasian Development Bank
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EIA	Environmental Impact Assessment
EoP	End of Project
EPC	Energy Performance Contract
ESCO	Energy Service Company
ETS	Emission Trading Scheme
FSM	Financial Support Mechanism
GCF	Green Climate Fund
GCoM	Global Covenant of Mayors
GDP	Gross Domestic Product
GEB	Global environmental benefit
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Technical Assistance)
GoK	Government of Kazakhstan
HACT	Harmonized Cash Transfers
HQ	UNDP Headquarters
IEA	International Energy Agency
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
INV	Investment
IW	Inception Workshop
JSC	Joint Stock Company

Acronym	Meaning
KazCenter ZhKKh	Kazakhstan Center for Housing and Utilities
KazSEFF	Kazakhstan Sustainable Energy Financial Facility
KZT	Kazakh Tenge
LED	Light emitting diode
MDG	UN Millennium Development Goals
M&E	Monitoring and Evaluation
MENR	Ministry of Ecology and Natural Resources
MIC	Ministry of Industry and Construction
MIID	Ministry of Industrial and Infrastructure Development
MEMR	Ministry of Energy and Mineral Resources
MEWR	Ministry of Environment and Water Resources
MRD	Ministry of Regional Development
MRV	Monitoring, Reporting and Verification
MTE	Mid-Term Evaluation
NAMA	National Appropriate Mitigation Actions
NGO	Non-government organization
NPD	National Project Director
NPM	National Program for Modernization
PB	Project Board
PDF	Project Development Form
PIF	Project Identification Form
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
PPG	Project Preparation Grant
PPP	Public-private partnership
PRF	Project Results Framework
ProDoc	UNDP Project Document
RE	Renewable energy
RES	Renewable energy sources
SEA	Strategic Environmental Assessment
SESP	UNDP Social and Environmental Screening Procedure
SGP	GEF Small Grants Programme
SME	Small to medium enterprise
SPV	Special Purpose Vehicle
SWOT	Strengths, weaknesses, opportunities, threats
TA	Technical Assistance
TE	Terminal Evaluation
ToC	Theory of Change
ToR	Terms of Reference
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

E-1. This Termination Evaluation (TE) report assesses the design and formulation, implementation, results (at goal, objective, outcome, outputs levels), targets (against the indicators in the April 2015 Project Result Framework, hereinafter referred to as the PRF), GEF additionality, catalytic effect, and progress to impact of the "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan" (hereinafter referred to as the NAMA Project). It also evaluates the Project's relevance, effectiveness, efficiency, sustainability, country ownership, gender equality, and cross cutting issues.

E-2. The Project received the ProDoc signature from the Government of Kazakhstan (GoK) on 22 April 2015. The Project inception workshop was held on 6 November 2015. The Project applied for 4 extensions which were made twice in 2020, 2022, and 2023, respectively. The extension periods were ranging from 6 to 16 months which were granted in total of 48 months by UNDP. The end date of the Project was extended to 21 April 2024.

E-3. The TE assesses Project activity from 22 April 2015 to 31 December 2023, while also providing estimations on the emission reduction results by the End of the Project (EoP). The TE and this report follow the *Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects*, copyrighted by UNDP in 2020.

Project Information Table

Project Details		Project Milestones	
Project Title	*Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan (NAMA Project)*	PIF Approval Date:	20 June 2013
UNDP Project ID (PIMS #):	4670	CEO Endorsement Date (FSP) / Approval date (MSP):	5 December 2014
GEF Project ID:	5059	ProDoc Signature Date (Project start date):	22 April 2015
UNDP Atlas Business Unit, Award ID, Project ID:	Business Unit: UNDP-KAZ Award ID: 00082364 Project ID: 00091328	Date Project Manager hired:	2015
Country/Countries:	Kazakhstan	Inception Workshop Date:	6 November 2015
Region:	CIS	MTE Review Completion Date:	28 March 2018
Focal Area:	Climate Change	Terminal Evaluation Completion date:	23 February 2024
GEF Operational Programme or Strategic Priorities/Objectives	FA Objective #3 for GEF 5: Climate Change Mitigation Objective-4 and Objective-6	Planned Operational Closure Date:	21 April 2024
Trust Fund:	GEF		
Implementing Partner (GEF Executing Entity):	Ministry of Industry and Construction (MIC)		
NGOs/CSOs involvement:	"Atameken", Coalition for Green Economy, Association of Ecological NGOs, Institute of Energy Efficiency, Associations of Apartment Owners, Institute of Local Self-Government, Ecojer NGO		
Private sector involvement:	Several private sector firms – see Tables 8 and 9 under "Applicant" for a complete listing		
Geospatial coordinates of project sites:	Latitude: 51.1655° N Longitude: 71.4272° E		

Financial Information		
PDF/PPG	**At approval (US$ million)**	**At PPG/PDF completion (US$ million)**
GEF PDF/PPG grants for project preparation	**0.150**	**0.150**
Co-financing for project preparation	-	-
Project	**At CEO Endorsement (US$ million)**	**At TE (US$ million)**
[1] UNDP contribution:	**1.060**	**2.865**
[2] Government:	**30.893**	**424.194**
[3] Other multi-/bi-laterals:	-	-
[4] Private Sector:	**33.436**	**18.615**
[5] NGOs:	-	-
[6] Total co-financing [1 + 2 + 3 + 4 + 5]:	**65.389**	**445.674**
[7] Total GEF funding:	**5.930**	**5.515**
[8] Total Project Funding [6 + 7]	**71.319**	**451.189**

Project Description

E-4. In 2015, the NAMA Project was designed to overcome barriers to NAMA investments in Kazakhstan (Para 23):

- Systemic barriers at the local, regional and national levels hampered the development of integrated sustainable urban modernization with the need to create an adequate institutional framework that implements long-term strategies and monitors its progress to feed in the subsequent rounds of planning;
- Legislative barriers consisted of:
  - tariffs that remain below the economic costs, and do not provide sufficient financial motivation for utility companies to invest in resource efficiency and to encourage the shift to consumption-based billing;
  - the urban sector not having a mandatory GHG emission or energy consumption cap;
  - the urban sector not covered under a national emission trading scheme (ETS) including the largest heating networks in the urban sector;
  - no guidelines and methodologies for Monitoring, Reporting and Verification (MRV) of urban NAMAs in Kazakhstan;
  - no rules and procedures for certification of emission reduction credits from NAMAs that might facilitate import into a domestic ETS; and
  - no potential sources of available local funding;
- Financial barriers consisted of:
  - akimats outside of the major cities lacking financial insights, and the knowledge and experience to develop and present a business case to address tariffs that cover operation and maintenance costs with a provision for depreciation of assets;
  - the funding of GoK's National Urban Modernization Fund not including private sector funds and banks;

- Capacity and awareness barriers consisted of municipal staff of major cities not having experience with project development and structuring of financing for municipal infrastructure.

E-5. The objective of the NAMA Project was to "*support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction target, as committed during COP-17 (Durban 2011)*". The Project was designed to do this by generating the following outcomes:

- Outcome 1: enable participating municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs);
- Outcome 2: put in place the enabling institutional framework to facilitate the implementation of urban mitigation actions;
- Outcome 3: establish new and additional financing for urban NAMAs;
- Outcome 4: identify and finance a pilot urban mitigation action to demonstrate the feasibility of urban emission reduction for future replication; and
- Outcome 5: establish a monitoring, reporting and verification (MRV) system to allow for the systematic monitoring, verification and reporting of the GHG emission reductions of implemented urban NAMAs, and increase the awareness of, and access to, information and guidance on urban NAMAs in Kazakhstan.

E-6. Actual outcomes of the NAMA Project are summarized on Table A in comparison with intended outcomes.

Table A: Comparison of Intended Project Outcomes from the ProDoc to Actual Outcomes

Intended Objective and Outcomes in Project Results Framework of April 2015 (see Appendix F)	Actual Outcomes as of 31 December 2023
Objective: Support the Government of Kazakhstan in the development and implementation of NAMAs in the urban sector to achieve voluntary national GHG emission reduction targets	**Actual achievement toward objective**: The Project has provided strong support to the GoK to develop and implement NAMAs in the urban sector to achieve voluntary national GHG emission reduction targets. This has resulted in a strong commitment by the GoK to continue with EE technology demonstrations, especially related to building modernization that includes heating and hot water systems modernization and the insulation of the building envelope.
Intended Outcome 1: Participating municipalities are enabled to articulate their climate-related priorities, and identify prioritized urban mitigation actions (urban NAMAs)	**Actual Outcome 1**: Participating municipalities have been enabled to articulate their climate-related priorities and identify and prioritize urban mitigation actions.
Intended Outcome 2: The enabling institutional framework to facilitate the implementation of urban mitigation is established.	**Actual Outcome 2**: The enabling institutional framework to facilitate the implementation of urban mitigation has been established through built capacities of Akimats to prepare urban NAMA mitigation projects.
Intended Outcome 3: Leveraged and new additional financing for urban NAMAs	**Actual Outcome 3:** New and additional financing for urban NAMAs has been leveraged through government state budgets and commercial banks with a financial support mechanism that provided reimbursement of 40% of the loan principal.

Intended Objective and Outcomes in Project Results Framework of April 2015 (see Appendix F)	Actual Outcomes as of 31 December 2023
Intended Outcome 4: A pilot urban mitigation action is identified and financed to demonstrate the feasibility of urban emission reduction for future replication	**Actual Outcome 4**: A pilot urban mitigation project was identified and financed. This project demonstrated the feasibility of urban emission reductions for future replication.
Intended Outcome 5a: GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported	**Actual Outcome 5a**: GHG emission reductions of implemented urban NAMAs are only starting to be systematically monitored, verified and reported with a system being developed over the next few months. This, however, has not led to certified emission reduction (CER) credits from NAMAs and emission reduction purchase agreements between domestic entities.
Intended Outcome 5b: Kazakh cities and towns are aware of, and have access to, information and guidance on urban NAMAs	**Actual Outcome 5b**: Kazakh cities and towns have a lack of awareness on CER credits but are aware of, and have access to, information and guidance on other aspects of urban NAMAs.

Findings and Conclusions

E-7. The NAMA Project has managed to achieve direct emission reductions of 850,260 tCO_2 exceeding GHG emissions reduction targets by a factor of 2.3 (Para 78 and Tables 8 and 9). The Project achieved this through:

- enabling 15 municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions;
- establishing an institutional framework to activate implementation of urban mitigation projects of the Akimats through built capacities to prepare bankable project documents and manage public and private service contracts;
- leveraging new and additional financing for urban NAMA projects through the provision of subsidies to ESCOs and service providers that ease the high cost of NAMA projects against a back drop of low heating and electricity tariffs;
- continued awareness raising events to bring the message of benefits to low carbon development in Kazakhstan along with the issues of global climate change (Para 149).

E-8. The only deficiency of the NAMA Project has been the failure to establish an ETS which takes a lot of time and effort. Thus, sufficient time should be allocated for a well-assessed plan to achieve intermediary objectives towards an ETS such as the setup of an MRV system, and other intermediary objectives (Para 150).

E-9. The Project leaves behind several successful examples of how to modernize apartment buildings, their heating and hot water systems, and other urban systems such as efficient lighting and industrial transformers. However, Kazakhstan needs to ramp up its capacities to manage and implement EE projects that modernize apartment buildings and their heating and hot water systems, in a timely manner to meet its voluntary commitments to reduce GHG emissions by 25% by 2050 in line with Kazakhstan's 2013 III-VI National Communication to the UNFCCC (Para 151). This has resulted in a strong commitment by the GoK to continue with EE technology demonstrations, especially related to building modernization that includes heating and hot water systems modernization and the insulation of the building envelope, demonstrated by 3 ongoing GoK activities (Para 152):

- GoK replenishment of the "Attracting investors in the field of energy efficiency" Fund since 2021 for more than US$7 million;
- GoK willingness to cautiously raise the electricity and heating tariffs by 10-15% annually starting in 2024; and
- GoK undertaking an energy audit for all heating and hot water systems stations in Kazakhstan to be completed by summer of 2024 (Para 148).

Table B: Evaluation Ratings[1]

1. Monitoring and Evaluation	*Rating*	2. IA & EA Execution	*Rating*
M&E design at entry	4	Quality of Implementation Agency - UNDP	5
M&E Plan Implementation	5	Quality of Execution - Executing Entity (MNRE)	5
Overall quality of M&E	5	Overall quality of Implementation / Execution	5
3. Assessment of Outcomes	**Rating**	**4. Sustainability[2]**	**Rating**
Relevance[3]	2	Financial resources	3
Effectiveness	5	Socio-political	3
Efficiency	4	Institutional framework and governance	3
Overall Project Outcome Rating	5	Environmental	4
		Overall likelihood of sustainability	3

Recommendations

Rec #	Recommendation	Entity Responsible	Time Frame
A	**Recommendation 1:**		
E-10.	*Improve opportunities to increase finances of ESCOs and service providers for heating and hot water modernization projects by*: • *conducting surveys in various municipalities of payment for utilities (i.e. electricity, heating, hot water) to understand electricity and heat consumption habits of urban residences;* • *enact legislation to allow ESCOs to work with public projects;* • *creating a source of equity funding for ESCOs through applying for a AAA+ bond issue using the reliable stream of heating payments to the ESCO or service provider;* • *using the funds received from bond issuance for ESCO purchases and operation;*	MIC and UNDP	Immediate

[1] Evaluation rating indices (except sustainability – see Footnote 2, and relevance – see Footnote 3): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[2] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

[3] Relevance is evaluated as follows: 2 = Relevant (R); 1 = Not relevant (NR)

Rec #	Recommendation	Entity Responsible	Time Frame
	• *facilitating a factoring mechanism for financing energy saving projects in apartment buildings to circumvent the issue of loan collateral (Para 154).*		
B	**Recommendation 2**		
E-11.	*With Kazakhstan facing a critical shortage of ESCOs and service providers to meet the Government's effort to limit GHG emissions including its voluntary commitments to reduce GHG emissions by 25% by 2050 (as per Para 21), promote gradual and consistent growth of the ESCO and service provider market for EE and RE heating systems by*: • *supporting the current ESCOs and service providers for EE and RE heating systems with subsidies;* • *having UNDP and GoK support a more prominent role Kazakhstan Center for Housing and Utilities (KazCenter ZhKKh) under MIC to promote the hiring of credible ESCOs and services companies, with a focus on residences and commercial establishments;* • *supporting linkages between local and international ESCOs and service providers to encourage collaboration on portfolios of RE and EE heating projects;* • *increasing the exposure of the various successes of NAMA Project activities; and* • *ensuring ESCO and service provider personnel are well informed and trained to undertake RE and EE heating system design, installation, operations and maintenance (Para 155).*	MIC and UNDP	Immediate
C	**Recommendation 3**		
E-12.	*Allow a period of 2 to 4 years to build capacities to implement an MRV system with the certification of GHG auditors and building a market towards the award of CERs (Para 156).*	MoEF and UNDP	Medium term
D	**Recommendation 4**		
E-13.	*Provide technical assistance within the next year in the enforcement of balancing heating systems in apartment buildings (Para 157).*	MIC and UNDP	Medium term

Lessons Learned

E-14. *Lesson #1: Changes were necessary in the FSM from interest rate subsidies to loan principal repayments (Para 158).*

E-15. *Lesson #2: Working with apartment residents was very beneficial in providing strong demonstrative effects on the benefits of heating and hot water system modernization efforts by the Project (Para 159).*

E-16. Lesson #3: When initiating a local effort to modernize an apartment building and its heating and hot water systems, the lobbying work should start with the consumers of heating and hot water systems (Para 160)

E-17. Lesson #4: Use of video clips of various UNDP NAMA Project activities has been very useful in terms of spreading information on NAMA Project activities, mainly to donors and government (Para 161).

E-18. Lesson #5: Boilers for heating systems with wood chips provide more heat but are more expensive whereas boilers for heating systems with straw do not heat as well but are cheaper (Para 162).

1. INTRODUCTION

1. The Terminal Evaluation (TE) for the Project entitled "*Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan*" (otherwise referred to as "NAMA Project" or "the Project") was conducted for UNDP-GEF as an impartial assessment of NAMA Project activities, mainly comprised of capacity building activities and investments. The Project objective is to "support the Government of Kazakhstan (GoK) in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction target, as committed during COP-17 (Durban 2011)".

1.1 Evaluation Purpose

2. This TE for the NAMA Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The TE is to serve as an agent of change and play a critical role in supporting accountability. As such, the TE will serve to:

   - measure to what extent the Project has contributed to solve the needs identified in the design phase;
   - measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised;
   - measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), Kazakhstan's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, the Kazakhstan Energy Policy, the 8th National Communication and the 5th Biennial Report of the Republic of Kazakhstan to the UNFCCC, along with relevant SDGs;
   - assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors, weakness in design, management, and resource allocation;
   - assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project;
   - generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components promote accountability and transparency, and to assess and disclose levels of project accomplishments.

3. Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by UNDP, the GoK, their donor partners, and the private sector, to sustain the momentum built by the Project to continue with NAMA development and with the goal of reducing GHG emissions.

1.2 Scope

4. The scope of this TE was to evaluate all activities funded by GEF and activities that are parallel financed. The Terms of Reference (ToR) for this TE is contained in Appendix A. Key issues addressed on this TE include:

- the issues related to delays in the launching of the NAMA programme between April 2015 and March 2020;
- the measures used to overcome delays due to COVID-19 and civil uprisings in 2022;
- the ability of monitoring personnel to provide adequate monitoring of NAMA investments.

5. With this scope, the following issues were identified for further discussion in this TE:

- the regulatory shortcomings regarding activities of ESCO's in Kazakhstan;
- deficiencies of ETS in Kazakhstan; and
- difficulties in monitoring and reporting of key indicators in the Project Results Framework (PRF).

1.3 Approach and Methodology

6. The evaluation approach adopted was non-experimental evaluation[4] where questions needed to be answered concerning policy and market for government stakeholders and Project developers, and the benefits and impacts of RE and energy efficiency (EE) investments for Project beneficiaries. Interviews with government stakeholders were to bring up key issues with respect to the process of prioritizing NAMA measures and enhancing market diffusion of NAMA technologies; this was to strengthen learning within the NAMA Project team and its stakeholders to support better decision-making to attain the Project objective. Project developers and beneficiary stakeholders were interviewed using a participatory approach on their experiences interacting with other stakeholders, notably the financial stakeholders of the Project. These approaches delivered an impartial assessment of the NAMA Project.

7. The Evaluation methodology consisted of:

- setting up the TE report in the context of evaluation criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the August 2020 version of the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects" [5];
- document review of Project findings in the context of progress, effectiveness and pace of awareness raising, sustained engagement of national implementation teams (including training of these teams), level of implementation, and Project management (including M&E performance);
- interviews conducted with selected stakeholders (i.e. government stakeholders, Project developers, and Project beneficiaries) to gauge the effectiveness and efficiency of capacity building efforts and investments of the Project. This was important as these evaluation criteria were likely undocumented. The interview process was conducted in a participatory manner and in a spirit of collaboration with NAMA Project PMU personnel with the intention of providing constructive inputs that can inform activities of a potential subsequent phase of the NAMA Project;
- triangulation of the various data sources that ensured optimum validity and quality of the information and data sources (i.e. interviews, focused group discussions and documents);

[4] From the UNEG Compendium of Evaluation Methods: http://www.unevaluation.org/document/detail/2939
[5] http://web.undp.org/evaluation/documents/guidance/GEF/mid-term/Guidance_Midterm%20Review%20_EN_2014.pdf

- compile and evaluate the progress and quality of implementation against the indicators of each objective and outcome in the PRF as provided Appendix F;
- formulation of TE conclusions and recommendations that focus on the current setup of the NAMA Project and its completion by 21 April 2024.

8. The evaluation of the Project is based on evaluability analysis consisting of formal (clear outputs, indicators, baselines, data) and substantive (identification of problem addressed, theory of change, results framework) inputs. Considering the information provided into this evaluation (which is mainly whether or not the technical assistance of the Project was effective to the Government of Kazakhstan and its stakeholders), the implication of this methodology is that it should be effective in the evaluation process and should inform stakeholders and the NAMA Project team as it possibly transitions into a subsequent phase.

1.4 Data collection and analysis

9. Data and information for this TE was sourced from:

- a review of Project documentation as listed in Appendix C notably the final country reports from the UNDP Kazakhstan office. This was important in establishing information pertaining to the country's efforts in implementing the Project. This was done primarily at the home bases of the International and National Evaluators;
- the combination of in-depth interviews, field visits and focused groups discussions (full list of persons interviewed in Appendix B) which were semi-structured interviews with key stakeholders within an interview schedule. These discussions were based on questions designed for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability. Interviews were conducted with:
    - *PMU personnel*, the purpose of which was to deal with implementation and execution issues;
    - *Implementing partners*, notably Ministry of Industry and Construction (MIC) technical personnel, personnel from MIC management, and consultants to MIC to gauge the effectiveness of training and institutional strengthening as well as other execution issues;
    - *Project partners* involving entities which worked in close collaboration with the executing partners, including other government agencies, Project consultants, project developers, financial institutions and banks, contractors, and suppliers. Exhaustive information was obtained from these stakeholders on how NAMA projects were financed and the details of procuring and installing equipment. A complete listing of partners is found in Annex A;
    - *Beneficiaries* that include households, and renewable energy generation cooperatives, if they exist. Discussions also revolved around the INDCs and the setup of financing mechanisms to provide credits to project developers who have equity in the projects they have developed.

10. There were several cities and communities who have benefited from the NAMA Project. Field visits and surveys of NAMA projects done in Astana, Kostanay and Petropavlovsk were done in a manner that was smart and cost-effective to generate representative results. The Evaluation team conducted interviews and field visits in a participatory and consultative approach to ensure close engagement with the Project team, implementing partners and male and female direct beneficiaries. Questions posed for these stakeholders are included in Appendix G and I.

11. All interviews with the Evaluation team with various stakeholders were conducted in-person or on Zoom or Teams platforms with facilitation support provided by the Project Management Unit (PMU) or the UNDP Country Office (CO). The time difference between Kazakhstan and Canada placed some limitations on the timing of the meetings with various stakeholders who generally are available throughout daytime. The International Evaluator made every effort to be flexible and available for scheduling interviews with stakeholders.

1.5 Structure of the Evaluation

12. This evaluation report was presented as follows:

- An overview of Project activities from commencement of operations in April 2015 to the present activities of the NAMA Project;
- A review of all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Social and Environmental Screening Procedure/SESP), the Project Document, Project progress reports, and any other materials that the team considers useful for this evidence-based evaluation;
- Interview information from a participatory and consultative approach that ensured close engagement with stakeholders who have Project responsibilities including the PMU, government counterparts, implementing partners, the UNDP Country Office (CO), the Regional Technical Advisors, and other stakeholders. The Evaluation team conducted face-to-face and virtual interviews with the Project's stakeholders;
- An assessment of results based on Project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Conclusions, recommendations and lessons learned.

13. This evaluation report was designed to meet GEF's "Guidelines for Conducting Terminal Evaluations of UNDP-Supported, GEF Financed Projects" of 2020[6] as well as UNDP guidelines "Evaluation during COVID-19" (updated to June 2021)[7].

1.6 Ethics

14. This Terminal Evaluation has been undertaken as an independent, impartial and rigorous process, with personal and professional integrity and is conducted in accordance with the principles outlined in the UNEG Ethical Guidelines for Evaluations, and the UNDP GEF M&E policies, specifically the August 2020 UNDP "Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects".

[6] Available at: http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf
[7] Available at: http://web.undp.org/evaluation/guideline/documents/covid19/update/June2021/UNDP%20DE%20Guidance%20Planning%20and%20Implementation%20during%20COVID19%203%20June%202021.pdf

1.7 Limitations

15. The only limitations to this TE process were the limited time available to interview all stakeholders and to visit all the NAMA project implemented. This was mitigated somewhat by visiting "representative" NAMA projects and interviewing stakeholders who played important roles on the Project.

2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

2.1 Project Start and Duration

16. The NAMA Project commenced as of 22 April 2015. The Project is being implemented up to the time of writing of this report (as of January 2024). The Project is scheduled to close as of 21 April 2024.

2.2 Development Context

17. Kazakhstan is by far the largest GHG emitter in Central Asia with annual emissions peaking at 332 Mt CO_{2e} in 2022, a slight decrease from the 350 Mt CO_{2e} in 1990. Kazakhstan has one of the world's highest GHG emissions per capita of 17.3 tCO_2 in 2022, also a slight decrease from the 21.1 tCO_2 in 1990 but an increase from the 15.6 tCO_2 in 2015. Aside from the power and industrial sectors which make up 45% of GHG emissions of Kazakhstan in 2022, the building sector's GHG emissions have grown to 15% in 2022[8]. The energy intensity of the country's economy increased from 0.32 toe per 1000 dollar of GDP in 2015 to 0.34 in 2022. This is several times that of Western Europe (0.11 in France in 2015 and 0.074 in Germany in 2017[9]). While Kazakhstan has implemented substantial energy and other resource efficiency improvements, the sectors have not been experiencing significant reductions in GHG emissions since the early 2000s, when the emissions bottomed out to around 175 Mt CO_{2e} in 1999. The main reasons for this high level of intensity are the use of outdated technologies and lack of strong incentives for energy conservation.

18. Kazakhstan's urban centers have a disproportionately larger impact on the country's GHG emissions than the rural communities. This is due to higher urban consumption levels, and more GHG-intensive lifestyle and infrastructure. Urban GHG emission patterns are particularly influenced by:

    - *Rapid urbanization*: More than half of Kazakhstan's population is clustered in Almaty, Astana, Shymkent and a small number of other cities[10]. There is an increasing trend of Kazakhstanis migrating from villages and smaller towns to the largest cities in search of higher incomes, better employment prospects and modern lifestyles. By 2030, 66% of Kazakhstan's population is projected to be urban. Being the world's largest landlocked country with an area of 2.71 million km^2 with a sparsely distributed and current population of 20 million, Kazakhstan's cities are growing at a very high rate;

    - *Infrastructural decay*: Decaying urban infrastructure and deteriorated communal housing are closely related to urban poverty in Kazakh cities, representing challenges facing most Kazakh cities. Over 70% of multifamily apartment buildings have very low thermal performance, especially those buildings constructed in the 1950s to 1980s with thermal losses of 50% of heat consumption. The depreciation of urban engineering systems, power, heat, water supply and sanitation has led to high losses and inefficiencies in communal infrastructure with technical losses estimated to be 16% in power distribution, 20% in heat supply, and up to 60% in water supply.

19. The 2015 baseline scenario comprised of growing urban GHG emissions, accounting for 275 million tCO_{2e} or 43% of the country total carbon footprint. This includes GHG emissions from the municipal waste sector, a sector that grew nearly two-fold between 1992 and 2005. Furthermore, the GHG emissions from power and heating sector increased from 50 million tCO_{2e} to 110 million tCO_{2e}

[8] https://edgar.jrc.ec.europa.eu/report_2023
[9] https://www.theglobaleconomy.com/Germany/Energy_per_GDP/
[10] 2013 Centennial Group NAC KAZ 2050 report [207]

between 1999 and 2022, while road transport has increased from 4 million tCO_{2e} to 13 million tCO_{2e} during the same period. Urban GHG emission reductions were prioritized because it is the sector where the reduction of GHG emissions will directly result in tangible socio-economic and local environmental benefits. Heating in urban buildings still offers an excellent opportunity to reduce substantial amounts of GHG emissions. In many cases, heat is supplied to apartment buildings during Kazakhstan's winters through obsolete Soviet-era district heating systems. These building lack substations that can manage and monitor heat exchange with individual buildings and allow for consumption-based pricing at a building level. With upgrades of similar systems in Eastern Europe and Russia reducing heat demand by 25 to 40%, studies and pilot projects implemented in Kazakhstan with UNDP-GEF support provide indications that similar savings can be realized.

20. To mitigate these growing GHG emission sources, the GoK has placed increasing attention on energy and resources saving and climate change mitigation across all economic sectors with the most relevant national policies and programmes being:

- The Law on Energy Saving and Energy Efficiency of June 2012 includes provisions for funding energy saving measures from the state budgets of all levels and establishing the State Energy Register, mandatory energy audit of the companies consuming more than 1,500 toe per year, and the introduction of the responsibility for complying with the Law;
- Law on Renewable Energy Sources (RES Law) of 2009, specifically aimed at promoting the use of RES in cities, and their integration in urban development plans and strategies;
- Law on Transport of September 1994 (with changes and amendments as of 12 January 2012), sets the legal, economic and institutional framework covering all types of transport including urban transport;
- Environmental Code of the Republic of Kazakhstan of 2007 (with changes and amendments as of 11 April 2014), sets the institutional framework for municipal solid waste management (Chapter 41, article 292), describing responsibilities of local governments, and the responsibilities and rights of waste producers (article 283). There were also amendments made 2 January 2021 introducing the responsibility of local authorities for monitoring and managing GHG emissions[11];
- The Strategic Development Plan of the Republic of Kazakhstan until 2025 defines the task of reducing the energy intensity of Kazakhstan's GDP by at least 25% by 2025;
- the Energy Saving Program-2020 which aims to mobilize over US$ 6,570 million for energy saving, mostly from the private sector. The Program aimed at reducing energy intensity through increasing energy efficiency through the reduced energy use and inefficient use of fuel and energy resources;
- the Electric Power Energy Savings Development Institute was identified in 2017 as a government entity to do initial technical analysis of EE project;
- a State Energy Register was created in August 2013 using the experience of Japan, to achieve savings of more than KZT 200 billion;
- the former Ministry of Regional Development was overseeing implementation of 5 government programmes: Affordable Housing 2020, Programme on Modernization of Housing and Utility Sector for 2011-2020, Ak Bulak Programme 2011-2020 (Drinking water program for rural

[11] https://wecoop.eu/kazakhstan-environmental-code-in-english/

settlements), Regional Development Programme till 2020, and Programme of Monotowns (single-industry cities) Development 2012-2020;

- National Program for Modernization (NPM) for Residential and Communal Sector for 2011-2020 whose goals were to (a) decrease the share of buildings in need of capital renovation from current 32% down to 22% by 2015; and (b) upgrade/refurbish 24,400 km of communal networks (heat and hot water supply, electricity, and gas) to minimize resource losses in the system. To operationalize the NPM, the GoK in 2013 established a National Fund for Urban Modernization to act as a mediator between the government, apartment owners and service companies with the Fund designed to operate on a revolving basis by providing long-term (up to 7 years) of low interest loans to Building Management Companies (BMCs) and Associations of Apartment Owners (AAOs), utility service companies and ESCOs for implementation of priority urban infrastructure upgrade projects. Sources of financing include government, private sector and development institutes;
- Ministry of Ecology and Natural Resources, since 2023 (MENR) (formerly the Ministry of Ecology, Geology and Natural Resources between 2019 and 2023), the governing body and policy maker for climate change management at the national level, is overseeing preparation of national GHG inventory, and implementation of the national ETS. This includes establishment and monitoring of national emission reduction targets and the implementation of the "Concept for Transition of the Republic of Kazakhstan to Green Economy" that lays out goals and targets and general approaches for achieving sustainable development in the country;
- The GoK along with UNDP were planning to implement Kazakhstan's first urban development plan in one of Astana's suburban districts, "Prigorodnoye", under the "Strategy for Sustainable Urban Development of the Capital City of Astana till 2030" that fully embraces the concept of "sustainability". Due to very poor conditions of the buildings that were planned for demolition, the Prigorodnoye pilot was cancelled in the first year of the Project in favour of another site. The objective of this pilot was to demonstrate a comprehensive approach to modernization and management of urban areas, and provision of sustainable and reliable public services to the city's residents.

21. In 1995, Kazakhstan ratified the UNFCCC as a non-Annex I party, and in 1999, committed to join industrialized nations in their effort to limit GHG emissions and accept a binding and quantified emission limitation of 100% over the 1992 baseline. In 2010, Kazakhstan launched a voluntary commitment campaign in 2010 to reduce GHG emissions by 15% by 2020 and 25% by 2050, as compared to 1990 levels, in line with Kazakhstan's 2013 III-VI National Communication to the UNFCCC that identified the "urban sector" consisting of district heating, buildings, waste and transport as the third priority area after power generation and industry sectors for national CCM. Furthermore, during the 2020 Climate Ambition Summit, Kazakhstan pledged to achieve carbon neutrality by 2060. This had a potential to reduce annual GHG emissions by 25 million tonnes CO_2 by 2030, estimated to be 30% of the cumulative GHG abatement potential for Kazakhstan.

22. In 2014, the GoK requested GEF support to help identify, develop and leverage financing for design, and implementation of NAMAs in the urban sector with the objective of achieving the country's voluntary GHG emission reduction target. NAMAs were deemed to be an attractive vehicle for developing countries looking to attract climate finance for low-carbon development activities with the concept of NAMAs that were first mentioned in COP13 in 2007 in Bali. This resulted in Kazakhstan undertaking "Nationally appropriate mitigation actions…in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable

and verifiable manner". The strategy of the Project was to use a combination of investment finance and technical assistance to address the range of barriers currently facing the development of NAMAs in Kazakhstan.

2.3 Problems that the NAMA Project sought to address

23. The NAMA Project was Kazakhstan's first effort to adopt a comprehensive approach to reduce urban GHG emissions and to use the NAMA framework, reflecting GoK priorities to promote sustainable development and the commitment to mitigate GHG emissions under the UNFCCC. Despite progress in the creation of government programmes to improve infrastructure and services in cities and reduce the carbon intensity of urban areas in 2015, significant barriers exist especially in relation to the modernization of heating and hot water systems in Kazakhstan:

- *Systemic barriers* at the local, regional and national levels hamper the development of integrated sustainable urban modernization with the need to create an adequate institutional framework that implements *long-term strategies* and monitors its progress to feed in the subsequent rounds of planning. In addition, there is the massive issue of obsolete infrastructure consisting of old buildings with outdated heating and hot water systems;
- *Legislative barriers* consisted of:
    - tariffs that remain below the economic costs, and do not provide sufficient financial motivation for utility companies or other stakeholders (such as apartment residents) to invest in resource efficiency and to encourage the shift to consumption-based billing;
    - the urban sector, mainly heating and hot water systems, not having a mandatory cap;
    - the urban sector not covered under a national ETS that includes the largest heating networks in the urban sector;
    - no available budgets, competency and methodologies that are approved for Akimats. The Project has prepared methodologies to be potentially used in future;
    - no guidelines and methodologies for MRV of urban NAMAs in Kazakhstan; and
    - no rules and procedures for certification of emission reduction credits from urban NAMAs that might facilitate generation of emission reduction projects into a domestic ETS;
    - absence of ESCO in the public procurement law and budget code as mentioned in Energy Efficiency Law of 2012. While this ESCOs from modernization of public buildings where PPPs or trust management modalities are employed, ESCOs operating without the benefit of a PPP for private clients or apartment buildings, are scarce;
- *Financial barriers* consisted of:
    - no potential sources of available local funding;
    - Akimats outside of the major cities lacking of financial insights, and the knowledge and experience to develop and present a business case to address tariffs that cover operation and maintenance costs with a provision for depreciation of assets. This especially applies to heating and hot water systems;
    - funding of GoK's National Urban Modernization Fund in 2015 has been difficult with issues in structuring and operationalizing its loan funding and does not include private sector banks;

- commercial banks in Kazakhstan are risk averse;

- *Capacity and awareness barriers* consisted of:
  - municipal staff of major cities not having experience with project development and structuring of financing for municipal infrastructure;
  - a lack of optimism and risk appetite of investors;
  - poor perception of energy efficiency in modernisation projects throughout Kazakhstan; and
  - a lack of trust by apartment residences to efforts to modernize apartment buildings for energy efficiency.

24. The NAMA Project reflects Government priorities to promote sustainable development and the commitment to mitigate GHG emissions under the UNFCCC, and its 2010 voluntary commitment to reduce GHG emissions. The Project fully aligns with the national priorities and programmes to strengthen economic and energy independence of Kazakhstan as mentioned in Para 20. However, for Kazakhstan to achieve decarbonization and the binding and quantified emission limitation of 100% over the 1992 baseline, over US$610 billion of investment will be required.

25. Since the largest set of projects for decarbonizing Kazakhstan is heating and hot water, an examination of heating tariffs is required. Each Akimat has their own tariffs and each residence pays tariffs according to their own area of living. This complicates how the tariff compensation for each Akimat.

2.4 Objective of NAMA Project

26. The objective of the NAMA Project is to "*support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction target, as committed during COP-17 (Durban 2011*". This is contained in PRF in Appendix F.

2.5 Expected Results

27. With Kazakhstan's baseline scenario articulated in Paras 19-20, the NAMA Project expected the following outcomes as written in ProDoc of April 2015:

- Outcome 1: Enable participating municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs);
- Outcome 2: Put in place the enabling institutional framework to facilitate the implementation of urban mitigation actions;
- Outcome 3: Establish new and additional financing for urban NAMAs;
- Outcome 4: Identify and finance a pilot urban mitigation action to demonstrate the feasibility of urban emission reduction for future replication; and
- Outcome 5: Establish an MRV system to allow for the systematic monitoring, verification and reporting of the GHG emission reductions of implemented urban NAMAs, and increase the awareness of, and access to, information and guidance on urban NAMAs in Kazakhstan.

2.6 Description of the Project's Theory of Change

28. There was no Theory of Change (ToC) developed for the original Project design. A review of the NAMA PRF was conducted, revealing poorly worded outcomes with some redundant indicators that were changed to monitor progress more effectively (Para 34). From this analysis, a ToC has been developed in Figure 1 on the basis of a revised PRF that has re-worded outcomes, indicators and targets in red font, as provided in Table 7 and Appendix F.

2.7 Total Resources for NAMA Project

29. The total resources allocated to this Project at time of ProDoc signature in April 2015 is provided in Table 1.

Table 1: Total Resources for NAMA Project as of April 2015

Component	GEF Resources (US$)	Planned Co-Financing Resources (US$)
Outcome 1: Integrated municipal planning, targets and prioritization for urban mitigation actions	400,000	3,032,358
Outcome 2: Institutional framework for urban NAMAs	700,000	2,058,000
Outcome 3: Financing for urban NAMAs - INV	3,000,000	45,923,446
Outcome 3: Financing for urban NAMAs - TA	300,000	1,274,000
Outcome 4: Implementation of pilot urban NAMA - INV	560,000	10,780,000
Outcome 4: Implementation of pilot urban NAMA - TA	140,000	
Outcome 5: Monitoring, verification and knowledge management	550,000	1,013,508
Project Management	280,000	1,307,782
Total	**5,930,000**	**65,389,094**

2.8 Main Stakeholders and Key Partners

30. The main stakeholders on the NAMA Project are listed in Table 2. There were changes in key partners for the NAMA Project from those mentioned in the April 2015 ProDoc due to the re-organization of the GoK. The wide range of current stakeholders on the NAMA Project are detailed in Table 2. More details on these stakeholders are provided in Sections 3.1.4. and 3.2.2.

Figure 1: Theory of Change for NAMA Project

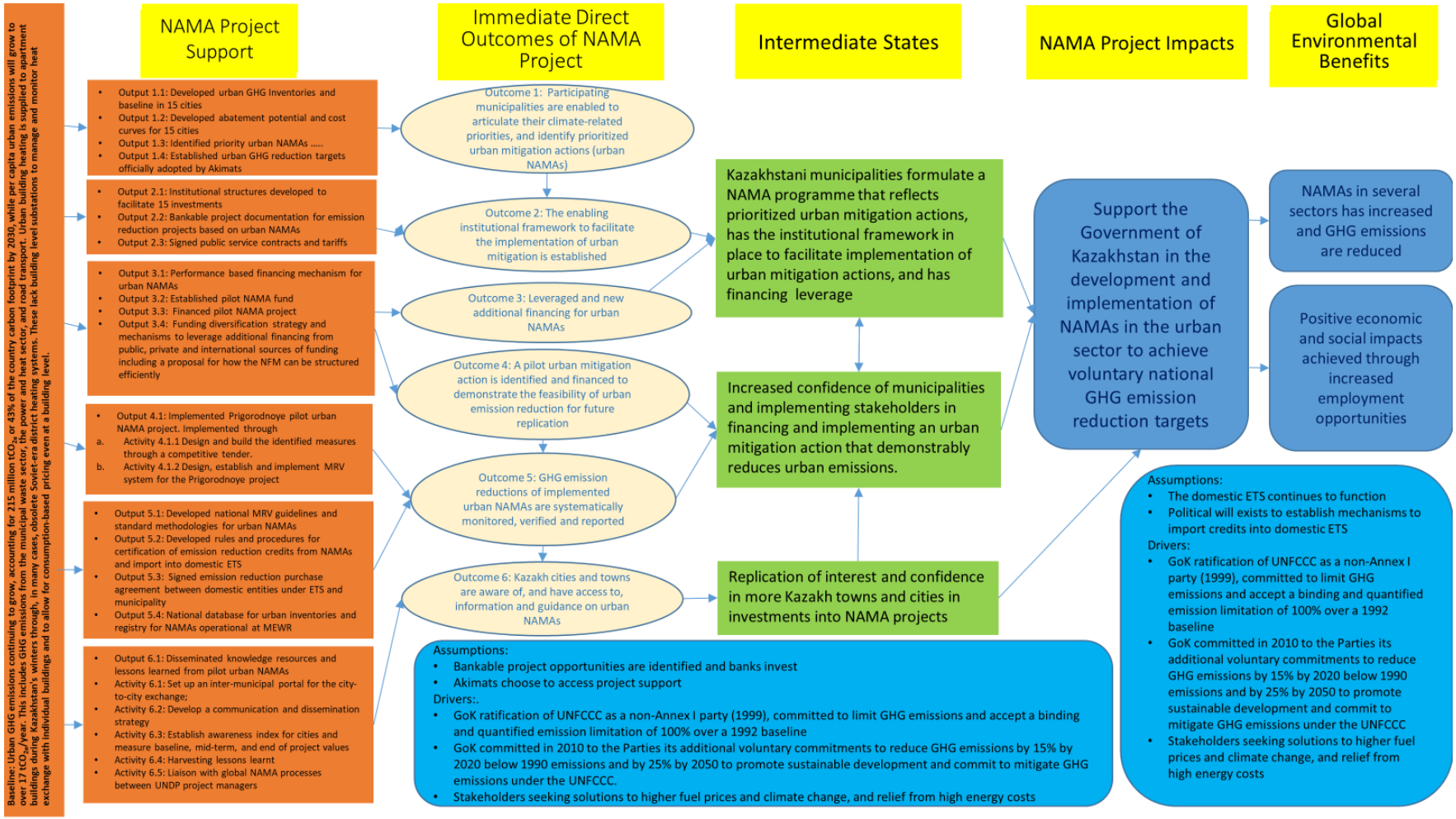


Table 2: Main Stakeholders on NAMA Project

Stakeholder	Role
Ministry of Industry and Construction (MIC)	On 1 September 2023, the Ministry of Industry and Infrastructural Development (MIID) was split in 2 ministries: Ministry of Transport and Ministry of Industry and Construction (MIC), the latter staying in charge of energy efficiency and serving as the executing agency for the Project. MIC is responsible for Project management, implementation, monitoring, and liaison with relevant national government agencies, authorities in local communities. Under its Committee of Industry, they are implementing the 59th step of the Plan of Nations "100 steps to implement five institutional reforms", the energy services market is developing, the implementation tool of which is the Energy Efficiency Map. Under MIC is the "Kazakhstani Center for Modernization and Development of Housing and Communal Services", the aim of which is to support the implementation of the state policy for the modernization and development of housing and municipal services, The Center is supposed to do so by improving the legal and technical framework, providing information and analysis services, raising awareness, carrying out investment projects, improving public utilities and introducing innovative and resource-saving technologies.
Ministry of Ecology and Natural Resources (MENR)	MENR is the governing body and policy maker for climate change management at the national level. Its oversight of the 2023 NDC includes the preparation of national GHG inventory, introduction of ETS, elaboration of NAMAs, the establishment and monitoring of national emission reduction targets, and provision of methodological guidelines for GHG emission accounting by private and public sector. MENR has a key role in the establishment of criteria for the definition of urban mitigation actions, the development of the national registry and MRV methodologies, and ensuring quality of city inventories, MRV and NAMAs. MENR will be the main governmental agency responsible for implementation of Components 1 and 5.
Municipal governments or Akimats	Akimats have their own heating and hot water tariffs as well as EE activities, making them key partners in implementation of EE projects, particularly in heating and hot water systems. Akimats are directly involved in all project activities from identification, development, implementation, and monitoring of urban mitigation actions in partnership with relevant national authorities, private sector and civil society.
JSC "Damu Entrepreneurship Development Fund"	The Damu Fund was established in accordance with the resolution of the Government of the Republic of Kazakhstan in April 1997, No. 665 on "the Creation of a Fund for the Development of Small Business". The main function of the Fund is the financial support of Kazakhstan's SMEs. Support is provided through loan guarantees, subsidizing interest payments, providing concessional financing through second-tier banks, working with MFIs and leasing companies, consultation and training. In 2016, the Fund was selected as the Financial Agent for the "Program for the Development of Productive Employment and Mass Entrepreneurship for 2017-2021". The Fund conducts capacity building seminars with the Project team for Damu's regional personnel and banks[12].

[12] This program was amended a few times. After 2017, its 2 main business support instruments were partial loan guarantees and interest rate subsidies. They were constantly adjusted to the changing environment and tailored to specific needs, which most recently included the needs of the green projects.

Stakeholder	Role
Ecojer	Ecojer is an NGO founded in 2019 to contribute to achieving environmentally sustainable economic growth in Kazakhstan. Ecojer have conducted capacity building seminars on EE and RE, including the third annual International ECOJER Congress in Astana on 2 June 2023, and the launching of a series of policy dialogues, in efforts to support Kazakhstan's transition to carbon neutrality by 2060. This includes Kazakhstan's transition to a low-carbon economy, air quality management, and resilience to climate change.
Development partners and donors: World Bank, Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), German Development Cooperation (GIZ)).	Provision of technical, economic and financial data/information on ongoing and planned RE (power and non-power) projects that are being supported in Kazakhstan including specific data and information on energy efficiency and biomass energy technology applications in other regions and countries.
Private sector investors	Provision of private sector capital to fund urban NAMAs. They should be the primary drivers behind NAMA investments.
ESCOs and service providers	ESCOs and service providers are the entities that plan and design modernization projects involving EE and RE, install the equipment and undertake modernization measures, and provide operation and maintenance services.
Association of Apartment Owners (AAOs), Building Management Companies (BMCs) and apartment residents	AAOs and BMCs represent the interests of apartment residents. They are also the recipients and beneficiaries of loans from the government, private sector and development institutes to modernize their buildings and heating systems.

3. FINDINGS

3.1 Project Design and Formulation

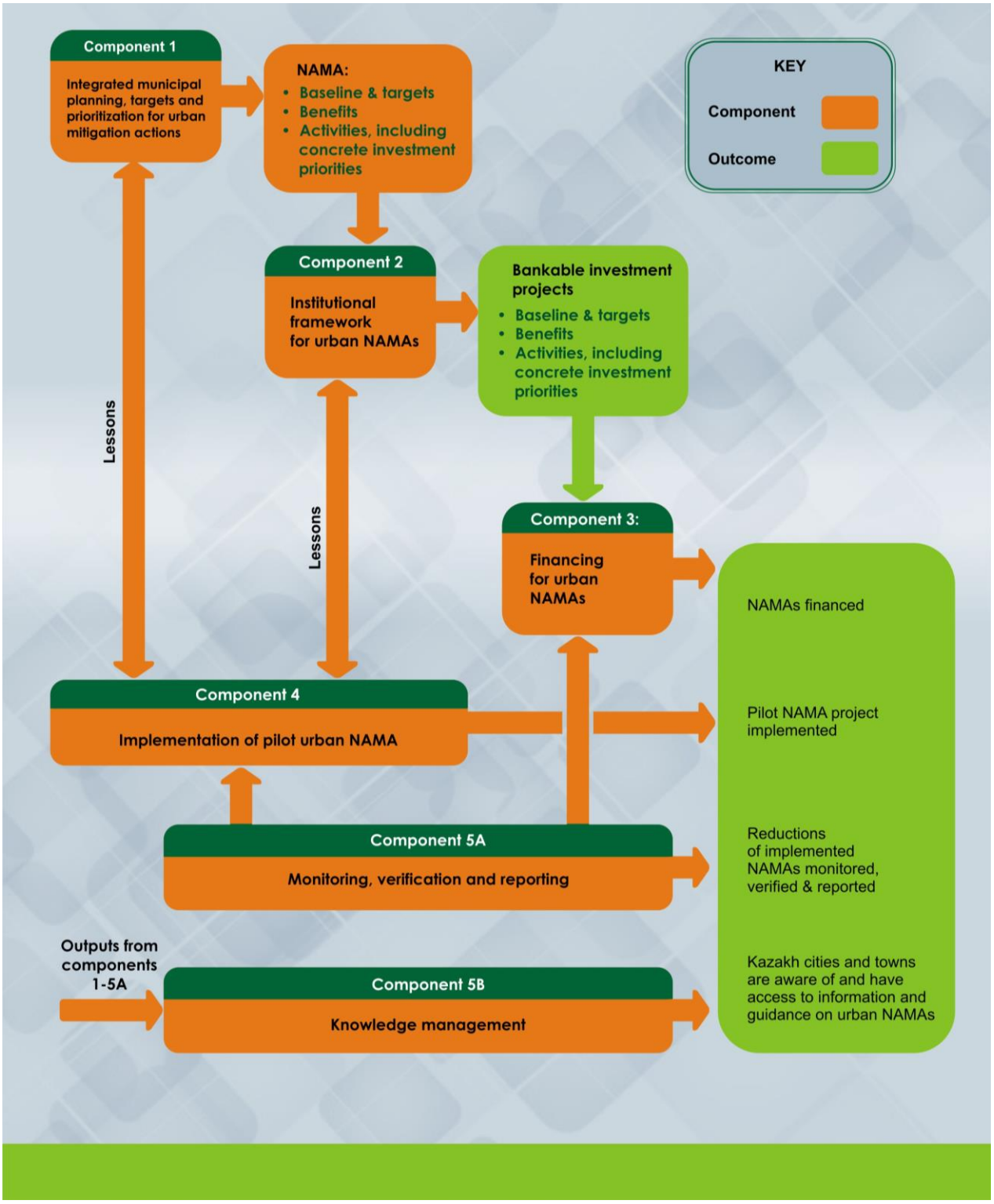
31. In 2014, the GoK requested support for the definition, design, and implementation of NAMAs in the urban sector with the objective of achieving the country's voluntary quantitative commitments mentioned in Para 21. The NAMA Project design was formulated in close consultation with a number of government institutions, financing agencies, energy experts and private sector energy development companies concerning their engagement on the Project. As NAMA is a financial mechanism of the UNFCCC, the NAMA Project, which accesses funds from GEF, provides "incremental" funds to cover the costs of commencing transformational changes with national benefits into one with global environmental benefits (GEBs). The Project met the country eligibility criteria while delivering incremental activities resulting in the GEBs and a Project that was relevant to address prevailing barriers and to achieve the overall objective.

32. Urban GHG emission reductions were prioritized on this Project as it is the sector where the reduction of GHG emissions will directly result in tangible socio-economic and local environmental benefits. The Inception Workshop provided an updated situation analysis, resulting changes and revisions to the ProDoc including Project risks, Project work plan, activities, the PRF, and schedule for Project work. The logic of the Project PRF remained unchanged while the structure of the PRF did change as elaborated in Para 34. The Inception Workshop and the ProDoc envisaged the Project objective to be achieved by:

- using a combination of investment finance and technical assistance to address the range of barriers currently facing the development of NAMAs in Kazakhstan (as outlined in Para 23);
- providing support to articulation of climate-related priorities for 15 cities including baseline GHG inventories and abatement cost curves (Outcome 1). This was to enable local authorities to be able to articulate their climate-related priorities and goals;
- providing technical assistance to Akimats to develop 15 investments (Outcome 2). This enables local authorities and NAMA project developers to identify and prioritize investment projects where GHG emissions can be achieved most cost-effectively as well as estimating financial resources required to implement them;
- providing financing for urban NAMAs (Outcome 3) and one pilot urban NAMA in Astana (Outcome 4). This enables project developers and financers to access opportunities to leverage private capital and financing that includes domestic ETS financing needs, and allows policymakers to match their priorities with available resources for planning on how to deploy those resources most effectively; and
- providing support to the development of methodologies related to MRV for NAMAs that will facilitate the formation of an ETS (Outcome 5).

The Project is designed in a manner where the outcomes are distinct with no overlaps. Figure 2 depicts the interrelationships between the Components of the Project in the ProDoc as a substitute for the ToC. This Evaluation uses the ToC on Figure 1 for the analysis of the NAMA Project design.

Figure 2: Project structure showing key relationship between components (from ProDoc)



3.1.1 Analysis of Project Results Framework for the NAMA Project

33. The Project in the ProDoc was designed based on a PRF with indicators, all of which meet SMART criteria[13]. These indicators and their targets as listed in the PRF contained in Appendix F where changes in from the original PRF have been highlighted in red font.

34. However, there were still some issues with NAMA Project outcomes, indicators and targets including:

- minor re-wording some of the PRF indicators and targets as provided in the Inception Report for the NAMA Project: "Nationally Appropriate Mitigation Actions for Low-Carbon Urban Development, Kazakhstan 'Low Carbon Urban Development – Sustainable Cities'";
- minor re-wording of NAMA outcomes to read as outcomes;
- omissions of some of the suggested PRF changes in the Inception Report such as:
    - the indicator of "number of urban NAMAs under implementation" with a target of US$3.0 million was proposed by the Inception Report to be subsumed into indicator of "Cumulative cofinancing realized" with a target of US$70 million. The PIRs do not reflect this change;
    - the indicator of "Cumulative cofinancing realized" was proposed in the Inception Report to be changed to "value of Urban NAMAs under implementation" in the PIRs can be subsumed into the Inception Report indicator of "value of urban NAMA projects implemented" with a target of US$70 million. The PIRs do not reflect this change;
    - the ProDoc indicator of "Number of Urban NAMAs under implementation" was eliminated in the Inception Report but not eliminated in the PIRs. Efforts of this indicator are already reflected in "value of Urban NAMAs under implementation" in the Inception Report and "Cumulative cofinancing realized" in the PIRs;
    - the ProDoc indicator of "Status of the establishment of financial mechanism for NAMAs" was changed in the Inception Report to "Establishment of financial facility for NAMAs" with targets of (a): no facility in place, b): facilities discussed and proposed, c): facilities proposed but not operationalized/funded, d): facilities operationalized/funded but have no demand, e): facilities operationalized/funded and have sufficient demand). This suggested change was not implemented in the PIRs;
    - a new indicator in the Inception Report of "new green jobs" was not taken into consideration;
- at the time of the Inception Workshop in November 2015, the Prigorodnoye pilot project was not ready for financing and implementation for several reasons: the new local administration is not ready to implement the project due to uncertainty in heating, lack of coordination with new private developers, public budget cuts and lack of available public funding, risk of flooding of the basements in the complex, and a risk of project cost increase. This had an impact on the local administration who were unwilling to implement the project. A new location for a pilot project was to be identified for Output 4.1;
- some redundancies with some of the indicators:
    - under Outcome 3, the indicator "Capitalization of funding mechanisms for urban NAMAs" should be subsumed under the indicator "Financing provided to urban NAMA projects enabled by the Pilot NAMA financial mechanism" with an EOP target of US$45 million.

[13] Specific, measurable, achievable, relevant and time-bound

However, this indicator seems redundant to the Objective-level indicator "Value of Urban NAMAs projects implemented (USD) = cumulative co-financing realized". *The Evaluation has omitted the Objective-level indicator*;

- targets for the GHG emissions for the pilots in Outcome 4 are not useful and have been subsumed under the direct lifetime GHG emission reductions under the Objective-level target of 370,000 tCO_2; new indicators for Outcome 4 were made: "number of projects influenced by this demonstration" has a target of 5 projects, and "status of pilot urban mitigation action demonstrating comprehensive modernization of urban district" (which was the indicator since the 2019 PIR) has a target of "Pilot project monitored (at least 1 year)". Both indicators provide indications of the demonstrative effect of the pilot project.

The redundancy changes are reflected in red font on Table 7 as well as in Appendix F.

3.1.2 Assumptions and Risks

35. Very few assumptions and risks were made under the NAMA PRF including:

- under Outcome 2:
  - Project opportunities are identified; and
  - Akimats choose to access Project support level indicator;
- under Outcome 3, bankable projects are identified, and banks invest; and
- under Outcome 5:
  - the domestic ETS continues to function;
  - political will exists to establish mechanisms to import credits into domestic ETS.

These assumptions appear to be reasonable.

36. There were 11 risks listed in the NAMA risk log in the ProDoc. This was reduced to manageable 5 risks in the Inception Report comprising of:

- lack of public funding from the central government and municipal governments;
- lack of bankable low-carbon projects in pilot cities;
- financial mechanism and funds are not operational;
- insufficient time for implementation;
- barriers for private involvement involving the combination of two innovative approaches and instruments, such as PPPs and carbon finance, making Project design more complex and implementation inherently risky.

3.1.3 Lessons from Other Relevant Projects Incorporated into NAMA Project Design

37. Other than the baseline programmes mentioned in Para 20, there are donor-funded projects that have contributed to the NAMA Project design:

- a pilot urban modernization project in Prigorodnoye in Astana's suburban district for which the former Ministry of Regional Development (MRD) of GoK and UNDP committed US$11 million for program design and the implementation. Prigorodnoye was part of the urban plan for "*Strategy for Sustainable Urban Development of the Capital City of Astana till 2030"*, which is Kazakhstan's

first urban development plan that fully embraces the concept of "sustainability"[14]. The objective of this pilot (which was partially implemented between 2013 and 2018) was to demonstrate a comprehensive approach to modernization and management of urban areas, and provision of sustainable and reliable public services to the city's 2,200 residents consisting of 6 multi-apartment buildings, a school and a kindergarten. The area was connected to national power grid and coal-based central heat and hot water supply system with infrastructure being 35 to 40 years old. UNDP developed a financing scheme for modernization plans and appropriate institutional framework (involving BMCs and AAOs) and structuring financing for implementation. The Akimat and UNDP produced detailed design documentation for thermal upgrades of a residential building and renovation of the heating network in Prigorodnoye;

- UNDP-GEF project "Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply" in Kazakhstan, completed in March 2014[15]. This project facilitated development and adoption of the revised Law on Energy Saving, including specific provisions to stimulate energy efficiency in the municipal heating sector, such as differentiated heat tariff, ESCO modality (including establishment of the first ESCO in Kazakhstan), EE requirements for district-heating systems, and successful piloting of a tripartite partnership agreement between municipalities, private sector and association of apartment owners to finance and implement EE retrofit projects in residential apartments. All investments under this project were grant financed by GEF;
- The Kazakhstan Center for Housing and Utilities (KazCenter ZhKKh), now under MIC, completed the modernization of an entire apartment building with 95 apartment units and 11 commercial spaces that started in 2012. KazCenter ZhKKh managed to get residences to pay into roof, basement, heating and hot water supply, sewage system improvements. A housing management company sourced the service provider to implemented the works with tenants paying back government money spent on the modernization;
- UNDP-Government of Kazakhstan project "Energy efficiency of housing in small towns" implemented between 2013 and 2014;
- UNDP-EBRD project "Promoting energy efficiency in public buildings" implemented between 2013 and 2014. This project included demonstration investments in energy efficiency in schools and other public buildings by replacing windows, installing proper insulation for building walls, and modernizing the heating system. All these measures significantly reduced energy consumption and building heating costs;
- Global Covenant of Mayors (GCoM), EU division and EU project funding[16];

[14] It has a major focus on energy and resource saving and contains a number of sustainability targets that Astana aspires to reach by 2030, such as the reduction of waste volumes by 80%, water consumption by 50%, and increased energy efficiency and use of renewable energy for heat supply to reduce energy-related GHG emissions by 1.2 $MtCO_2$/yr.

[15] https://www.thegef.org/projects-operations/projects/1149 and https://www.thegef.org/sites/default/files/publications/Removing%20barriers%20to%20energy.pdf

[16] The GCoM program horizon 2020 included Kazakhstan. The program was aimed at supporting mayors in the implementation of developed energy saving plans. The first part of the program was to develop action plans. The second part of the program is to provide funds for financing. City mayors have developed plans, but due to the limited budget of the donor, the European Union, Kazakhstan was not included in the funding priority. The NAMA Project was contacted and shared experience (a webinar with a presentation and discussion) in March-April 2022 and recommendations when the GCoM was pre-selecting cities in the framework of the EU-funded project. Since then, co-operation was established between GCoM and 9 cities in Kazakhstan with a full list of them found on: https://www.globalcovenantofmayors.org/our-cities/

- EBRD launched the Kazakhstan Sustainable Energy Financial Facility (KazSEFF) in 2009, a US$75 million USD financial facility in the form of dedicated credit lines to local financial institutions for on-lending to private sector companies to finance projects in sustainable energy, primarily EE in the industrial sector and small RE projects. With KazSEEF supporting several bankable projects, several of these projects failed to repay the debt due to economic crisis, significantly increasing risks for banks, and banks becoming reluctant to provide financing for new projects; and
- World Bank Energy Efficiency Project for the Republic of Kazakhstan improved energy efficiency in public and social facilities and improved environment for sustainable energy financing. The project comprised two components: investment and technical assistance[17].

3.1.4 Planned Stakeholder Participation

38. The NAMA ProDoc details in very specific terms, the stakeholders to be involved on the Project (in the ProDoc on pages 59 and 63) including their roles. The stakeholders identified for engagement had already been consulted during the PPG stages of the Project. Further stakeholder engagement during Project implementation was to be organized through extensive consultation processes through all stakeholders who will serve as information providers in their roles of raising public awareness of the NAMA Project. The GoK stakeholders have significantly changed due to the reorganization of ministries in government between 2016 and 2018. This is detailed in Paras 48-54.

3.1.5 Linkages between the NAMA Project and other interventions in the sector

39. The NAMA Project was linked with other interventions intending to assist in the setup of NAMAs:

- UNDP-GEF project “Energy-Efficient Design and Construction of Residential Buildings” in Kazakhstan, completed in August 2016[18]. This project supported the introduction and enforcement of EE building codes and worked with publicly funded construction programs to integrate energy efficiency considerations in the design of new residential buildings. This project also provided essential analytical data and hands-on experience for the design of prospective NAMAs in urban building sector. All the investments on this project were grant-financed;
- UNDP-GEF project “City of Almaty Sustainable Transport (CAST)” in Kazakhstan, completed in December 2017. This project focused on promoting sustainable urban transport in Almaty and worked on GHG accounting and monitoring systems for urban transport, design and implementation of pilot sustainable urban transport solutions, MRV, and developing urban NAMAs in the transport sector in Almaty and other Kazakhstani cities;
- UNDP-GEF project “LGGE Promotion of Energy Efficient Lighting in Kazakhstan”, completed in April 2018. This project also set up a comprehensive policy framework for phasing-out inefficient lighting in Kazakhstan, and to developing and implementing advanced EE solutions for public lighting, such as LED, in cooperation with the municipality of Almaty. As in the case of CAST, this project provided important baseline data, GHG accounting tools and methodologies, as well as technical knowledge from pilot projects for the design, costing and implementation of urban NAMAs in lighting sector;
- The EBRD worked closely with the GoK to improve environmental and municipal infrastructure through investment and technical assistance. They are also financing the Clean Technology Fund to upgrade district heating in the city of Almaty, as well as GEF-funded GEFF Green Investment

[17] Kazakhstan - Energy Efficiency Project (worldbank.org)
[18] https://www.thegef.org/projects-operations/projects/3758

Support Programme. The EBRD are providing on-lending for direct loans to banks for green projects and large scale renewable energy projects.

3.1.6 Gender responsiveness of Project design

40. Gender was not discussed in any detail in the ProDoc or the Inception Report. The only details of gender are in the indicators to the PRF where all indicators are to be "consistent with UNDP's mandate to promote gender equality, reflected in the UNDP gender equality strategy 2014-2017, and the 3rd Millennium Development Goal (to end poverty by promoting gender equality) with indicators to be collected gender-disaggregated and will aim to advance gender mainstreaming and social equity".

3.1.7 Social and Environmental Safeguards

41. The Social and Environmental Screening Procedures (SESP) outcomes were classified for this Project as Category 3a where "impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice but require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full environmental and social assessment". Furthermore, screening identified two issues:

- urban NAMAs such as waste management, transport or municipal heating might have potentially negative socio-economic implications for local communities (such as quality of municipal services and increased heat tariffs) or have deteriorating impact on eco-systems surrounding urban centers (such as new waste management facilities or transport infrastructure);
- downstream activities to be supported by the Project include pilot investments in Prigorodnoye district of Astana and pilot NAMAs through the National Modernization Fund. The scope and type of potential negative impact of such downstream activities could not be assessed at the design stage, requiring further investigation during the due diligence process of pilot project preparation.

42. To mitigate these issues, screening was to be done at first stage of development in Outcome 1. If significant effects are identified, then an SEA will be conducted. For heating supply projects, a social impact assessment was to constitute an integral part of a tariff review in close collaboration with local and national authorities. For the pilot NAMA of Outcome 4, an Environmental Impact Assessment (EIA) was to be conducted in line with requirements of Kazakhstani Law on EIA by project proponents to the National Modernization Fund.

3.2 Project Implementation

43. The following is a compilation of significant events during implementation of the NAMA Project in chronological order:

- PIF Approved under GEF 20 June 2013;
- CEO Endorsement on 5 December 2014;
- start-up date of the Project on 22 April 2015;
- Project experienced significant delays in implementation mainly due to procurement delays and frequent government restructuring. This delayed the Inception Workshop until 6 November 2015 in Astana and delivery of the final Inception Report to January 2016. The Inception Report

included a change in the pilot urban modernization project in Prigorodnoye in Astana's suburban district (Paras 20 and 34);

- an inventory of GHGs was carried out in 2017 for 8 pilot cities (Lisakovsk, Satpayev, Kapshagai, Aktobe, Oral, Shymkent, Kostanay and Temirtau) for urban sector using international methodologies, an analysis of the state of municipal economies, and a SWOT analysis of municipal opportunities for low-carbon development in all urban sectors. A final conference in Astana on "Identification of Low-Carbon Projects and Assessment of Required Investments in Urban Sectors: Energy, Public Transport, Buildings, Municipal Waste" was conducted in October 2017 with the participation of city administration representatives for all pilot cities;
- UNDP initiated the Harmonized Cash Transfers (HACT) procedure in January 2017 on the Damu Fund and approved the Fund as a Financial Partner for the Project in May 2017;
- in April 2017, the Project Board approved the "Municipal Energy Efficiency Investment Support Facility" in partnership with the Damu Fund for 3 FSMs that includes a bank rate reduction, loan guarantee and investment subsidy[19];
- 5 standard solutions for the implementation of low-carbon city projects were approved in November 2017 by Akimats of pilot cities and SME representatives of SMEs. The 5 solutions were smart ATP for heat consumption of buildings, pumps with variable frequency drives for water supply, replacement of lamps with LED, collection and primary sorting of household waste, modernization of boiler equipment as a public-private partnership for heating;
- Mid-Term Evaluation (MTE) was conducted during the January – March 2018 period;
- 33 NAMA projects were supported between 2018 and 2020[20] under the FSM that implements a buy-down equivalent to a 10% per annum (p/a) reduction in interest rates[21];
- a review of the FSM was conducted between 2020 and 2022;
- first disbursement of the GoK's fund for "attracting investors in the field of energy efficiency" in 2021 to be managed by UNDP (see Para 146);
- re-design of a new FSM was approved in May 2022 with the subsidized payment of 40% of the loan principal[22];
- 17 NAMA investments were made during the October 2022-January 2024 period[23].

44. Project is overseen and strategically guided by the Project Board (PB), which is chaired by the CEO of MIC and composed of key Project stakeholders: MIC, MENR, Akimats, the Damu Fund, Ecojer, NCE Atameken, Eurasian Development Bank (EADB), Halyk Bank, Kazakhstan Stock Exchange and UNDP. Other stakeholders include financial institutions, private sector investors, ESCOs, service providers,

[19] Together with DAMU, a decision was made to test a reduction in the remuneration rate and guarantee with subsequent testing of an investment subsidy that implements a buy-down of interest rates for urban NAMAs.

[20] These projects were supported but not completed. They were granted support in that period, in form of interest rate reduction, and only after that they borrowed from banks and started works. Some of them were completed in 2021, due to the period of COVID-19 and subsequent delays to borrowing and starting works.

[21] If market interest rate was 14% for a supported company, it paid only 4% and the rest of the interest payments were covered by the subsidy.

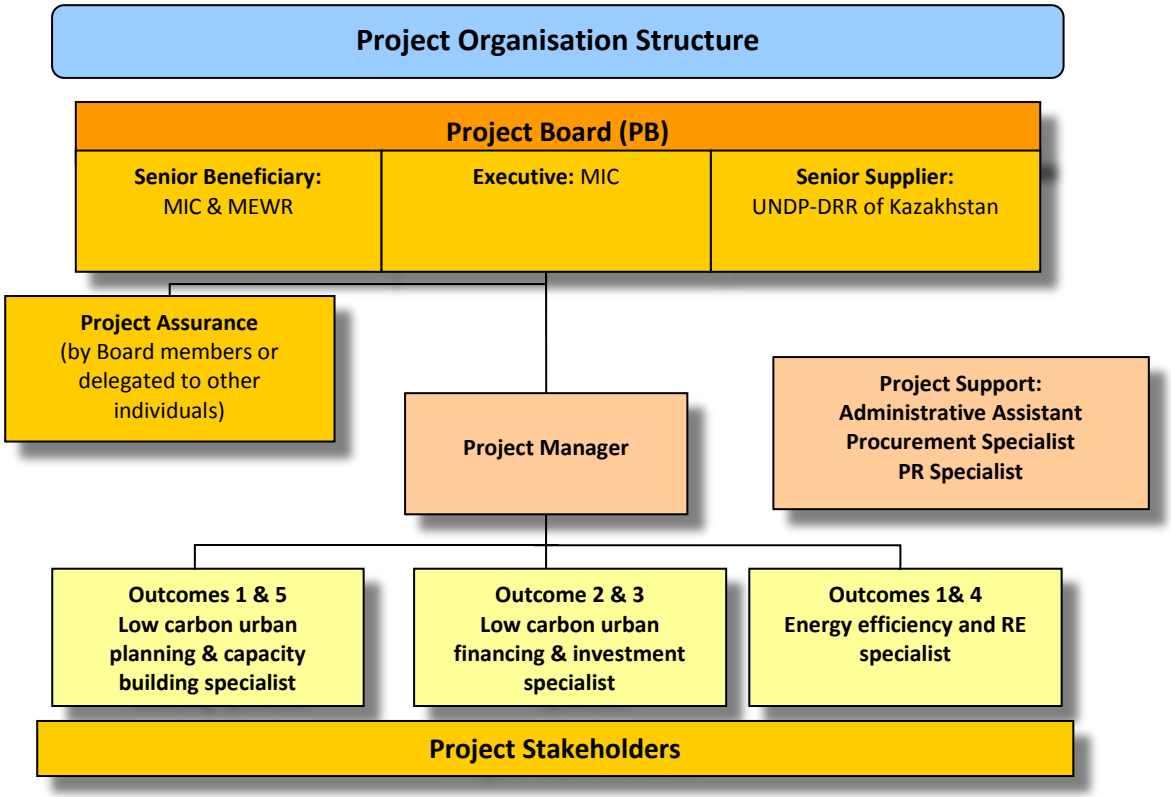
[22] The FSM re-design included general recommendations and approvals inside UNDP and the Damu Fund.

[23] When it became clear the FSM was going to be approved and launched in October 2022, the NAMA Project started a series of seminars and webinars to attract applications in August 2022 to accelerate the new pipeline of NAMA investments with a disclaimer "provided the funds are available". The first applications came immediately after finishing the FSM re-design in October 2022.

AAOs and apartment residents as listed on Table 2 and further discussed in Paras 48-54. The PB has met on annual basis since April 2015 to review and approve annual work plans and budgets, review annual progress, provide strategic oversight of the Project, ensure coordination with key baseline initiatives and national investment programs, and provide guidance on the effectiveness of Project interventions and results.

45. The current National Project Director (NPD) is the Head of the Department for Energy Saving and Energy Efficiency of the Industrial Development Committee of MIC. The NPD has been responsible for the overall achievement of Project objectives through institutional coordination with the key stakeholder members of the PB and overall alignment of the Project with NAMA projects of Kazakhstan. The NPD has also been responsible for timely Project reporting, including the submission of Annual Work Plans (AWP), Annual Project Reports (APRs), Project Implementation Reviews (PIRs), and financial reports. The NPD has taken full ownership of the Project by leading and implementing the Project with keen interest and providing facilitation, management and oversight support during implementation of the Project. The NAMA Project organization structure is shown on Figure 2.

Figure 2: NAMA Project organization structure



46. The NAMA Project Manager (PM) is tasked with the day-to-day management of Project activities, preparation of AWPs, financial reports and administration. The current PM's tenure with the Project has been since August 2023, with a previous PM serving from 2016 to 2022 and an interim PM from 2022 to mid-2023. The PM prepares the AWPs for submission to the PB for approval and is supported by a Project Assistant, Communications Analyst and an M&E Associate.

3.2.1 Adaptive Management

47. Adaptive management is discussed in UNDP evaluations to gauge performance of Project personnel to adapt to changing regulatory and environmental conditions and unexpected situations encountered during the course of implementation, both common occurrences that afflict the majority of UNDP projects. Without adaptive management, donor investments into UNDP projects would not be effective in achieving their intended outcomes, outputs and targets. Much of the adaptive management by the NAMA Project's PMU was a result of:

- the need to replace the National Fund for Modernization of Communal Infrastructure as a NAMA Fund caretaker in 2017. This Fund was found by GoK to be ineffective in its programming, requiring adaptive management measures to find a new partner in the Damu Fund, and to re-design the NAMA FSM involving loans from commercial banks and an interest rate subsidy from NAMA Project funds to reduce the cost of finance for private sector ESCOs and investors (see Para 98);
- subsidized electricity and heating tariffs which contribute to the low enthusiasm of potential NAMA investors and no culture for saving energy amongst many stakeholders. This resulted in adaptive management of more time being spent to raise awareness of the benefits of EE and RE NAMA investments (see Para 116);
- adjustments being made to an old FSM (effective between 2018 and 2020) to a new FSM in October 2022. Adaptive management was done to improve the efficiencies of GEF fund disbursements and the monitoring of GEF funds being spent to make commercial loans concessional (Paras 98-**Error! Reference source not found.**);
- continued low enthusiasm for NAMA investments up to 2022. Further adaptive management measures were undertaken by the PMU and MIC to focus on NAMA investments with high impact (see Para 102). Examples of this included insulation of pipes and the modernization of heating systems to regulate the amount of heat being provided to consumers being regarded as high impact with a low period of payback, whereas investments in window retrofitting were considered lower impact with longer payback periods.

For these reasons, adaptive management was rated as ***highly satisfactory***.

3.2.2 Actual Stakeholder Participation Partnership Arrangements

48. Under NIM execution modality, the key to successful stakeholder participation arrangements for the NAMA Project has been the close involvement and consultations between the PMU and relevant government ministries to collect information on their baseline activities, and to secure collaboration with Akimats, ESCOs, service providers, other private sector entities, and NGOs during the Project. These stakeholders were contacted for their willingness to be involved on the Project.

49. During Project implementation, there were many changes to GoK stakeholder participation from the original ProDoc:

- the Ministry of Regional Development (MRD) with its Committee for Construction and Housing & Communal Affairs (CCHCA) was the central executive authority in the field of architecture, urban planning and construction, housing relations, municipal services up to 2018. MRD was also the executing agency for the NAMA Project;
- after government re-organization in 2018, the Ministry of Industrial and Infrastructure Development (MIID) took over as the executing agency for the Project that included re-working of the FSM in 2022-23 with Damu;

- on 1 September 2023, MIID was split in 2 ministries: Ministry of Transport and Ministry of Industry and Construction (MIC), with the latter staying in charge of energy efficiency and the executing agency for the NAMA Project.

50. Stakeholders were further engaged throughout the Project through working groups in partner cities. These working groups, established in all 15 pilot municipalities, consisted of local experts, personnel from Akimats and municipal authorities, associations of apartment owners, municipal utilities, CSOs and NGOs. These working groups supported implementation of on-the-ground Project activities including identification of pilot NAMAs and subsequent implementation, and spearheading public-private partnerships (PPP) for implementation of energy efficiency projects in cities. This brought in several private sector ESCOs and service providers (all of whom were SME companies), commercial banks, NGOs, AAOs and apartment residents to become partners of the Project:

- there has been outreach to over 6,000 SMEs across Kazakhstan who could provide energy efficiency services (some as ESCOs since they were first formed in Kazakhstan in 2009) with information about the Project and available support services. The result was over 400 SME consultations were conducted with over 50 approved investment projects. This also included Project communication in 2023 on collecting feedback from several SME ESCOs and the final users of the energy efficiency equipment;
- 32 commercial banks were approved by Damu for participation in financial schemes. In 2017, over 100 commercial bank loan officers received training and advisory support from the Project and Damu to adequately appraise and manage applications for EE loans;
- NGOs included:
    - the National Association of business companies “Atameken”, whose representative is on the Project Board;
    - the Coalition for Green Economy who, from 2019 to 2021, successfully collaborated with the Project in raising awareness on low-carbon practices in the cities of Petropavlovsk, Karaganda, Temirtau, Satpaev, and Nur-Sultan;
    - Association of Ecological NGOs who supported the process of establishment and approval of urban GHG emission reduction targets in pilot municipalities;
    - the Institute of Energy Efficiency who jointly conducted a number of round tables and working level discussions in 2023 on further improvement of energy efficiency legislation as well as market development;
    - AAOs, many of them in Astana, where resident councils were established from 2018 to 2020 with the assistance of the Project in every pilot building. Information events were conducted to obtain the consent of residents to participate in NAMA pilot building modernization projects. Most member of the councils were trained in the basics of energy saving;
    - the Institute of Local Self-Government working with the Project to develop and implement a pilot model for management of apartment buildings involving residents; and

- the Ecojer NGO working with the PMU to conduct capacity building seminars in 2023 on EE and RE, including participation in the "III International Congress ECOJER – Carbon Neutrality Pathways"[24].

51. One of the key activities to engage stakeholders in all 15 pilot cities was the capacity building for resident councils to involve the public in building sustainable urbanization. Several formal and informal consultations with ESCOs and AAOs have been held and assistance provided with identifying and developing bankable urban NAMA projects based on the PPP model.

52. In addition, there were also efforts by the NAMA Project to connect with the GEF Small Grants Programme (SGP) to link with local NGOs in small settlements where the UNDP-GEF has local consultants. Within the framework of the investment support mechanism by the NAMA Project, a number of pilot projects were conducted under the SGP including:

- a low-carbon modernization of a 5-storey apartment building in Karaganda;
- a testing mechanism for ESCOs to modernize the system of heat consumption in residential building.

This is elaborated in Box 1.

53. There were also outreach efforts to external stakeholders:

- from 2019 to 2020, the Project shared its innovative experience in developing a financial support mechanism and collaborating with the financial sector and ESCO companies with similar initiatives of UNDP and other donors in Tajikistan, Uzbekistan and Ukraine, aimed at promoting low-carbon buildings and investments;
- in 2022, the Project continued its close cooperation with the UNDP-GEF DREI project and GoK cost-shared project on loan guarantees as a part of FSM activities, and continued joint capacity building activities for Damu, Akimats, SMEs and banks;
- in 2023, the PMU had technical level coordination meetings with EBRD, ADB, and USAID to seek synergies and avoid duplication of energy efficiency and renewable energy sector work;
- Project contribution and communication to the II Almaty Energy Forum in November 2022 in cooperation with UNECE, UNESCO and Kazakh British Technical University[25]. The Project organized an exhibition of green financing instruments employed to support SMEs to access affordable financing for EE and RE projects;
- Project contributions to the Astana International Forum on 8-9 June 2023 with UNDP showcasing to external stakeholders an interactive map of low-carbon and small-scale renewable energy projects implemented in Kazakhstan by SMEs[26].

54. Overall efforts by the NAMA Project team to forge effective partnership arrangements with various stakeholders have been ***highly satisfactory***.

3.2.3 Project Finance

55. The total GEF budget for the NAMA Project was US$5.93 million that was to be disbursed over a 60-month period, managed by a UNDP-PMU under the direction of a Project Board. Table 3 depicts

[24] https://www.undp.org/ru/kazakhstan/speeches/iii-mezhdunarodnyy-kongress-ecojer-dostizhenie-uglerodnoy-neytralnosti
[25] https://unece.org/sustainable-energy/events/almaty-energy-forum-2023
[26] https://www.undp.org/kazakhstan/news/funding-green-transition-trudge-reach-sdgs-milestones

disbursement levels up to 31 December 2023, 3.5 months prior to the terminal date of the NAMA Project of 21 April 2024, revealing the following:

- The Project had small deviations in expenditures:
  - Outcomes 1 and 2 and Project Management were spent according to fund projections in the Inception Report;
  - Outcome 3 is underspent since NAMA Project support fell behind schedule and is now scheduled for completion in April 2024. There still remains US$651,089 for this Outcome in the NAMA Project budget as of 31 December 2023;
  - Outcome 4 was underspent due to the change in pilot project site in Prigorodnoye to Pushkina which resulted in a less costly pilot;
- The majority of funds were expended on Contractual Services – Companies/National (71200a), followed by Contractual Services - Individuals (71400), Travel (71600), and International Consultants (71200). These are revealed in Table 4;

56. The Project has also demonstrated that appropriate financial controls are in place, notably through:
    - Combined Delivery Reports (CDRs) and Project Budget Balance Report which shows the expenditure and commitments in the current year up to date (both as generated by Atlas);
    - manual monitoring of Project expenditures against budget lines to attain an in-depth understanding of the financial progress and the pending commitments.
57. Project co-financing was estimated to be more than US$800.693 million, well above the expected co-financing of US$65.389 million. Co-financing summary and details can be found on Tables 5 and 6 respectively. The TE team observes the following details of Project co-financing:
    - The majority of co-financing was from the Damu fund which provided over US$713 million in co-financing support to SMEs on green projects during the Project duration[27] [28];
    - MIC and the Akimats (municipalities) had sizeable co-financing of US$67.3 million for in-kind contributions to the overall management of the NAMA Project and articulation of Akimat priorities for low carbon plans respectively;
    - Ergonomica Ltd co-financed a green investment under the framework of the FSM (see Table 9);
    - Co-financing did not materialize from MEWR/MENR, EADB, IFC, EnKom-St, and Grundfos for reasons explained in Table 6;
    - Private sector support from ESCOs and other service providers was substantial in the implementation of NAMA projects;
    - In-kind support was not counted in the co-financing even though there was a lot of in-kind contributions from MIID, the private sector, CSOs and NGOs.

[27] Damu co-financing support for green investments came as an Excel file: https://damu.kz/ru/reports/reports/green/green_quarter/. The co-financed green investments are in the first tab in this file totaling KZT 319,550 million, which converted by KZT 450 to the US dollar, is around US$ 713 million. These green investments of Damu supported private funding (including loans and own investments of the private sector) by loan interest rate subsidies. The second and third tabs in Excel file are not counted since loan guarantees are typically given to the same projects, supported by subsidies. The fourth tab is for green bonds supported by DREI.

[28] This Damu co-financing can also be attributed to the DREI project since both the NAMA and DREI projects developed identical FSMs with the same partner, Damu Fund, in developing a green financing program.

Table 3: GEF Project Budget and Expenditures for NAMA Project (in USD as of 31 December 2023)

Outcomes	Budget (from Inception Report)	2015[41]	2016	2017	2018	2019	2020	2021	2022	2023[42]	Total Disbursed	Total to be expended in 2024	Total remaining
Outcome 1: Participating municipalities are enabled to articulate their climate-related priorities ….	400,000	63,553	129,759	156,251	49,177	-593					398,146		1,854
Outcome 2: The enabling institutional framework ….. is established	700,000	35,788	64,351	160,816	139,952	125,249	101,391	33,379	2		660,927		39,073
Outcome 3: Leveraged and new additional financing for urban NAMAs	3,300,000	28,119	82,213	62,002	125,809	450,511	364,460	205,664	191,923	1,138,210	2,648,911		651,089
Outcome 4: A pilot urban mitigation action is identified and financed ……	700,000		9,635	25,003	80,040	482,409	227,948	-21,680	107,457	13,048	923,861		-223,861
Outcome 5a and 5b: GHG emission reductions of …. urban NAMAs are systematically MRVed	550,000	21,338	246,870	158,995	88,890	87,104	1				603,198		-53,198
Project Management	280,000	59,096	14,792	48,457	49,204	60,396	48,324	-269			280,000		0
Total (Actual)	**5,930,000**	**207,894**	**547,620**	**611,523**	**533,072**	**1,205,076**	**742,124**	**217,094**	**299,382**	**1,151,258**	**5,515,044**	**0**	**414,956**
Total (Cumulative Actual)		207,894	755,514	611,523	1,144,596	1,960,590	2,702,714	2,919,808	3,219,190	4,370,448			
Annual Planned Disbursement (from ProDoc)	5,930,000	386,915	1,523,460	2,568,950	1,097,531	276,840	76,304						
% Expended of Planned Disbursement		**54%**	**36%**	**24%**	**49%**	**435%**	**973%**						

[41] Starting 22 April 2015
[42] Up to 31 December 2023

Table 4: Expenditures by ATLAS Code

ATLAS Code	Expenditure Description	Spent to 30 June 2023 (US$)
71200	International Consultants	237,184
71300	Local Consultants	151,079
71400	Contractual Services - Individuals	784,463
71500	UN Volunteers	194,843
71600	Travel	295,996
71800	Contractual Services-Individual Impl.Partner	
72200	Equipment and Furniture	1,561
72300	Materials & Goods	1,726
72400	Communications and Audio Visual Equipment	6,363
72600	Micro Capital Grants - Credit	
73200	Premises Alterations	
73400	Rental and maintenance of other office equipment	2,301
74200	Audio Visual & Print Prod Costs	94,343
74500	Miscellaneous Expenses	12,986
74700	Contingency	47
76100	Realized loss	7,447
75700	Training, Workshops and Conference	133,971
72100a	Contractual Services - Companies / Nat	3,473,490
72100b	Contractual Services - Companies / Int	
72800	Information Technology Equipment	14,609
64397	Services to projects -CO staff	
74596	Services to projects	57,028
72500	Supplies	912
73100	Rental & Maintenance-Premises	
74100	Professional Services	11,388
74100b	Professional Services - International	
74400	Provisions & Write-offs	6
74599	UNDP cost recovery chrgs-Bills	18,025
73300	Rental & Maint of Info Tech Eq	70
77600	Dep Exp Owned	15,206
	Total	**5,515,044**

Table 5: Co-Financing for NAMA Project (as of 31 December 2023)

Co-financing (type/source)	UNDP own financing (million USD)		Government (million USD)		Partner Agency (million USD)		Private Sector (million USD)		Total (million USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	0.060	0.090	30.893	418.645	30.000			18.615	60.953	437.349
Loans/Concessions									0.000	0.000
• In-kind support	1.000	2.775		5.550	0.600		2.836		4.436	8.325
• Other (equity investment)									0.000	0.000
Totals	1.060	2.865	30.893	424.195	30.600	0.000	2.836	18.615	65.389	445.674

Table 6: Co-Financing Details

Classification	Name of Co-financier (source)	Type	Financing Committed	Actual committed
Partner agency	UNDP	Cash	60,000	36,960[31]
Partner agency	UNDP	In-kind	1,000,000	2,775,000[32]
Partner agency	UNDP Small Grants Programme (Building in Temirtau)	Cash	0	53,238
Government	MEWR/MENR	Cash	3,093,435	0[33]
Government	MRD/MIID/MIC	Cash	27,800,000	0
Government	Municipalities	Cash	0	61,761,914
Government	Municipalities (Astana Pilot Quarter)	Cash	0	263,158
Partner Agency	Residents of Astana Pilot Quarter and Building in Temirtau	Cash	0	206,594
Government	Ministry of Industry and Construction	In-kind	0	5,550,000[34]
Government	Damu Fund	Private green investments supported by DAMU	0	356,619,436[35]
Financing Institution	EDB	Equity investment	30,000,000	0[36]
Financing Institution	IFC	In-kind	600,000	0[37]
Private Sector	EnKom-St	Equity investment	1,000,000	0
Private Sector	Ergonomica, Ltd	Equity investment	980,659	0[38]
Private Sector	Grundfos	Equity investment	855,000	0[39]
Private Sector	33 supported projects	Equity investment (project cost)	0	11,955,359[40]
Private Sector	17 supported projects	Equity investment (project cost)	0	3,226,314[41]
Total Co-financing				**445,674,287**

[31] Taken from MTE report, pg 132
[32] Prodoc of the Project "Attracting investors in the field of energy efficiency" uploaded at https://open.undp.org/projects/00130007 or direct link to file: https://info.undp.org/docs/pdc/Documents/KAZ/%D0%9F%D1%80%D0%BE%D0%B5%D0%BA%D1%82%D0%BD%D1%8B%D0%B9%20%D0%B4%D0%BE%D0%BA_EN_26.08.21_F.pdf
[33] Taken from MTE, pg 15. The obligation of co-financing from the Ministry of Energy for the "Development of Action Plans of the National Solid Waste Management Program" in amount of US$3.0 million was not possible due to cancellation of corresponding state program.
[34] Ibid 31
[35] DAMU website on report of green projects investment costs reports US$713,238,872 as of October 2023, excluding NAMA projects: https://damu.kz/ru/reports/reports/green/green_quarter/. This co-financing amount was divided evenly between the NAMA Project and the DREI project.
[36] Financing from EBRD, IFC and Grundfos had not been raised during the Project
[37] Ibid 35
[38] Their co-financing has been included in the 17 NAMA projects from 2022-2023
[39] Ibid 35
[40] See Table 8
[41] See Table 9

58. Overall, the cost effectiveness of the NAMA Project has been **satisfactory** in consideration of the funds being well spent towards building Akmat capacities to manage NAMA projects, and implementing FSMs that achieve implementation of low carbon NAMA projects.

3.2.4 M&E Design at Entry and Implementation

59. The ProDoc does provide for an M&E design on pages 64-67 in the ProDoc which was presented in a fairly generic manner, similar to other M&E designs from other GEF projects, and with preparations for a detailed M&E plan left to the implementation phase of the Project. There was a budget of US$65,000 for M&E activities, broken down on pg 58 of the ProDoc, for a PRF that had issues with indicators and targets as elaborated in Para 34. These issues have made effective monitoring of the NAMA Project difficult. As such, the M&E design is rated as ***moderately satisfactory***.

60. In terms of M&E plan implementation, the Evaluator had access to PIRs from 2016 to 2023 on the NAMA Project, which were more informative on progress made on various studies, actions taken by the Project, revised indicators against Project targets and extra activities in collaboration with other donors. In addition, there was an MTE report completed in March 2018 that provided some detail of the occurrences of the Project pre-2018. While monitoring of all Project activities is rated as ***satisfactory***, the monitoring of subsidized interest payments of the first FSM between 2016-2020 proved to be very cumbersome for UNDP leading to a review and replacement with a new and simpler FSM in May 2022 as further elaborated in Para 100.

61. As such, *M&E plan implementation is rated as* ***satisfactory***. Ratings according to the GEF Monitoring and Evaluation system[42] are as follows:

- *M&E design at entry – 4;*
- *M&E plan implementation – 5;*
- *Overall quality of M&E – 5.*

3.2.5 Performance of Implementing and Executing Agencies

62. The close relationship between MRD, MIID and MIC and UNDP has been excellent. MIC has always taken the position that its cooperation with donor agencies such as UNDP, is to resolve problems and issues with a particular sector. In the case of the NAMA Project, MIC implemented the Project instead of just enforcing policies and regulations, and found the Project to be very useful in being able to experience the issues and barriers that prevent the GoK from developing and implementing urban sector NAMAs[43]. The Project was done to achieve voluntary national GHG emission reduction targets as committed during the 2011 COP-17. The NAMA Project has always had the backing of the leadership of MIID then MIC through frequent and constructive communications with UNDP. The role that MIID/MIC served on the Project has been to:

[42] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory
U/A = Unable to assess
N/A = Not applicable.

[43] Issues and barriers would include why companies do not want to take loans for NAMA investments and why beneficiaries do not want to participate on NAMA projects.

- develop and enforce national policies and regulations on NAMA projects with the assistance of the Project;
- working closely with the PMU and Akimats to identify barriers to NAMA projects, mainly in energy efficiency and to a minor extent, renewable energy;
- raise awareness of EE and RE NAMA investments amongst all stakeholders;
- assist in building capacity to engage technical personnel of MIID/MIC and Akimats, the private sector, CSOs, NGOs and beneficiaries in the development of EE and RE designs and investments; and
- strengthening the performance of NAMA project development and implementation.

63. ESCOs, private sector developers and equipment supply companies, and sub-contractors all mentioned that they have been able to participate in, and contribute meaningfully, to Project implementation due in large part to Project management by the PMU and MIID/MIC's cooperation, coordination, and facilitation. However, MIID/MIC has experienced issues on reporting progress on key targets such as cumulative electricity saved and cumulative GHG emission reductions, and on advancing business plans and financial schemes to scale-up NAMA investments. There has been reliance on outsourced assistance from the Project to monitor energy savings and GHG emission reductions. MIID/MIC has had to deal with an acute shortage of qualified personnel in Kazakhstan to undertake monitoring tasks as well as advancing business plans and financial schemes. The performance of MIID/MIC, however, can be rated as ***satisfactory***.

64. For UNDP, there was the positive collaboration with MIID/MIC that led to successful completion of several NAMA projects, and technical assistance to personnel of MIID/MIC, Akimats, the private sector, CSOs, NGOs and beneficiaries. Where UNDP struggled was in advancing the business plans and financial schemes and undertaking monitoring tasks due to the acute shortage of qualified personnel in Kazakhstan as mentioned in Para 63. The performance of UNDP, however, can be rated as ***satisfactory***.

65. The performance of implementing and executing entities can be summarized as follows:

- *Implementing Partner (MIID/MIC)* – 5;
- *Implementing Entity (UNDP)* – 5;
- *Overall quality of implementation/execution (UNDP/MIID/MIC)* – 5.

3.2.6 Risk Management

66. Significant risks were identified from 2019 onwards. In 2Q 2019, after an FSM consisting of subsidizing interest rates on commercial loans was successfully established and implemented for NAMA projects, more than 100 projects were granted NAMA project support during the 2018-2020 period with many of them encountering difficulties in obtaining bank loans to start execution. Only 36 managed to get funded, and 33 were completed; successful loan applications by small businesses typically take between 1 and 2 months to get approval, but that was true only for a minority of projects that got funded. This is in line with an average bank loan application approval rate for small businesses in Kazakhstan (around 35% of small businesses applying for a loan actually get it). Many projects faced a long period for loan application approval with many companies having little to no experience in obtaining such loans and needing significant time to prepare documentation, and the requirement for loan proponents to secure collateral assets for the loan. Measures undertaken to mitigate this risk included:

- meetings with commercial banks to determine the main challenges of financing low-carbon urban projects;
- weekly monitoring of low-carbon urban projects organized jointly with the Damu Fund; and
- development of a training module to teach companies the basics of developing low-carbon urban projects through financing from commercial banks.

67. In 2020, more risks were identified:

- there financial risks including:
  - a lack of public funding for investments in modernization of urban infrastructure. This heightened the importance of private and commercial financing, being more crucial for the Project than originally planned. Measures to mitigate this issue were improving the implementation of NAMA projects through PPP, ESCO and trust management mechanism, all discussed at a national workshop in Astana;
  - there was an economic slowdown in the country due to the impact of the COVID-19 pandemic and an associated drop in oil prices. The only mitigative response was for investors to select higher impact and cheaper technologies, whenever possible;
  - FSM's interest rate subsidy scheme did not work in 2021 since the scheme became unattractive to potential clients. In addition, the scheme was difficult to manage as loan interest rate subsidies were spread over years and involved forecasting, which was not reliable due to exchange rate fluctuations (with NAMA project budget in US dollars, and subsidies in Kazakhstani Tenge, and early repayments of the loans in many cases), and the monitoring element of the FSM needed improvement (with payment of interest rate subsidies starting before the actual implementation of supported projects, which presented a risk). Many of these difficulties are related to UNDP procedures and policies[44]. This triggered a review of the old FSM where a loan guarantee mechanism was thought to be a more effective option and more attractive to banks. Since UNDP cannot do loan guarantees, the PMU was forced to request several extensions beyond the original terminal date of April 2020 to resolve the FSM issue which got resolved in May 2022 with a modified redesigned FSM launch in October 2022 This new FSM was based on lump-sum loan principal subsidy, paid after the completion of the supported investment is verified, and with an improved system to monitor its progress, results and impacts[45];
  - notwithstanding support for the NAMA Project from UNDP-GEF, there was a risk that a commercial bank would not provide credit for such a project. Mitigation responses were:
    - field visits with banks were organized for implemented NAMA projects;
    - successful cooperation practices between UNDP and second-tier banks on implementing pilot NAMA projects were published in mass media;

[44] If the system works without UNDP, funding comes from the state, improving system operation and the savings that arise from early repayment of loans can be redirected to new projects, thus increasing the number of projects.

[45] The improved monitoring and reporting of the redesigned NAMA FSM performance involves actual fossil energy avoidance, displacement, and savings, and corresponding GHG emission reductions and economics of supported urban energy efficiency and renewable energy projects. This was to be carried out under Outcome 5. The performance monitoring and reporting should also cover other urban NAMA projects that are implemented and supported by other entities that have been influenced by the NAMA Project to improve the attribution to the NAMA Project.

  - a new investment subsidy mechanism for low-carbon urban projects has been introduced;
  - 10 webinars for the loan officers of regional branches of commercial banks and leasing companies were organized in October 2022 to explain the upgraded FSM, reduce the uncertainties and urge the banks to invite new applicants for financial support for investing in energy efficiency. The webinars were attended by 142 participants;

- there were organization risks:
  - long-term coordination risks of FSM with the GoK due to the frequent change of government personnel. Mitigation response has been to provide Project experts for technical support to investors for preparation of the documents for "green subsidy" in close collaboration with the Damu Fund;
  - insufficient capacity of local experts to develop the necessary technical and organizational solutions for pilot low-carbon modernization of urban buildings. Mitigation response was the use of an international consultant to support the local engineering company with preparation of scenario of technical and organizational solutions at the pilot site. Several consultations were held with a Board of Experts, a CTA and technical experts with partners in Germany, Russia, and Belarus. This allowed the local engineering company to prepare reliable technical documentation at the pilot sites of modernization of residential houses in Astana according to international standards.
  - insufficient time for implementation with the NAMA Project being innovative and requiring a long time to create and test a mechanism to support urban projects. Mitigative response has been the Project requesting several extensions, in part due to the COVID-19 pandemic;
- strategic risk of a lack of bankable low-carbon projects. The lower cost of energy in 2020 and the large investment needs in the worn-out infrastructure of cities led to a large number of non-bankable low-carbon urban projects. Mitigation response was consultation between the PMU and the Damu Fund with special attention paid to the construction of economic models to ensure the payback period of the implemented technologies (with proper subsidy support from the Project) with a training module on preparation urban low-carbon projects developed for investors, commercial banks and Akimats. The first national training workshop on this module was conducted for 47 participants;
- operational risk involving the disruption of several activities (i.e. meetings, discussions, trainings) during the COVID-19 pandemic where government limited travel, closed external borders, banned any gatherings, all designed to limit the spread of infection. Mitigation response was the increased use of virtual communication.

68. Since 2022, there have been substantial reductions in risk to the Project mainly due to the COVID-19 being under control. The only key risk to the Project in 2022 was the low delivery rate. The delivery rate of the Project improved with the PMU able to develop a project pipeline using the redesigned FSM with a 40% payback of the loan principal, rule adjustments, enhancements to additionality assessment in the selection of beneficiary projects, strengthening the screening and management of environmental and social risks, and enhanced supervision from UNDP senior technical levels. This resulted in the resumption of implementation of the FSM through new rounds of calls for proposals and selection of beneficiary projects. A mitigation response to the low delivery rate has been the granting of two more Project extensions, one from April 2022 to April 2023 and a second extension from April 2023 to April 2024.

3.3 Project Results and Impacts

69. This section provides an overview of the overall results of the NAMA Project and an assessment of relevance, effectiveness and efficiency, country ownership, mainstreaming, sustainability, and impact of the Project. This analysis of Project results and impacts, however, uses the changes made to the PRF outcomes, indicators and targets shown in Appendix F and Table 7 (with changes in red font). For Table 7, the "status of target achieved" is color-coded according to the following scheme:

Green: Completed, indicator shows successful achievements	Yellow: Indicator shows expected completion by the EOP	Red: Indicator shows poor achievement – unlikely to be completed by Project closure

3.3.1 Progress towards objective

70. With the overall objective of this Project being to support the GOK in achieving voluntary national GHG emission reduction targets, a summary of achievements of the NAMA Project at the objective level is provided with evaluation ratings on Table 7. The GEF Tracking Tool for the NAMA Project is contained in Appendix E.

71. With respect to the target of "*15 urban NAMA programs under development*", this target was achieved in 2021 with 15 municipalities who adopted emissions reduction plans comprising of long and diversified lists of activities ranging from LED streetlight replacements to a complex project involving the fuel switching of the public transport to hydrogen in Astana. The EOP target of 15 urban NAMAs was for the achievement of a programmatic document which contains a defined urban GHG emission reduction target (in line with national target under Paris accord), list of priority GHG emission reduction measures with estimated investment cost, GHG emission reduction potential, assessment of risks, and financing and business models for implementation.

72. By 2017, 20 NAMAs were identified and at concept development or business planning stage. By 2019, urban NAMAs were developed and officially adopted by Temirtau and Astana (Nur-Sultan). The GHG emission reduction targets for Astana were set in the "Strategy for the Low-Carbon Development of Nur-Sultan City to 2030 and 2050" (the Association of the Ecological Organizations of Kazakhstan was asked to finalize the Strategy in 2020) and the "Comprehensive Action Plan for Improving the Environment of the City of Astana for 2018-2020", both approved in 2018. The Comprehensive Action Plan lists numerous actions to achieve carbon abatement targets such as using renewable energy sources (RES) for city lighting, using modern pre-insulated pipes for modernizing district heating, building more bicycle paths, piloting hydrogen usage for city transport, and monitoring results of the pilot heating modernization of residential buildings.

73. Urban NAMAs were then fully developed and adopted for 11 additional cities in 2020: Aktobe, Uralsk, Shymkent, Kostanay, Kapshagai, Semey, Satpayev, Kokshetau, Petropavlovsk, Pavlodar and Stepnogorsk, and 2 additional cities in 2021: Taraz and Lisakovsk, all with short-term (2030) and long-term (2040) targets for reducing GHG emissions. There were difficulties in formulating NAMA projects that reduce GHG emissions that were economically viable. Furthermore, there needed to be adjustments in the mindsets of all stakeholders that NAMA projects would require financing and not be dependent on grant financing which has been the modus operandi on previous projects that promote energy efficiency. An example of the difficulties was the Petropavlovsk public transport NAMA prepared in June 2018, requiring a US$2.0 million investment comprising transport fleet replacement from diesel and gasoline to natural gas, optimizing route and information systems, encouraging use of bicycles and other measures. The costly NAMA plan was sent to the Eurasian Development Bank for possible financing assistance which has not yet materialized.

Table 7: Project-level achievements against NAMA Project Objectives (edits to the PRF are made in red font)

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved	Evaluation Comments	Rating[46]
Project objective: *Support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction targets*	Number of Urban NAMAs under development	0	15	15	See Paras 71-74	
	Number of Urban NAMAs under implementation	0	4	4 Urban NAMAs for Taraz, Lisakovsk, Temirtau and Nur-Sultan under implementation.	See Paras 75-76	
	Value of Urban NAMAs under implementation (USD)	0	US$3.0 million	US$ 7.636 million	See Para 77	
	Expected direct lifetime GHG emission reductions from pilot NAMA implementation and NAMA Fund investments	0	370,000 tCO_2	850,260 tCO_2	See Para 77 and Tables 8 and 9	
	Number of people benefiting from NAMA projects	0	180,000	311,799	See Para 79-80	
	Establishment of financial facilities for NAMAs	1	5	5	See Para 81	
Outcome 1: Participating municipalities are enabled to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs)	Number of municipalities for which urban GHG Inventories, Abatement costs curves and NAMA factsheets prepared and discussed with stakeholders	0	15	15	See Paras 84-85	
	Number of municipalities for which urban GHG reduction targets established and officially adopted by Akimats	0	15	15	See Paras 86-87	
Outcome 2: The enabling institutional framework to facilitate the implementation of urban mitigation is established	Technical assistance delivered according to ToR agreed with each Akimat (signoff between UNDP and Akimat)	0	15	47	See Para 90	
	Bankable project documents prepared	0	15	50	See Para 91	
	Public service contracts signed / tariffs agreed	0	Up to 15, depending on needs	36	See Para 92	

[46] Ibid 16

Project Strategy	Performance Indicator	Baseline	Target	Status of Target Achieved	Evaluation Comments	Rating[46]
Outcome 3: New and additional financing for urban NAMAs leveraged	Financing provided to urban NAMA projects enabled by the Pilot NAMA financial mechanism (USD)	0	45 million	75.9 million[47]	See Paras 96-102	
	Diversification strategy developed	None	Strategy developed	Strategy developed	See Para 102	
Outcome 4: A pilot urban mitigation action is identified and financed to demonstrate the feasibility of urban emission reduction for future replication	Number of projects influenced by this demonstration	0	5	5	See Para 106	
	Status of pilot urban mitigation action demonstrating comprehensive modernization of urban district	~~0~~	Pilot project monitored (at least 1 year)	Pilot project monitored for 1 year	See Para 107	
Outcome 5a: GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported	NAMA MRV process allows certified emission reduction credits to be imported into the domestic Emission Trading Scheme	None	1 emission reduction purchase agreement signed	None	See Paras 110	
	MRV system for urban emissions set up and operational in cities	0	15	0	See Paras 111-113	
Outcome 5b: Kazakh cities and towns are aware of, and have access to, information and guidance on urban NAMAs	Awareness index based on questionnaire	Awareness index, & baseline established through survey of cities & towns	Awareness index doubled	Awareness index more than doubled	See Paras 116	

[47] This includes US$15.2 million of NAMA investments assisted by the NAMA Project

74. Despite the COVID-19 pandemic and the accompanying state of emergency in spring 2020, the PMU used virtual communication methods with the municipalities such as the webinar on 28 April 2020 on a Zoom call with Damu, RES companies, Akimats, ESCOs, commercial banks, Invest Kazakhstan, and MIID. With NAMA projects and their focus on GHG emission reductions, the measurement of these reductions was complicated by institutional issues as elaborated in Paras 111-113.

75. With respect to the target of "*4 Urban NAMAs under implementation*", the target was achieved with 4 Urban NAMAs being adopted in Taraz, Lisakovsk, Temirtau and Astana. For Astana, some of the earlier planned urban NAMAs were removed from the plan due to funding shortages, mainly caused by COVID-19 and associated fiscal deficits and lockdowns. By 2021, Astana was already on a second city plan that plans the introduction of environmental, social and corporate governance principles in its work and the practices of municipal services and organizations.

76. The Project also assisted in launching discussions on regional green project funding initiatives with the Akimat of Pavlodar region that included payments for toxic emissions from the polluting companies to be directed to green projects that includes energy performance contracts (EPCs) and a financial support facility to offset emissions and ecological damage supported by the MENR with intentions of national scale-up.

77. With respect to the target of "*US$3.0 million value of Urban NAMAs under implementation*", the target was achieved with investments of US$7.636 million. Though the value of Urban NAMAs was up to US$33.8 million in 2020, some projects were hampered or put on hold because of the COVID-19 pandemic, consequential funding delays, the war in Ukraine and related disruptions caused by the drop in oil prices[48]. This included the cancellation of a large PPP for street lighting in Astana with a value of US$25 million. As a result, only the pilot cities of Taraz, Lisakovsk, Nur-Sultan and Temirtau had urban NAMAs valued at US$5.7 million implemented, still nearly twice the target.

78. With respect to the target of "*expected 370,000 tCO_2 of direct lifetime GHG emission reductions from pilot NAMA implementation and NAMA Fund investments*", the target was achieved with 850,260 tCO_2 generated from 33 projects that benefitted from the 2018-2020 NAMA FSM (officially called the Municipal Energy Efficiency Investment Support Facility) in collaboration with Damu consisting of a buy-down of interest rate payments, and 17 projects that benefitted from the 2022-23 revised FSM consisting of a subsidy equivalent to 40% of the loan principal. This number was verified by an independent NAMA Project evaluator in 2024 as well as the Evaluation team. The NAMA projects supported by the 2 FSMs are tabulated on Tables 8 and 9.

79. With respect to the target of "*180,000 people benefiting from the improved transport and urban systems*", the target was achieved with 311,799 people (129,953 men, 148,928 women, 32,918 children) benefitting from improved urban systems that included:

- low-carbon modernization in 5 buildings in Astana for 1,200 people including 600 women;
- modernization of a building in Temirtau benefitting 100 people including 50 women;

[48] NAMA projects that were being implemented in 2019 before COVID-19 included a value of US$7.636 million in Nur-Sultan: pilot project on residential buildings modernization for US$0.485 million, thermal modernization of 33 apartment buildings for US$2.7 million, energy audit of 60 buildings for US$88,000, PPP and ESCO projects on energy efficiency involving private and bank financing for US$720,000, development and testing of "green bonds" for US$520,000, and in Temirtau: modernization of school heat supply in schools for US$205,000, pilot thermal modernization of 2 apartment buildings for US$44,000, energy efficiency measures in schools for US$29,000, automated heat supply systems in apartment and public buildings for US$308,000, LED street lighting for US$735,000, LED in public buildings for US$1.603 million, and energy efficiency in water management sector for US$199,000.

Table 8: NAMA Project GHG Emission reductions from 2017 to 2020

#	Project Name	Location	Applicant	Region	City/Village	Date of Approval	Energy saved (MWh/yr)	CO_2 reduction (tCO_2/yr)	Total cost (Co-financing) (US$)
1	Conversion of boiler facility from coal to gas	Children's health center	"Parus"	Akmola	Zerenda vil.	2018-09-05	1,933	275	30,359
2	Replacement of electric water heaters with solar collectors	Children's health center	"Parus"	Akmola	Zerenda vil.	2018-09-05		7	14,772
3	Installation of Solar Panels for Street Lighting System	Children's health center	"Parus"	Akmola	Zerenda vil.	2018-09-05		13	4,397
4	Applications of LEDs for indoor and outdoor lighting[49]	Transport Tower	Led System Media LLP	Astana	Astana	2018-09-05	523	572	87,998
5	Application of EE technology for heat supply regulation	Multi-apartment buildings	Garant Service NS LLP	Astana	Astana Pilot Quarter	2018-09-05		0	191,213
6	Applications of LEDs for indoor and outdoor lighting	Multi-apartment buildings	Garant Service NS LLP	Astana	Astana Pilot Quarter	2018-09-05		0	182,128
7	Application of EE technology for heat supply regulation	University	Aquatoria-Aktobe LLP	Aktobe	Aktobe	2018-03-28	378	157	27,533
8	Applications of LEDs for Indoor Lighting	Almaty Airport	Almaty International Airport	Almaty	Almaty	2018-07-09	2,542	2,777	645,945
9	Application of energy-efficient lighting of airstrip No. 1	Almaty Airport	Almaty International Airport	Almaty	Almaty	2018-11-26	245	63	3,100,535
10	Application of energy-efficient lighting of airstrip No. 2	Almaty Airport	Almaty International Airport	Almaty	Almaty	2018-11-06	2,542	Included in project #9	3,100,535
11	Modernization of the boiler facility	Boiler	KarNed LLP	Karaganda	Karaganda	2019-01-29	17,307	3,995	374,648
12	Modernization of the boiler facility	Boiler	KarNed LLP	Karaganda	Karaganda	2019-01-29		Included in project #11	477,999
13	Application of EE technology for heat supply regulation	Multi-apartment buildings	ECOSERVICE-2030 LLP	Karaganda	Temirtau	2019-01-29	632	253	7,938
14	Application of EE technology for heat supply regulation	University	ECOSERVICE-2030 LLP	Kostanay	Kostanay	2019-01-29	281	184	9,043

[49] 1. Reduction of electricity consumption Buildings; 2. Reduction of energy intensity and greenhouse gas emissions associated with electricity generation; 3. Optimization of expenses on maintenance of the administrative and technological complex "Transport tower"; 4. Solving the issue of operation and utilization of mercury-containing lamps

#	Project Name	Location	Applicant	Region	City/Village	Date of Approval	Energy saved (MWh/yr)	CO_2 reduction (tCO_2/yr)	Total cost (Co-financing) (US$)
15	Integrated project for application of building insulation technologies and heat supply regulation	Hotel	Tselinnaya Hotel LLP	Kostanay	Kostanay	2019-01-29	626	245	371,004
16	Applications of LEDs for indoor and outdoor lighting[50]	SSGPO bulding	PROLUX LED LLP	Kostanay	Rudnyi	2019-01-29	20,938	22,872	1,937,834
17	Applications of LEDs for Outdoor Lighting	Street lighting	Adal-I LLP	Fedorovka	Kostanay	2019-01-29	256	279	180,865
18	Conversion of boiler facility from coal and diesel fuel to gas	Cultural Centre	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2019-01-29	1,720	424	20,523
19	Conversion of boiler facility from coal and diesel fuel to gas	Centre for Students	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2019-01-29	1,424	403	15,890
20	Conversion of boiler facility from coal and diesel fuel to gas	School #47	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2019-01-29	6,062	1,347	36,447
21	Conversion of boiler facility from coal and diesel fuel to gas	School #47	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-03-28	n/a	0	34,294
22	Conversion of boiler facility from coal and diesel fuel to gas	School #219	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-09-05	5,396	1,238	41,286
23	Conversion of boiler facility from coal and diesel fuel to gas	School #48	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-11-26	5,396	940	49,735
24	Conversion of boiler facility from coal and diesel fuel to gas	School #127	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-11-26	5,396	37	43,991
25	Conversion of boiler facility from coal and diesel fuel to gas	School #244	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-03-28	4,787	976	49,735
26	Conversion of boiler facility from coal and diesel fuel to gas	School #270	SMP-Kyzylorda LLP	Kyzylorda	Shieli vil.	2018-03-28	128	73	43,991
27	Conversion of the boiler from coal to biomass	4 Schools	LLP "Agroprofi"	North Kazakhstan	Petropav-lovsk	Refund process initiated.	n/a	0	0
28	Conversion of the boiler from coal to biomass[51]	2 Schools, Hospital and Primary School	LLP "Agroprofi"	North Kazakhstan	Bulaevo	2018-03-28	10,977	3,230	222,205
29	Conversion of the boiler house from coal to biomass[52]	Central Boiler and School	LLP "Agroprofi"	North Kazakhstan	Sergeevka	2018-09-05	4,122	1,470	302,302

[50] 1. Energy saving; 2. Improving the efficiency of infrastructure facilities

[51] 1. Reduction of CO2 emissions and emission fees to the environment; 2. Reduction of energy consumption; 3. Reduction of heating costs

[52] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

#	Project Name	Location	Applicant	Region	City/Village	Date of Approval	Energy saved (MWh/yr)	CO_2 reduction (tCO_2/yr)	Total cost (Co-financing) (US$)
30	Modernization of the boiler facility[53]	Hospital	Sapro-NAT LLP	North Kazakhstan	Mamlyutka	2018-07-09	743	6	76,531
31	Modernization of the boiler facility	School	Sapro-NAT LLP	North Kazakhstan	Sovetskoe vil.	Not finished		0	0
32	Modernization of the boiler facility	Cultural Centre	Sapro-NAT LLP	North Kazakhstan	Smirnovo vil.	Not finished		0	0
33	Modernization of the boiler facility	Cultural Centre	Sapro-NAT LLP	North Kazakhstan	Kiyali vil.	2018 -01-18	376	73	64,377
34	Integrated project for the application of building insulation technologies[54]	Business Center	Pico LLP	Zhambyl	Taraz	2019 -04-04	57	27	80,097
35	Integrated project for the application of building insulation technologies[55]	Business Center	Pico LLP	Zhambyl	Taraz		Included in project 34	Included in project 34	46,508
36	Applications of LEDs for Outdoor Lighting[56]	Street Lighting	Torlan Stroy LLP	Turkestan	Suzak vil.	2021-06-19	9	8	82,681
Total:							**86,142 MWh/yr**	**41,904 tCO_2/yr**	**US$ 11,955,359**

[53] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[54] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[55] 1. Increased electrical and fire safety; 2. Reduction of CO2 emissions; 3. Reduced energy consumption in the building; 4. Improved microclimate in the building; 5. Reduced electricity costs; 6. Reducing the load on power grids

[56] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

Table 9: NAMA Project GHG Emission reductions from May 2022 to December 2023

#	Project Name	Works	Applicant	Region	City/ Village	Date	Energy saved (MWh/yr)	CO_2 reduction (tCO_2/yr)	Total cost (Co-financing) (US$)
1	Installing a biomass boiler (automated, wood chips - fired)[57]	Beskol School-College	Beskol School-College LLP and LLP "Agroprofi"	SKO	Beskol v.	2023-07-25	2,945	1,233	$194,146
2	Windows replacement with highly efficient thermally insulated windows[58]	Altyn Arba Shopping and Entertainment Center	Avesta-Karaganda	Karagandy	Karagandy	2023-07-26	0	305	$357,872
3	Air conditioning system replacement for energy efficient one[59]	Norma SHOPPING CENTER	Optima Trade	Karagandy	Karagandy	2023-07-26	107	117	$227,678
4	Automatic Heating Station for a commercial building[60]	Business center (Ent Otasheva)	Ecoservice-2030	Kostanai	Kostanai	2023-08-16		13	$5,853
5	Automatic Heating Station - Kazakhtelecom[61]	Kazakhtelecom office building	Ecoservice-2030	Kostanai	Kostanai	2023-08-16	3,205	134	$13,295
6	Windows replacement with highly efficient thermally insulated windows[62]	Hotel building	Akmola Tourist	Astana	Astana	2023-09-21	230	192	$131,501
7	Windows replacement with highly efficient thermally insulated windows[63]	"Asia park" shopping mall	Asia park	Astana	Astana	2023-09-21	915	668	$571,814
8	Commercial building modernization Pavlodar, Katayeva 18- replacement of wooden windows[64]	Business center	Gain technology IE	Pavlodar		2023-10-12		Included in project 17	$27,395
9	Commercial building modernization Pavlodar, Katayeva 18- replacement of lighting[65]	Business center	Gain technology IE	Pavlodar		2023-10-12		Included in project 17	$10,821

[57] 1. Improved thermal comfort; 2. Savings on payments for heat and electricity; 3. Release of heat capacity of the centralized supplier; 4. Consumption of wood waste in a high-efficiency plant with low ash content and low atmospheric emissions

[58] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Bringing the temperature regime to acceptable values; 4. Improvement of storage conditions for food products; 5. Savings on electricity and diesel payments; 6. Release of electric capacities

[59] 1. Saving of electricity; 2. Reduction of CO2 emissions; 3. Bringing the temperature regime to acceptable values; 4. Improvement of storage conditions for food products; 5. Savings on electricity payments; 6. Release of electric capacities

[60] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[61] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[62] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[63] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[64] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[65] 1. Increased electrical and fire safety; 2. Reduction of CO2 emissions; 3. Reduced energy consumption in the building; 4. Improved microclimate in the building; 5. Reduced electricity costs; 6. Reducing the load on power grids

#	Project Name	Works	Applicant	Region	City/ Village	Date	Energy saved (MWh/yr)	CO_2 reduction (tCO_2/yr)	Total cost (Co-financing) (US$)
10	Commercial building modernization Pavlodar, Katayeva 18- replacement of roof[66]	Business center	Gain technology IE	Pavlodar		2023-10-12		Included in project 17	$26,361
11	Transformer station modernization[67]	Office building	Kaustic joint-stock company	Pavlodar		2023-10-12	338	314	$296,360
12	Automatic energy saving control system for 3 boiler houses «VOLNA BOILER» - KTT[68]	Municipal gas boilers	Ecoservice-2030	Kostanai	Kostanai	2023-10-23	2,646	1,077	$72,273
13	Building street lighting[69]	Public Street lighting system	Batys Transit	Atyrau	Atyrau	2023-11-07	679	631	$984,403
14	Innovative energy efficient ventilation system with recuperation	Business center	Digital World Company	Karagandy	Karagandy	2023-04-06	78	64	$87,355
15	Manufacturing workshop energy modernization	Industrial base	Ergonomica	Karagandy	Karagandy	2023-04-06	82	89	$139,105
16	Commercial building modernization Pavlodar, Katayeva 18- walls thermal insulation[70]	Business center	Gain technology IE	Pavlodar	Pavlodar	2024-01-10		Included in project 17	$50,605
17	Commercial building modernization Pavlodar, Katayeva 18- automated heating station[71]	Business center	Gain technology IE	Pavlodar	Pavlodar	2024-01-10	29	43	$29,477
Total:							**11,254 MWh/yr**	**4,879 tCO_2/yr**	**US$ 3,226,314**

[66] 1. Saving of heat energy and electricity; 2. Reduction of CO2 emissions; 3. Microclimate improvement; 4. Savings on heating payments; 5. Release of electric capacities

[67] 1. Reliability and stability of electric power transmission for production needs; 2. Reduction of electric energy losses; 3. Reduction of operational risks for personnel; 4. Reduction of consumables costs; 5. Reduced environmental impact of consumables disposal; 6. Reduction of CO2 emissions

[68] 1. Remote monitoring and control; 2. Increased reliability and safety; 3. Savings by optimizing fuel consumption; 4. Operating cost savings; 5. Optimal resource allocation

[69] 1. Improving the quality of life of urban residents; 2. Improved urban infrastructure, safety and aesthetics; 3. lighting energy savings due to highly energy efficient lighting equipment
lighting equipment; 4. Reduced operational costs of operating luminaires; 5. Convenience, flexibility and speed of luminaire control

[70] 1. Reduction of heat energy consumption by the building; 2. Increasing the comfort of stay; 3. Reducing the load on heat networks; 4. Saving of heat consumption and reduction of coal combustion

[71]1. Reduction of heat energy consumption by the building; 2. Increasing the comfort of stay; 3. Reducing the load on heat networks; 4. Saving of heat consumption and reduction of coal combustion

- improved public lighting systems used by 170,880 people including 89,982 women and 4,158 children;
- modernized residential buildings used by 30,000 people (including 9,000 women and 7,500 children);
- modernized public schools, kindergartens, and universities benefitting 12,416 people (including 2,538 women and 7,363 children);
- modernized district heating for 24,340 people (including 13,436 women and 4,160 children).

There were no NAMA transport investments under the NAMA Project.

80. For the beneficiaries, the NAMA investments have:

- improved the working conditions operating and maintaining energy efficient technologies;
- improved the comfort in homes and commercial establishments through modernization of heating and hot water systems and EE lighting systems, affecting the physical and psychological well-being of beneficiaries;
- improved safety, notably with reliable LEDs in public spaces that contributes to reducing crime in cities;
- generated cost savings and financial sustainability through improving energy efficiency of buildings resulting in lower heating costs, allowing for further modernization to increase comfort of beneficiaries;
- raised educational aspects, contributing to raising awareness about energy saving and energy efficiency, which may lead to more responsible attitudes towards energy resources among the general public.

Overall, NAMA investments on energy efficiency have contributed to an improved quality of life, creating a healthier and more sustainable environment for 311,799 beneficiaries. It should be noted that these figures do not reflect the full picture of beneficiaries where only 9 projects out of 50 monitoring visit reports do not contain information on beneficiaries. Therefore, the total number of beneficiaries is likely to be higher.

81. With respect to the target of "*5 established financial facilities for NAMAs*", the target was achieved during the early stages of the Project by 2020. Five mechanisms were achieved with the first 3 instruments tested together with Damu:

1. loan guarantees of up to 50%;
2. interest rate subsidy (equivalent to 10% off interest rates);
3. loan principal subsidy (40% off the loan principal);
4. factoring mechanism tested as a separate pilot project where a collection of documents and templates was created;
5. organizational framework for PPP in the form of project documentation and institutional framework for PPPs designed for low carbon urban projects: i) heating of buildings with intelligent automated heating points; ii) water supply with variable speed pumps; iii) replacing lamps with LEDs;

iv) waste management with collection and primary sorting of household waste; and v) heat supply through modernization of boiler equipment[84].

82. Overall, the work by the Project to support the GoK in the development and implementation of NAMAs in the urban sector to achieve voluntary national GHG emission reduction targets, is rated as **satisfactory**.

3.3.1 Progress towards Outcome 1: Participating municipalities are enabled to articulate their climate-related priorities, and identified and prioritized urban mitigation actions

83. To achieve Outcome 1, GEF incremental activities of technical assistance were to be added to baseline activities contributing to the realization of the expected outcome: "Enforcement of clear and consistent policies and regulations that are supportive of the development and implementation of RE-based power generation in support of national economic development". This was to be achieved through 4 outputs:

- *Output 1.1: Urban GHG Inventories and baseline developed in fifteen (15) cities*;
- *Output 1.2: Abatement potential and cost curves for 15 cities developed (including for pilot district in Astana implemented under Component 4)*;
- *Output 1.3: Priority urban NAMAs identified, fact-sheets prepared and discussed with main stakeholders*;
- *Output 1.4: Urban GHG reduction targets established and officially adopted by Akimats*.

84. With regards to the target of "*15 urban GHG inventories, abatement costs curves and NAMA factsheets prepared and discussed with stakeholders*", the target was achieved with 15 municipalities adopting plans with a variety of measures to reduce emissions. However, despite municipalities planning activities to reduce emissions, there is a shortage of personnel and budget in municipalities to quantify the baseline and the achievements. The Project are currently exploring opportunities to provide the Government capacity building support with the emission inventories and carbon abatement reporting which has not yet been properly institutionalized in Kazakhstan.

85. Up to 2022, 15 municipalities adopted plans with a variety of measures to reduce emissions. In 2020, urban GHG inventories abatement costs curves and NAMA fact sheets were prepared and discussed with stakeholders in 15 cities including Aktobe, Uralsk, Shymkent, Kostanay, Temirtau, Taraz, Lisakovsk, Nur-Sultan, Kapshagai, Semey, Satpayev, Kokshetau, Petropavlovsk, Pavlodar, and Stepnogorsk. Key contributors to urban GHG emissions were residential buildings (55-60%) and transport (15-18%). Full financial and economic analysis of urban NAMAs covered:

- a standard package of energy efficiency measures in residential buildings;
- a standard package of energy efficiency measures in public buildings;
- standard street lighting modernization;
- improvements in public transport systems in pilot cities and promotion of non-motorized transport (NMT).

[84] PPP models were transferred to municipalities. Municipalities used this set of templates and began to plan the implementation of this instrument to attract investors, with some success. As an example, the Akimat of the Kyzylorda region applied this PPP instrument (financial models, forms of tender documentation and forms of agreements), which made it possible to attract an investor through the PPP mechanism for the modernization of 9 facilities (boilers, mainly for schools and also some community centers).

86. With regards to the target of "*15 urban GHG reduction targets established and officially adopted by Akimats* ", the same 15 municipalities adopted plans with a variety of measures to reduce emissions by 2021. The NAMA investment plans of 2016-2020 were to be financed by loans, not grants, requiring a different mindset of municipalities in their approaches to the finance of NAMAs. This was done by the FSM under the Municipal Energy Efficiency Investment Support Facility that was supported by the Project and Damu as explained in Paras 78 and 98.

87. The fortunes of the NAMA Project changed in late 2022 with revision of the FSM as explained in Para 78. More broadly, Astana Akimat and other Akimats were planning to implement environmental, social and corporate governance principles in its work and in the practices of municipal services and organizations. Within a short period of time between late 2022 and the current date of January 2024, 17 additional projects have been supported through the NAMA Project. However, the lack of methodology and regulation of GHG emissions monitoring prevents Astana and other cities from setting more definite abatement targets.

88. Overall, the work under this outcome was completed with delivery of all 4 outputs. This Outcome is rated as **satisfactory**.

3.3.2 Progress towards Outcome 2: The enabling institutional framework to facilitate the implementation of urban mitigation is established

89. To achieve Outcome 2, GEF incremental technical assistance was to be used to establish an enabling institutional framework to facilitate the implementation of urban mitigation, to be generated by 3 outputs:

- *Output 2.1: Institutional structures developed to facilitate fifteen (15) investments*;
- *Output 2.2: Bankable project documentation for the emission reduction projects prepared based on urban NAMAs*;
- *Output 2.3: Public service contracts signed/tariffs agreed*.

A summary of actual achievements of Outcome 2 with evaluation ratings is provided on Table 7.

90. With regards to the target of "*technical assistance delivered according to ToR agreed with 15 akimats*", the target was exceeded through delivery of technical assistance to 47 settlements of Kazakhstan: 15 pilot cities and 32 other settlements. Technical assistance was provided to municipalities for NAMA projects related to public assets including schools, hospitals, and street lighting, preparing PPPs or trust management agreements, and EPCs for ESCOs. Adjustments had to be made on the Law on Public Procurement and the Budget Code which do not have provisions for EPC and ESCOs (as elaborated in Para 154, 2nd bullet. As mentioned in Para 1, there was a need for adjustments of mindsets of all stakeholders, from Akimats to AAOs, that NAMA projects would require financing from loans and not on grant financing, which has been the modus operandi on previous projects that promote energy efficiency.

91. With regards to the target of "*15 bankable project documents prepared*", the target was achieved with 33 successful projects between 2017 and 2020; these projects obtained bank loans out of a total of 123 bankable project documents. Another 17 projects were implemented between May 2022 and January 2024 under a revised FSM. A model document package for EE PPP projects was developed in 2016 and again in 2022 under the revised FSM. Technical assistance for identification and preparation of bankable urban energy efficiency projects was delivered to all 15 pilot cities, through local coordinators in each partner city, through trainings, and by international technical experts sub-contracted by the Project. Green Certificates were also prepared and issued for approved projects

between 2018 and 2020, enabling the project investor to receive a subsidy on a commercial loan interest rate. Investors who have received "Green Certificates" apply to commercial banks to receive a loan for the project. A resumption of NAMA activity in May 2022 with the re-launching of the FSM involved preparing new bankable project documents and new applicants for FSM support. The NAMA Project provided support to all applications, and 50 successful projects got bank loans.

92. With regards to the target of "*15 public service contracts signed/tariffs agreed*", the target was achieved with 36 contracts were supported including 13 as PPPs, 6 as trust management agreements and 17 as EPCs. First 2 contracts in 2018 involved LED installations at an administrative building in Astana and at Almaty International Airport. ESCOs were a particularly important partner in EPCs: they were able to work with banks to take on additional loan risks with EPCs (with the ESCO getting longer payback periods for beneficiaries who are undertaking an EPC for the first time[85]) and taking on important roles in holistic NAMA project development such as preliminary audit of planned modernization, organizing financing, and organizing the application to banks on behalf of the beneficiaries.

93. Achieving this target, however, came with issues. There is little to no capacity in government or the private sector to monitor energy consumption and savings and evaluate GHG emission reductions, notwithstanding the presence of an ETS that is elaborated in Para 110. In addition, ESCOs were not allowed to participate on public service contracts, an issue that is addressed in Para 154, 2nd bullet.

94. Overall, the work by the Project to enable institutional framework to facilitate the implementation of urban mitigation is rated as **satisfactory**.

3.3.3 Progress towards Outcome 3: New and leveraged additional financing for urban NAMAs

95. To achieve Outcome 3, GEF incremental assistance and resources were to be used for new and leveraged additional funding for urban NAMAs. The resources and assistance would be generated through 4 outputs:

- *Output 3.1: Performance based financing mechanism for urban NAMAs*;
- *Output 3.2: Pilot NAMA fund established, managed and evaluated (TA to support 3.1)*;
- *Output 3.3: Financing for pilot NAMA project facilitated (TA to support 3.1)*;
- *Output 3.4: Funding diversification strategy and mechanisms to leverage additional financing from public, private and international sources of funding developed including a proposal for how the NFM can be structured efficiently.*

A summary of actual achievements of Outcome 3 with evaluation ratings is provided on Table 7.

96. With regards to the target of "*US$45 million of financing provided to urban NAMA projects enabled by the pilot NAMA financial mechanism*", the target was achieved with US$75.9 million mobilized including US$15.2 million that was financed using NAMA Project support for 50 projects (33 between 2018 and 2020, and 17 between May 2022 and January 2024). Previous reports had recorded mobilized investments of more than US$22.3 million of urban NAMAs implemented by the cities, monitored and technically supported by the Project, mainly in energy efficiency but also private investments in small-scale renewables. These additional NAMA investments included facilitated projects without direct financial support from the Project, consisting of follow-on investments, copied designs to save on design costs, and decreasing investment costs from the economies of scale-

[85] ESCOs have the experience of doing several EE projects, and thus they can take on additional risks that are agreeable with commercial banks.

up efforts. By 2020, the COVID-19 pandemic caused many of these projects to be suspended or cancelled, and the country faced public spending cuts.

97. A large proportion of NAMA Project work performed was on modernizing heating and hot water systems due to their higher impact on GHG emission reductions and shorter payback periods. In Temirtau, NAMA works were implemented by an ESCO in 2018 in an apartment building for heating, insulated roof membranes and double-paned windows with aluminium frames. In Kostanay, Ecoservice-2030 LLP served as an ESCO using their proprietary software to monitor their heating installations from a central location. In Petropavlovsk, Agroprofi became a supplier of heat using biomass to offset coal and natural gas usage. All this work resulted in more than an estimated 40% energy savings. Projects implemented under these conditions are provided in Boxes 1, 2 and 3.

Box 1: Temirtau Building

in Temirtau, the NAMA Project supported works to modernize an apartment heating system for an AAO and its residents. The AAO learned about the Project and its support or building modernization works from a housing inspector overseen by a Member of Parliament, who then sourced a contractor to assess one of 15 buildings. The head of the AAO met with the AAO Council (as representatives of the residents) to convince them to undertake modernization efforts for this apartment building with the help of the NAMA Project to make-up for the shortfalls in funds from the residents.

After 2/3 of the residents agreed to move forward with modernization efforts, works were implemented by an ESCO to modernize the heating system and convert the lighting system to LEDs. The residents paid the ESCO for the works with the ESCO also being compensated by Project funds equivalent to a 10% reduction of the loan interest rate. The funding for pipe and wall insulation, double-paned windows with aluminium frames, and LEDs for efficient lighting came from the Akimat with assistance from the GEF Small Grants Programme (SGP). The outcomes of all these works were residents paying less than 50% of their previous billing, residents feeling warner in their apartments, the residents feeling safer with movement sensors and LEDs in public places, and no replacements of LEDs which have lasted for more than 4 years.

Residents of the other 14 buildings have been monitoring the performance of the modernized apartment after several years. There is still a low level of trust in the process with the possibility of modernization projects being “forced” on other residents.

Heating system improvements

Apartments before improvements

Apartments after improvements

98. For the 33 NAMA projects implemented between 2017 and 2020, the Project originally envisaged the establishment of a stand-alone urban NAMA fund to provide financing to urban NAMAs using combination of grant and loans to be capitalized with subsidy support from GEF and the Government. This fund was originally supposed to be established on the basis of the National Fund for Modernization of Communal Infrastructure. However, this Fund was found by GoK in 2017 to be ineffective in its programming. Adaptive management measures by the PMU and MIID led to re-design of the NAMA FSM involving loans from commercial banks, and an interest rate subsidy or partial guarantee on commercial loans from NAMA Project funds to reduce the cost of finance for the private sector ESCOs and investors. The pilot NAMA Fund supported a 10% buy-down of the interest rate to ESCOs, contractors and investors for NAMA project loans. The investors and ESCOs would pay the commercial banks every month and receive subsidy payments from the Project through the Damu Fund after every 3 months.

99. Problems associated with the 2018-2020 projects included:

- the mindset of all stakeholders, notably beneficiaries, that donor agencies will provide grants to implement energy efficiency projects with no need to payback the grant. With beneficiary expectations that the donor agency will pay 100% of the cost of upgrading energy efficient heating and hot water systems, there was a significant shift in the approach of stakeholder beneficiaries to implementing NAMA projects;
- applicants did not have the capacity to prepare good financial proposals for upgrading their systems to be energy efficient;
- energy prices for electricity and heating were well below market price and subsidized by government, leaving little incentive for NAMA investments and reducing GHG emissions. This had the impact of increasing the payback period; and
- for NAMA projects that were implemented between 2016 and 2020, monitoring of subsidized interest payments from GEF to the stakeholders was proving to be very cumbersome for UNDP (see Para 100).

100. The Damu Fund is the national development bank that administers Project funds to be disbursed by UNDP to ESCOs and other contractors. Damu were and still are cost-efficient as an operator since they have a built-in bank information exchange system, providing secure information exchanges between Damu and every bank in Kazakhstan. This also allows Damu to access and calculate appropriate commercial interest payments of the ESCOs through digitalized and automated information and make subsidized interest payments to ESCOs. While ESCOs took loans from commercial banks on commercial terms, there was an agreement in the 2016-2020 NAMA projects between ESCOs and Damu where subsides would be equivalent to a 10% per annum (p/a) reduction of the interest rates leading to several UNDP monitoring issues expanded in Para 158. With all ESCO loans being less than 3 years, servicing of the interest rate subsidies by the Project was over as of 2022. However, as of early 2022, UNDP still had reserves of cash to service NAMA projects.

101. The UNDP issues in monitoring the payments towards the 10% p/a reduction of the interest rates led to the Project switching to a new and simpler FSM in October 2022 where ESCOs and other project proponents would undertake NAMA works with a commercial loan and get 40% of the principal reimbursed upon verified completion. Administration of this FSM would prove to be a lot simpler, resulting in 17 more NAMA projects implemented between May 2022 and January 2024 with Damu under a new FSM which saw the applicants complete all their NAMA works with loans and have 40% of their principal paid back through the NAMA Project.

Box 2: Ecoservice-2030 LLP

In Kostanay, Ecoservice-2030 is an ESCO/service provider that services modernized heating systems. The company serves as an ESCO for more than 40 heating systems that are being modernized, serviced, and monitored for energy performance. The company is doing this through its own personnel who provide services to modernize heating systems by revising the plumbing of the heating systems and using proprietary software to remotely monitor the performance of these modernized heating systems.

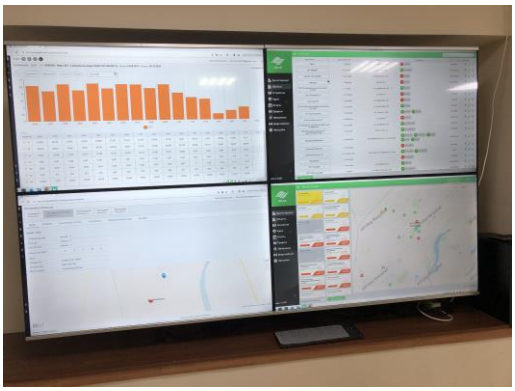
Heating systems under the control of Ecoservice 2030 have a chipboard installed at the site of the heating system allowing Ecoservice to monitor energy performance from a centralized location. When problems arise as spotted by Ecoservice personnel or the beneficiary, Ecoservice are able to provide services within 24 hours to fix the problems. The system works well and has high reliability in maintaining performance of modernized heating systems.

Ecoservice works as an ESCO, benefitting from subsides provided by the NAMA Project to reduce the cost of modernizing heating systems to feasible levels. Between 2017 and 2020, Ecoservice was provided a subsidy equivalent to a 10% reduction of interest rate payments. Between 2022 and 2023, Ecoservice was provided a 40% loan principal subsidy for ESCO work.

Twin boilers

Heating system improvements

Chip board installation near heating station



Central monitor for all heating stations

Box 3: "Agroprofi" LLP

Agroprofi is a company in Petropavlovsk that provides central heating fuelled by biomass to offset coal usage. Agroprofi owns 38 biomass boilers that are used to supply heat to various public and private entities as well as individual homes for a small fee that amounts to less than the tariffs paid to central heating authorities. Straw waste from flax and wood chips are abundant in the Petropavolvsk region, allowing Agroprofi to rely on the low cost of transport of biomass to its boilers, and on NAMA Project subsidies to make these heating projects feasible: the 10% interest rate subsidy between 2018 and 2020, and the repayment of 40% of the loan principal between 2022 and 2023. Agroprofi also relied on a repayment of 35% loan of the loan principal from the DREI project.

Agroprofi is active during the summer and spring seasons installing biomass heating systems, and active during the winter servicing and maintaining biomass boilers and heating systems. Many of the Agroprofi's clients are public entities in the Petropavlovsk region such as schools whose priorities are about the heating comfort of the buildings. This translates into Agroprofi work to modernize boilers and renovate building envelopes with insulation for the roof and walls and energy efficient windows.

These public entities do not have sufficient capital and down payment for these modernizations and renovations, but do not have concerns over heating tariffs as their heating is paid by the State budget. Notwithstanding, these modernized boilers and renovations result in significant energy savings of more than 40% for all of Agroprofi's clientele.

Agroprofi is positioned to provide heating for these public entities through its purchase of a new biomass boiler and supplying heat to the schools and other entities. In this way, Agroprofi takes care of all procurement away from public procurement processes and charges its clientele for heating through a monthly fee less than the fees paid to central heating authorities. In addition, Agroprofi is in charge of the operation and maintenance of the biomass boilers. Agroprofi as well as other similar service providers have an issue with banks not being able to declare equipment such as boilers as collateral for their loans; they often have to resort to using their homes or automobiles as collateral since the market for biomass boilers or any other EE or RE equipment is not liquid. The setup of a loan guarantee fund for services providers such as Agroprofi and ESCOs would be very beneficial to making their businesses more efficient in operation.

Biomass heating plant

Biomass storage

Biomass control panel

102. The problems associated with these 2022-2024 projects were the same as those mentioned in Para 99 plus the added problems of the COVID-19 pandemic, the subsequent economic downturn, drop in oil prices, and the rising prices of imported equipment due to the war in Ukraine. As a result, demand for NAMA projects decreased during 2020-2022. This included NAMA projects in the housing sector that needed to be downsized or postponed to 2025 or later. Reduced investments were implemented such as insulation of pipes and the modernization of heating systems to regulate the amount of heat being provided to consumers; these investments were regarded as high impact with a low period of payback. Furthermore, emission inventories and carbon abatement plans were (and are still not) not properly institutionalized in Kazakhstan as mentioned in Para 111.

103. The target of "*diversification strategy developed*" was achieved. The Project worked on the sustainability strategies that would function after the Project. The draft Strategy was presented to the beneficiary, to be included in the "Law on Energy Saving and Increasing Energy Efficiency", suggesting public funding for energy efficiency and renewable energy project support, and stressing potential direct and indirect benefits of such projects. Four financial instruments were proposed:

- subsidizing bank loan interest rates for eligible projects;
- subsidizing loan principals;
- partial loan guarantee; and
- conditional depositing of funds in banks to on-lend to the low carbon projects[86].

A strategy was drafted for a fund named "Attracting investors in the field of energy efficiency" to support loan guarantees and other concessional financing measures for sustainable energy efficiency projects. This strategy was developed in 2021 and presented to beneficiaries proposing support for EE projects at the expense of the GoK state budget and stressing direct and indirect public benefits. More details are provided in Para 146.

104. Overall, the work by the Project to secure new and leveraged additional financing for urban NAMAs is rated as **satisfactory**. The financing provided to urban NAMA projects enabled by the Project-supported FSM was able to meet the GHG emission reductions and beneficiary targets with the GoK committed to continuing EE works through UNDP.

3.3.4 Progress towards Outcome 4: A pilot urban mitigation action is identified and financed to demonstrate the feasibility of urban emission reduction for future replication

105. To achieve Outcome 4, the indicators and targets were changed by this Evaluation and by the PMU in their PIR reporting. As such, GEF incremental assistance and resources were used to generate one Output 4.1: Prigorodnoye urban NAMA project implemented, which pilots the concept of urban NAMA in the district of Prigorodnoye in the capital city of Astana through two activities:

- Activity 4.1.1 Design and build the identified measures through a competitive tender; and
- Activity 4.1.2 Design, establish and implement MRV system for the Prigorodnoye project.

A summary of actual achievements of Outcome 4 with evaluation ratings is provided on Table 7.

106. With regards to a revised target of "*5 projects influenced by this demonstration*", the target was met with:

[86] As a follow-up, a strategy document has been developed proposing to use the sale of CO_2 emission reductions as an exit tool to replenish subsidies for projects.

- the GIZ FELICITY project seeking advice for the Project about payback schemes for efforts to modernize an apartment in Kokshetau which is to be also financed by the EIB;
- the residents of the 4 other apartments in the Pushkina apartment complex approving building modernization works.

107. With regards to the target of "*pilot project monitored for 1 year as part of the status of pilot urban mitigation action demonstrating comprehensive modernization of urban district*", the target was met with the 3 pilot apartment building modernizations being monitored for almost 2 years for energy and heating cost savings, with the last 2 buildings completed monitoring in January 2023.

108. Overall, the work by the Project to identify and finance a pilot urban mitigation action to demonstrate the feasibility of urban emission reduction for future replication is rated as **satisfactory**.

3.3.5 Progress towards Outcome 5a: GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported

109. To achieve Outcome 5a, "GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported", GEF incremental assistance was to be used to generate 3 outputs:

- *Output 5.1: National MRV guidelines and standard methodologies for urban NAMAs developed*;
- *Output 5.2: Rules and procedures for certification of emission reduction credits from NAMAs and import into domestic ETS developed*;
- *Output 5.3: Emission reduction purchase agreement signed between domestic entities under ETS and municipality;*
- *Output 5.4: National database for urban inventories and registry for NAMAs operational at MEWR.*

A summary of actual achievements of Outcome 5a with evaluation ratings is provided on Table 7.

110. With regards to the target of "*1 emission reduction purchase agreement signed as a part of the NAMA MRV process allows certified emission reduction credits to be imported into the domestic Emission Trading Scheme"*, this has not been achieved due to the absence of activity at the local ETS. While there has been activity and documentation to place 2,498 tradable GHG emission reduction units in a sales order, the order was placed with a broker in 2021 with the units still awaiting a buyer. Due to the fact these units are only tradable in Kazakhstan, there is simply no market and no demand for GHG emission reduction trading units within Kazakhstan. UNDP are working with the GoK to convert these tradable units to the international market.

111. With regards to the target of "*4 MRV reports for the MRV system for urban emissions set up and operational in cities"*, there is no progress. Emission inventories and carbon abatement plans were (and are still not) not properly institutionalized in Kazakhstan; municipalities plan activities to reduce emissions but are unable to quantify the baseline and the achievements due to a number of issues. The measurement of these reductions was complicated by institutional issues such as the absence of relevant regulatory by-laws, budgets, professional competencies that do not permit formal establishment of carbon abatement targets by the municipalities. GHG emission reductions monitoring is in the process of being institutionalized with the 2021 Ecological Code requiring local authorities to monitor GHG emissions.

112. NAMA investments lack precise emission reduction targets despite GHG emissions reduction targets set in the "Strategy for the Low-Carbon Development of Nur-Sultan City to 2030 and 2050". The

newly adopted plan of "Comprehensive Action Plan for Improving the Environment of the City of Nur-Sultan for 2021-2024" does not set carbon abatement targets but lists numerous actions to achieve low-carbon development including using RES for city lighting, using modern pre-insulated pipes for district heating modernization, building more bicycle paths, and piloting hydrogen usage for city transport.

113. To overcome these issues, 4 trainings were provided for 4 regional authorities in 2021 to raise awareness and to prepare for upcoming changes with the adoption of the new Eco Code that introduces emission reporting at regional level. In addition, the Project developed 5 MRV protocols to be used by municipalities and all interested parties for small-scale renewable energy devices, pumps, street lighting and buildings (including district heating networks). This should have the impact of setting up and operationalizing the MRV system in cities.
114. Overall, the work by the Project to achieve Outcome 5a to "systematically monitor, verify and report GHG emission reductions of implemented urban NAMAs", was not delivered under the 4 Outputs designed for this Outcome. There was simply insufficient time to setup this MRV system and setup an emission reduction purchase agreement. As a result, this outcome is rated as **unsatisfactory**.

3.3.6 Progress towards Outcome 5b: Kazakh cities and towns are aware of and have access to information and guidance on urban NAMAs

115. This outcome has one Output 5.5: Knowledge resources and lessons learned from the pilot urban NAMAs disseminated to generate 5 activities:

- *Activity 5.2.1: Set up an inter-municipal portal for the city-to-city exchange;*
- *Activity 5.2.2: Develop a communication and dissemination strategy (based on scoping, consultation with local stakeholders, understanding the baseline of awareness and the types of information needs (informed by work under Component 1 and possibly 2);*
- *Activity 5.2.3: Establish awareness index for cities and measure (via survey) baseline, mid-term, and end of project values*
- *Activity 5.2.4: Harvesting lessons learnt, e.g. through after-action reviews across Components 1-4;*
- *Activity 5.2.5: Liaison with global NAMA processes between UNDP project managers.*

A summary of actual achievements of Outcome 5b with evaluation ratings is provided on Table 7.

116. With regards to the target of "*awareness index doubled incorporating knowledge and 'use of knowledge' factors at city/town level*", the target has been achieved with continuous awareness raising activities, and surveys conducted to measure the awareness level in low carbon development and related programs of the municipalities. With baseline surveys done in 2017 with 13% awareness, the Project started a survey in May 2020, based on Google Forms free service, with 343 individuals responding by July 2021 with 55% of the respondents knowing about urban development and local planning in their cities, and low-carbon urban. In addition, the Project continued awareness building activities in 2022 (some in collaboration with the UNDP-GEF DREI project) on green projects and energy efficiency and FSM, carried out in:

- Turkestan for the Turkestan Region on 14 May;
- Petropavlovsk for the North Kazakhstan Region on 26 May;
- Uralsk for the West Kazakhstan Region on 16 June;

- Aktobe for the Aktobe Region on 28 June;
- Karagandy for the Karagandy Region 7 July;
- Pavlodar for the Pavlodar Region on 22 July;
- Kokshetau for the Akmola Region on 5 August;
- Taraz for the Almaty Region on 16 August 16;
- Taldykorgan for the Almaty Region on 23 August;
- Oskemen for the East Kazakhstan Region on 12 September;
- Kostanay for the Kostanay Region on 23 September;
- Atyrau and Aktau for the Mangistau and Atyrau Regions on 26-27 October;
- Kyzyl-Orda for the Kyzyl-Orda Region on 28 October;
- Shymkent on 10 November;
- Zhezkazgan and Satpayev on 5-6 December;
- Almaty on 7-8 December;
- a series of 10 webinars targeting banks, leasing and micro-finance companies, on 11-20 October (142 participants, including 66 women).

117. Overall, the work by the Project to achieve Outcome 5b towards “Kazakh cities and towns are aware of and have access to information and guidance on urban NAMAs”, is rated as **satisfactory**.

3.3.7 Relevance

118. The NAMA Project is relevant to the development priorities of Kazakhstan related to a number of national strategies and plans including:

- Law on Energy Saving and Energy Efficiency of June 2012 includes provisions for funding energy saving measures from the state budgets of all levels and establishing the State Energy Register, mandatory energy audit of the companies consuming more than 1,500 toe per year, and the introduction of the responsibility for complying with the Law;
- Law on Renewable Energy Sources (RES Law) of 2009, specifically aimed at promoting the use of RES in cities, and their integration in urban development plans and strategies;
- Law on Transport of September 1994 (with 2012 changes and amendments), sets the legal, economic and institutional framework covering all types of transport including urban transport;
- Environmental Code of the Republic of Kazakhstan of 2007 (with changes and amendments as of 11 April 2014), sets the institutional framework for municipal solid waste management (Chapter 41, article 292), describing responsibilities of local governments, and the responsibilities and rights of waste producers (article 283);
- the Strategic Development Plan of the Republic of Kazakhstan until 2025 defines the task of reducing the energy intensity of Kazakhstan's GDP by at least 25% by 2025. This has since been updated to a “Strategic Development Plan of the Republic of Kazakhstan until 2050”;
- the Ecological Code 2021 requiring local authorities to monitor GHG emissions;

- the "Updated Nationally Determined Contribution of the Republic of Kazakhstan to the global response to climate change" from April 2023 that:
  - commits Kazakhstan to a 25% reduction in emissions by 2030, compared to 1990 levels, conditional on international support;
  - set an unconditional emissions reduction target of 15% by 2030, compared to 1990 levels;
  - commits Kazakhstan to present updated draft plans for an NDC Roadmap to be implemented between 2023 and 2024 with a focus on long-term low-carbon development.

119. Moreover, the NAMA Project is also relevant to the UNDP Country Programme Document (CPD) for the Kazakhstan (2021-2025). In this CPD, UNDP was to support Kazakhstan on climate action that centres on developing and scaling up financing mechanisms for clean technologies and low-carbon business development, via a green finance accelerator. This will build on financing mechanisms for energy efficiency and renewable energy being piloted with the Damu Entrepreneurship Development Fund, with a view to expand to other sectors. Low-carbon business development will be promoted through green bonds, renewable energy auctions and carbon trading, among other innovative mechanisms. This was to assist Kazakhstan honour its Paris Agreement commitments by supporting the expansion of the green economy to tap into new opportunities for jobs and businesses by partnering with other UN agencies to provide technical expertise.

120. The ToC applied to the NAMA Project is relevant to promoting investment in NAMA technologies for energy efficiency and renewable energy and expanding access to environmental and energy services for households. The Project is within the framework of "leave no one behind agenda" with its activities improving the comfort for thousands of people with improvements in heating and hot water systems and insulation of buildings. The Project objective, outcomes and outputs are clear, practical and feasible within its frame, clearly addressing government personnel as well as private sector ESCOs, and to a certain extent, beneficiaries of NAMA investments. There were lessons from other projects incorporated into the NAMA Project design (Para 37).

121. Though the Project did not include specific activities on mainstreaming the human rights-based approach, the designed Project activities stood by the principle of universal human rights as they contribute to improved quality, safe and comfortable living conditions of the peoples of Kazakhstan. The Project implementing partner, key stakeholders, participating government agencies and project proponents were reportedly accountable in the observance of human rights approach during Project implementation.

122. Thus, it can be concluded that the NAMA Project is **relevant** to the development priorities in Kazakhstan, namely the UNDP CPD for Kazakhstan, Kazakhstan's revised Nationally Determined Contribution from 2023 submitted to UNFCCC, the Law on Energy Saving and Energy Efficiency of June 2012, the Environmental Code of the Republic of Kazakhstan (with changes and amendments as of 11 April 2014), and the Ecological Code 2021.

3.3.8 Effectiveness

123. The effectiveness of the NAMA Project has been ***satisfactory*** in consideration of the awareness raised on the Project, the technical assistance provided to build capacity of government personnel, SMEs consisting of service providers and ESCOs, and the effort to explain the benefits of modernizing apartment buildings to apartment residents. While the partnership and collaboration with MIID and then MIC has been effective, there have been difficulties in implementing the Project since late 2019. There was the COVID lockdowns of 2020 to 2021 followed by civil strife in January 2022 coinciding

with proposed fuel price increases which has led to NAMA projects being delayed to an extent that some outcome-level targets were not achieved (i.e. Outcome 5a). In addition, the Project had to overcome significant difficulties with heating and electricity tariffs which made potential investors and apartment residents initially unwilling to invest in various NAMA projects.

124. With participatory Project management and implementation with all relevant stakeholders that contributed towards achievement of some of the targets, the Project was able to overcome some of these issues. The Project did indirectly contribute to the well-being and human rights of vulnerable groups, including disabled, youth and indigenous people, effectively contributing to "leave no one behind agenda" and successfully integrating a human rights-based approach. This was mainly done through improved heating and hot water systems that were NAMA-financed. The PMU and MIC admirably persevered to complete this Project within a 9-year span, 4 years over the 5-year design period of the NAMA Project.

3.3.9 Efficiency

125. The efficiency of the NAMA Project has been rated as ***moderately satisfactory*** in consideration of the long 9-year period of time it took to execute the Project. The difficulties to implement the Project mentioned in Para 123 forced the Project into extensions from 2020 to 2024. The inefficiencies of the Project are not due to Project management, but rather the difficult market conditions of low tariffs and the unwillingness of residents to invest in modernized building systems, forcing the PMU to expend more time and effort to overcome these challenges.

126. The cost efficiencies of technical assistance provided by the Project were satisfactorily financed by GEF funds, followed by co-financing from the private sector, beneficiaries and GoK. The usage of funds allocated to each stakeholder was determined by the GoK, specifically the MIID and then MIC. Most of the funds allocated were used to modernize urban infrastructure, particularly modernizing apartment building heating systems, contributing to the efficiency of GEF expenditures.

3.3.10 Mainstreaming

127. The NAMA Project has managed to mainstream *NAMA financing of energy efficiency and renewable energy projects*. Most notable Project activities to mainstream NAMAs were:

- all stakeholders (GoK ministries, public agencies, private sector ESCOs and service providers, AAOs, and apartment residents) being aware of NAMA-supported projects, and some supporting development of NAMA-financed energy efficiency and renewable energy projects;
- the GoK becoming more solid in providing the policy and regulation;
- MIID/MIC raising awareness of global climate change issues throughout Kazakhstan using Project resources, notably events as covered in Para 116.

128. Most notable activities still to be conducted to fully mainstream NAMA activities throughout Kazakhstan in energy efficiency and renewable energy includes:

- demonstrations of EE technologies such as modernized heating systems to the several millions of other apartment residents in Kazakhstan;
- demonstrations of RE technologies such as biomass heating systems to several thousands of other apartment residents in Northern Kazakhstan.

3.3.11 Overall Project Outcome

129. Most intended Project outcomes have been ***satisfactory.*** The Project has successfully supported GoK in the development and implementation of NAMAs in the urban sector, especially in apartment modernization, to work towards achieving voluntary national GHG emission reduction targets. The outcomes of the Project have been successful in:

- enabling 15 participating municipalities to articulate their climate-related priorities, and identify and prioritize urban mitigation actions (Outcome 1);
- establishing an enabling institutional framework to facilitate the implementation of urban NAMAs (Outcome 2);
- leveraging new financing for urban NAMAs through commercial banks (Outcome 3);
- financing and implementing a pilot urban mitigation action in Pushkina to demonstrate the feasibility of urban emission reduction for the benefit of future replication (Outcome 4); and
- raising awareness in Kazakh cities and towns are aware of, and have access to, information and guidance on urban NAMAs (Outcome 5b).

130. The only outcome not achieved was Outcome 5a where GHG emission reductions of implemented urban NAMAs were not systematically monitored, verified and reported. This led to no signed emission reduction purchase agreements with little to no demand for CERs.

3.3.12 Sustainability of Project Outcomes

131. In assessing sustainability of the NAMA Project, the Evaluators asked, "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of NAMA Project outcomes was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability.

Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions. Details of sustainability ratings for the NAMA Project are provided on Table 10.

132. *The overall NAMA Project sustainability rating is moderately likely (ML).* This is primarily due to:

- the establishment of an institutional framework to facilitate the implementation of urban mitigation through built capacities of Akimats to prepare urban NAMA mitigation projects;
- sustained financing being available post-Project through the "Attracting investors in the field of energy efficiency" Fund;
- an insufficient number of ESCOs and service providers in Kazakhstan at this time to service this volume of work;
- resources being availed now under the Fund for more training sessions to help build the market for CERs and emission reduction purchase agreements. Time is required to build the CER market.

Table 10: Assessment of Sustainability of Outcomes

Actual Outcomes (as of December 2023)	Assessment of Sustainability	Dimensions of Sustainability
Actual Outcome 1: Participating municipalities have been enabled to articulate their climate-related priorities and identify and prioritize urban mitigation actions.	• *Financial Resources:* Funding is available to promulgate the policies and regulations; • *Socio-Political Risks*: No local opposition to proposed NAMA plans for energy efficiency and renewable energy; • *Institutional Framework and Governance:* 15 cities have prepared and adopted plans for urban low-carbon mitigation plans. There are requests for assistance to prepare low-carbon mitigation plans for other Akimats; • *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 2: The enabling institutional framework to facilitate the implementation of urban mitigation has been established through built capacities of Akimats to prepare urban NAMA mitigation projects.	• *Financial Resources*: Funding is to be sustained through the implementation of a "Attracting investors in the field of energy efficiency" Fund where Damu will provide loan guarantees, interest rate subsidies or loan principal repayments (Para 146). This will provide funds to assist project proponents in preparing bankable project documentation; • *Socio-Political Risks*: There will likely be no opposition to operation of this Fund. With the NAMA Project showing how Damu can support green project implementation, the Fund will work through Damu with small businesses and ESCOs to generate interest and support from commercial banks to finance green projects, and to assist ESCOs and other companies to implement NAMA urban mitigation projects; • *Institutional Framework and Governance:* The GoK is committed through MIC to supporting the Fund as they are allocating state budget for the Fund, and having UNDP manage the Fund (Para 146); • *Environmental Factors:* No risk. ***Overall Rating***	4 4 4 4 **4**
Actual Outcome 3: New and additional financing for urban NAMAs has been leveraged through government state budgets and commercial banks with a financial support mechanism that provided reimbursement of 40% of the loan principal.	• *Financial Resources:* NAMA financing is to be sustained through the implementation of the "Attracting investors in the field of energy efficiency" Fund where Damu will provide loan guarantees, interest rate subsidies or loan principal repayments (Para 146). Commercial banks are now interested in working with green projects with the GoK mandating that banks work through an established FSM and implement environmental, social and corporate governance principles in its work and in the practices of municipal services and organizations and to support green projects; • *Socio-Political Risks*: There will likely be no local opposition to the operation of this Fund. With the NAMA Project showing how Damu can support green project implementation, the Fund will work through Damu with small businesses and ESCOs and should generate interest and support from commercial banks to finance green projects, and to assist ESCOs and other companies to implement NAMA urban mitigation projects. However, even with	4 3

Table 10: Assessment of Sustainability of Outcomes

Actual Outcomes (as of December 2023)	Assessment of Sustainability	Dimensions of Sustainability
	the recognition that heating systems are failing at high rates around Kazakhstan with a sense of urgency to ensure these failures do not materialize, there are not a sufficient number of ESCOs and service providers in Kazakhstan at this time to service this volume of work; • *Institutional Framework and Governance:* The GoK is committed to the Fund as they are allocating state budget for the Fund, and having UNDP manage the Fund (Para 146). The National Bank of Kazakhstan informed commercial banks that they must finance green projects through mechanisms established under the Project and implement environmental, social and corporate governance principles in its work and in the practices of municipal services and organizations and to support green projects. The Damu Fund is generating the interest of commercial banks for green projects as well as to ESCOs and other contractors to implement NAMA urban mitigation projects by purposefully segregating green projects into a separate category that Damu supports. Furthermore, there is a general increase in heating, hot water and electricity tariffs in many regions of Kazakhstan, forcing project proponents to consider investments into EE heating and hot water systems[75]; • *Environmental Factors:* No risk. ***Overall Rating***	4 4 **3**
Actual Outcome 4: A pilot urban mitigation project was identified and financed. This project demonstrated the feasibility of urban emission reductions for future replication.	• *Financial Resources:* Resources to build more pilots will be available through the "Attracting investors in the field of energy efficiency" Fund (Para 146); • *Socio-Political Risks:* There was no opposition to the pilot urban mitigation project for one building at Pushkina in Astana. However, there is still reluctance of many residents to future pilot urban mitigation projects in other Akimats or Astana unless they are witness to the benefits of modernized apartment buildings and heating systems of utility cost reductions; • *Institutional Framework and Governance*: The GoK are committed to meeting the 2023 Updated NDC target of 25% GHG emission reduction by 2030 through MIC and UNDP; • *Environmental Factors*: No risk. ***Overall Rating***	4 3 4 4 **3**
Actual Outcome 5a: GHG emission reductions of implemented urban NAMAs	• *Financial Resources*: There are currently no fiscal resources available within Akimats to obtain professional assistance and prepare by-laws. As such no MRV systems have been	3

[75] Increases of heating and electricity tariffs are in the order of 10-20% annually. This was all catalysed by the heating failures in several municipalities including Ekibastuz City in November 2023

Table 10: Assessment of Sustainability of Outcomes

Actual Outcomes (as of December 2023)	Assessment of Sustainability	Dimensions of Sustainability
are only starting to be systematically monitored, verified and reported with a system being developed over the next few months. This, however, has not led to certified emission reduction (CER) credits from NAMAs and emission reduction purchase agreements between domestic entities.	established. There will be resources availed under the Fund for more training sessions to help build the market for CERs and emission reduction purchase agreements; • *Socio-Political Risks:* In short, there is no market for CER credits from NAMAs. With no professional assistance, there has been a lack of awareness of CER credits. Four training sessions were provided for 4 regional authorities in 2021 to raise awareness on CERs and to prepare for upcoming changes with the adoption of the Environmental Code that introduces emission reporting at regional level. More training sessions under the Fund should help build the market for CERs and emission reduction purchase agreements; • *Institutional Framework and Governance*: The Environmental Code with amendments in 2014 introduces emission reporting at regional level. However, it has yet to be adopted by Akimats and other stakeholders; • *Environmental Factors*: No risk. ***Overall Rating***	3 3 4 **3**
Actual Outcome 5b: Kazakh cities and towns have a lack of awareness on CER credits but are aware of, and have access to, information and guidance on other aspects of urban NAMAs.	• *Financial Resources:* There will be continued financing from the Fund for guidance on urban NAMAs including activities to catalyze the market for CER credits and emission reduction purchase agreements; • *Socio-Political Risks:* There should be very little opposition to awareness raising events that provide guidance on urban NAMAs including CER credits and emission reduction purchase agreements; • *Institutional Framework and Governance*: There is solid support from MIC and MoEF for awareness raising events to provide guidance on urban NAMAs; • *Environmental Factors: No risk*. ***Overall Rating***	4 4 4 4 **4**
	Overall Rating of Project Sustainability:	**3** ***(ML)***

3.3.1 Country Ownership

133. NAMA Project approaches to government-backed legislation, policy frameworks and financing mechanisms has created strong government ownership and drivenness to apply NAMA methodologies. This applies to a range of NAMA Project activities from technical assistance to articulating priority urban NAMAs and GHG reduction targets to the technical assistance provided to Kazakhstani municipalities to support NAMA projects related to public assets and preparing PPP agreements for service providers.

134. The GoK also demonstrates country ownership through it strong commitment to achieve voluntary national GHG emission reduction targets through NAMAs in the urban sector through its partnership with UNDP. With regards to the "Attracting investors in the field of energy efficiency" Fund that the GoK started replenishing in 2021, the GoK are moving the process of urban NAMAs to achieve voluntary national GHG emission reduction targets towards UNDP to avoid Government delays and bureaucracy of the fund disbursement process through various ministries and to facilitate improved opportunities for achieving voluntary national GHG emission reduction targets in the urban sector.

3.3.2 Gender equality and women's empowerment

135. Gender equality efforts of the Project:

- started in 2017 with a range of outreach campaigns with active involvement both women and men in sustainable development promotion;
- in early 2019, the Project in collaboration with other UNDP-GEF projects implemented in Kazakhstan, conducted a study on "Promoting Clean and Affordable Energy to Empower Women and Girls in Kazakhstan and in Central Asia"[76] to enhance knowledge of differentiated access to energy resources and use of energy services by women and men in rural and urban settings. The study results were used by the PMU to organize activities for raising awareness of the benefits of energy efficient technologies and the introduction of cleaner (non-coal) energy sources in households. This resulted in the Project focusing on females as a target group to raise awareness of the benefits of low carbon technologies where low-carbon modernization of a city block was conducted through AAOs (mainly consisting of female housewives) created with the support of the Project;
- by late 2019, the Project had strong co-operation with women who spend more time at home and are the most active participants of AAOs. This has enabled the Project to reach agreements with the AAOs and complete a number of energy efficiency projects;
- by 2021, the Project prepared a report on "Gender analysis of UNDP projects in the field of energy efficiency in Kazakhstan and recommendations for promoting gender aspects in the implementation of projects in this area" that exposed the weaknesses of unsustainable energy sources (such as unstable electricity supply, the use of coal and firewood for fuel with interruptions to the smooth operation of hot water supply and heating systems) that negatively affect women, making it difficult to work around the house and take care of children. The report also proposed solutions including thermal retrofitting of apartment buildings and improved hot water systems, that have a strong gender impact, improving the quality of life of women, reducing their workload at home, and providing opportunities for positive development.

[76] http://sustainable.eep.kz/en/library/reports/promotion-of-clean-and-available-energy-to-expend-the-rights-and-opportunities-of-women-and-girls-in.html

136. Since 2020, the Project has continued to monitor the number of women, children and men who have benefited from NAMA projects. The practice of preparing new projects involves the monitoring of consultations, with the application of gender analysis and audit methodologies, and the inclusion of gender indicators to track progress in NAMA Project supported low-carbon projects. These were used to critically assess gender-based attitudes and improve Project activities in low-carbon development from a gender perspective. There is the lack of awareness of consumers and owners of households, especially amongst women, about support programs and procedures for participation in NAMA projects. Moreover, there was a level of distrust of measures related to investments to some extent with the Project seeking to overcome this distrust by demonstrating the benefits and advantages of modern energy-saving technologies in everyday life, with an emphasis on the use of these technologies by women who manage households. Approved and implemented NAMA energy efficiency projects have contributed to better living conditions for women through improved energy performance of buildings and improved availability of hot water.

137. In 2022 and early 2023, an awareness-raising campaign was conducted for banks, leasing and microfinance companies, consisting of a series of 10 webinars organized 11-20 October 2022 with a total number of 142 participants, including 66 women. The regional trainings were aimed at building capacity to implement small-scale energy efficiency and renewable energy projects and to promote the active participation in FSM. The Project remains actively committed to advocating for gender issues throughout its activities, with the Project assessing gender equality aspects and impacts of pilot low-carbon urban energy projects in Kazakhstan supported by the Project.

138. An assessment of gender equality aspects and impacts of pilot low-carbon urban energy projects was conducted in May 2023. According to this report, no gender inequalities were found. Moreover, there is an improvement in working conditions and safety for women and girls. This is reflected in improved comfort by reducing heat loss, availability of hot water in winter, lowering temperatures in hot weather, and providing adequate lighting in public and office spaces, as well as providing lighting on city streets to increase their safety at night. The direct participation of women on implemented NAMA projects, however, is low due to representation of men in technical aspects of the projects. Notwithstanding, there are a high number of women in the financial sector who participated in the analysis of applications for consultations on financial mechanisms on low-carbon urban energy.

139. As a result, gender equality efforts of the Project was rated as **satisfactory**. Based on the May 2023 gender report, it is also evident that no quantitative inputs were provided to fully assess the impact of the financed projects on women and girls. On bidding documents for financial support to NAMA urban energy projects, the Project recommended providing a description of communications with beneficiaries and stakeholders (such as frequency, forma of discussions with beneficiaries taking into account gender aspects). Bidding documents were to be finalized to include a section describing the gender baseline indicators before the project starts. Therefore, immediately after project launch or within two years, starting a gender evaluation was highly recommended as well as to include a clause on women's participation in the evaluation of the concluded contracts.

3.3.3 Cross cutting issues

140. According to the Project's "Environmental and Social Screening Summary", the screening outcome is Category 3a: "Impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice, but require some minimal or targeted further review and assessment to identify and evaluate whether there is

a need for a full environmental and social assessment". With this risk categorization, a number of environmental and social issues were associated with the Project:

- urban NAMAs in waste management, transport or municipal heating might have potential negative socio-economic implications for local communities (i.e. quality of municipal services, increased heat tariffs) or, on the contrary, have deteriorating impact on eco-systems surrounding urban centers (new waste management facilities or transport infrastructure);
- the scope and type of potential negative impact generated by Project-supported downstream activities on the pilot investments in Astana as well as support to implementation of pilot NAMAs through National Modernization Fund, requires further investigation during pilot project preparation.

141. To mitigate these risks, Strategic Environmental Assessments (SEAs) were conducted in conjunction with the development of urban low-carbon programs, targets and plans under Outcome 1, and an Environmental Impact Assessment (EIA) was conducted according to requirements of Kazakhstani EIA Law on EIA to mitigate potential social and environmental impact for thermal modernization of apartment residential buildings in the pilot quarter in the Astana pilot quarter in 2019 pilot investments in the country.

142. The Evaluation also notes that no direct attention was given to the impact of the Project on vulnerable groups (i.e. people with disabilities, youth) in addition to gender equality. However, the most important risk management measure with regards to the Project was to closely monitor the successful implementation of NAMA projects selected for FSM support. This was to ensure projects were built on time to demonstrate that FSM financial resources can be fully disbursed against evidence of proper commissioning and monitoring or that funding reserved for projects (that for some reason do not advance to implementation) can be reallocated in a timely manner to other projects.

3.3.4 GEF Additionality

143. The issue of GEF additionality is quite clear on the NAMA Project. Without the Project, there would be less activity regarding energy efficiency projects, less collaboration between government and the private sector (with less PPPs), and less improved modernized apartment buildings with EE heating and hot water systems, insulated walls and windows, and EE lighting systems in Kazakhstan. Hence, there is GEF additionality for the NAMA Project.

3.3.5 Catalytic/Replication Effect

144. Some of the catalytic and replication effects of the NAMA Project are as follows:

- Many of the NAMA investments made by the Project were measures that catalyzed the planning and eventual implementation of additional energy efficiency measures. There are several examples including:
  - Asia Park Shopping Mall that implemented 4 ceiling window retrofits at their mall to demonstrate to themselves the benefits of conserving heat and catalyzing energy efficiency planning for modernizing their heating and air conditioning systems for their other shopping mall assets;
  - the Kaustic Chemical Plant in Pavlodar who procured 2 transformers with the assistance of the Project to reduce their electricity consumption. Realizing the benefits to saving energy for the factory, Kaustic has been catalyzed into planning and eventually implementing other

energy efficiency measures such as modernizing their heating system for industrial processes. A portion of their EE investments have also been financed by concessional loans made possible by EBRD through on-lending with a commercial bank;

- Many of the NAMA investments were replicated:
  - the window retrofits and other EE measures at the Asia Park Shopping Mall are going to be replicated in all their 13 malls in Astana and beyond owned by the Asia Park Shopping Mall owners;
  - the apartment residents in the 4 other buildings at Pushkina are pushing for financing to implement modernization measures similar to the demonstration building;
  - the GIZ project FELICITY II (Eastern Partnership and Central Asia Programme) were actively learning from the Pushkina demonstration to adopt the payback scheme for an apartment modernization effort in Kokshetau that will be financed by the EIB.

145. Challenges to replication effects of the Project mainly include a low level of trust amongst apartment residents to the quality of modernization works being performed. This low level of trust is demonstrated by the residents of Temirtau and Pushkina where one building has undergone modernization works with other building residents actively monitoring the performance of the modernized apartment. After 4 years of monitoring, there is still reluctance by some residents to go ahead with modernization works. Other challenges include:

- a shortage of ESCOs and service providers to implement modernization works; and
- low heating and electricity tariffs which does not motivate the apartment residents to save energy on heating and hot water.

3.3.6 Progress to impact

146. In terms of progress to impact of the NAMA Project, there have been efforts since 2021 by the GoK (specifically MIC) to contribute to a Fund named "Attracting investors in the field of energy efficiency" for the financing of green projects. This is a direct consequence of the NAMA Project, where the GoK funds are going to be managed by UNDP. Though the Fund has not been fully replenished[77], the Fund is being proposed to be partially used for paying down loan principals of loans or as a loan guarantee fund[78] for ESCOs and other contractors of green projects that conserve energy. This Fund with UNDP is also proposed to be handed over to the Damu Fund in 2026, similar to the setup of the NAMA Project. This shows commitment by the GoK to continue to securely and reliably move funds from the GoK to ESCOs and stakeholders using UNDP management, and to meet its commitments towards the goals of the 2023 "Updated NDC of the Republic of Kazakhstan to the global response to climate change" that calls for a 25% reduction in emissions by 2030, compared to 1990 levels. GoK's plans for the Fund are still under discussion.

147. Another measure of progress to impact has been the GoK's willingness to raise the electricity and heating tariffs by 10-15%. The GoK, however, acknowledges the dangers of raising tariffs too quickly citing social reasons. While the raising of tariffs is welcome news for incentivizing NAMA investments into EE for heating and hot water systems, it does not immediately resolve the issue that more NAMA

[77] Money in local currency is being given to UNDP annually starting in 2021 to 2026 for this Fund. By the time the replenishment is complete, over KZT 3.5 billion will have been transferred to the UNDP Fund. The exact amount is unknown due to currency exchange rate fluctuations, but it is in the order of US$7.8 million.

[78] According to the NPD, the 2021 payment to the UNDP Fund was to be used as the loan guarantee fund. In addition, UNDP has suggested the remaining funds be used to pay down loan principals, which the GoK has not yet approved.

investments into EE for heating and hot water systems are needed. For Kazakhstan to reach its goal of 25% reduction in emissions by 2030 (compared to 1990 levels), more time is required to resolve the issue of low NAMA investment rates.

148. Finally, a large proportion of GoK's efforts to meet the goals of the 2023 "Updated NDC of the Republic of Kazakhstan to the global response to climate change" is focused on heating and hot water systems where there are a multitude of problems from the use of old-Soviet-styled equipment. The GoK is undertaking an energy audit for all heating system stations in Kazakhstan to be completed in the summer of 2024. This was being done after the collapse of the heating systems in Ekibastuz which left the city without heat for several days in 2023. The comprehensive audit will also provide information on all energy users (through tracking usage of all energy sources for a range of stakeholders from businesses to individual residences and, wherever possible through a database of energy users) to try and link their heating usage with heating stations to source the problems with heating distribution. This will dictate what actions need to be taken by the GoK, Akimats and associated stakeholders to ensure reliable and energy efficient heating for all cities of Kazakhstan.

4. FINDINGS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

4.1 Findings

149. The NAMA Project has managed to achieve 850,260 tCO_2 exceeding GHG emissions reduction targets by a factor of 2.3 (Para 78 and Tables 8 and 9). The Project achieved this through:

- enabling 15 municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions;
- establishing an institutional framework to activate implementation of urban mitigation projects of the Akimats through built capacities to prepare bankable project documents and manage public and private service contracts;
- leveraging new and additional financing for urban NAMA projects through the provision of subsidies to ESCOs and service providers that ease the high cost of NAMA projects against a backdrop of low heating and electricity tariffs;
- continued awareness raising events to bring the message of benefits to low carbon development in Kazakhstan along with the issues of global climate change.

150. The only deficiency of the NAMA Project has been the failure to establish an ETS. This failure is not due to Project mismanagement, but the failure of the donor agencies to realize that the formation of such an ETS market takes a lot of time and effort. Thus, more time should be allocated to achieve intermediary objectives towards an ETS such as the setup of an MRV system, built capacities of Akimat and other government personnel to setup emission reduction targets or the setup of relevant regulatory by-laws and budgets to formalize establishment of carbon abatement targets by the municipalities.

4.2 Conclusions

151. While this Project was “just a drop in the bucket” for financing EE and RE projects compared the US$610 billion required to decarbonize Kazakhstan (Para 24), the Project leaves behind several successful examples of how to modernize apartment buildings, their heating and hot water systems, and other urban systems such as efficient lighting and industrial transformers. With much work to be done for the urban sector as well as for the industrial and power sectors, Kazakhstan needs to ramp up its capacities to manage and implement EE projects that modernize apartment buildings and their heating and hot water systems, in a timely manner to meet its voluntary commitments to reduce GHG emissions by 25% by 2050 in line with Kazakhstan’s 2013 III-VI National Communication to the UNFCCC.

152. The Project has proceeded to a point where there was strong support to the GoK to develop and implement NAMAs in the urban sector to achieve voluntary national GHG emission reduction targets. This resulted in a strong commitment by the GoK to continue with EE technology demonstrations, especially related to building modernization that includes heating and hot water systems modernization and the insulation of the building envelope. Three ongoing GoK activities highlight this very strong commitment:

- the GoK replenishment of the “Attracting investors in the field of energy efficiency” Fund since 2021 for more than US$7 million;

- the GoK willingness to cautiously raise the electricity and heating tariffs by 10-15% annually starting in 2024; and
- the GoK undertaking an energy audit for all heating and hot water systems stations in Kazakhstan to be completed by summer of 2024. The audit is focusing on a multitude of problems emanating from the use of old-Soviet-styled equipment, all done to avoid collapses of heating systems such as the one in Ekibastuz which left the city without heat for several days in 2023 (Para 148).

4.3 Recommendations

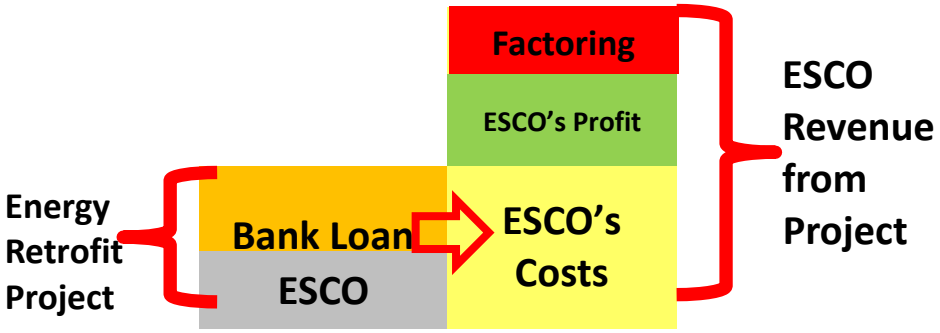
153. The recommendations made in this Evaluation are made in the spirit of improving delivery of EE and RE projects on the NAMA Project and future initiatives, and on the basis of the lessons learned during implementation of the NAMA Project.

	Recommendation	Entity Responsible	Time Frame
154.	**Recommendation 1:**		
	Improve opportunities to increase finances of ESCOs and service providers for heating and hot water modernization projects by: • *conducting surveys in various municipalities of payment for utilities (i.e. electricity, heating, hot water) to understand electricity and heat consumption habits of urban residences*. The "Aula.kz" app digitalizes electricity and heating usage amongst apartment owners. Payments to ESCOs can be tracked by the survey. Currently, usage of the Aula.kz app coordinates 35,000 apartments and is growing. This app should be linked with the Government to be used as a basis for this survey if the State approves the usage of the app[79]; • *enact legislation to allow ESCOs to work with public projects.* Despite ESCOs being allowed to sell off leased equipment and provide services and perform PPP schemes or trust management contracts when the public assets are transferred to an ESCO for a long period to modernize, manage operations and utilize (e.g. to supply heat to a school), there is no modality for ESCOs to procure equipment and provide their services under an EPC for public entities. Somehow, the payment for heating services on the basis of energy savings is not permitted by GoK, and payment schedules cannot be longer than 3 years. This needs to change to allow ESCOs to work with public projects and become much more efficient in delivering EE services to modernize heating and hot water systems for the public sector; • *creating a source of equity funding for ESCOs to enable them to apply AAA-rated bond issuances using the reliable stream of heating payments to the ESCO or service provider*. This can be used as an inexpensive source of funding for ESCOs and for leveraging private sector funding for decarbonization efforts of Kazakhstan of US$610 billion (Para 24) of which the GoK can only raise less than 3%. This mechanism can work through a	MIC and UNDP	Immediate

[79] This app can be useful as a means of lobbying at least 66% of the residences to approve rises in utility tariffs.

	Recommendation	Entity Responsible	Time Frame
	Special Purpose Vehicle (SPV) between Damu (using the "Attracting investors in the field of energy efficiency" Fund) and the ESCOs where about 5% equity will leverage 95% of the bond issue[80]. The SPV issues the bonds that will be bought up by banks[81]. The leverage factor of the bond issue for the ESCO can be up to 40 times; • *using the funds received from bond issuance for ESCO purchases and operation.* If the bonds were issued only through Damu, the funds received would be sent to commercial banks for on-lending. However, the ESCO can borrow the funds directly from the SPV, saving on transactional costs without an intermediary bank. The ESCO pays back the SPV which then pays back funds to bond owners; • *facilitating a factoring mechanism for financing energy saving projects in apartment buildings to circumvent the issue of loan collateral*. With ESCOs investing in modernization of heating systems with future reliable cashflows, their ability to borrow is limited since banks require liquid collaterals such as real estate and vehicles. Factoring companies purchase future cash flows from ESCOs, thus providing immediate funding for new projects by ESCOs. The key to factoring is discounting the ESCO profit which is the 3 to 5 year payback to factoring companies for providing the immediate funding for ESCOs. With over 300,000 buildings in Kazakhstan needing modernization, factoring can be implemented similar to the 2020 experience in Ukraine involving ESCOs servicing residences in apartment buildings. The schematic of factoring is provided in Figure 4.		

Figure 4: Factoring Scheme



[80] For example, 100 apartment buildings need modernized automated heating systems for US$10 million. Damu and the ESCO place US$500,000 as an initial payment for equity and as part of an SPV to prepare the issuance of green bonds and borrow the rest from the market. If they get the reliable payments from the apartment owners with a margin of 50%, totalling US$15 million over 5 years, the SPV can then repay the debt of US$10 million, pay the interest of US$1.0 million and have US$4.0 million. With an initial investment of US$250,000 by the ESCO (with the other US$250,000 coming from Damu), the leverage factor for the ESCO is 40. Preparation of the bond issue costs approximately US$200,000 for the SPV. It is an up-front cost that contributes to the equity of the bond issue.

[81] DREI project assisted with the issuance of the first green bonds backed by GoK in 2020 for RE projects. Commercial and development banks (such as the ADB) buy bonds to keep cash ready for lending for renewable energy. Banks can also use the bonds as collateral for re-financing their debt at a lower cost through national banks.

	Recommendation	Entity Responsible	Time Frame
155.	**Recommendation 2**		
	With Kazakhstan facing a critical shortage of ESCOs and service providers to meet the Government's effort to limit GHG emissions including its voluntary commitments to reduce GHG emissions by 25% by 2050 (as per Para 21), promote gradual and consistent growth of the ESCO and service provider market for EE and RE heating systems by: • *supporting the current ESCOs and service providers for EE and RE heating systems with subsidies*. If there is no subsidy support, these businesses will close, leaving the country without any entities ready for increased activity in EE and RE heating systems. This would be disastrous if and when the country decides to scale-up its EE and RE heating system activities; • *having UNDP and GoK support a more prominent role Kazakhstan Center for Housing and Utilities (KazCenter ZhKKh) under MIC to promote the hiring of credible ESCOs and services companies, with a focus on residences and commercial establishments.* The promotional linkage of this Center with credible ESCOs and services companies may serve to overcome the mistrust of AAOs and other stakeholders to proposed EE and RE heating schemes. The aim of the Center is to support the implementation of the state policy for the modernization and development of housing and municipal services by improving the legal and technical framework, providing information and analysis services, promoting the awareness of the population, carrying out investment projects, improving public utilities and introducing innovative and resource-saving technologies. SMEs and companies linked with the Center will be obligated to the beneficiary and the Center to provide proper service and maintenance to the heating systems installed. The Center's involvement in promoting credible ESCOs and service providers will go a long ways towards overcoming stakeholder mistrust and improving business opportunities for these ESCOs and service providers; • *supporting linkages between domestic and international ESCOs and service providers to encourage collaboration on portfolios of RE and EE heating projects*. The linkage support could be initiated through international workshops where Kazakhstani and international ESCOs and service providers come into contact with each other to catalyze collaboration. The Kazakhstani ESCOs and service providers can choose how they work with their international counterparts through: o partnership agreements; o secondments of international personnel to Kazakhstan to service various projects; or o recruitment of individual international experts and technical personnel;	MIC and UNDP	Immediate

	Recommendation	Entity Responsible	Time Frame
	• *increasing the exposure of the various successes of NAMA Project activities.* Example activities can range from the successes of EE and RE heating systems in Temirtau, Astana, Kostanay and Petropavlovsk to lighting projects in Almaty. The increased exposure (mainly through the KazCenter ZhKKh) should assist in overcoming mistrust of AAOs and their tenants to prospective EE and RE heating systems and other building renovations; • *ensuring ESCO and service provider personnel are well informed and trained to undertake RE and EE heating system design, installation, operations and maintenance.* Failure to do so will only lead to poor quality installations and a re-growth of mistrust in RE and EE heating system schemes being promoted by the Government.		
156.	**Recommendation 3**		
	Allow a period of 2 to 4 years to build capacities to implement an MRV system with the certification of GHG auditors and building a market towards the award of Certificates of Emission Reduction (CERs). The value of carbon credits can add value to EE and RE developments (such as heating improvements and biomass heating systems) that improves the RoI on these investments. However, initiating this market will take years. Firstly, there must be acceptance of the 5 MRV protocols (developed by the Project in 2023) by all Akimats and interested parties for energy efficiency (including district heating networks for buildings and pumps) and renewable energy (including small-scale devices, street lighting). This should be the outcome of the training sessions for 4 regional authorities in 2021 to raise their awareness and to prepare for upcoming changes in compliance to the new Eco Code that introduces emission reporting at regional level. This acceptance should have the impact of setting up and operationalizing MRV systems in city Akimats. Secondly, rules and procedures for certification of emission reduction credits from NAMA project should facilitate a number of projects where emission reductions are quantified. This can then be certified to generate certified emission reductions (CERs) of the various EE and RE projects. These can be posted onto a domestic ETS. With sufficient volume of CERs, emission reduction projects can then be marketed as CERs through a sale order placed with a broker for a buyer purchase.	MoEF and UNDP	Medium term
157.	**Recommendation 4**		
	Provide technical assistance within the next year in the enforcement of balancing heating systems in apartment buildings. One of the problems of heating losses is the imbalance of the heating system where one room may be very hot and another room very cold. There are instances where ESCOs or service companies only providing heat from the heating station. The ESCO or service company can balance the system manually within the apartment to allow for heating to be evenly distributed throughout the apartment. There is the opportunity to train technical specialists within the AAO to manually balance the system.	MIC and UNDP	Medium term

4.4 Lessons Learned

158. *Lesson #1: Changes were necessary in the FSM from interest rate subsidies to loan principal repayments*. For 2018-2020 NAMA projects, there was an agreement between ESCOs and Damu that interest rates would be subsidized by 10% p/a. As such, Damu became an operator to transfer funds from UNDP-GEF NAMA Project to ESCOs to cover SME costs equivalent to a 10% p/a reduction of the interest rate of the ESCO's interest payments. The subsidy payments would be made every 3 months, making monitoring of these interest payments very cumbersome for UNDP since the monitoring was manual (while Damu's monitoring systems for these payments was automated). The UNDP system also has to track and monitor the holding of reserves of cash for future payments in tenge as well as funds spent. There were several instances where reserved funds were not fully utilized UNDP and the actual amounts spent were not aligned with Damu financial reports due to devaluation of the exchange rates between the Kazakh tenge and the US dollar. Ironically, the COVID-19 pandemic provided an opportunity to review the FSM. This review resulted in the Project switching to a new and simpler FSM where the project proponent would undertake NAMA works with a commercial loan and get 40% of the principal reimbursed upon completion. Administration of this FSM would prove to be a lot simpler.

159. *Lesson #2: Working with apartment residents was very beneficial in providing strong demonstrative effects on the benefits of heating and hot water system modernization efforts by the Project*. The lack of trust of apartment residences was very strong. Overcoming this lack of trust was a 2-step process. Firstly, there were strong efforts by the NAMA Project personnel, MIC (and MIID) and the ESCOs along with technical and legal advisors who came well-prepared, to present all economic and technical aspects of the modernization effort, first to the most active residents willing to listen. This convinced a few single buildings in complexes of apartment buildings to undertake these modernization efforts, partially removing some of the mistrust in the process. Secondly, once residents of the other apartment buildings witnessed the benefits of modernization, many of them decided to implement modernization measures, and the barrier of the lack of trust was overcome.

160. *Lesson #3: When initiating a local effort to modernize an apartment building and its heating and hot water systems, the lobbying work should start with the consumers of heating and hot water systems*. This lobbying work should then progress to the local Akimats and then to Oblast Akimats and other central agencies. Agroprofi in Petropavlovsk started a modernization effort in 2018 from the Oblast Akimat, waiting for several changes in personnel and administration within these central agencies before getting project approval. Starting lobbying work with central agencies involves a lot of time and effort, and no guarantee of success.

161. *Lesson #4: Use of video clips of various UNDP NAMA Project activities has been very useful in terms of spreading information on NAMA Project activities, mainly to donors and government*. There have to be more efforts made to disseminate this information to the general public, especially to apartment residents.

162. *Lesson #5: Boilers for heating systems with wood chips provide more heat but are more expensive whereas boilers for heating systems with straw do not heat as well but are cheaper*. This is conundrum for service providers in the Petropavlovsk region and regions where waste biomass is plentiful. Servicing this market more efficiently for biomass boilers will require unique approaches on which stakeholders to target for wood chip or straw boilers (the choice depends on the proximity

to the sources of such wastes: straw-fired boilers are cheaper, but straw is more expensive to transport).

APPENDIX A - MISSION TERMS OF REFERENCE FOR NAMA PROJECT TERMINAL EVALUATION

Title:	International Consultant for services of Terminal Evaluation for UNDP-supported GEF-financed projects
Place of work:	Home based with business trips within Kazakhstan
Period:	30 working days during December 2023 – January 2024 (6 weeks)
Contract type:	Individual contract
Project ID and title:	00091328, UNDP-GEF Project "Nationally Appropriate Mitigation Actions (NAMA) for Low Carbon Urban Development"

1. INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the full-sized project titled "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development" (PIMS 4670) implemented through the UNDP Kazakhstan /Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan (MIID). The project started in March 2015 and is in its 9th year of implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects' (https://erc.undp.org/methods-center/guidelines/gef-project-evaluation-guidelines).

2. PROJECT BACKGROUND AND CONTEXT

The Project was designed to support identification, prioritization, design, financing and implementation of Nationally Appropriate Mitigation Actions (NAMAs)/low-carbon actions and projects in the urban sector in Kazakhstan.

This project was designed in five components to:

- Improve the capacity of municipalities to carry out integrated municipal planning, make targets and prioritize urban mitigation actions (Component 1),
- Support the creation and strengthening of institutional structures that will allow public and private sector investments in identified infrastructure and technical assistance (Component 2),
- Provide facilitation of financing of urban NAMA through creation of a dedicated fund (Component 3),
- Piloting of an urban NAMA through investments in modernization and upgrading of the urban infrastructure (Component 4),
- Linking the project with the national GHG mitigation efforts, including through standards, rules and procedures for monitoring, reporting and verification (MRV), promoting better information dissemination to stakeholders, and linking the NAMA process with the domestic Emission Trading Scheme (ETS) for industrial emitters (Component 5).

Of the total combined GEF and UNDP cash budget of 5.99 mil USD, 3 mil USD are allocated as a grant to support implementation of a financial mechanism under the component 3, and 0.7 mil USD are allocated

for implementation of pilot urban NAMAs under the component 4. Implementation of the financial mechanism (component 3) is a crucial and the most challenging component of the project. More than half (55%) of the whole project budget is allocated to this component 3 – financial mechanism.

Urban infrastructure and low-carbon projects have been traditionally financed from public/state budget in Kazakhstan. Although, there do exist examples of public-private partnerships and private investment in municipal infrastructure, however, these cases have been so far rather rare and concentrated in the two largest Kazakhstani cities, Astana and Almaty. The ambition of the project therefore was to use allocated grant resources to mobilize private investment in the municipal sector.

The project document was signed in April 2015, and its implementation started in April 2015. Total project budget is $71,319 million, $5,9 million of which is a contribution from the GEF. Implementing Agency from the part of the Government of the Republic of Kazakhstan is the Ministry of industry and Infrastructure Development of the RK.

Kazakhstan is by far the largest GHG emitter in Central Asia with annual emissions of 284 Mt CO2e in 2012 and has one of the world's highest GHG emissions per capita (16.9 tCO2). The energy intensity of the country's economy in 2010 – 0.68 toe per 1000 dollars of GDP – was almost six times that of Western Europe (0.11), almost triple that of the US (0.24). While Kazakhstan has substantial potential for energy and other resource efficiency improvements, GHG emissions across the sectors have been steadily rising since the early 2000s, when the emissions bottomed out at around 146 Mt CO2e, or 41% of the 1990 peak level of 358 Mt CO2e. The main reasons for this high level of intensity are the use of outdated technologies and lack of strong incentives for energy conservation in all sectors. The situation requires massive investments in modernization of the buildings and other infrastructure (improved energy efficiency) and active utilisation of renewable energy sources of different nature and scale.

The project designed a financial support mechanism to facilitate private investments in improved energy efficiency and small-scale renewable energy sources application, to assist in transition of Kazakhstan to low carbon economy and to pilot a funding scheme that could be later scaled up and utilised by the Government of Kazakhstan. The scheme was built basing on an existing SME support scheme used by Damu fund[82], by adding energy efficiency features to it, and was implemented jointly with Damu. The scheme included 3 instruments: 50% loan principal guarantees, 10% per annum loan interest subsidies and 40% loan principal subsidies. Out of those 3 instruments only loan interest subsidies were actively used, while only 4 loan guarantees were issued and the loan principal subsidy was not launched in practice. Over the period from December 2017 to June 2020, 110 applications for subsidies were received and the results were that 10 of them – rejected as non-eligible, 100 – endorsed. Out of the 100 endorsed projects 37 projects received loans from commercial banks and got interest subsidies from the project. Initial estimates have suggested that for the 37 projects funded the lifetime emissions reductions are 660,673 t CO2, but these figures need to be independently verified. There is a strong commitment within the Government of the RK to invest in clean energy and to reduce greenhouse gas emissions. Building on the experience of the NAMA project, the Government of Kazakhstan, and other stakeholders, including financial institutions, such as Astana International Finance Centre and Damu, were interested to further develop the mechanisms of attracting private investments into energy saving projects. As a result, the Ministry of Industry, and Infrastructure Development (MIID), requested UNDP to support the implementation of a Government-financed project on energy saving measures through innovative financing mechanisms.

[82] https://damu.kz/en/

3. TE PURPOSE

The TE report will assess the achievement of project results against what was expected to be achieved, and draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming. The TE report promotes accountability and transparency, and assesses the extent of project accomplishments. The information, findings, lessons learnt, and recommendations generated by the TE will be used by the Project Board, UNDP, GEF and other relevant stakeholders to inform future programming.

The TE team will consist of two consultants. The TE International Consultant will be leading the evaluation process, and will be in charge of organizing and directing the TE and producing the TE report. The TE International Consultant will be working remotely with a feasible support by the TE National Consultant, who will be providing and responding to all questions and comments of the International Consultant at the back to back mode. The TE National Consultant will provide necessary substantive and operational support in carrying out this evaluation. The TE National Consultant will have more opportunities to travel inside the country and assist the International Consultant in conducting interviews and gathering information, as well as its subsequent analysis.

4. TE APPROACH & METHODOLOGY

The TE report must provide evidence-based information that is credible, reliable and useful.

The TE team will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the Project Document, project reports including annual PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the team considers useful for this evidence-based evaluation. The TE team will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE team is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office(s), the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to MIID, «DAMU» Entrepreneurship Development Fund», and other stakeholders, including financial institutions, such as Astana International Finance Centre, commercial banks, energy service companies, independent consultants, executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject areas, Project Board, project beneficiaries, academia, local government and CSOs, etc. Additionally, the TE team (National Consultant - in person, and the International Consultant – using communication technologies) is expected to conduct field missions to *Kazakhstan*, including the following project sites: Astana, North Kazakhstan region, Temirtau, Kyzylorda and office of DAMU in Almaty.

The TE seeks to answer the key questions below that should cover the following key areas of evaluation criteria:

Relevance

- How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities at the local, regional and national level?
- To what extent was the project in line with national development priorities, country programme outputs and outcomes, the UNDP Strategic Plan, and the SDGs?
- To what extent does the project contribute to the theory of change for the relevant Kazakhstan country programme document outcome?

Effectiveness

- To what extent have the expected outcomes and objectives of the project been achieved?
- Have there been any unexpected results achieved beyond the planned outcomes and objectives?
- To what extent has the UNDP partnership strategy been appropriate and effective?
- Which project areas are the most relevant and strategic for UNDP to scale up or consider going forward?

Efficiency

- Was the project implemented efficiently, in line with international and national norms and standards?
- To what extent have project funds and activities been delivered in a timely manner?
- To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management?

Sustainability

- To what extent are there financial, institutional, socio-political, and/or environmental risks to sustaining long-term project results?
- To what extent will targeted men, women and vulnerable people benefit from the project interventions in the long-term?
- To what extent do project interventions have well-designed and well-planned exit strategies which include a gender dimension?

Gender equality and women's empowerment

- How did the project contribute to gender equality and women's empowerment?
- Is the gender marker assigned to this project representative of reality?

Impact

- Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?

The specific design and methodology for the TE should emerge from consultations between the TE team and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE team must use gender-responsive methodologies and tools and ensure that gender equality and

women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders and the TE team.

The mission organization should retain enough flexibility for the evaluation team to determine the best methods and tools for collecting and analyzing data. The evaluation team may apply questionnaires, field visits and interviews, and the evaluation team should be able to revise the approach in consultation with the evaluation manager, appointed by the UNDP Country Office, and the key stakeholders. These changes in approach should be agreed and reflected clearly in the TE Inception Report.

The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

5. DETAILED SCOPE OF THE TE

Based on the UNDP Evaluation Guidelines, UNEG Norms and Standards for Evaluations and in consultations with the UNDP Kazakhstan Country Office, the Evaluation will be participatory, involving relevant stakeholders.

The Evaluation will be conducted by the two independent evaluators (the Evaluators) – one TE International consultant (team leader) and one local TE National consultant, - who will propose an evaluative methodology to implement the evaluation effectively, applying such data collection methods as extended desk reviews, stakeholder meetings and interviews, field visits and others. The methodology and a detailed plan for the Evaluation process will be proposed by the Evaluators and agreed as a part of the Evaluation Inception Report.

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects *(*https://erc.undp.org/methods-center/guidelines/gef-project-evaluation-guidelines*)*.

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C.

The asterisk "(*)" indicates criteria for which a rating is required.

Findings

i. Project Design/Formulation

- National priorities and country driven-ness;
- Theory of Change;
- Gender equality and women's empowerment;
- Social and Environmental Standards (Safeguards);
- Analysis of Results Framework: project logic and strategy, indicators;
- Assumptions and Risks;
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design;

- Planned stakeholder participation;
- Linkages between project and other interventions within the sector;
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation);
- Actual stakeholder participation and partnership arrangements;
- Project Finance and Co-finance;
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*);
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/ implementation and execution (*);
- Risk Management, including Social and Environmental Standards (Safeguards).

iii. Project Results

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements;
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*);
- Sustainability: financial (*), socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*);
- Country ownership;
- Gender equality and women's empowerment;
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant);
- GEF Additionality;
- Catalytic Role / Replication Effect;
- Progress to impact.

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE team will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.
- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses and results of the project, respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.

- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.
- The TE report should also include lessons that can be taken from the evaluation, including best practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE team should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to incorporate gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown below:

ToR Table 2: Evaluation Ratings Table for "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development"

Monitoring & Evaluation (M&E)	Rating[83]
M&E design at entry	
M&E Plan Implementation	
Overall Quality of M&E	
Implementation & Execution	Rating
Quality of UNDP Implementation/Oversight	
Quality of Implementing Partner Execution	
Overall quality of Implementation/Execution	
Assessment of Outcomes	Rating
Relevance	
Effectiveness	
Efficiency	
Overall Project Outcome Rating	
Sustainability	Rating
Financial resources	
Socio-political/economic	
Institutional framework and governance	
Environmental	
Overall Likelihood of Sustainability	

[83] Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight & Execution, Relevance are rated on a 6-point scale: 6=Highly Satisfactory (HS), 5=Satisfactory (S), 4=Moderately Satisfactory (MS), 3=Moderately Unsatisfactory (MU), 2=Unsatisfactory (U), 1=Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4=Likely (L), 3=Moderately Likely (ML), 2=Moderately Unlikely (MU), 1=Unlikely (U)

6. TIMEFRAME

The total duration of the TE will be 30 working days over a time period of 6 weeks starting on December 26, 2023. The tentative TE timeframe is as follows:

Timeframe	Activity
12.12.2023	Application closes
26.12.2023	Selection of TE team
26.12.2023	Preparation period for TE team (handover of documentation)
(26-29.12.2023) 4 days (recommended 2-4)	Document review and preparation of TE Inception Report
(29.12.2023-02.01.2024) 5 days	Finalization and Validation of TE Inception Report; latest start of TE mission
(02-08.01.2024) 7 days (recommended 7-15)	TE mission: stakeholder meetings, interviews, field visits, etc.
(08.01.2024)	Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission
(08-12.01.2024) 5 days (recommended 5-10)	Preparation of draft TE report
(12-14.01.2024)3 days	Circulation of draft TE report for comments
(14-16.01.2024)3 days	Incorporation of comments on draft TE report into Audit Trail & finalization of TE report
(16-18.01.2024) 3 days	Preparation and Issuance of Management Response
-	Concluding Stakeholder Workshop (optional)
(21.01.2024)	Expected date of full TE completion

Options for site visits should be provided in the TE Inception Report.

7. TE DELIVERABLES

#	Deliverable	Description	Timing	Responsibilities	% payment
1	TE Inception Report approved by the Commissioning Unit and travel costs	TE team clarifies objectives, methodology and timing of the TE	No later than 2 weeks before the TE mission: *(by 26 December 2024)*	TE team submits Inception Report to Commissioning Unit and project management	30%
2	Presentation	Initial Findings	End of TE mission: *(by 12 January 2024)*	TE team presents to Commissioning Unit and project management	30%
3	Draft TE Report	Full draft report *(using guidelines on report content in ToR Annex C)* with annexes	Within 3 weeks of end of TE mission: *(by 12 January 2024)*	TE team submits to Commissioning Unit; reviewed by RTA, Project Coordinating Unit, GEF OFP	
	Final TE Report[84] + Audit Trail approved by Commissioning unit and RTA	Revised final report and TE Audit trail in which the TE details how all received comments have (and have not) been addressed in the final TE report *(See template in ToR Annex H)*	Within 1 week of receiving comments on draft report: *(by 21 January 2024)*	TE team submits both documents to the Commissioning Unit	40%

[84] All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines. Access at: http://web.undp.org/evaluation/guideline/section-6.shtml

8. TE ARRANGEMENTS

The principal responsibility for managing the TE resides with the Commissioning Unit. The Commissioning Unit for this project's TE is the UNDP Kazakhstan Country Office. The Project Team will be responsible for liaising with the TE team to provide all relevant documents, set up stakeholder interviews.

The All travel expenses, equipment rental, communication services, and other expenses associated with this work should be included in the price offer.

Travel destinations and sequence:

N	Destination	Days
1	Astana	3
2	Temirtau	1
3	Pavlodar	1
4	Petropavlovsk	1
5	Kostanay	1
6	Kyzylorda	2
7	Almaty, DAMU office	1

Payment for services will be made from the Project funds with satisfactory discharge of duties and achievement of results.

- The Consultant will work under the direct supervision of the GEF Portfolio Manager, UNDP Kazakhstan.
- The Consultant is responsible for the quality and timely submission of the deliverables.
- The Consultant ensures timely and rational planning, implementation of activities and achievement of results in accordance with the Terms of Reference.
- The Consultant provides the results of work in accordance with clause 5 of this Terms of Reference.
- The Consultant shall provide reports in electronic form in MS Word format in English.

Prior to approval of the final report, UNDP will circulate the draft for comments to relevant stakeholders: Project Manager and CTA, Head of Environment and Energy Unit, GEF Portfolio Manager, Ministry of Industry and Infrastructure Development Republic of Kazakhstan, UNDP/GEF RTA.

The UNDP and the stakeholders will submit comments and suggestions within 10 working days after receiving the draft.

9. TE TEAM COMPOSITION & QUALIFICATIONS

A team of two independent evaluators will conduct the TE – one team leader (with experience and exposure to projects and evaluations in other regions) and one team expert, from the country of the project. The team leader will be an international consultant, working remotely with a feasible support by the national consultant who will be providing and responding to all questions and comments of the international consultant at the back to back mode; the team leader will be responsible for the organization and planning of the TE, harmonizing the approach and actions with the stakeholders, finalizing the

Inception report, overall design and writing of the TE report. The team expert will be a local expert will facilitate the International Consultant/Team Leader and provide necessary substantive and operational support in carrying out this evaluation.

The evaluator(s) cannot have participated in the project preparation, formulation and/or implementation (including the writing of the project document), must not have conducted this project's Mid-Term Review and should not have a conflict of interest with the project's related activities.

The successful candidate will demonstrate the following education, experiences, skills and competences:

Education

- Master's degree in energy, environment, finance, business administration or other closely related field;

Experience

- Relevant experience with results-based management evaluation methodologies;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Competence in adaptive management, as applied to Climate Change Mitigation;
- Experience in evaluating projects;
- At least 5 years of experience in the CIS countries financial sector and/or industry is required;
- Experience in relevant technical areas for at least 10 years: Energy Efficiency, or District Heating, or Electric Power;
- Demonstrated understanding of issues related to gender and Climate Change Mitigation; experience in gender responsive evaluation and analysis;
- Experience in financial sector, design of financial instruments and / or implementation of financial schemes or products is required;
- Familiarity with energy efficiency and/or financial sectors related legislation, policies and management structures in CIS would be an asset;
- Excellent communication skills;
- Demonstrable analytical skills;
- Experience on evaluation in GEF funded projects/programs is an asset.

Language

- Fluency in written and spoken English.
- Fluency in written and spoken Russian would be an asset.

10. EVALUATOR ETHICS

The TE team will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator must also ensure security of collected information before and after the evaluation and protocols

to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

11. PAYMENT SCHEDULE

- 30% payment upon satisfactory delivery of the final TE Inception Report and approval by the Commissioning Unit.
- 30% payment upon presentation of findings and satisfactory delivery of the draft TE report to the Commissioning Unit.
- 40% payment upon satisfactory delivery of the final TE report and approval by the Commissioning Unit and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail

Criteria for issuing the final payment of 40%[85]:

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
- The Audit Trail includes responses to and justification for each comment listed.

12. APPLICATION PROCESS[86]

Recommended Presentation of Proposal:

a) Letter of Confirmation of Interest and Availability using the template[87] provided by UNDP;

b) CV or a Personal History Form (P11 form[88]);

c) Financial Proposal that indicates the all-inclusive fixed total contract price and all other travel related costs (such as flight ticket, per diem, etc), supported by a breakdown of costs, as per template attached to the Letter of Confirmation of Interest template. If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

[85] The Commissioning Unit is obligated to issue payments to the TE team as soon as the terms under the ToR are fulfilled. If there is an ongoing discussion regarding the quality and completeness of the final deliverables that cannot be resolved between the Commissioning Unit and the TE team, the Regional M&E Advisor and Vertical Fund Directorate will be consulted. If needed, the Commissioning Unit's senior management, Procurement Services Unit and Legal Support Office will be notified as well so that a decision can be made about whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract and/or remove the individual contractor from any applicable rosters. See the UNDP Individual Contract Policy for further details: https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

[86] Engagement of evaluators should be done in line with guidelines for hiring consultants in the POPP https://popp.undp.org/SitePages/POPPRoot.aspx

[87] https://intranet.undp.org/unit/bom/pso/Support%20documents%20on%20IC%20Guidelines/Template%20for%20Confirmation%20of%20Interest%20and%20Submission%20of%20Financial%20Proposal.docx

[88] http://www.undp.org/content/dam/undp/library/corporate/Careers/P11_Personal_history_form.doc

All application materials should be submitted to the address (insert mailing address) in a sealed envelope indicating the following reference "Consultant for Terminal Evaluation of "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development" project" or by email at the following address ONLY: *(insert email address)* by *(time and date)*. Incomplete applications will be excluded from further consideration.

Criteria for Evaluation of Proposal: Only those applications which are responsive and compliant will be evaluated. Offers will be evaluated according to the Combined Scoring method – where the educational background and experience on similar assignments will be weighted at 70% and the price proposal will weigh as 30% of the total scoring. The applicant receiving the Highest Combined Score that has also accepted UNDP's General Terms and Conditions will be awarded the contract.

13. TOR ANNEXES

ToR Annex A: Project Results Framework

- ToR Annex B: Project Information Package to be reviewed by TE team
- ToR Annex C: Content of the TE report
- ToR Annex D: Evaluation Criteria Matrix template
- ToR Annex E: UNEG Code of Conduct for Evaluators
- ToR Annex F: TE Rating Scales
- ToR Annex G: TE Report Clearance Form
- ToR Annex H: TE Audit Trail
- ToR Annex I: Co-financing Table
- ToR Annex J: Cost breakdown template

This TOR is approved by:

Signature _____

Name and Designation Eugene Hong, Assistant Resident Representative

Date of Signing

APPENDIX B - MISSION ITINERARY (FOR JANUARY-FEBRUARY 2024)

#	Activity	Stakeholder involved	Place
24 January 2024 (Wednesday)			
1	Arrival of Mr. Roland Wong to Astana		
2	Briefing meeting with NAMA PMU	UNDP	Astana
25 January 2024 (Thursday)			
3	Visit to Pushkina apartments, pilot project in Astana	AAOs	Astana
4	Visit to Akmola tourist Hotel, Respublic Street 33, Astana	Akmola Tourist Hotel	Astana
5	Zoom call with Batys Transit	Batys Transit	Astana
6	Zoom call with Kaustik	Kaustik	Astana
7	Face-to-face meeting with Ms. Kuralay Seitalina, Project Coordinator, NAMA Project	UNDP	Astana
26 January 2024 (Friday)			
8	Zoom call with Ms.Mariya Stepanova, Tech Expert 2	UNDP Technical Support	Astana
9	Zoom call with DAMU Fund, Ms. Saule Abisheva, Head of the Subsidy Department	Damu Fund	Astana
10	Face-to-face meeting with NPD NAMA Project	MIC	Astana
11	Visit to Asia Park Shopping Mall	Asia Park Shopping Mall	Astana
27-28 January 2024 (Saturday-Sunday)			
12	Working on TE report		
29 January 2024 (Monday)			
13	Travel to Kostanay		
14	Visit to offices of Ecoservice 2030 LLP	Ecoservice 2030 LLP	Kostanay
15	Visit to Kostanay city boileries (Volna boiler project)	Ecoservice 2030 LLP	Kostanay
16	Visit to project site, Otasheva IP	Otasheva IP	Kostanay
17	Visit to project site, Tselinnaya Hotel	Tselinnaya Hotel	Kostanay
30 January 2024 (Tuesday)			
18	Travel back to Astana		
19	Zoom call to AAO of Temirtau	AAO “Yut” in Temirtau	Astana

#	Activity	Stakeholder involved	Place
31 January 2024 (Wednesday)			
20	Travel to Petropavlovsk		
21	Visit to Beskol School-College LLP biomass boiler, Beskol village	Beskol School-College LLP, headmaster and the deputy headmaster of the school-college	Petropavlovsk
22	Visit to Yakorskaya Secondary School, Yakor village	Agroprofi LLP, the deputy headmaster of the secondary school	Petropavlovsk
1 February 2024 (Thursday)			
23	Working on TE report		
24	Travel back to Astana		Astana
2 February 2024 (Friday)			
25	Face-to-face meeting with NAMA Project CTA Mr. Oleg Khmelev	UNDP	Astana
26	Meeting and de-brief of mission with UNDP Kazakhstan Head of Energy and Environment Unit, Ms. Assel Nurbekova	UNDP	Astana
3 February 2024 (Saturday)			
27	Working on TE report		
4 February 2024 (Sunday)			
28	Departure of Mr. Roland Wong from Astana		

Total number of meetings conducted: 18

APPENDIX C - LIST OF PERSONS INTERVIEWED

This is a listing of persons contacted in the NAMA Team (unless otherwise noted) during the Terminal Evaluation Period only. The Evaluators regrets any omissions to this list.

1. Ms. Sukhrob Khojimatov, Deputy Resident Representative, UNDP Kazakhstan;
2. Mr. Eugene Hong, Assistant Resident Representative, UNDP Kazakhstan;
3. Mr. Assel Nurbekova, Head of Unit, Energy and Environment, UNDP Kazakhstan;
4. Mr. Aizhan Baimukanova, Programme Associate of Energy and Environment Unit, UNDP Kazakhstan;
5. Mr. Dosbol Tursumuratov, M&E Officer, NAMA Project;
6. Ms. Saule Inkhanova, NPD NAMA Project, Head of the Department for Energy saving and Energy efficiency of the Industrial Development Committee of the Ministry of Industry and Construction of the Republic of Kazakhstan;
7. Ms. Kuralay Seitalina, Project Coordinator, NAMA Project;
8. Mr. Oleg Khmelev, CTA, NAMA Project;
9. Mr. Alexandr Belyi, KAZ GBC, former PM of NAMA Project;
10. Mr. Birzhan Yevniyev, former financial advisor of NAMA Project;
11. Ms. Saule Abisheva, DAMU Fund;
12. Ms. Mariya Stepanova, Tech Expert 2 of NAMA Project;
13. Mr. Kuat Aitmukhametov, Batys Transit;
14. Mr. Ermek Tokmagambetov, Kaustik JSC;
15. Mr. Sergey Lyashkevich, Head of homeowners association at Pushkina-Zhubanova
16. Ms. Galina, resident of Pushkina Zhubanova apartments;
17. Mr. Kairat Osmanov, Deputy Director of Akmola Tourist Hotel;
18. Mr. Artyom Bondarenko, Project Manager of Arcada Group, contractor at Asia Park Mall;
19. Mr. Vitaliy Siukhov, CEO for Ecoservice-2030 LLP;
20. Mr. Azat Turegeldin, Projects Manager for Ecoservice-2030 LLP;
21. Ms. Aliona Prishepa, Operator of BMK-93 Boiler;
22. Ms. Vladislava Otasheva, Owner of Business center;
23. Mr. Yurii Makharinets, CEO Hotel Tselinnaya;
24. Mr. Fedor Gubenkov, Executive Director and Chief Engineer for Ecoservice-2030 LLP;
25. Ms. Tatyana Mishkina, Headmaster, Beskol School-college;
26. Ms. Svetlana Kravchuk, Head of financial department, Beskol School-college;
27. Mr. Kanat Mambetaliev, Boiler plant operator, Beskol School-college;

28. Mr. Nikolay Denisov, CEO Agroprofi;
29. Ms. Marina Zayceva, Chairperson of AAO “UYUT” in Temirtau.

APPENDIX D - LIST OF DOCUMENTS REVIEWED

1. UNDP-GEF Project Document ‘‘Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan (NAMA Project)”, April 2015;

2. UNDP-GEF CEO Endorsement Document ‘‘Nationally Appropriate Mitigation Actions for Low-carbon Urban Development in Kazakhstan (NAMA Project), April 2015;

3. NAMA Project Inception Report, January 2016;

4. NAMA Project PIRs from 2016 to 2023;

5. NAMA Project MTE Report, March 2018;

6. NAMA Project AWPs 2016-2023;

7. NAMA Project Progress Reports 2016-2022;

8. NAMA Project Board meeting minutes from 2015 to 2023;

9. UNDP-GEF Online conference to present and discuss results of testing factoring mechanism for financing energy saving projects in multi apartment buildings in Kazakhstan, March 2021;

10. “Rules for providing financial support for the implementation of a mechanism for stimulating investments in energy efficiency of urban infrastructure of the Republic of Kazakhstan within the framework of the Joint project of the Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan and the United Nations Development Program “Sustainable Cities for Low-Carbon Development”, September 2022;

11. Note to File for “PIMS 4670 “Nationally Appropriate Mitigation Actions for Low-Carbon Urban Development”, Kazakhstan (‘NAMA Project’) - Justification of subsidy levels in Financial Support Mechanism under the NAMA Project”, 27 November 2022;

12. UNDP-GEF and Damu, “Stimulation of Investments for Energy Efficiency of Municipal Infrastructure of the Republic of Kazakhstan”, 2018;

13. UNFCCC Summary of GHG Emissions for Kazakhstan, 2022;

14. UN Country programme document for Kazakhstan (2021-2025);

15. Fourth Biennial Report of the Republic of Kazakhstan to the UNFCCC, 2019;

16. Updated Nationally Determined Contribution of the Republic of Kazakhstan to the global response to climate change, Approved by the Decree of the Government of the Republic of Kazakhstan, April 2023;

17. Danira Baigunakova (from the Alexander von Humboldt-Foundation) and Frank Gagelmann and Dmitri Lewandrowski (DEHSt), “Emissions Trading in Kazakhstan - Recommendations for Cap Setting”, 2019

18. UNECE Report 2017 – 10 CP Kazakhstan, Part1, Chapter 6;

19. World Bank – ESMAP, Municipal Energy Efficiency Plan for the City of Astana, November 2017;

20. UNDP – GEF. Guidance for Conducting Terminal Evaluation of UNDP – Supported, GEF-Financed Project, 2020;

21. Sergei Gulyaev, National Expert's report, "Assessment of gender equality aspects and impacts of pilot low-carbon urban energy projects report", 2023;

22. Maria Stepanova and Inna Lisova, 2nd Technical Expert's monitoring reports, 2023;

23. Art-Ecology, "Results assessment of pilot low-carbon projects final report", 2023;

24. Aida Maksut, "Final information and analysis report on the evaluation of projects subsidized by UNDP", 2024;

25. Co-financing letters from applicants of financial supports.

APPENDIX E - COMPLETED TRACKING TOOL

Core Indicator 1	**Terrestrial protected areas created or under improved management for conservation and sustainable use**					***(Hectares)***
			Hectares (1.1+1.2)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 1.1	Terrestrial protected areas newly created					
Name of Protected Area	WDPA ID	IUCN category	Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
		Sum				
Indicator 1.2	Terrestrial protected areas under improved management effectiveness					
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score		
				Baseline		Achieved
				Endorsement	MTR	TE
		(select)				
		(select)				
		Sum				
Core Indicator 2	**Marine protected areas created or under improved management for conservation and sustainable use**					***(Hectares)***
			Hectares (2.1+2.2)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	*TE*
Indicator 2.1	Marine protected areas newly created					
Name of Protected Area	WDPA ID	IUCN category	Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
		Sum				
Indicator 2.2	Marine protected areas under improved management effectiveness					
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score		
				Baseline		Achieved
				PIF stage	Endorsement	MTR	TE
		(select)				
		(select)				
		Sum				
Core Indicator 3	**Area of land restored**					***(Hectares)***
			Hectares (3.1+3.2+3.3+3.4)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.1	Area of degraded agricultural land restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.2	Area of forest and forest land restored					
			Hectares			

			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.3	Area of natural grass and shrublands restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 4	**Area of landscapes under improved practices (hectares; excluding protected areas)**					***(Hectares)***
		Hectares (4.1+4.2+4.3+4.4)				
		Expected			Expected	
		PIF stage	Endorsement		MTR	TE
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.3	Area of landscapes under sustainable land management in production systems					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided					
Include documentation that justifies HCVF			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 5	**Area of marine habitat under improved practices to benefit biodiversity**					***(Hectares)***
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.3	Amount of Marine Litter Avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 6	**Greenhouse gas emission mitigated**					***(Metric tons of CO_2e)***
			Expected metric tons of CO_2e (6.1+6.2)			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)		187,500	370,000	74,0000	*1,105,063*
	Expected CO2e (indirect)		*N/A*		*0*	*0*
Indicator 6.1	Carbon sequestered or emissions avoided in the AFOLU sector					
			Expected metric tons of CO_2e			
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)					
	Expected CO2e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.2	Emissions avoided Outside AFOLU					
			Expected metric tons of CO_2e			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Expected CO2e (direct)		187,500	370,000	74,000	1,105,063
	Expected CO2e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting		*2019-2033*	*2019-2033*	*2019-2020*	*2019-2023*
Indicator 6.3	Energy saved					
			MJ			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Energy Efficiency Refrigerators (Direct and direct post-post project period combined)		N/A	N/A	N/A	N/A
Indicator 6.4	Increase in installed renewable energy capacity per technology					
	Technology		Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Biomass Gasification		N/A	N/A	N/A	N/A
	Biomass (biogas)		N/A	N/A	N/A	N/A
Core Indicator 7	**Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**					***(Number)***
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE

Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
Core Indicator 8	**Globally over-exploited fisheries Moved to more sustainable levels**					***(Metric Tons)***
Fishery Details			Metric Tons			
			PIF stage	Endorsement	MTR	TE
Core Indicator 9	**Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products**					***(Metric Tons)***
			Metric Tons (9.1+9.2+9.3)			
			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
(select)	(select)	(select)				
(select)	(select)	(select)				
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Hydrochloroflurocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	PIF stage	Endorsement
Core Indicator 10	**Reduction, avoidance of emissions of POPs to air from point and non-point sources**					***(grams of toxic eq gTEQ)***
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	**Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**					***(Number)***
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	N/A	90,0000		148,928
		Male	*N/A*	90,0000		129,953
		Total	*N/A*	*180,0000*	*2,200*	278,881

APPENDIX F - PROJECT RESULTS FRAMEWORK FOR NAMA PROJECT (FROM APRIL 2015) WITH EDITS IN RED

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: The Government, industries and civil society take steps to adapt to climate change and mitigate its impact through energy efficiency measures and climate change adaptation policies.
Country Programme Outcome Indicators: Climate change mainstreamed into national environmental and sustainable development strategic action plans
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 2. Catalyzing environmental finance
Applicable GEF Strategic Objective and Program: Objective 4 "Promote energy efficient, low-carbon transport and urban systems"
Applicable GEF Expected Outcomes: a. Sustainable transport and urban policy and regulatory frameworks adopted and implemented; b. Increased investment in less-GHG intensive transport and urban systems; c. GHG emissions avoided
Applicable GEF Outcome Indicators: a. Number of cities adopting sustainable transport and urban policies and regulations; b. Volume of investment mobilized; c. Tonnes of CO2 equivalent avoided

Strategy	Indicator	Baseline	Mid-term Target	End of Project Target	Source of Verification	Assumptions
OBJECTIVE: Support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction targets	Number of Urban NAMAs under development	0	4	~~14~~ 15	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	~~Value of Urban NAMAs under development projects implemented (USD) = cumulative co-financing realized~~	~~0~~	~~20 million~~	~~70 million~~	~~Inception, Mid-term and Final report, APR/PIR, NAMA proposals~~	
	Number of Urban NAMAs under implementation	0	1	4	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Value of Urban NAMAs under implementation (USD)	0	3 million	3 million	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Expected direct lifetime GHG emission reductions from pilot NAMA implementation and NAMA Fund investments	0	74,000 tCO_2	370,000 tCO_2	Design and commissioning documentation, MRV system reports, APR/PIR	
	Number of people benefiting from ~~the improved transport and urban systems~~ NAMA projects	0	2,200	180,000	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	

Strategy	Indicator	Baseline	Mid-term Target	End of Project Target	Source of Verification	Assumptions
	Establishment of financial facilities for NAMAs	1	2	5	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
COMPONENT 1: Integrated municipal planning, targets and prioritization for urban mitigation actions						
OUTCOME 1: ~~Enable~~ Participating municipalities are enabled to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs)	Number of municipalities for which urban GHG Inventories, Abatement costs curves and NAMA factsheets prepared and discussed with stakeholders	0	~~5~~ 15	15	Inception, Mid-term and Final report, APR/PIR, inventories, ACCs, and NAMA factsheets Official resolutions from Akimats	
	Number of municipalities for which urban GHG reduction targets established and officially adopted by Akimats	0	~~5~~ 15	15		
COMPONENT 2: Institutional framework for urban NAMAs						
OUTCOME 2: ~~Put in place~~ The enabling institutional framework to facilitate the implementation of urban mitigation is established	Technical assistance delivered according to ToR agreed with each akimat (signoff between UNDP and akimat)	0	~~5~~ 15	15	Inception, Mid-term and Final report, APR/PIR	• Project opportunities are identified • Akimats choose to access project support
	Bankable project documents prepared	0	~~5~~ 15	15		
	Public service contracts signed / tariffs agreed	0	Up to ~~5~~ 4, depending on needs	Up to 15, depending on needs		
COMPONENT 3: Financing for urban NAMAs						
OUTCOME 3: New and leveraged additional financing for urban NAMAs ~~levered~~	~~Capitalization of funding mechanisms for urban NAMAs~~	~~0~~	~~10 million~~	~~44 million~~	Fund reports, Inception, Mid-term and Final report, APR/PIR	• Bankable projects are identified and banks invest
	Financing provided to urban NAMA projects enabled by the Pilot NAMA financial mechanism ~~fund~~ (USD)	0	2 million	45 ~~8~~ million	Fund reports, Inception, Mid-term and Final report, APR/PIR	
	Diversification strategy developed	None	None	Strategy developed	Agreed strategy, Inception, Mid-term and Final report, APR/PIR	
	~~Direct lifetime GHG emission reductions from NAMA fund~~	~~0~~	~~55,000 tCO_2~~	~~275,000 tCO_2~~	~~Design and commissioning documentation, MRV~~	

Strategy	Indicator	Baseline	Mid-term Target	End of Project Target	Source of Verification	Assumptions
					~~system, Inception, Mid-term and Final report, APR/PIR~~	
COMPONENT 4: Implementation of pilot urban NAMA						
OUTCOME 4: ~~Identify and finance~~ A pilot urban mitigation action is identified and financed to demonstrate the feasibility of urban emission reduction for future replication	~~Direct annual GHG emission reductions from pilot urban mitigation action~~ Number of projects influenced by this demonstration	~~0~~	~~950 tCO_2~~	~~4,750 tCO_2~~ 5	Design and commissioning documentation, MRV system, Inception, Mid-term and Final report, APR/PIR	
	~~Expected direct lifetime GHG emission reductions from pilot urban mitigation action~~ Status of pilot urban mitigation action demonstrating comprehensive modernization of urban district	~~0~~	~~19,000 tCO_2~~	~~95,000 tCO_2~~ Pilot project monitored (at least 1 year)		
COMPONENT 5: Monitoring, verification and knowledge management						
OUTCOME 5a: GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported	NAMA MRV process allows certified emission reduction credits to be imported into the domestic Emission Trading Scheme	None	None	1 emission reduction purchase agreement signed	Resolutions / agreements, Inception, Mid-term and Final report, APR/PIR	The domestic ETS continues to function, prices are sufficient Transaction costs are not higher than value of GHG savings
	MRV system for urban emissions set up and operational in cities	0	~~1~~ 4	~~4~~ 15	MRV reports	Political will exists to establish mechanisms to import credits into domestic ETS
OUTCOME 5b: Kazakh cities and towns are aware of, and have access to, information and guidance on urban NAMAs	~~Awareness index to be defined in inception workshop incorporating knowledge and 'use of knowledge' factors at city/town level~~ Awareness index based on questionnaire	Awareness index, & baseline established through survey of cities & towns	Awareness index increased by 50%	Awareness index doubled	Survey results, Inception, Mid-term and Final report, APR/PIR	

APPENDIX G – EVALUATION QUESTION MATRIX

Evaluative Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities a the local, regional and national level?			
To what extent was the project in line with GEF focal area, UNDP CPD, UNSDCF, Kazakhstan's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, Kazakhstan National Energy Sector Plan 2017-2022 along with relevant SDGs?	Number of national priorities aligned with Project strategy	ProDoc PIRs Project designers	Desk review of PIRs and interviews PMU, stakeholders
To what extent was the theory of change applied in the project relevant to promoting investment in NAMA technologies and expanding access to environmental and energy services for the poor within the framework of "leave no one behind agenda"?	Quality of outcomes and indicators on log frame	ProDoc PIRs Project designers	Desk review of PIRs and interviews with project designers, PMU, stakeholders
Are the project objectives and outputs clear, practical and feasible within its frame? Do they clearly address target groups?	Quality of outcomes and indicators on log frame	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent were lessons learned from other relevant projects considered in the design?	Related projects aligned with Project strategy	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent were perspectives of men and women who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during project design processes?	Number of national priorities aligned with Project strategy	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with project designers, PMU, stakeholders
To what extent was this Project designed as rights based and gender sensitive?	Effectiveness and efficiency ratings of the project by the evaluation	ProDoc PIRs Project designers PMU	Desk review of PIRs and interviews with Project designers, PMU, stakeholders
To what extent does the Project create synergy/linkages with other projects and interventions in the country?	Effectiveness and efficiency ratings of the project by the evaluation	ProDoc PIRs PMU	Desk review of PIRs and interviews with PMU, stakeholders
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
To what extent did the Project contribute to the attainment of the development of outputs and outcomes initially expected/stipulated in the Project Document's logical framework until the end of the project duration?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel

Evaluative Questions	Indicators	Sources	Methodology
To what extent has the UNDP partnership strategy been appropriate and effective?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MIID personnel	Desk review, interviews with PMU, stakeholders and MIID personnel
In which areas does the project have the fewest achievements? What have been the constraining factors and why? How can or could they be overcome?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
What, if any, alternative strategies would have been more effective in achieving the project objectives?	Effectiveness ratings of the project by the evaluation	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent are project management and implementation participatory, and is this participation of target groups/ stakeholders contributing towards achievement of the project objectives?	Quality of adaptive management	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent has the project been appropriately responsive to the needs of the target groups and changing partner priorities?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MIID personnel	Desk review, interviews with PMU, stakeholders and MIID personnel
To what extent has the Project contributed to the well-being and human rights of vulnerable groups, including, women? Did the Project effectively contribute to “leave no one behind agenda” and successfully integrate human rights-based approach (HRBA)?	Stakeholder engagement ratings of the project by the evaluation	PIRs and information from PMU, stakeholders and MIID personnel	Desk review, interviews with PMU, stakeholders and MIID personnel
To what extent has Kazakhstan’s financing programme been effective in improving villagers’ socio-economic standing and energy savings?	Quality of financing strategy to intended results	PIRs and information from PMU, financial stakeholders and MIID personnel	Desk review, interviews with PMU, financial stakeholders and MIID personnel
To what extent has Kazakhstan’s demonstration projects and financing programme been effective in creating awareness in urban centers for NAMA technology deployment and in demonstrating a functioning and viable financing model?	Quality of financing strategy to intended results	PIRs and information from PMU, financial stakeholders and MIID personnel	Desk review, interviews with PMU, financial stakeholders and MIID personnel
Did Covid-19 measures have a positive or negative effect on the achievement of Project results?	Quality of strategy to intended results	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel

Evaluative Questions	Indicators	Sources	Methodology
Efficiency: Was the project implemented efficiently, in line with international and national norms and standards?			
How well did Project Management work for achievement of results?	Institutional and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent has there been an economical use of financial and human resources? Have resources (funds, staff, time, expertise, etc.) been allocated strategically and cost-effectively to achieve outcomes?	Institutional, financing and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent have project funds and activities been delivered in a timely manner?	Institutional, financing and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management?	Institutional and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent was there any identified synergy between UNDP initiatives/ projects that contributed to reducing costs while supporting results?	Institutional and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
Sustainability:			
To what extent will targeted people benefit from the project interventions in the long-term?	Number of stakeholders with issues concerning sustainable livelihoods	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
Are there any political or financial risks that may jeopardize sustainability of project results?	Number of government and financial stakeholders with issues concerning RE	PIRs and information from PMU, financial stakeholders and MIID personnel	Desk review, interviews with PMU, financial stakeholders and MIID personnel
Are the legal frameworks, policies and governance structures and processes in place for sustaining Project benefits?	MIID governance and administrative processes	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent have development partners committed to providing continuing support? What is the risk that the level of stakeholder ownership will be insufficient to allow for the Project outcomes/benefits to be sustained?	Number of funds set up for post-GEF assistance	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
To what extent does this UNDP intervention have a well-designed and well-planned exit strategy?	Institutional and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel
What could be done to strengthen exit strategies and sustainability in order to support forest villagers?	Institutional and management arrangements of the Project	PIRs and information from PMU and MIID personnel	Desk review, interviews with PMU and MIID personnel

Evaluative Questions	Indicators	Sources	Methodology
Cross-cutting issues and gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment?			
To what extent has the Project contributed to "leave no one behind agenda" (including disabled, elderly, youth, refugees etc.)?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project?	Quality of design to intended results	ProDoc and PIRs	Desk review
Is the gender marker assigned to this project representative of reality?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
To what extent has the project promoted positive changes in gender equality and the empowerment of women? Did any unintended effects emerge for women, men or vulnerable groups?	Number of stakeholders who are able to comment on gender aspects	Stakeholders	Stakeholder interviews
Impact: Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status?			
To what extent has the project provided an enabling environment and basis for deployment of NAMA project installations in urban and rural areas?	Effectiveness and efficiency ratings of the project by the evaluation	PIRs Stakeholders (mainly government personnel)	Desk review, interviews with PMU and stakeholders
To what extent has the project established a sustainable financing mechanism for NAMA projects? To what extent is the financing model piloted by the project replicable and up-scalable for other settings?	Barriers to objectives Opportunities to leverage	PIRs Stakeholders (mainly government personnel)	Desk review, interviews with PMU and stakeholders

APPENDIX H – RESPONSES TO COMMENTS RECEIVED ON DRAFT TE REPORT

To the comments received on 20 February 2024 for the Terminal Evaluation of the NAMA Project

The following comments were provided in track changes to the draft Terminal Evaluation report; they are referenced by institution ("Author" column) and track change comment number ("#" column):

Submitted as a separate file.

APPENDIX I - QUESTIONNAIRE

These questions are designed for Implementing and Project partners:

1. In addressing legal and regulatory barriers prior to the Project, there were NAMA policy and plans in Kazakhstan, which were developed starting in 2007 to 2023, does include several provisions on how subsequent phases of low carbon development (energy efficiency and renewable energy) should proceed in Kazakhstan. How effective has the Project been at the policy level in catalyzing and influencing the market for NAMAs in various cities?

2. In 2015 at the start of the Project, there was little awareness and capacity to develop NAMA projects and structuring of financing for municipal infrastructure in the public and in the private sector. Though many citizens and institutions support the idea of low carbon development in general, many of these stakeholders do not have adequate awareness and education about low carbon technologies and the possibility of low carbon technologies as a preferred consumer choice. What was done to overcome this barrier? Have newsletters and other media informed the general public and potential owners of RE systems of the Project?

3. The strategy to approach the Damu fund for financing to implement low carbon projects under a NAMA framework appears to have paid off. This strategy has overcome a barrier of no attractive financing mechanisms available for stakeholders to obtain financing for low carbon technology projects. With interest rates for commercial borrowing in Kazakhstan in the area of 17-18% per year, financing of NAMA projects is potentially unattractive. How did you overcome the financing barrier?

4. The capacity for building, installing and maintaining NAMA projects in Kazakhstan was low. As a consequence, there was a lack of suppliers, competition and marketing and no adequate maintenance or repair services, making low carbon technologies such as EE boilers and heating systems unviable. How did you and the Project overcome this capacity barrier?

5. Equipment suppliers import products of varying quality levels. There was possibly no systematic quality control mechanism and all kinds of products and systems were brought into the market with an objective of making short-term profits without considering market sustainability. As a consequence, low carbon NAMA projects faced a high risk that acquired systems do not meet the expected performance. Energy standards for different type of products were adopted, but the controls on domestic production and imports were not yet adequately organised. But you appear to have overcome this barrier. Is that correct? How was the quality of low carbon NAMA systems maintained?

6. What were some of the changes that enhanced or impeded Project performance? Were there delays in the delivery of some low carbon technologies and systems? Were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, on-the-ground related?

7. With the PMU in charge of M&E systems, what was the role of MIC, and other government agencies (such as akimats) to help ensure activities and outputs were managed efficiently and effectively?

8. Focusing on what impact the Project had on all stakeholders and NAMA-supported installations, what has been the impact of NAMA projects on Project beneficiaries, namely commercial establishments, residences and the public sector?

9. After the Project ends, what should be the next steps to providing continued support to all stakeholders in their transition to low carbon technologies?

10. Do you see any barriers and risks that may prevent further progress to the long-term impact of market transformation to low carbon technologies and systems in general?

11. Do you see any real change in gender equality in the governance of NAMA project and operations of the NAMA installations in the context of decision-making power, and division of labor?

12. What are the most urgent actions to be taken in view that the Project is ending?

These questions are designed for beneficiary stakeholders:

1. How did you hear about the Kazakhstan NAMA Project? Did you have media to informed you of the Project?

2. What were some of the changes brought about during the switch to low carbon technologies and systems? Were there any positive or negative changes, intended or unintended, and were there delays in the delivery of some of the materials?

3. What were the challenges during the installation of low carbon technologies and systems? Were there delays in the installation of low carbon technologies and systems, and were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, on-the-ground related?

4. With the installation of low carbon technologies and systems in your facility, how has the technology benefitted you? What impact has the new low carbon technologies and systems had on you?

APPENDIX J - EVALUATION CONSULTANT AGREEMENT FORM

Independence entails the ability to evaluate without undue influence or pressure by any party (including the hiring unit) and providing evaluators with free access to information on the evaluation subject. Independence provides legitimacy to and ensures an objective perspective on evaluations. An independent evaluation reduces the potential for conflicts of interest which might arise with self-reported ratings by those involved in the management of the project being evaluated. Independence is one of ten general principles for evaluations (together with internationally agreed principles, goals and targets: utility, credibility, impartiality, ethics, transparency, human rights and gender equality, national evaluation capacities, and professionalism).

Evaluator 1:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[101]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Roland Wong

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Surrey, BC, Canada* on 16 February 2024

[101] www.unevaluation.org/unegcodeofconduct

Evaluator 2:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[102]

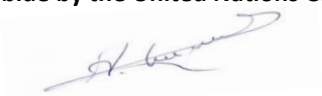
Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: __Askar Kaliyev_____

Name of Consultancy Organization (where relevant)**:** _____

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *Astana, Kazakhstan* on *22 February 2024*



[102]www.unevaluation.org/unegcodeofconduct

APPENDIX K: EVALUATION REPORT CLEARANCE FORM

Terminal Evaluation Report for UNDP-GEF Project: Nationally Appropriate Mitigation Actions for Low-carbon Urban Development (UNDP PIMS ID: 4760) **Reviewed and Cleared By:**

Commissioning Unit (M&E Focal Point)

Name: Dosbol Tursumuratov

Signature: _____ DocuSigned by: Doskol Tursumuratov 5F778BE6736141D... Date: 28-мар-2024

Head of Energy and Environment Unit

Name: Assel Nurbekova

Signature: _____ DocuSigned by: Assel Nurbekova 0FD5303AB938497... Date: 28-Mar-2024

Regional Technical Advisor (Nature, Climate and Energy)

Name: Jana Koperniech

Signature: _____ DocuSigned by: Jana Koperniech ED5C241FBA2C457... Date: 28-Mar-2024