Terminal Evaluation Report for the UNDP-GEF project

"Energy-Efficient Design and Construction of Residential Buildings"

(Project ID#00074950, ATLAS Award ID#00059795, PIMS 4133, GEF ID 3758)

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This report constitutes the terminal evaluation report for the UNDP-GEF Full-Sized Project "Energy-Efficient Design and Construction of Residential Buildings" in the Climate Change Focal Area under GEF-4 Strategic Programme 1.

GEF ID#3758

PIMS ID#4133

Implementing Agency: Agency for Construction and Residential-Communal Affairs of the Republic of Kazakhstan

The terminal evaluation was carried out between September 28 and November 18, 2015, with the final document pending co-financing estimates submitted on December 22, 2015, and the complete document finalized March 31, 2016. It was conducted for the United Nations Development Programme in Kazakhstan by Susan L. Legro, MIA, MPH (International Evaluator) and Zhannat Bekbolatova, MSc. (National Evaluator).

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Abbreviations and Acronyms

APR	(UNDP) Annual Project Report
CDR	Combined Delivery Report
CHP	Combined Heat and Power [generation plant]
CO	Country Office
CoP	Conference of the Parties
CPD	(UN) Country Programme Document
CPAP	(UN) Country Programme Action Plan
DH	District Heating
EE	Energy Efficiency
EC	European Commission
FCCC	Framework Convention on Climate Change
FSP	Full-Size Project
GASK	State Architectural and Construction Oversight Agency (from the Russian acronym Госархстройконтроль)
GEB	Global Environmental Benefit
GEF	Global Environmental Facility
GHG	Greenhouse gas
KazGASA	Kazakh Leading Academy of Architecture and Civil Engineering
M&E	Monitoring & Evaluation
MTE	Mid-Term Evaluation
NEX	National Execution [arrangements], now NIM
NIM	National Implementation [arrangements], formerly NEX
O&M	Operations & Maintenance
OFP	Operational Focal Point
PIR	(GEF) Project Implementation Review
PSC	Project Steering Committee
RBM	Results Based Management
ROAR	Results Oriented Annual Report
RSC	Regional Service Centre
RTA	Regional Technical Advisor
QOR	Quarterly Operational Report
RRF	Results and Resources Framework (logical framework)
TER	Terminal Evaluation Report
ToRs	Terms of Reference
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program

Table of Contents

Executive Summary

Project Summary

Table 1: Project Summary Table

Project Title: Energy-Efficient Design and Construction of Residential Buildings				
GEF Project ID	3758		At Endorsement (USD)	At completion (USD)
UNDP Project ID	4133	GEF Financing	4,568,500	4,568,500
Country	Kazakhstan	IA/EA Own	25,000	40,800
Regional	RBEC	Government[1]	24,850,000	131,400,000
Focal Area	Climate Change	Other[2]	3,020,000	132,270,000
Operational Programme	OP4, SP1	Total Co-Financing	27,895,340	263,710,800
Executing Agency	Agency for Construction and Residential-Communal Affairs of the Republic of Kazakhstan	Total Project Cost	32,463,840	268,279,300
Other Partners Involved	State Committee for Architecture and Construction (now Ministry for National Economy)	ProDoc Signature	Sep. 22, 2010	
		(Operational) Closing Date	Proposed: 1/12/15	Actual:

Project Description

The UNDP project "Energy-Efficient Design and Construction of Residential Buildings" was designed to "increase energy efficiency in new and renovated residential buildings in Kazakhstan, thereby reducing greenhouse gas emissions."[3] The project was developed and submitted for financing from the Global Environmental Facility (GEF) during the 4th Operational Program under the financing window on climate change in Strategic Program SP1: Promoting energy efficiency in residential and commercial buildings. The project was designed to address high energy intensity in a significant economic sector: at the time the project was developed, the residential energy sector was the third largest energy consumer in the country, and building stock in Kazakhstan was two to three times more energy intensive than European countries with similar heating needs. The project had a

[1] Government co-financing in addition to IA co-financing.
[2] In-kind financing.
[3] UNDP-GEF Project Logical Framework.

significant role to play in greenhouse gas emissions as well, because the majority of residential buildings used heat from coal-fired generation.

While the project logical framework was modified slightly as a result of the recommendations in the mid-term evaluation, the four project outcomes remained the same:

1. Improved enforcement and implementation of mandatory building energy codes and rating system;
2. Expansion of markets for energy-efficient products;
3. Education and outreach to promote energy-efficient building design and technology; and
4. Development and demonstration of energy-efficient building projects.

At project inception, resources identified for the project totaled $32,463,840, including a grant from the GEF Trust Fund (USD 4,568,500), UNDP co-financing (USD 25,000), cash and in-kind parallel financing from the Government of Kazakhstan (USD 24,850,340), and parallel financing from other sources (USD 3,020,000).

Evaluation Ratings

Specific ratings as per the terms of reference for the evaluation (see Annex 1) are summarized below:

Table 2: Evaluation Ratings Summary

1. Monitoring and Evaluation	*rating*	2. IA & EA Execution	*rating*
M&E design at entry	MS	Quality of UNDP Implementation – Implementing Agency (IA)	HS
M&E Plan Implementation	HS	Quality of Execution— Executing Agency (EA)	S
Overall Quality of M&E	S	Overall Quality of Implementation/Execution	HS
3. Assessment of Outcomes	*rating*	4. Sustainability	*rating*
Relevance	R	Financial resources	L
Effectiveness	S	Socio-political	L
Efficiency	HS	Institutional framework and governance	L
Overall Project Rating	S	Environmental	L
		Overall likelihood of sustainability	L

The overall rating for the project is **Satisfactory (S)**, as there were only minor shortcomings in the achievement of the project objectives.

The project should be commended for the fact that in several notable areas (Component 1 and Component 3), the project exceeded the expectations and targets established in the resources and results framework. It should also be commended for its timely implementation, given the broad scope of the project and the complex institutional environment, and its ability to leverage significant government and private sector investment in energy-efficient buildings. Finally, it should be noted that there are indications that several pending outputs may be achieved in the near future.

Conclusions, Recommendations, and Lessons

Overall, this project has had a substantial, sustainable effect on energy efficiency in residential buildings in Kazakhstan. The most significant changes due to the project activities to date as reported by those interviewed most frequently included *regulatory and legal changes* influenced by the project, followed by *increased visibility of EE issues*. Good practice in project design included the project's focus on codes and enforcement and the introduction of labeling in the form of building classification. Good practice in implementation included publications targeted towards policy-makers, cooperation with organizations in different parts of Kazakhstan, and regional cooperation. In management, the portfolio approach supported a high level of coordination among UNDP projects in Kazakhstan, while a multi-project regional website allowed information sharing across projects internationally.

Lessons included the following:

- Grants for equipment can increase the difficulty of project implementation significantly
- Commissioning an energy-efficient building is only the beginning; operations and maintenance are also important to energy performance
- Occupants are important and can also affect energy performance
- Designing and constructing a building with efficient features is not enough to ensure significant economic savings when tariffs are subsidized
- Several important barriers to energy savings in buildings are located outside of the construction sector – in the housing and communal services sectors
- Energy performance should eventually address total energy use, not just heat consumption
- Ownership arrangements can affect building energy performance

Recommendations included the following:

- UNDP can play an important role in policy advocacy to improve awareness at the local government level and confront coal-based, energy-intensive policies
- UNDP should advocate for a fixed timetable for building code updates
- UNDP's role in policy advocacy should include the housing sector

- UNDP should take advantage of opportunities to coordinate its work on energy and environment with its work on economic and social well-being.
- UNDP should maintain the valuable data collected on energy performance in buildings and other useful research findings
- UNDP should continue to advocate on behalf of the residents of the pilot building on Yermekova Street in Karagandy
- At the regional level, the project website and its publications and information should be maintained
- At the regional level, operations and maintenance budgets, financing, and institutional arrangements should be explicitly discussed at the project design stage for subsequent EE buildings projects
- Building occupants should be recognized as beneficiaries, and indicators to measure occupant comfort and satisfaction should be considered in subsequent EE buildings projects
- The GEF should consider financial support for post-project monitoring and evaluation in EE buildings projects to gain a better understanding of their impacts

The "Conclusions and Recommendations" section of this report provides a more detailed overview of these findings, good practices, lessons, and specific recommendations.

Introduction

Purpose of the Evaluation

The purpose of the terminal evaluation is defined by UNDP-GEF guidance as follows:

- "To promote accountability and transparency, and to assess and disclose the extent of project accomplishments.
- □□□synthesize lessons that can help to improve the selection, design and implementation of future GEF financed UNDP activities.
- □□□provide feedback on issues that are recur- rent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues.
- □□□contribute to the overall assessment of results in achieving GEF strategic objectives aimed at global environmental benefit.
- □□□gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF) and UNDP Country Programme Action Plan (CPAP) outcomes and outputs."[4]

Scope of the Evaluation

The proposed scope of the evaluation was described in the Terms of Reference provided to the International Consultant. It should be noted that this evaluation reflects a balance between accountability (to the donor and the implementing agency) and learning.

Accountability covers the implementation of project activities and adaptive management by the Project Team and oversight and guidance by UNDP and its National Implementing Partner. The assessment of the achievement of project outcomes and a preliminary assessment of impact will cover the accountability of all of the stakeholders mentioned above and the project design team. Accountability will be *upwards* (to funders) and *downwards* (to intended beneficiaries and communities).

Learning from the evaluation aims to identify good practice or lessons learned that would be relevant for 1) energy and environment interventions in Kazakhstan; and 2) efficient buildings projects in Kazakhstan and in other countries.

Methodology of the Evaluation

The terminal evaluation was a performance assessment conducted according to UNDP standard principles of Results-Based Management (RBM). The performance evaluation

[4] UNDP (2012). *Project-Level Evaluation…*: p. 13.

has been divided into three sections: 1) project concept/design, relevance and strategy; 2) project implementation; 3) project results.

The project document and the logical framework of outputs, targets, indicative activities provided in the current Results and Resources Framework (UNDP 2014) were used as a reference for purposes of analysis of project concept/design. A desk review of additional materials, interviews, and site visits was used to assess performance in other areas. Furthermore, the impacts of the project were studied by reviewing data and assumptions on greenhouse gas emissions reductions attributable to the project.[5]

The terminal evaluation report uses the standard GEF 6-point rating scale to describe project performance for most aspects of project implementation and other ratings scales as requested. Specific examples are used to document the ratings decisions in each category. Proposed ratings and their definitions are summarized below:

Table 3: Overview of Rating Scales

Performance Ratings	
Highly Satisfactory (HS)	The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency
Satisfactory (S)	There were only minor shortcomings
Moderately Satisfactory (MS)	There were moderate shortcomings
Moderately Unsatisfactory (MU)	The project had significant shortcomings
Unsatisfactory (U)	There were major shortcomings in the achievement of project objectives in terms of relevance, effectiveness, or efficiency
Highly Unsatisfactory (HU)	The project had severe shortcomings
Sustainability Ratings	
Likely (L)	Negligible risks to sustainability
Moderately Likely (ML)	Moderate risks
Moderately Unlikely (MU)	Significant risks
Unlikely (U)	Severe risks
Project Relevance Rating	
Relevant (R)	
Not relevant (NR)	
Impact Rating	
Significant (S)	
Minimal (M)	
Negligible (N)	

Quantitative measures have been used when possible (i.e., the Climate Change Tracking Tool). Existing quantitative measurements and estimates of energy consumption were used where available. Due to time and resource constraints, quantitative assessment focused on benchmarking and targeting as opposed to an investigation of whether continuous or discrete changes in energy consumption are statistically significant.

Qualitative measures included a desk review and participatory interviews (with

[5] The scope of this review corresponds to guidance in the ROTI Handbook for a GEB-Threats Analysis (GEF, 2009:9).

individuals and small groups), expert opinion, and self-assessment by stakeholders and other participants. Interview questions are included in Annex 7 of this report. They include factual questions; non-factual questions (e.g. estimates of project influence and relevance); open-ended questions (such as those eliciting information on project results); and close-ended questions (primarily to confirm information from the desk review). Interviews also used the Most Significant Change (MSC) Technique[6] in order to elicit information about the influence and attributes of the project that may not have been captured in the logical framework.

The **evaluation question matrix** is provided in Annex 6 of this report. It states how the evaluators interpreted measures such as relevance, effectiveness, efficiency, sustainability, and impact. It also includes the quantitative indicators selected to represent those measures and the sources used to obtain them.

Quality assurance has been structured into the evaluation process though team consultations during the evaluation process and a documented review process undertaken by the UNDP Country Office and other project stakeholders in Kazakhstan and by the UNDP Regional Technical Adviser at the regional level. In addition, the UNDP Evaluation Office has provided a "TE quality assurance review" that serves as an independent 2nd tier assessment of the project.

Limitations of the terminal evaluation included the following: the evaluation did not include a budget for direct, independent measurement of energy-related indicators; in fact, this would not have been feasible given the budgetary constraints of the evaluation process. However, the evaluators reviewed the procedures used with those involved and felt confident in the measurement approach used by the project team and contractors for monitoring. While the project's energy savings generated significant benefits in terms of air quality, the quantitative estimate of these environmental benefits was not conceived as a part of the evaluation due to limitations in scope. Finally, because of the timing of the evaluation, the project could not review the financial audit for 2015; however, this audit will be commissioned as scheduled in 2016, and the findings will be made available to UNDP.

Structure of the Evaluation

The evaluation was structured as follows:
Desk Review: The initial stage involved the review of project documentation and associated documents (Annex 5.) The documentation was provided by the project team and collected from the Internet.
Mission Preparation: Through correspondence and discussions with the project team, an itinerary for the local mission was proposed and developed.
Interviewees were selected in consultation with the project team starting from their original proposed list as provided in the ToRs. The consultant sought input from a variety of stakeholders, including the PIU, UNDP, national government agencies, and an NGO.

[6] More information available at *http://www.mande.co.uk/docs/MSCGuide.pdf*

A complete list of interview subjects is included in Annex 3. It should be noted that the evaluators did not speak with the GEF Operational Focal Point (OFP), as is customary, only because there is no GEF OFP in Kazakhstan at present.

A set of guiding questions was developed for use in interviews (see Annex 7). These questions were adapted for different stakeholders. In addition to in-country stakeholders, the following international consultants or administrators were interviewed in person: 1) the UNDP RTA based in Istanbul; 2) four International Consultants involved with the project.

Mission: The mission to Kazakhstan lasted from October 27 to November 6, 2015. The itinerary (Annex 2) included interviews with project staff, key stakeholders (individually and in small groups), and a discussion with beneficiaries. Meetings were held in Astana, and site visits were made in Karaganda to four buildings and to one building in the village of Arsanay (summarized in Annex 4 and Annex 10). Additional documentation provided by project participants was also collected during these meetings and the site visit and reviewed.

Following the mission, general findings were presented in a preliminary summary to the project manager via videoconference on November 13, 2015.

Post-mission follow-up: The draft mission report was compiled and submitted to UNDP and project management, and comments on the draft report were solicited from project stakeholders through December 16, 2015.

The Project and its Development Context

Project Start and Duration

The UNDP-GEF project "Energy-Efficient Design and Construction of Residential Buildings" was developed and submitted for financing from the Global Environmental Facility (GEF) during the 4th Operational Program under the financing window on climate change in Strategic Program SP 1: Promoting energy efficiency in residential and commercial buildings.

The overall timeline for the preparation and implementation is described in Table 2.

Table 4: Project Time Line

Milestone	*Expected Date*	*Actual Date*
GEF Pipeline Entry		August 29, 2008
GEF Approval (PIF and PPG)		December 23, 2008
CEO Endorsement		July 8, 2010

Agency Approval Date		September 22, 2010
Implementation Start		September 22, 2010
Implementation Workshop		February 15-16, 2011
Inception Report		May 2011
Midterm Evaluation	April 2013	April-June 2013
Project Completion	December 1, 2015	On schedule
Terminal Evaluation Completion	April-June 2015	September-November 2015 [final report submitted March 2016]
Project Closure	December 2015	

The project duration as planned in the Project Document was for 63 months: from September 2010 to December 2015, and project implementation has proceeded on schedule.

Problems that the Project Sought to Address

The project was designed to address high energy intensity in a significant economic sector: at the time the project was developed, the residential energy sector was the third largest energy consumer in the country, and building stock in Kazakhstan was two to three times more energy intensive than European countries with similar heating needs. The project had a significant role to play in greenhouse gas emissions as well, because the majority of residential buildings used heat from coal-fired generation.

Immediate and Development Objectives of the Project

The development objective of the UNDP project "Energy-Efficient Design and Construction of Residential Buildings" was designed to *"increase energy efficiency in new and renovated residential buildings in Kazakhstan, thereby reducing greenhouse gas emissions."*[7]

The four GEF project outcomes, or immediate objectives, have remained the same over the project implementation period:

1. Improved enforcement and implementation of mandatory building energy codes and rating system;
2. Expansion of markets for energy-efficient products;
3. Education and outreach to promote energy-efficient building design and technology; and

[7] UNDP-GEF Project Logical Framework.

4. Development and demonstration of energy-efficient building projects.

Baseline Indicators Established

The baseline indicators at the GEF outcome level included average heat consumption in new and reconstructed buildings (kJ/m^2 per degree day), CO_2 emission reductions from new and reconstructed buildings during the project period, and CO_2 emission reductions from new and reconstructed buildings during an assumed lifetime of 25 years as per GEF requirements for estimates. GEF output-level indicators are listed under the "Results" section of this report.

The project results and resources framework was modified slightly following the mid-term evaluation in order to reflect some of the recommendations that were made.

Main Stakeholders

Stakeholders identified in the project document included the following organizations: the Kazakhstan Centre on Modernization and Development of Housing and Municipal Infrastructure; the Committee for State Energy Oversight; the State Architectural-Construction Inspectorate (GASK); the Ministry for Environmental Protection (which housed the GEF focal point); the Ministry of Industry and Trade / Ministry of Industry and New Technologies; regional and municipal administrations, particularly in the city of Karagandy; the Kazakhstan State Architecture and Construction Academy (KazGASA); and private construction companies.

Expected Results

At project inception, the expected results were as follows:

Under Outcome 1 (Improved enforcement and implementation of mandatory building energy codes and rating system):

- Output 1.1: Streamlined and strengthened building energy code enforcement leads to universal compliance with existing codes
- Output 1.2: New voluntary national and/or regional standards for energy efficiency and "green buildings" lead to implementation of EE beyond existing code requirements
- Output 1.3: Adopted revisions to national building energy codes and associated official documents include stricter requirements for energy consumption
- Output 1.4: Rating and labeling system for EE in buildings provides clear information to market stakeholders, as well as a technical basis for financial incentives, leading to increased market demand for efficient buildings
- Output 1.5:Energy and GHG monitoring and accounting system supports effective program evaluation and helps shape future national priorities for energy efficiency in buildings

Under Outcome 2 (Expansion of markets for energy-efficient products):

- Output 2.1: Technical standards and certification processes for producers of

energy-efficient building materials and products lead to lower costs, higher quality and performance, and wider availability

- Output 2.2: Labeling with regard to energy performance leads to greater consumer understanding and demand for efficient materials and/or products

Under Outcome 3 (Education and outreach to promote energy-efficient building design and technology):

- Output 3.1: Enhanced training enables building designers to apply international best practices in energy- efficient building design (including integrated building design) and technology
- Output 3.2: Competitions motivate practicing and aspiring building designers to pursue energy-efficient design, and raise collective expertise
- Output 3.3: Workshops prompt building owners, developers, contractors, and construction workers to understand and pursue energy efficiency and effectively market energy performance to buyers and renters

Under Outcome 4 (Development and demonstration of energy-efficient building design):

- Output 4.1: Best practices in energy-efficient building design (including integrated building design) and technology cost-effectively demonstrated in two residential buildings
- Output 4.2: Prototype and demonstration building designs serve as models for replication, leading to further energy savings and transformation of design/construction practice
- Output 4.3: Cost analysis establishes basis for correcting state-stipulated cost ceilings for qualifying EE government-funded buildings

Findings

The following sections provide documentation of various factors that contribute to the ratings provided based on questions proposed in the ToRs for the MTE. When the designation "(R)" follows the review section, a rating is provided.

Project Design/Formulation

Analysis of LFA/Results Framework (Project logic/strategy; Indicators)

Project logic/strategy and indicators are discussed below in the section on M&E Design.

Assumptions and Risks

A risk analysis was provided in the project document (UNDP, 2010: 17). Underlying factors/assumptions also fed into the risk analysis section of the RCE and project document (an assessment of the risks and management responses is provided in the "Risk Management" section below). The mid-term evaluation found that "All key relevant project risks have been properly identified and their mitigation strategy specified. The last risk – formation of new government after elections may compromise priorities between government and the project – did not materialize after the latest presidential elections in 2011 and parliamentary elections in 2012. The government priorities remain unchanged with energy efficiency and increase of low energy tariffs gaining even more prominent important place in the public policy." (UNDP MTE: 23). The following table lists risks and proposed mitigation measures from the project document with a current (2015) assessment of the content.

Table 5: Assessment of Envisioned Risks

Risk	Proposed Mitigation Measure	Assessment
Low energy prices suppress implementation of energy efficiency in buildings -- LOW	UNDP/GEF project on district heating is already working directly on tariff reform for home heating. Some increases in energy tariffs are expected during the project period.	This risk has turned out to be significant: low tariffs have suppressed the market for energy efficiency investments by both condominium and cooperative multi-unit buildings.
Political will for energy codes and other energy-efficiency programs is insufficient –	Stakeholder engagement, as well as clear analysis of cost-effectiveness and feasibility, will be necessary to ensure the legitimacy and political acceptability of new proposed code requirements and related programs.	The project accurately estimated this risk. The labor-intensive work of raising the awareness of stakeholders has been

LOW / MEDIUM		successful among some high-level institutions and among the professional design and audit community, but it has been more challenging with consumers and many local governments.
Institutional capacity to implement expanded code enforcement and rating system is insufficient – MEDIUM	Synergies with existing processes and agency mandates (such as the Committee for State Energy Oversight's existing work on auditing and registering energy-consuming facilities) will be tapped wherever possible. Development of sustainable fee-based financing mechanisms for new enforcement and rating initiatives will be a major priority of the project. Introduction of rating systems may be pursued first in selected regions.	The assessment of this risk was accurate. The project has worked diligently to mitigate this risk, and training and certification of key groups in the design submission and approval process has helped. Rating systems are being piloted in buildings in two regions at present.
Global economic crisis complicates or shuts off financing for construction projects (new residential buildings) -- MEDIUM	Consideration of multiple demonstration project partners provides some assurance that this project component will move ahead even if one or more demonstration buildings encounters financial or other difficulty. Final decisions on demonstration projects will be made in 2010, based primarily on stability of essential co-funding. At least one akimat states that financing is already available even without the State Programme.	The project anticipated this risk, and the approach to mitigation has been effective even for the more recent regional economic slowdown, which has made developers more reluctant to spend money up front for EE measures.

Discussions with project staff and stakeholders indicated that the primary risks to the project were actually **institutional risks**:

- The economic slowdown was identified as a potential risk, but it was thought that the slowdown would hinder construction rather than operations and maintenance, which has turned out to be the case.
- Utility management structures currently create perverse incentives for utilities; i.e., they have an incentive to sell as much heat and electricity as they can. This obviously creates disincentives for savings, as it removes any stimulus on the part of the utilities to become involved in demand-side management.
- Municipal budgeting structures are such that money saved on fuel bills in city-owned residential buildings or facilities does not accrue to those sites.
- Lack of clarity in the housing law has meant that there may be no financing for buildings operations and maintenance service, even in city-owned residential buildings.

The project has used a strategy of policy advocacy (meetings and publications) to try to lessen these risks, and they have been taken into consideration in the design of subsequent UNDP-GEF projects in Kazakhstan.

Lessons from other relevant projects (e.g., same focal area) incorporated into project design

The project design incorporated elements from UNDP-GEF projects in the region that focused on energy efficiency in buildings, such as the UNDP-GEF project in the Czech Republic 2000-2006 and the UNDP-GEF project in Armenia 2010-present. Specifically, it included design competitions for students and practicing architects, which was a feature introduced in the Czech project; and it proposed incremental financing for pilot residential buildings that were constructed under government programs, as in the Armenian project. As the Mid-Term Evaluation also noted, "The project builds upon previous work conducted by the Institute for Market Transformation (IMT), a US NGO, that focused on strengthening energy efficiency in the building sector. IMT prepared and delivered a model building code that was used as the basis for the 2004 thermal code in Kazakhstan." (UNDP: MTE: 23). Finally, it should be noted that project implementation has coincided with a series of efficient buildings projects that became the UNDP-led GEF Global Framework for Promoting Low Carbon Buildings. This framework has drawn upon the project's emphasis on building codes and standards, and relevant low carbon buildings projects in the region have since included those in Armenia, Kyrgyzstan, the Russian Federation, Turkmenistan, Turkey, and Uzbekistan.

Planned Stakeholder Participation

Active stakeholder participation was anticipated in the project design, and project activities specifically addressed mechanisms to provide information to stakeholders (e.g. labeling in Component 3). Relevant country representatives from government and civil society were involved in project implementation and were proposed as part of the project steering committee; in addition, the project involved key ministries and agencies involved in different aspects of the project's cross-cutting goals (energy, building design, building construction, greenhouse gas emissions reductions, and others).

Replication approach

The strategy behind the replication approach of the project was multi-pronged, and it included the following elements:

1) The strengthened building codes would replicate increased thermal performance in buildings nationally;
2) The use of co-financing from government residential construction programs (specifically the 2011-2020 State Program on Modernization of Housing and Municipal Infrastructure, which was budgeted at USD 5.8 billion) would allow additional buildings to adopt techniques used in the pilot building; and
3) Training for design professionals, who would in turn design more efficient buildings.

UNDP comparative advantage

While UNDP's comparative advantage was not specifically mentioned in the initial proposal presented to the GEF (UNDP PIF, 2008), its experience in implementing the GEF full-sized project "Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply" and the networks formed with stakeholders in the area of energy efficiency represented an important advantage.

Linkages between project and other interventions within the sector

In addition to the "Removing Barriers…" project noted above, the proposed project drew upon experiences with another UNDP-GEF full-sized project, "Wind Power Market Development Initiative," particularly regarding the drafting of the proposed Law on Energy Efficiency. The Project Document also proposed cooperation with the UNDP-GEF project on efficient lighting.

Management Arrangements

The project was designed for national execution by UNDP (NIM, formerly NEX). The National Implementing Partner selected was the Agency for Construction and Residential-Communal Affairs, which has since become the Construction, Communal Services, and Land Resources Management Committee of the Ministry of National Economy. The partner was highly appropriate both due to its role in construction and building codes, and because of its overview of construction initiatives, which was helpful in the selection of sites for the pilot buildings.

A project manager was appointed to oversee a project/financial assistant and two full-time specialists working on the components of the project.[8] Project roles were in line with UNDP programming guidelines and with the terms of reference in the project document.

Sustainability

The project documentation does not mention activities or approaches to the project's sustainability explicitly in the PIF or project document. However, it does refer to environmental and resource sustainability, and it tasks the National Project Director with ensuring the sustainability of the results in the corresponding Terms of Reference.

Summary – Project Design

In summary, the project design seemed mostly appropriate to national circumstances, and the proposed staffing, activities, budget, and duration were suitable for the outputs it was designed to achieve and the outcomes to which it was designed to contribute. However, it

[8] At present, the project staff is following: Project Manager, Project Expert on Energy Efficiency, Project Procurement Specialist, Project Assistant, Project Driver.

underestimated the risks of low tariffs on the motivation of investors and the profitability of the investments in energy efficiency.

Project Implementation

The project's self-assessed rating as stated in the Annual Progress Review / Project Implementation Review for 2015 was "Satisfactory." Observations that follow draw upon the desk review and interviews.

Project's Adaptive Management

The project's management had to deal with several conditions at the national level that could have threatened the achievement of project outcomes: 1) Organizational restructuring; 2) A lack of housing and communal services policy reform; and 3) A lack of major reforms in the area of tariffs and subsidies for fossil fuels. At the same time, several complementary initiatives have emerged on the international and national level since the project started, such as the UN Decade of Sustainable Energy for All and the development of a corresponding Concept of Transition to a Green Economy and the selection of the theme of "future energy" for EXPO-2017 in Kazakhstan, which will serve as the country's contribution to global SE4ALL initiatives. Kazakhstan has also continued to submit National Communications to the UNFCCC and submitted a Biennial Update Report on GHG inventories in December 2014 and a summary of its Intended Nationally-Determined Contribution (INDC) in September 2015.

Partnership arrangements

Primary stakeholders at present are presented in the table below.

Table 6: Stakeholder Overview

Type	Stakeholders
National Government	The Construction, Communal Services, and Land Resources Management Committee of the Ministry of National Economy*
	Kazakhstan Centre on Modernization and Development of Housing and Municipal Infrastructure*
	The Construction Committee of the Ministry of Regional Development*
	The Industrial Development and Industrial Safety Committee of the Ministry of Investment and Development*
	Climate Change Department of the Ministry of Energy*
	The Technical Regulation and Metrology Committee of the Ministry of Industry and New Technologies*
Other Government	Regional Administration for the Karaganda Region

	Local Administration for the Karaganda Region
Private Sector	Ergonomika
	San Gobain
	Local Developers
	Equipment Suppliers (e.g. Danfoss)
Academic and Research Institutions	T.O.O. NIITEP (Housing Institute)*
Civil Society	Pro Eco (Karaganda) – NGO
	Green Academy (Arnasay) – NGO
	National Communal Services Chamber*
	Kazakhstan Association of Natural Resource Users for Sustainable Development*

* Denotes a member of the Project Steering Committee

It is important to note the following changes in stakeholders:

- The National Project Director's department has changed agencies from the Agency for Construction and Residential-Communal Affairs_to the Construction, Communal Services, and Land Resources Management Committee of the Ministry of National Economy.
- The Ministry of Environment, which was originally included on the Project Steering Committee, was abolished and merged into two other ministries: the Ministry of Energy and the Ministry of Agriculture.
- Stakeholders related to the construction and ownership of the new pilot building shifted, because the Ministry of Employment, which received funding for the building under the Employment 2020 state program, transferred ownership to the city administration in Karaganda.

Fortunately, Project Steering Committee representatives tended to stay on the Committee even when their titles and institutional affiliations changed. In this way, the project maintained more continuity in leadership than there would have been otherwise.

In broader stakeholder groups, the project has cooperated with complementary initiatives as they have emerged. For example, they have provided support for non-profit initiatives, such as Pro Eco, which runs an energy efficiency information center geared towards the building sector, and to the Green Academy in Arsanay, which focuses on sustainable energy solutions for rural areas. The project has also leveraged expertise and networks from other UNDP-GEF projects, such as the previous project focusing on district heating, the efficient lighting project (which is still underway), and the sustainable cities project (which is starting implementation). It now also has links with the EU Covenant of Mayors program, which is now active in 9 municipalities in Kazakhstan, and with private companies such as Danfoss, which sponsored an energy-efficient buildings prize within this project's series of competitions.

Feedback from M&E Activities used for adaptive management

The independent Mid-Term Evaluation provided several recommendations regarding project implementation (UNDP MTE, 2013: 53-54):

- "Develop a methodology of data collection for monitoring of energy performance and energy and GHG emission savings, and for measuring compliance rate on newly constructed and newly reconstructed residential buildings with energy efficiency legislation and building codes"
- "Consider energy efficiency measures that decrease need for air-conditioning in a design of a prototype building"
- "Disseminate information on best construction practices of installation of energy efficiency materials and construction details"
- "Consider potential decoupling of energy performance requirements for newly designed and reconstructed buildings…The next revision of the building code should also take into account availability, price and energy performance of individual construction materials and products, and strengthen required energy performance values individually for specific construction structures. An example could be for instance more strengthened energy efficiency requirements for windows relatively to roofs and walls."
- "Consider translation of Bulgarian UNDP/GEF supported books on green architecture and energy efficient buildings"

The management response to these recommendations was thorough and was fully documented in the management response log. In fact, there was only one instance in which the project did not take steps to pursue the recommendation: in the case of the recommendation that separate requirements should be considered for new buildings and retrofits of existing buildings, the Project Steering Committee did not accept the recommendation. Its reasoning was that such a step would not be possible, as it would contradict the Law on Architecture and Design.

Project Finance

At project inception, resources identified for the project totaled $32,463,840, including a grant from the GEF Trust Fund (USD 4,568,500), UNDP co-financing (USD 25,000), cash and in-kind parallel financing from the Government of Kazakhstan (USD 24,850,340), and parallel financing from other sources (USD 3,020,000).

Financial oversight of the project is provided by UNDP under NIM (formerly NEX) project execution arrangements, and it has been conducted according to the language in the project document. CDRs appear to have been prepared thoroughly, on a timely basis, and in a manner consistent with regulations on financial reporting. Annual audits have been conducted according to UNDP regulations (note that UNDP did not conduct an annual audit for 2014, because the project expenditures were less than $600,000). The GEF grant funds and UNDP funds are monitored through UNDP's financial reporting system.

According to CDRs for the project, of the $4,568,500 from GEF, approximately $4,089,481[9] has been disbursed as of December 31, 2014.

- $39,372.34 was spent during the period Jan-Dec 2010
- $433,515.89 was spent during the period Jan-Dec 2011
- $1,023,044.36 was spent during the period Jan-Dec 2012
- $2,111,354.00 was spent during the period Jan-Dec 2013
- $482,194.15 was spent during the period Jan-Dec 2014

The project disbursed its remaining GEF grant funds by the end of the UNDP fiscal year (December 2015). Expenditures for 2015 were reported after the books are closed (mid-December), and an audit will be conducted in 2016.

Co-financing: The Project Document stated that there would be co-financing in the amount of $28,850,340 in parallel financing from the Government and $3,020,000 in in-kind financing from other sources. Co-financing committed by UNDP at project inception was $25,000,

The project estimated the amount of co-financing (parallel financing and in-kind financing) at its mid-point, and the overview of this co-financing is provided in a table in Annex 1 on page 61. Final estimates of project co-financing are **$131,400,000** in parallel financing from the government and **$132,270,000** in in-kind financing from other sources. The parallel financing is more than four times greater than originally anticipated, and in-kind financing—which includes private sector participation—is more than 40 times greater than originally expected. Table 7 below provides an overview of planned and actual co-financing by source.

Table 7: Project Co-Financing, Planned vs. Actual (million USD)

Type of Co-financing	IA		Gov		Other		Total	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	0.025	0.04	24.85	124.76	3.02	127.61	27.895	252.41
Loans/ Concessional (compared to market rate)								
Credits								
Equity investments				5.94		4.2		10.14
In-kind support						0.46		0.46
Other				0.7				0.7
Total	0.025	0.04	24.85	131.4	3.02	132.27	27.895	263.71

[9] This figure may include a small amount of UNDP co-financing (i.e., less than 1%), and it includes government co-financing of $168,504.31 provided during 2013.

Monitoring & evaluation: design at entry and implementation (R):

M&E Design at Entry

The Project Document included a standard itemized Monitoring and Evaluation Plan (UNDP, 2008: 40). The amount budgeted for monitoring and evaluation was $168,500, or 3.7% of the total GEF grant.

In addition to standard monitoring and evaluation activities, the project design included specific activities related to monitoring energy consumption in the pilot buildings involved in the project under Output 4.1 (UNDP, 2008: 2). In addition, Output 1.6 as described in the project document covered "Development and implementation of a system for monitoring and accounting of energy use and GHG emissions from buildings" (UNDP-RK, 2010: 7). As noted in the Mid-Term Review, the indicators in the project resources and results framework did not meet the specification of SMART indicators[10] in the sense that not all proposed indicators were time-bound and/or measurable. Note: this issue was addressed following the mid-term evaluation, when the resources and results framework was modified.

The MTE recommended that: "GHG emission reduction target should be updated to reflect realistic volumes of expected new construction and reconstruction during the project period, realistic compliance rates (and thus GHG savings) of newly constructed buildings and of reconstructed buildings in each year of project implementation, and combined energy efficiency/total energy losses of the whole district heating system from heat content of fuel burned in boilers to end-use energy consumed." (MTE, 2013: 22) This recommendation was followed, and new baselines and project estimates were calculated.

Rating for M&E Design at Entry:

HS	S	MS	MU	U	HU
		MS			

M&E Plan Implementation

The RRF and M&E plan in the project document appear to have served as a source of baselines and annual targets for the project. The project adhered to UNDP/GEF project monitoring and evaluation procedures, which included Quarterly Progress Reports, Annual Project Annual Reviews (APRs), and annual Project Implementation Reports (PIRs). The project is also subject to regular monthly review of the UNDP country office, and has been supervised practically on a daily basis by the UNDP CO Portfolio Manager, Energy and Environment Unit, and then on a regular basis by the Head of the Energy and Environment Department

[10] (**S**pecific, **M**easureable, **A**chievable, **R**elevant, **T**ime-bound)

A summary of annual implemented project activities were regularly reported to and approved by the Steering Committee, and meetings of the Steering Committee have been held at least twice a year. Members of the Steering Committee who were interviewed stated that they felt sufficiently informed about the project's progress and activities.

The project was subject to financial audits in 2011, 2012, and 2013. All financial audits had "no comments or observations" and provided overall satisfactory ratings.

Rating for M&E Plan Implementation:

HS	S	MS	MU	U	HU
HS					

Overall quality of M&E

In the area of performance monitoring, the project has been fully compliant with UNDP and GEF guidelines. In the area of impact monitoring, in spite of the need to re-visit the GHG estimates for the baseline and project scenarios at the project mid-point, the project has done an admirable job of attempting to keep estimates in line with the current understanding of code compliance, climate conditions, energy performance of new and existing buildings, and phenomena such as underheating, which can affect these estimates.

Rating for Overall Quality of M&E:

HS	S	MS	MU	U	HU
	S				

UNDP and Implementing Partner implementation/execution (R), coordination, and operational issues

Quality of UNDP Implementation – Implementing Agency (IA)

Arrangements: The only significant development in this area since the mid-term evaluation has been the shift to a portfolio management approach in 2014. The approach seems to benefit both the existing project and others in the portfolio, as it is possible to coordinate efforts more easily.

Alignment: There also seems to be a high level of alignment between the project and UNDP in-country objectives as stated in planning documents. In the UNDP Country Programme Action Plan (CPAP), Agency Outcome 2 is as follows: "UNDP 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."

Quality of Management: Statements from stakeholders made to the project evaluation team were unanimously positive, describing the project managers as "to-the-point, effective, high-level," and saying that they "made complicated things simple" and that it "was clear that they [the project managers] love their work."[11]

Reporting: UNDP Kazakhstan has created a reporting system in Atlas as per the M&E plan in the project document, and it is updated regularly on the basis of the QPRs (Atlas, accessed 5 November 2015). Lessons learned have been documented in the APR/PIRs submitted to UNDP GEF. The Project Steering Committee has met annually, and a working group was established to oversee the pilot building selection – this group met in addition to the regular PSC meetings. The PSC members interviewed all said that they were satisfied with the flow of information and level of communication. As one noted, "I always knew what was going on."

Delays: There have not been any major delays that have affected the project's progress towards its objectives.

Rating for Quality of UNDP Implementation – Implementing Agency (IA)

HS	S	MS	MU	U	HU
HS					

Quality of Execution – Executing Agency

Good partnership with the government executing agency (EA) was described by one former project team member interviewed as "the most important." The national base of the EA was seen as a comparative advantage for advancing policies and activities at both the national and subnational levels. Participation in the Project Steering Committee by a core group of experts, based on a review of the minutes, seems to have been consistent, while participation by agencies has been varied due primarily to institutional changes.

While the compartmentalization of EE issues within a variety of government institutions and overlapping or incomplete mandates created some difficulties in coordination at times, the project attempted to mitigate the issue by having broad representation on the Project Steering Committee and by preparing a variety of outreach materials for decision-makers.

Rating for Quality of Execution -- EA

HS	S	MS	MU	U	HU
	S				

[11] Interview notes from mission, October-November 2015.

Overall Quality of Implementation / Execution

Overall, the high level of day-to-day management in the project and its ability to adhere to timetables in spite of a very complex project and institutional environment were notable. The project team did a highly-commendable job of coordinating with the National Implementing Partner in order to comply with both government and UNDP tendering and procurement regulations for equipment and services related to the pilot buildings. Furthermore, the project managed to finish on time in spite of these complexities, and its ability to start promptly and finish on time is very unusual for a GEF-funded UNDP project of this type in the climate change mitigation portfolio.

HS	S	MS	MU	U	HU
HS					

Project Results

Overall results (attainment of objectives) (R)

The following section summarizes project performance by component by looking at four measures: 1) general progress from the baseline provided in the RRF; 2) progress relative to targets set for the second half of project implementation following the mid-term evaluation; 3) evidence of relevance, effectiveness and efficiency; and 4) feedback from stakeholders. It is *not* designed to serve as a comprehensive listing of project results and achievements. These results and achievements have been very thoroughly documented at lengthen in both the annual Project Implementation Reports (UNDP PIRs, 2012-2015) and in the publication on project results drafted by an international consultant (Chao, 2015).

Table 9: Overview of the Achievement of Project-Level Outcomes

Objective/ Outcome	*2010 Baseline*	*2015 End of Project Target*	*2015 End of Project Status*	*Reviewer Comments*	*Rating*
PROJECT OBJECTIVE Increase energy efficiency in new and renovated residential buildings, thereby reducing greenhouse gas emissions	Average thermal energy consumption for space heating: 140 kJ/m^2/°C.day for existing building stock, and 110 kJ/m^2/°C.day for new and renovated buildings complying with the current code	Average thermal energy consumption for space heating reduced to 80 kJ/m^2/°C.day for new and renovated buildings	Based on stricter thermal requirements proposed by the Project and established in newly adopted four Energy Efficiency Building Codes. Average thermal energy consumption for space heating will decrease by 50% to 70 kJ/m^2/ °C.day for new and renovated buildings	These codes took effect on January 1, 2015.	HS
	25.5 million tonnes of CO_2 emitted during 2010-2015 by buildings newly built or renovated during this period	23.5 million tonnes of CO_2 emitted during 2010-2015 by buildings newly built or renovated during this period (2 million tonnes less than baseline)	Savings during the project implementation period attributable to the project as estimated in 2015 totaled 2.068 million CO_2 .	See analysis in the "Impacts" section below. Annex 9 contains the assumptions behind this estimate.	HS
	186 million	GHG reductions	Savings during a 25-year	See analysis in	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
	tonnes of CO_2 emitted from energy use in these buildings over a 25-year lifetime	will total 22 million tonnes less than the estimated baseline	lifetime attributable to the project as estimated in 2015 will total 23.9 million CO_2 .	the "Impacts" section below. Annex 9 contains the assumptions behind this estimate.	

Table 10: Summary of Ratings for the Achievement of Outcomes under Component 1

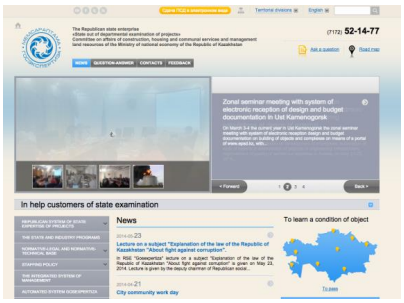
Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
1.1	Baseline compliance rate has not been formally documented; various national experts state that noncompliance is widespread at the construction stage	1.1 Documented and statistically verified compliance by new buildings, starting in 2012. Whole-building energy consumption targets of 2004 thermal-performance code, supported by field inspection and measurements as well as design data.	Design and construction oversight have been shifted to the central government, large-scale enforcement checks have been undertaken, and the licensing exam for inspectors has become more rigorous (e.g. less than a 50% pass rate for those taking the	The project has thoroughly fulfilled this output and has established good practices that can serve as a model in other countries.	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			exam).		
1.2	No voluntary standards for energy performance beyond existing code requirements exist in Kazakhstan	1.2 Embodying super-efficient energy performance across various end uses At least three A-class buildings designed or constructed according to the voluntary standard by the end of the project	Three A-class buildings have been constructed and certified: 1) Kamennyi Dom, a residential complex in Karaganda (53/2 Yerzhanova St.); 2) The project pilot residential building at Yermekova 126; and 3) The Ergonomika office building in Karaganda (57/2 Krivoguza St.).		HS
1.3	Average energy performance requirements for space heating and ventilation according to SN RK 2.04-21-2004* - 141 kWh/m^2.year for a 5-floor residential building	1.3 Average energy performance requirements for space heating and ventilation according to the newly adopted building code SN RK 2.04-04-2011 are nominally 4% higher - 136 kWh/m^2.year for a 5-floor residential building	Codes with new mandatory stricter thermal performance requirements for new and renovated buildings were adopted with support from the	The new codes fully meet the target requirements.	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			project that will result in reduction of thermal energy consumption by 50%, or to an estimated average of 70 kJ/m^2/°C.day.		
1.4	Energy Passport rating system for buildings is established only on a recommendatory basis by the 2004 code. In practice, this rating system and associated building labels are not being applied	1.4 Energy Passport rating and labeling system established and applied widely to new and existing buildings in the selected regions primarily and ultimately expanding to a mandatory nationwide basis	Legislation regarding the passport rating system was developed by the project, and on November 13, 2015 has been adopted by the government.	While the system has not been applied yet, it is now mandatory on a nationwide basis.	S
1.5	General data about energy consumption in housing sector can be extrapolated from centralized energy supply statistics, but there exists no methodologically uniform system for	Official procedures for GHG monitoring and accounting in buildings is developed and applied (based for example on the Energy Passport system of newly re/constructed buildings and on energy audits and metered district heat supply in	Procedures for GHG monitoring and accounting in buildings have been developed for the City of Astana, and they will be given to the District	The system has now been transferred to the heating company, and its application will depend upon their initiative.	HS

Objective/ Outcome	*2010 Baseline*	*2015 End of Project Target*	*2015 End of Project Status*	*Reviewer Comments*	*Rating*
	compiling data on energy use by individual buildings, nor on the effects of energy efficiency measures, a fortiori nor statistics for GHG monitoring from this sector	buildings where available). 90% of newly constructed buildings and 90% of newly reconstructed buildings subject to Energy Passport system in the following 5 years	Heating T&D Company) All new and newly reconstructed buildings will be subject to the energy passport system as targeted.	 This very important target has been met but will not generate results prior to the conclusion of the project.	

Notes: In interviews, project stakeholders repeatedly identified this component as the one with the greatest impact on the EE buildings sector in Kazakhstan. The results in this area stemmed from two factors: 1) Stronger codes (Component 1.3); and 2) Improved capacity to implement the codes (Component 1.1). As pictured below, the government inspection agency now supports a centralized test for design and technical oversight in the buildings sector (mid-section entitled "In help customers of state examination"). The pass rate of less than 50% for the initial exam gives an indication of the strengthening of requirements.



Activities related to building classification, labeling (shown in the photos below), and standards, all an integral part of Component 1, are expected to achieve widespread results in the near to medium term following project closure.

Photo on Left: Unveiling an energy label for a new, award-winning efficient residential building in Karagandy
Photo on Right: An "A" rating label for a commercial building in Karagandy

Table 11: Summary of Ratings for the Achievement of Outcomes under Component 2

Objective/ Outcome	*2010 Baseline*	*2015 End of Project Target*	*2015 End of Project Status*	*Reviewer Comments*	*Rating*
2.1	Energy efficiency certification and labeling of products\materials is deficient or absent	Labeling system established and applied based on new standards and/or other enhanced procedures.	Labeling system has been designed, and the project has supported the drafting of a special decree that would be issued by the Ministry of Regional Development on window labeling, which is pending approval. The updated version of the Law on Energy Saving, which also addresses this topic, is expected by the end of December 2015, although there is a small risk that the Parliament will not have time to pass it due to its	There is a high probability that the first target for this project outcome will be met; unfortunately, it will not be met before the project closes. Due to institutional forces beyond the project's control, the decree that has been prepared (and the legislation that would also address labeling) have not yet been passed by the government, although they are scheduled to be approved by the end of the 2015 calendar year. Were the project to remain open for	MU

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			current workload.	another six months, it is very likely that this target would be met.	
		25% of customers are aware of and understand EE labels. 10% of customers take EE label information into account in their purchasing decisions	Awareness has not been surveyed, as the labeling has not yet been introduced, although the project has produced and published a special booklet entitled "How to choose energy-efficient windows?" which includes a detailed explanation of the existing classification and labeling of windows.		

Notes: Component 2 provides a good example of the adaptive management of the project. The project team tried several ways of developing standards for windows design, and when it met obstacles, such as the refusal of Customs Union to develop standards for window designs, it pursued different approaches (in this case, an amendment to the Law on Energy Efficiency and a governmental decree. The project team also took the extra steps to follow up on an issue identified by the mid-term evaluation (the lack of standards for brands of façade paints that were being marketed as having energy-saving properties). The team prepared a report for the

government on this issue. Finally, the team has developed a guide to windows for builders and consumers that brings information about window performance directly to end-users (see photo below).

While the project has not met its target, it is important to note that it is very likely to do so in the next 30-60 days. As in other components, the project would be well served by ex-post monitoring of these results.

Table 12: Summary of Ratings for the Achievement of Outcomes under Component 3

Objective/ Outcome	*2010 Baseline*	*2015 End of Project Target*	*2015 End of Project Status*	*Reviewer Comments*	*Rating*
3.1	Architects and engineers have high technical capabilities and receive some training on energy efficiency, but there is a lack of key information on international best practices, as well as on social, economic, and environmental benefits	Enhanced courses on energy efficiency included as a standard part of building-design curricula, delivered to at least 350 building design professionals by the end of the project. International study tour completed for 10-12 participants	To date, 2034 building design and review professionals and students studying architecture and construction have taken part in 34 national and regional workshops and seminars conducted by the	The project has significantly exceeded its end of project targets. Furthermore, the introduction of a course of study in energy-efficient buildings under the "Construction" concentration	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			project.	means that training and education will continue without interruption following project closure.	
3.2	Motivation to pursue energy-efficient building design is largely driven by market demand. There are no contests or other mechanisms within the design community to stimulate such motivation	At least two competitions during the project period on energy-efficient building design, attracting 50 participants	To date, several competitions have been held for efficient designs, and three of the finalists from Kazakhstan have competed internationally in the San Gobain "Multi-Comfort House" competition[12]. Other in-country awards have now been instituted for practicing architects, and one of the	The project has substantially exceeded its targets under this output.	HS

[12] Now known as the Isover Comfort House International Competition.

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			efficient building awards is now sponsored by Danfoss. In addition, the Green Building Council, which was founded with project support, has established Green Awards.		
3.3	Building owners have little interest in construction of energy effective buildings, a primary importance is given to appearance, conveniences and cost reduction	At least in three regions of the country (with the most dynamically developed construction sector) the building owners, project customers and developers, construction companies *trained and interested* to implement energy efficiency in building re/construction.	*Training:* this has been provided through the establishment of EE Centers with project support in three regions (Astana, Pavlodar, and Kostanay) and for a not-for-profit organization (Pro Eco) in Karaganda. *Interest:* An	The project has exceeded the end-of-project targets for this output significantly, as it has met the targets for interest and design and is now witnessing the actual construction of buildings on the basis of its work.	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			association of 14 companies that manufacture structural construction panels across Kazakhstan has been formed to promote high-efficiency panel construction. *Interest:* the research institute working with the manufacturers reports that nine efficient buildings have been designed for developers in different regions on the basis of the prototype design, and two developers have communicated their intention to build according		

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			to these models to the project. *Implementation:* Two buildings (one in Karaganda and one in Atyrau) are currently being constructed using the new, more-efficient prototype designs.		
		Practical manuals - guides/videos on appropriate practices of energy efficiency installations\\\\technologies\\\\\equipment published, at least 400 practitioners trained	Practical manuals were published, and training numbers for practitioners were met.		

Notes: Component 3 was rated highly by participating stakeholders who were interviewed. As one stated, the information provided was "like gold" to both students and faculty who participated in seminars and received materials. The partnership with KazGASA was a very effective one due to the institution's close relationship with other tertiary educational institutions in other regions of

Kazakhstan providing professional training in buildings design and construction. The involvement of not-for-profit organizations in training, such as Pro Eco in Karagandy (see one of their training sessions for practitioners below),[13] also appeared to work well.

Table 13: Summary of Ratings for the Achievement of Outcomes under Component 4

Objective/ Outcome	*2010 Baseline*	*2015 End of Project Target*	*2015 End of Project Status*	*Reviewer Comments*	*Rating*
4.1	New residential buildings in Kazakhstan do not embody international best practices or technology	New energy-efficient residential buildings newly re/constructed by the third and fourth years of the project (2013 and 2014).	A new, EE residential building on Yermekova St. in Karagandy has been constructed, and an existing building on	Both targets as stated in the RRF have been met. *It should be noted that energy performance and cost savings to occupants in the	HS*

[13] Photo credit: Pro Eco

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			Mustafina St., also in Kargandy, has been reconstructed.	new building are currently constrained -- see Annex 10 for an explanation.	
		Energy performance and cost-effectiveness of both buildings documented by end of project	Energy performance has been documented for both buildings.		
4.2	Standard building designs are efficient only to the minimum extent required by code, and do not embody international best practices	Information on prototype building design disseminated to design institutes, regional administrations, development institutions and Agency (Committee) for Construction and Residential-Communal Affairs Plans, including budgets and initial building designs, established for 20 buildings based on prototypes and demonstration projects	At present, 9 building designs have been adapted on the basis of more-efficient structural insulated panels. Letters have been received from two developers indicating that they intend to use these prototypes in coming designs.	While the 20-building target has not yet been achieved, it appears that it is highly likely to be reached in the near term.	MS
4.3	Existing ceiling cost	Formal recommendations on	Formal	The cost increase	HS

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
	per one m^2 of new government-funded housing is about $400. There are no exceptions. It is difficult or impossible to design EE buildings under this cost ceiling	raising cost ceiling per one m^2 of new government-funded housing submitted to Agency for Construction and Residential-Communal Affairs and regional administrations	recommen-dations prepared by the project were submitted to Agency.	will allow designers to cover some increased up-front costs in more efficient buildings while lowering operating costs.	
		Cost ceiling per one m^2 of new government-funded housing raised, what is a major mechanism for government financing of energy-efficient residential construction	In 2014, a government decree amended the Affordable Housing Program to increase allowable construction costs of social housing by 5-10% (i.e. from $495/$m^2$ to $550/$m^2$) in all regions of the country except the two largest cities, and a new government housing program		

Objective/ Outcome	2010 Baseline	2015 End of Project Target	2015 End of Project Status	Reviewer Comments	Rating
			will increase these ceilings further.		

Effectiveness Rating by Project Component

Project Component	Rating					
	HS	**S**	**MS**	**MU**	**U**	**HU**
Component 1	HS					
Component 2				MU		
Component 3	HS					
Component 4		S				

Overall Effectiveness Rating:

HS	S	MS	MU	U	HU
	S				

Relevance (R)

Stakeholders interviewed unanimously agreed that the project was highly relevant to Kazakhstan at present. In fact, one of the changes attributed to the project by those interviewed was the treatment of energy efficiency more broadly as a "hot topic" at the highest levels of government. While the project provided specific advice and support to the updated building codes and improvements in energy efficiency legislation, it improved visibility of an issue that is now relevant to the country's participation in the "Sustainable Energy for All" global initiative and its focus on "Future Energy" for Expo-2017, which will be held in Astana.

The project has also been highly relevant to UNDP activities in Kazakhstan. Agency Outcome 2 of the UNDP Country Programme Action Plan (CPAP), is now as follows: "UNDP 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." In the UNDAF, UNDP is tasked with "support in developing policies for mitigating the effects of climate change" under Output 2.1

Furthermore, UNDP Kazakhstan is also following up on many of the issues addressed by this project in a new UNDP-GEF project.[14] Several of the participating cities in the new project formed relationships with UNDP through this project and a prior project that addressed municipal heat supply.

Rating for project relevance (relevant / not relevant)

[14] GEF ID#5059: "Nationally Appropriate Mitigation Actions for Low-Carbon Development."

R	NR
R	

Efficiency (R)

While the project budget was larger than other EE buildings projects in Europe and Central Asia, Kazakhstan had the largest geographic reach and greatest climate diversity of the projects in the portfolio. The project's national mandate on training and education meant that its resources were spread broadly across the country. It also leveraged resources and support from national and regional groups, particularly post-secondary educational institutions and new civil society organizations ranging from energy efficiency centers to professional chambers and associations.

The efficiency of the financial management of the project was evidenced by its ability to meet all of the procurement needs for the investment projects as envisioned in the original project document and also to support the initiatives mentioned above. UNDP and the National Implementing Partner worked closely and intensively together (as attested by both parties in interviews) in order to ensure that the highly complex process of tendering and procurement for the pilot buildings complied with both the existing government regulations for Kazakhstan and UNDP procedures. Relevant norms and standards at the national and international level were met during project implementation, and the equipment and procedures used adhered to good practice in the field of buildings efficiency and regulations regarding construction and performance.

HS	S	MS	MU	U	HU
HS					

Country Ownership

Governmental, civil society and business groups have been actively involved in project identification, planning, and implementation. On the policy level, the government has has approved policies and modified regulatory frame works in line with the project's objectives. In addition, the government has maintained its financial commitment to the project, and the private sector representatives have actual and planned investments according good practices introduced by the project. The government has also expressed its intent to continue professional training through technical universities in energy-efficient design and construction.

Mainstreaming

There are several points of convergence between UNDP environment-related and other development programming, particularly economic well-being and job creation. These points are addressed in the Recommendations section of this report. As noted above, there is a high degree of alignment between the project and country programming, as

climate change mitigation is a focus under Agency Outcome 2 of the UNDAF for 2010-2015.[15] By strengthening the capacity of the government to license and oversee the design review process for buildings, the project has directly supported good governance.

Resilience: In general, buildings built to a higher thermal performance standard are more likely to better withstand extreme heat and cold due to improved insulation and airflow. Thus, efficient buildings can improve climate resilience. In addition, the increasing capacity to conduct design checks and to improve the performance of design reviewers has led to an increase in designs that are judged to be non-compliant with building codes. As non-compliance can involve safety issues, improved codes enforcement can be seen as promoting safer buildings as well, which in turn can strengthen disaster risk reduction efforts.

Gender: While gender issues were not taken directly into account in project design, project staffing and government representation on the Steering Committee have been balanced, and trainings and outreach appear to have involved representative numbers of women and men. The project's support for the National Academy of Green Technologies was able to expand services supported by the National Commission for Women's Affairs, Family, and Demographic Policy[16]. It should be noted that young men are more likely to pursue studies in the fields of energy and construction, which have been the focus of capacity-building efforts in the project (ADB 2013: xi). Although beneficiaries were not specifically discussed in the project document, women may specifically benefit from an improved supply of heat and hot water in the residential sector due to their domestic duties at home (ADB 2013: xii).

Sustainability (R)

Previous sections on project design and project results include information on sustainability in those contexts. Overall, stricter building codes, which are probably the most significant achievement of the project, are very sustainable on a national level now that they have entered into force.

Financial Resources

The financial resources to continue the design and construction of energy-efficient buildings have been confirmed. The government has indicated its intention to build residential buildings under a new state program that are designed for higher-than-average level of energy performance. Two developers have also confirmed their intention to build efficient residential buildings using structural insulated panels.

Probability of Sustainability (L=Likely)

[15] Take as an example the following CPD Output: The Government and energy consumers are better equipped with knowledge, policies and pilot cases on renewable energy market regulations, energy efficiency measures in sectors with high carbon dioxide emission levels. (DP/DPC/KAZ/2, 2009: 6).

[16] See "Opening of the Knowledge Dissemination Center…" (September 7, 2015) at the following URL: http://expoandwomen.com/en/opening-of-the-knowledge-dissemination-center-national-academy-of-green-technologies/

L	ML	MU	U
L			

Socio-political

The issue of energy efficiency is a component of the central government planning document (Kazakhstan 2050). The government has also confirmed its intention to design and construct buildings for Expo 2017, a high-visibility event, that meet above-average energy performance standards. In terms of capacity building, the project has generated information and skills that are already being used broadly.[17]

Probability of Sustainability (L=Likely)

L	ML	MU	U
L			

Institutional framework and governance

The Law on Energy Efficiency is key to sustainability in this area, particularly in identifying classes of energy efficiency in a way that is understandable to developers, owners, and occupants. While fossil fuel subsidies and housing stock maintenance are still important barriers, governance and institutional issues can be addressed through the new UNDP-GEF project on low-carbon development,[18] which will provide some continuity in policy advocacy and awareness raising and continue the strong regional relationships that have been built over this project and the previous UNDP-GEF project on heat supply.

Probability of Sustainability (L=Likely)

L	ML	MU	U
L			

Environmental

There do not appear to be any environmental risks that may jeopardize project outcomes. The more extensive the project replication, the lower the consumption of coal, which is a fuel that adversely affects air quality, and – in turn – human health.

Probability of Sustainability (L=Likely)

L	ML	MU	U
L			

[17] When asked whether students were using the skills they had learned during their lectures on energy-efficient design, one educator responded, "We are *all* using the skills!" (Interview, November 4, 2015)
[18] GEF ID#5059: "Nationally Appropriate Mitigation Actions for Low-Carbon Development."

Overall Likelihood of Sustainability

L	ML	MU	U
L			

Impact

The development objective of the project was "To decrease GHG emissions in new residential buildings…." (PIF 2008: 1).[19] Following the midterm evaluation, the baseline emissions (i.e. without any intervention) were estimated at 25.5 $MtCO_2$, so the target for estimated emissions from buildings during the project period was 23.5 $MtCO_2$ emitted during 2010-2015 or less. Therefore, the end-of-project target for emission reductions was 2 $MtCO_2$ compared to the project baseline for buildings built during the project period (2010-2015).

As the project has proceeded, the team has continued to gather data on emissions from the building stock, including the direct measurement of energy consumption in the pilot buildings from Component 4, but also in the form of energy audits for 470 existing buildings in seven regions of the country (important because of the relatively wide range of operating conditions due to varied climate). These measurements have led to a set of final calculations and estimates to inform the GEF Climate Change Tracking Tool. They indicate a baseline scenario of 18.2 $MtCO_2$ and an actual estimate of emissions of 16.2 $MtCO_2$, which indicates **reductions of 2 $MtCO_2$** during the project period.

The calculations behind the estimates, which were developed by the project team, are provided in Annex 9 of this report. It can also be said that, assuming a similar trajectory of construction rates, the 20-year estimates of emission reductions will be relatively higher than those for the project period, because the stricter building codes did not enter into force until two years after the project began.

It is also worth noting the complexity of energy consumption in the buildings sector that broad estimates cannot fully illustrate. For example, of the 470 audits of residential buildings constructed under previous construction codes, the auditors found that *not a single building* met the thermal performance requirements that were in force at the time of construction, with most consuming at least 50% more heat than specified. An additional study found that in a database covering 16 regions, only 8% of the buildings that it included met these norms: the average energy consumption was 73% greater than the limits required under the relevant code. These findings are significant to thinking about project impact, because they mean that, in general, project baselines assuming code compliance in existing housing stock will underestimate the benefits of reconstructing residential buildings.

[19] GHG mitigation can be understood as a documented means of reducing threats to global environmental benefits (GEBs). The improvements in energy efficiency achieved by the project may be defined as verifiable reductions in stress on ecological systems due to the reduced use of fossil fuel, particularly coal, although a quantitative estimate of this reduction in stress is beyond the scope of the present evaluation.

Conclusions and Recommendations

Conclusions

Overall, this project has had a substantial, sustainable effect on energy efficiency in residential buildings in Kazakhstan. It has strengthened the system of design review and inspection for new and reconstructed buildings, and it has strengthened the standards for heat performance in these buildings. In terms of results, the project has met or exceeded the targets set for the end of project implementation in several areas. In addition, the project has strengthened capacity among students, design professionals and building inspectors. In this way, the project has contributed to meaningful capacity development at the country level in line with core UNDP principles.

Furthermore, the project has exhibited efficient, adaptive management in a very complex operating environment. The project team has effectively addressed the design and construction issues that form the core of the project, but its focus has also evolved over time to include pressing issues of building operations and maintenance. It has also maintained continuity in project execution in spite of several government institutional re-organizations.

There have been difficulties with the operation of the new pilot building constructed under Component 4. It should be noted that these difficulties fall outside of the scope of UNDP's role in the project and have not affected the project's energy savings or GHG targets in a significant way. However, they should be acknowledged and addressed. For this reason, the pilot building case is summarized in Appendix 10 of this report.

In terms of performance relative to other projects (as opposed to performance relative to the project's own targets as stated in the RRF), the project may be assessed favorably compared to previous UNDP-GEF projects in Kazakhstan in terms of implementation (particularly in terms of on-time completion and leveraged co-financing) and results. It also compares favorably in terms of impact with other UNDP-GEF EE buildings projects, both because of the amount of building stock covered by more rigorous codes and the attention to code compliance. The project is also noteworthy at the international level in two other key areas: 1) the timeliness of implementation in spite of a large budget and structural complexity; and 2) the documented achievement of substantial direct and indirect GHG emission reductions.

Most Significant Change

In addition to progress against the targets established in the results and resources framework noted in the section on project results, the most significant changes due to the project activities to date as reported by those interviewed most frequently included *regulatory and legal changes* influenced by the project. As one interviewee said, "In 3 years, the legal framework has moved ahead by 10 years." Nearly all project

stakeholders cited building code improvements as the most significant change due to the project's activities.

A second change that was noted in several interviews was *increased visibility of EE issues* and the emergence of energy efficiency issues as a "hot topic" in high-level initiatives such as Kazakhstan 2050 and Expo 2017.

Good Practice

Project Design:

- The focus on building codes – both the codes themselves and the enforcement of them – proved to be a good strategy for the project in order to leverage large-scale emission reductions. The training and certification activities in this area were described by one contractor as "connecting policy with practice."
- The introduction of labeling in the form of energy passports for buildings was also an item that will bring increasing benefits in terms of marketing and decision-making. Its inclusion in the Law on Energy Efficiency is a significant addition to policy tools.

Project Activities / Implementation:

- The development of non-technical publications that were targeted to policy-makers in straight-forward language was helpful in explaining new concepts to officials who were key to promoting them
- The project used emphasized comfort in addition to energy savings and GHG reductions when promoting project benefits to broader audiences.
- The use of organizations in regions to demonstrate technologies, and of an NGO to measure results in the project pilot buildings, built capacity more broadly than a more centralized approach could have done.
- Regional cooperation and information sharing, both with experts from Belarus (on the pilot house, the prototype designs, and the policy recommendations) and other UNDP-GEF EE buildings projects in the Europe and Central Asia region (the shared website, community of practice meetings and sharing the codes developed in Kazakhstan with the team in Turkmenistan) helped to increase the amount of information and resources available to the project.
- The project's attention to issues related to operations and maintenance raised important points that could inform UNDP's subsequent work on sustainable cities.

Project Management

- The portfolio management approach adopted during the implementation of the project allowed it to have a level of staffing and management that was sufficient while also promoting cooperation among the various projects in the UNDP Kazakhstan Energy and Environment portfolio. Cross-project cooperation was evident, and stakeholders interviewed saw the projects as part of a larger whole.

- The use of a regional website for UNDP-GEF EE buildings projects provided networking opportunities for the project with other similar initiatives will ensure that project information and resources is available after project closure.

Lessons

- *Grants for equipment can increase the difficulty of project implementation significantly*. The arrangements for the UNDP-GEF project to fund "incremental" energy-efficient materials and technologies, while not uncommon to UNDP-GEF projects, led to a very labor-intensive process. Procurement procedures for a building with two sources of financing, both of which fell under different procurement and competitive bidding guidelines, were very time-consuming, involving discussions more than once a day for a number of weeks. Future projects might avoid this difficulty by using GEF grant funds for design services only,[20] or by applying GEF grant funds to support the development of homeowner financing incentives.

- *Commissioning an energy-efficient building is only the beginning*. While the project correctly identified the need to "build in" efficiency to new and reconstructed buildings, the team encountered a number of instances where operations and maintenance (O&M) also had an important effect on energy performance. Three post-commissioning phases require attention: 1) O&M while major equipment is under warranty; 2) O&M after major equipment is under warranty; and 3) capital reconstruction (or decommissioning) after an approximate building lifetime of 25 years. The selection of energy efficient technologies at the design stage may also have to take into account O&M capacity and budgets: in multi-unit buildings, projects need to take into account the need for a technician to operate the equipment, while in single-family homes, residents should have the ability to operate and maintain home energy systems (or have a feasible O&M arrangement). *Project arrangements and budgets should have a plan in place for paying for these arrangements during and following project implementation*.

- *Occupants are important*. From an energy perspective, occupant behavior can affect energy consumption in buildings significantly. From a development perspective, occupants should be seen as project beneficiaries seeking safe, affordable, and comfortable housing. Occupants' needs, typical behaviors and attitudes, and desires should be considered at the design stage, and their satisfaction should be monitored during project implementation.

- *Designing and constructing a building with efficient features is not enough to ensure significant economic savings*. While the energy savings demonstrated in the pilot buildings during the previous heating season were significant, the relative economic savings are smaller than they should be due to relatively low tariffs for heating (in Karagandy, 80% of tariffs are covered by the government. Budgeting practices also

[20] This was the approach used by the UNDP-GEF project "Low-Cost / Low-Energy Buildings in the Czech Republic," GEF ID 571; PIMS 349 (1999-2006).

limit economic savings in the social sector; for example, when a school or hospital saves energy, the result is that its budget is cut by the amount of the money saved. As one interviewee said, "If you save, you lose." The result of these practices is a disincentive for residential and institutional buildings to invest in energy-saving measures. While these problems were typical in the early 1990s in Eastern Europe, it is discouraging to see them in 2015.

- *Several important barriers to energy savings in buildings are located outside of the construction sector*. First, housing and communal services issues can be problematic when local governments are not willing to invest in O&M services or to manage relationships with municipal utilities to ensure the proper level of service. Second, while the performance of the heating company is usually beyond the control of the project, it is critical to the satisfaction of occupants, and it can undercut the potential of measures to reduce heat use. Difficulties with the amount of heat provided from the DH network in Karagandy are similar to problems encountered in a previous UNDP-GEF project elsewhere that also focused on DH-connected residential buildings.[21] It is important to think about how to address this issue in future projects, as the majority of large, multi-unit residential buildings in Kazakhstan are connected to a DH network.

- *Energy performance should eventually address total energy use, not just heat consumption*. While heat comprises the majority of energy use, looking at total energy use (heat and power) calls attention to cooling needs, lighting, and appliances. It can also spotlight the use of renewable energy resources for water heating and power.

- *Ownership arrangements can affect building energy performance*. Experience with the new pilot building illustrated that rental housing could bring special challenges to energy efficiency. Some risks related to rental units stem from a "principal-agent problem": building owners have low incentives to invest in energy efficiency when tenants will pay for whatever level of energy is consumed, and tenants are unlikely to invest in efficiency measures in apartments they do not own. In addition, rental buildings also limit the ability of their occupants to address energy-related issues that may arise. Renters cannot oversee the management and maintenance of their building, request a metered tariff, etc., and they may even fear retaliation in the form of eviction if they complain about the quality of services in their buildings. It is important to be aware of these challenges given the proposed emphasis on rental housing in upcoming government housing sector investments (UNDP 2015 PIR).

Recommendations

Recommendations for UNDP Kazakhstan

[21] GEF ID 292 / PIMS 114: "Capacity Building to Reduce Key Barriers to Energy Efficiency in Russian Residential Buildings and Heat Supply" (1996-2004).

1. The project has raised the visibility of energy efficiency at a high level, and it is now necessary to *improve awareness at the local government level* and *confront coal-based, energy-intensive policies*. Nearly all stakeholders interviewed mentioned that UNDP's role in policy advocacy was very beneficial. Key areas for advocacy could include fossil fuel subsidy reforms (in conjunction with other donors) and supporting incentives to save energy. UNDP should continue its efforts to educate decision-makers on all of these issues, as the current system is still one where, as one interviewee described it, "the government subsidizes construction from one pocket and energy consumption from another." One activity to consider might be a sectoral budget review for sustainable energy that lays out expenditures for energy savings and renewable energy in comparison with energy subsidies.

2. UNDP should advocate for a *fixed timetable for building code updates*. Unlike neighboring countries, there is no fixed timetable for updating building codes. Regular updates (e.g. every five years, staggered by building type) would place ongoing pressure on the government to make its codes increasingly rigorous as technologies and materials advance.

3. UNDP's role in *policy advocacy should include the housing sector*. With the upcoming introduction of the new legal code for the housing sector, there are opportunities to ensure that buildings use energy wisely once they are occupied. A great deal of work has been done in this sector in other CIS countries over the past two decades that is relevant. It is also important to emphasize the linkages between ownership structures and energy use: for example, the Government housing program will have an increased emphasis on rental housing, which could have serious implications for implementing EE measures (operations and maintenance, utility relationships, occupant behavior, etc.). This issue should be followed closely.

4. UNDP should take advantage of opportunities to *coordinate its work on energy and environment with its work on economic and social well-being*. The evaluators observed first-hand the burdensome nature of the fuel assistance benefit (see Annex 10), and if it worked effectively, it would be much easier to reduce blanket subsidies for heat. In addition, it might also be worth considering the development of employment programs that focus on job training in building weatherization, which can be linked to energy efficiency initiatives.[22]

5. UNDP should *maintain the valuable data collected* on energy performance in buildings (470 buildings in 7 regions) and many other useful research findings, utilize them in the new sustainable cities project, and make them accessible to researchers.

[22] HeatWise in Glasgow, Scotland and the Louisiana Green Corps in the United States are two examples of this type of program.

6. UNDP should *continue to advocate on behalf of the residents of the pilot building* at 106 Yermekova Street in Karagandy and attempt to improve their current circumstances.

Recommendations for UNDP RBEC

1. Building occupants should be recognized as beneficiaries, and indicators to measure occupant satisfaction (such as indoor temperature and humidity measurements and surveys) should be considered in subsequent EE buildings projects. This combination of measures could also identify under-heating for technical or economic reasons.

2. Operations and maintenance budgets and institutional arrangements should be explicitly discussed at the project design stage for subsequent EE buildings projects.

3. The project website and its publications and information should be maintained and made accessible at a regional level. Project outputs such as the GHG monitoring system for the building stock under management by Astana Teplotranzit (the heat T&D company in the capital) could be useful to other projects.

Recommendations for GEF

1. Consider financial support for post-project monitoring and evaluation. In the area of EE buildings, a long lead time for project results is natural given the nature of the activities (design, construction, codes entering into force, etc.). Given the 4-6-year window of most GEF buildings projects, many significant results will occur after the projects close. Interesting outcomes relevant for the portfolio, such as building performance and the uptake of new skills among professional, cannot be fully measured at the end of the project.

Annexes

Annex 1: Terms of Reference

TERMINAL EVALUATION TERMS OF REFERENCE

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *UNDP/GEF* ***"Energy-Efficient Design and Construction of Residential Buildings***" (Kazakhstan) (PIMS #4133)

The essentials of the project to be evaluated are as follows:

PROJECT SUMMARY TABLE

Project Title:	Energy-Efficient Design and Construction of Residential Buildings, Kazakhstan			
GEF Project ID:	3758 (PMIS #)		*at endorsement (Million US$)*	*at completion (Million US$)*
UNDP Project ID:	4133 (PIMS#) 00074950 (Atlas ID)	GEF financing:	4.568,500	4.568,500
Country:	Kazakhstan	IA/EA own:	0.025	0.023,8
Region:	RBEC/CA	Government (co-financing):	24.85	122.52
Focal Area:	Climate Change	Other:	3.02	131.37
FA Objectives, (OP/SP):		Total co-financing:	27.895	253.91
Executing Agency:	UNDP	Total Project Cost:	32.463,5	258.478,5
Other Partners involved:	State Committee for Architecture and Construction	ProDoc Signature (date project began):		22.09.2010
		(Operational) Closing Date:	Proposed: 01.12.2015	Actual: 01.12.2015

OBJECTIVE AND SCOPE

The project was designed to increase energy efficiency in new and renovated residential buildings in Kazakhstan, thereby reducing greenhouse gas emissions by transforming practices and markets in the building sector of Kazakhstan towards more energy-efficient design and construction. The proposed project is structured into four components, each targeting specific barriers and stakeholders: a) Updating and implementation of state policies, including building codes, standards, and energy certification of buildings, b) Expansion of markets for energy-efficient construction materials and products, c)

Education and outreach to professionals and the general public, d) Demonstration projects embodying energy-efficient integrated building design. The project has been designed with following objectives:

- Improving compliance with existing building energy codes
- Promoting energy performance beyond existing code requirements
- Providing enhanced information to manufacturers, building designers, and the general public
- Transforming practices and markets for building design and construction

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

EVALUATION APPROACH AND METHOD

An overall approach and method[23] for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact,** as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (see *Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.
The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is expected to conduct a field mission to *Karagandy city of Republic of Kazakhstan*, including the following project sites:

- Retrofitted multi apartment house (26 Mustafin Str., Karagandy city);
- Newly constructed multi apartment house (106 Ermekov Str., Karagandy city).

Interviews will be held with the following organizations and individuals at a minimum:

Project

#	Name	Title	Organization
1	Mr. Alexandr Belyi	Project Manager	UNDP CO, EEB
2	Ms. Bayan Abulkairova	Previous Project Manager	
3	Ms. Ainur Amirkhanova	Procurement Specialist	
4	Ms. Dina Madieva	Administrative and Finance Assistant	
5	Ms. Aiman Shopaeva	National Expert of Energy Efficiency	

UNDP

#	Name	Title	Organization
1	Ms. Marina Olshanskaya	UNDP-GEF RTA	UNDP, Istanbul
2	Mr. Rassul Rakhimov	IOC Head of Energy and Environment Unit	UNDP CO, EEU
3	Ms. Irina Goryunova	Head of Strategic Support Unit	

GEF Operational Focal Point

[23] For additional information on methods, see the Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 7, pg. 163

#	Name	Title	Organization
1	Mr. Talgat Ahsambiyev	Vice Ministry	Ministry of Energy

State Committee for Architecture and Construction (Gosarchitectstroy) – Main Partner

#	Name	Title	Organization
1	Ms. Daribala Turushova	Head of Department, National Project Coordinator	Committee on Construction and Housing and Municipal Infrastructure
2	Mr. Nikolay Tikhonuk	Advisor to the Chairman	Committee on Construction and Housing and Municipal Infrastructure

Project Partners

#	Name	Title	Organization
1	Toleutay Rakhimbekov	Chairman	National Chamber of Housing and Communal Services
2	Bekbergen Kerey	Head of Department	Ministry of Energy
3	Alibek Kabulbay	Chief	Energy and Energy Efficiency Institute
4	Dastan Khamzin	Deputy Board Chairman	JSC «Kazakhstan Center for Modernization and Development of Housing and Communal Services»
5	Kenzhebulat Mynbayev	Head of Housing Department	Committee for construction, housing and utilities of the Ministry for Regional Development
6	Maksut Ordabayev	Deputy Chairman	Committee for Industrial Development and Industrial Safety Ministry of Investment and Development
7	Aliaskar Kenjetayev	Director	"Research Institute of Standard and Experimental Design" (Housing Institute) LTD
8	Alexandr Pak	Chief Expert	«Kazakhstan Institute of Standardization and Certification» RSE Committee for Technical Regulation and Metrology of the Ministry of Industry and New Technologies of the Republic of Kazakhstan
9	Zhenish Rysaliyev	Manager	Kazakhstan Association of Users of Nature for Sustainable Development
10	Tatyana Orlova	Representative	Akimat of Karagandy region
11	Sergey Poleshuk	General Director	«Ergonomika » LTD
12	Alexandr Entin	General Director	«Enkom -ST» LTD
13	Manen Omarov	Director	College ''Turan"
14	Eldos Abakanov	Chairman	National Chamber of Energy and Recourse saving

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, in particular evaluator shall validate the data in the GEF CCM Tracking tool (how the tool is filed in and confirmed the figures there filled in by the project team), project files, national strategic

evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex B of this Terms of Reference.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact.** Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

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

PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co financing (Type/Source)	IA own Financing (mln USD)		Government (mln USD)		Other* (mln USD)		Total (mln USD)		Total Disbursement (mln USD)	
	IA own Financing (mln USD)		Government (mln USD)		Other (mln USD)		Total (mln USD)		Total Disbursement (mln USD)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
– Grants	0.025	0.023	24.85	115.88	3.02	126.71	27.895	242.61	27.895	27.895
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments				5.94		4.2		10.14		10.14
– In-kind support						0.46		0.46		0.46
– Other				0.7				0.7		0.7
Totals	0.025	0.023	24.85	122.52	3.02	131.37	27.895	253.91	27.895	253.91

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.[24]

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions**, **recommendations** and **lessons**.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Kazakhstan. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

EVALUATION TIMEFRAME

The total duration of the evaluation will be 25 working days (for the international consultant) and 23 working days (for the national consultant) over a period of 10 weeks according to the following plan:

Activity	Timing	Date Durations and Completion Dates
Preparation	*5* working days	*21 September- 5 October, 2015*
Evaluation Mission	*10* working days	*26 October – 06 November, 2015*

[24] A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: ROTI Handbook 2009

Draft Evaluation Report	*8* working days	*9-18 November, 2015*
Final Report	*2 working* days (for international consultant only)	*23- 27 November, 2015*

EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 3 weeks before the evaluation mission: due 05 October	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission: 06 November	To project management, UNDP CO
Draft Final Report	Full report, (per annexed template) with annexes	Within 2 weeks of the evaluation mission: due 18 November	Sent to CO, reviewed by RTA, PCU, GEF OFPs
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft: due 27 November	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report. See Annex H for an audit trail template.

TEAM COMPOSITION

The evaluation team will be composed of *1 international evaluator and 1 national evaluator*. The consultants shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The international evaluator will be designated as the Team Leader and will be responsible for finalizing the report. The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members each must present the following qualifications:

- Minimum 5 years of relevant professional experience in energy efficiency and housing infrastructure, design and development of energy projects;
- Experience with result-based management evaluation methodologies;
- Knowledge of results-based evaluation policies and procedures ;
- Expertise in adaptive management, as applied to climate change and energy resource management projects;
- Familiarity with energy sector, energy efficiency policies and regulations;
- Skills in drafting the institutional documents, reviews and background papers related to energy efficiency, sustainable energy, climate changes issues,
- Skill in conducting researches and analytical works,
- Skills in negotiating with key stakeholders, state authorities,
- Experience in countries with transition economy,
- Experience with international organizations like UNDP and/or GEF,
- Proven track record of application of results-based approaches to evaluation of projects focusing on energy efficiency (relevant experience in the CIS region is a requirement; and relevant experience within UN system would be an asset);
- Proficient in English/Russian.

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluations'

PAYMENT MODALITIES AND SPECIFICATIONS

(*this payment schedule is indicative*)

%	Milestone
10%	At submission and approval of the Inception Report
40%	Following submission and approval of the 1ST draft terminal evaluation report
50%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

APPLICATION PROCESS

Applicants are requested to apply online to Project Procurement Specialist (ainur.amirkhanova@undp.org) by 21 July, 2015. Individual consultants are invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English with indication of the e-mail and phone contact. Shortlisted candidates will be requested to submit a price offer indicating the total cost of the assignment (including daily fee, per diem and travel costs).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

ANNEX A: PROJECT LOGICAL FRAMEWORK

GEF-format Results and Resources Framework

Project strategy	**Objectively Verifiable Indicators**				
Goal	Increase energy efficiency in new and renovated residential buildings in Kazakhstan, thereby reducing greenhouse gas emissions				
	Indicators	**Baseline**	**Target**	**Means of Verification**	**Important Assumptions**
Project Objectives Increase of energy efficiency in new and renovated residential buildings Reduce GHG emissions associated with residential energy use	Average thermal energy consumption for space heating in new and renovated buildings	Average thermal energy consumption for space heating: 140 $kJ/m^2.°C.day$ for existing building stock, and 110 $kJ/m^2.°C.day$ for new and renovated buildings complying with the current code	Average thermal energy consumption for space heating reduced to 80 $kJ/m^2.°C.day$ for new and renovated buildings	Mandatory code requirements for thermal performance; national statistics; quantitative evaluation conducted by project, including selective review and analysis of building designs, as well as selective verification of actual construction and operating performance	Construction volumes are taken from official national projections for 2010-2014; the volumes of 2015 follow the same linear trend projected for 2010-2014. Energy savings shown here are only from thermal energy consumption for heating, what is a main project focus. (Other sectors of energy consumption fall into separate existing projects, and/or have a much smaller share of residential energy consumption than heating.) If the project does achieve any reductions in non-heating end uses, project results would be magnified, but probably not by a large proportion
	CO_2 emissions from energy use in new and renovated buildings	25.5 million tonnes of CO_2 emitted during 2010-2105 by buildings newly built or renovated during this period 186 million tonnes of CO_2 emitted from energy use in these buildings over a 25-year lifetime	23.5 million tonnes of CO_2 emitted during 2010-2015 by buildings newly built or renovated during this period (2 million tonnes less than baseline) 171 million tonnes of CO_2 emitted from energy use in these buildings over a 25-year lifetime (15 million tonnes less than baseline)		
OUTCOME 1: Improved enforcement and implementation of mandatory building energy codes and rating system **Output 1.1**	Rates of compliance with applicable energy codes	Baseline compliance rate has not been formally documented; various national experts state that noncompliance is widespread at the construction stage	Documented and statistically verified compliance by new buildings, starting in 2012. Whole-building energy consumption targets of 2004 thermal-performance code, supported by field inspection and measurements as well as design data.	Rates of code compliance, documented in official withholding and issuance of permits, and supported by selective review of building plans and field verification of	Current code compliance procedures are deficient; enhanced procedures and training will close loopholes and improve compliance Selective field verification will bring to estimate the national trends

Streamlined and strengthened building energy code enforcement leads to universal compliance with existing codes				construction and actual performance	
Output 1.2 New voluntary (recommended) national and/or regional energy efficiency standards for "green buildings" lead to implementation of EE beyond existing code requirements	Adoption and implementation of voluntary standards, with verification procedure Number of buildings complying with voluntary standards	No voluntary standards for energy performance beyond existing code requirements exist in Kazakhstan	embodying super-efficient energy performance across various end uses At least three A-class buildings designed or constructed according to the voluntary standard by the end of the project	Information about voluntary standards published in the forms of explanatory notes and publications Data about the buildings from implementing agencies certified to comply with these standards	A meaningful proportion of building owners, designers, and contractors are interested to employ these standards
Output 1.3 Adopted revisions to national building energy codes and associated official documents lead to more effective implementation and incremental energy savings	New norms adopted and new required levels of energy efficiency implemented	Average energy performance requirements for space heating and ventilation according to SN RK 2.04-21-2004* - 141 kWh/m2.year for a 5-floor residential building	Average energy performance requirements for space heating and ventilation according to the newly adopted building code SN RK 2.04-04-2011 are nominally 4% higher - 136 kWh/m2.year for a 5-floor residential building	Published norms and respective methodical guidelines and catalogues of technical solutions for the designers	Government agencies will have collective political will to adopt and implement more stringent requirements, despite probable objections from some stakeholders, based on need to increase the initial compliance costs. This assumption carries considerable uncertainty. See above the description of project risks
Output 1.4 Rating and labeling system for EE in buildings provides clear information to market stakeholders, as well as a technical basis for financial incentives,	Adoption of energy efficiency rating and labeling system	Energy Passport rating system for buildings is established only on a recommendatory basis by the 2004 code. In practice, this rating system and associated building labels are not being applied	Energy Passport rating and labeling system established and applied widely to new and existing buildings in the selected regions primarily and ultimately expanding to a mandatory nationwide basis	Publication of rating and labeling system procedures, including associated incentives Data of ratings and labels applied to buildings from implementing agencies	Implementing agencies have sufficient capacity for effective applying the rating and labeling system Government agencies have sufficient political will to adopt incentives

leading to increased market demand for energy efficient buildings				Interviews and survey on public recognition of labeling system	
Output 1.5 GHG monitoring and accounting system supports effective project evaluation and helps shape future national priorities for energy efficiency in housing sector	Creation and official adoption of GHG monitoring system and accounting procedures Number of buildings participating in this new system	General data about energy consumption in housing sector can be extrapolated from centralized energy supply statistics, but there exists no methodologically uniform system for compiling data on energy use by individual buildings, nor on the effects of energy efficiency measures, a fortiori nor statistics for GHG monitoring from this sector	Official procedures for GHG monitoring and accounting in buildings is developed and applied (based for example on the Energy Passport system of newly re/constructed buildings and on energy audits and metered district heat supply in buildings where available). 90% of newly constructed buildings and 90% of newly reconstructed buildings subject to Energy Passport system in the following 5 years	Records from public agencies	Implementing agencies have sufficient capacity for effective applying the GHG monitoring system
OUTCOME 2: Expansion of markets for energy-efficient products **Output 2.1** Certification and labeling with regard to energy performance leads to greater consumer understanding and demand for efficient materials and/or products	Establishment of labeling system of selected energy efficiency construction materials/products. Public recognition of labeling and response to given information	Energy efficiency certification and labeling of products\materials is deficient or absent	Labeling system established and applied based on new standards and/or other enhanced procedures 25% of customers are aware of and understand EE labels 10% of customers take EE label information into account in their purchasing decisions	Published procedures on certification and labeling Records from implementing agency on application of labels to products Interviews and survey on public recognition of labeling system	Implementing agency has sufficient staffing and equipment to carry out certification and labeling
OUTCOME 3: Education and outreach to promote energy-efficient building design and	Ability of architects and engineers to design energy-efficient buildings, applying best	Architects and engineers have high technical capabilities and receive some training on energy efficiency, but there is a	Enhanced courses on energy efficiency included as a standard part of building-design curricula, delivered to at least 350 building design professionals by the end of	Courses listings, curricula, and participant rosters Follow-up interviews	Institutes of higher learning are willing to devote staff and time for implementing the revised curricula

technology **Output 3.1** Enhanced training enables building designers to apply international best practices in energy-efficient building design and technology	practices and technology Number of buildings built embodying practices and technology introduced via enhanced instruction	lack of key information on international best practices, as well as on social, economic, and environmental benefits	the project International study tour completed for 10-12 participants	and written feedback	Architects and engineers choose to participate in courses in expected numbers
Output 3.2 Competitions motivate building designers to pursue energy-efficient design, and raise collective expertise	Ability of architects and engineers to design energy-efficient buildings, applying best practices and technology Number of participants and competitive designs	Motivation to pursue energy-efficient building design is largely driven by market demand. There are no contests or other mechanisms within the design community to stimulate such motivation	At least two competitions during the project period on energy-efficient building design, attracting 50 participants	Participant rosters and submitted designs	Architects and engineers choose to participate in expected numbers
Output 3.3 Workshops will give grounds for building owners and developers to build energy effective buildings and effectively to offer them to buyers and renters at the market	Recognition by building owners of the benefits from construction of value of energy effective buildings Number of workshops and participants	Building owners have little interest in construction of energy effective buildings, a primary importance is given to appearance, conveniences and cost reduction	At least in three regions of the country (with the most dynamically developed construction sector) the building owners, project customers and developers, construction companies trained and interested to implement energy efficiency in building re/construction Practical manuals - guides/videos on appropriate practices of energy efficiency installations\technologies\equipment published, at least 400 practitioners trained	Courses listings and agendas, event print-outs, publications, participant rosters Follow-up interviews	Building owners and developers choose to participate in expected numbers
OUTCOME 4: Development and demonstration of	Re/construction of buildings embodying	New residential buildings in Kazakhstan do not	New energy-efficient residential buildings newly re/constructed by	Official records of code compliance, confirmed	Public funding for construction of demo

energy-efficient building projects **Output 4.1** Best practices in design of energy-efficient buildings and technology demonstrated in two residential buildings	the best practices in design of energy-efficient buildings	embody international best practices or technology	the third and fourth years of the project (2013 and 2014). Energy performance and cost-effectiveness of both buildings documented by end of project	with associated documentation; field verification of presence and performance of respective constructions and devices; metering of actual energy consumption considering the weather data; comparison of corresponding data (where available) with buildings data, built by analogous design but with no energy efficiency measures (control group)	residential buildings is allocated in full scale
Output 4.2 Prototype and demonstration building designs serve as models for replication, leading to further energy savings and transformation of design/construction practice	Planning, design, and construction of buildings based on energy-efficient designs	Standard building designs are efficient only to the minimum extent required by code, and do not embody international best practices	Information on prototype building design disseminated to design institutes, regional administrations, development institutions and Agency (Committee) for Construction and Residential-Communal Affairs Plans, including budgets and initial building designs, established for 20 buildings based on prototypes and demonstration projects	Documentation from implementing agencies and partners	Demonstration projects completed on schedule Relevant designs are cost-effective, energy-efficient, and applicable to other buildings
Output 4.3 Cost analysis establishes basis for correcting the maximal cost per one m2 of construction	Reassessment and revision of ceiling cost per m2 of new housing by construction of energy efficient buildings being funded by the government	Existing ceiling cost per one m2 of new government-funded housing is about $400. There are no exceptions. It is difficult or impossible to design EE buildings under this cost ceiling	Formal recommendations on raising cost ceiling per one m2 of new government-funded housing submitted to Agency for Construction and Residential-Communal Affairs and regional administrations Cost ceiling per one m2 of new government-funded housing raised, what is a major mechanism for	Documentation from implementing agencies and partners Official published data	Government agencies have sufficient political will and budget flexibility to adopt raised cost ceiling per one m2 of government-funded housing

			government financing of energy-efficient residential construction		

ANNEX B: LIST OF DOCUMENTS TO BE REVIEWED BY THE EVALUATORS

1. GEF Project Information Form (PIF)
2. Project Document (ProDoc) endorsed by GEF CEO
3. Log Frame Analysis (LFA)
4. UNDP/GEF Project Document signed by UNDP and National Implementing Agency
5. Project Inception Report
6. Mid-Term Evaluation Report
7. Management Response to recommendations of Mid-Term Evaluation
8. Project quarterly (QORs and QPRs) and annual reporting (Project Implementation Reports [PIRs] and Annual Project Implementation Reports [APRs])
9. Minutes of Project Board meetings
10. Project budget and financial data
11. Project GEF Tracking Tool, at baseline, at mid-term, and at terminal points
12. Reports on monitoring of project office and pilot sites
13. ROARs
14. Project briefs and success stories
15. Project knowledge products
16. Government documentation (as an evidence of project outcomes achieved)
17. UNDP Development Assistance Framework (UNDAF)
18. UNDP Country Programme Document (CPD)
19. UNDP Country Programme Action Plan (CPAP)
20. GEF focal area strategic program objectives
21. List and contact details for project staff, key project stakeholders, including Project Boards, and other partners to be consulted
22. Project sites, highlighting suggested visits

ANNEX C: EVALUATION QUESTIONS

This is a generic list, to be fully completed and amended by the Evaluation Consultants and included in the TE Inception report and as an Annex to the full TE report. .

Evaluative Criteria 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 at the local, regional and national levels?			
• Are project outcomes contributing to national development priorities and plans in accordance with the national legal and regulatory frameworks?	• % of reduced energy consumption in apartment buildings	• Project reporting, national statistics and reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
• How does the project relate to the GEF Strategic objective CC – 1 "To promote energy-efficient technologies and practices in the appliances and buildings" through improved energy performance in apartment buildings?	• # of adopted and mandatory energy efficient building codes • Extent of application of Integrated Building Design principles	• Project reporting, national statistics and reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
• How did the project contribute to GHG emissions reduction within the project implementation cycle and beyond?	• # of tons of CO2-equv. Emission reductions	• Project reporting, national statistics and reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
• Are the achieved project outcomes commensurate with the original or modified project objectives?	• Yes/No	• Project reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project reporting review

• Whether the project outcomes provided the most effective way towards results?	• Yes/No	• Project reporting, national statistics and reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
• What is effectiveness of project awareness raising and outreach activities/products on promoting energy efficiency in apartment buildings among all project stakeholders?	• Extent of influence the design and construction and public administration practices, including in sectors other than apartment buildings (e.g. residential and commercial)	• Project reporting, national statistics and reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
• How efficient was the financial management of the project, including specific reference to cost-effectiveness of its interventions?	• Extent to which results have been delivered with the least costly resources possible	• Project reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project reporting review
• What was the role of UNDP and National Implementing Agency in meeting the requirements set out in UNDP Programme and Operations Policies and Procedures?	• Extent of influence to ensure meeting the required international standards	• Project reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project reporting review
• Are the systems for accountability and transparency of project management approach/results and meeting the relevant national norms and standards in place?	• # of national norms and standards met	• Project and national reporting	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
• Whether the risks identified in project document and PIRs were appropriate and corresponding risk management strategies/systems were adopted and implemented?	• Extent of risk appropriateness • Yes/No	• Project reporting, UNDP-GEF Risk Management System	• UNDP/GEF Monitoring & Evaluation

			Policies
• Whether or not national stakeholders participated in project management and decision-making have ownership for project outcomes and their further replication and scaling-up?	• Yes/No	• Project reporting, government reporting/documentation	• UNDP/GEF Monitoring & Evaluation Policies, Project and government documentation review
• Was the project sustainability strategy relevant and efficient?	• Yes/No	• Project reporting; national evidences	• UNDP/GEF Monitoring & Evaluation Policies, Project and government documentation review
• Are there any environmental risks that may pose a threat to the sustainability of the project outcomes?	• Yes/No	•	•
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
• What contribution did the demonstration energy efficient buildings (green homes and other buildings built with indirect influence of project interventions, if any) have on improving the environment situation in their locations?	• # of tons of CO2-equv. Emission reductions	• Project reporting, government reporting/documentation/statistics	• UNDP/GEF Monitoring & Evaluation Policies, Project and government documentation review
• How the project did enable reducing pressure on corresponding natural resources (e.g. through reduced use of primary energy sources, and/or use of renewables)?	• # of toe of primary energy resources saved • Type of renewable energy source used	• Project reporting, government reporting/documentation/statistics	• UNDP/GEF Monitoring & Evaluation Policies, Project and government documentation review

ANNEX D: RATING SCALES

Ratings for Effectiveness, Efficiency, Overall Project Outcome Rating, M&E, IA & EA Execution	***Sustainability ratings***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS): moderate shortcomings 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML): moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1. Not relevant (NR)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A)		

ANNEX E: EVALUATION CONSULTANT CODE OF CONDUCT AND AGREEMENT FORM

Evaluators:

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[25]

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

Name of Consultant: __ _____

[25] www.unevaluation.org/unegcodeofconduct

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 *place* on *date*

Signature: _____

ANNEX F: EVALUATION REPORT OUTLINE[26]

i. Opening page:
- Title of UNDP supported GEF financed project
- UNDP and GEF project ID#s
- Evaluation time frame and date of evaluation report
- Region and countries included in the project
- GEF Operational Program/Strategic Program
- Implementing Partner and other project partners
- Evaluation team members
- Acknowledgements

ii. Executive Summary
- Project Summary Table
- Project Description (brief)
- Evaluation Rating Table
- Summary of conclusions, recommendations and lessons

iii. Acronyms and Abbreviations
(See: UNDP Editorial Manual[27])

1. Introduction
- Purpose of the evaluation
- Scope & Methodology
- Structure of the evaluation report

2. Project description and development context
- Project start and duration
- Problems that the project sought to address
- Immediate and development objectives of the project
- Baseline Indicators established
- Main stakeholders
- Expected Results

3. Findings
(In addition to a descriptive assessment, all criteria marked with (*) must be rated[28])

3.1 Project Design / Formulation
- Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project design
- Planned stakeholder participation
- Replication approach
- UNDP comparative advantage
- Linkages between project and other interventions within the sector
- Management arrangements

3.2 Project Implementation
- Adaptive management (changes to the project design and project outputs during implementation)
- Partnership arrangements (with relevant stakeholders involved in the country/region)
- Feedback from M&E activities used for adaptive management
- Project Finance
- Monitoring and evaluation: design at entry (*), implementation (*), and overall assessment

[26]The Report length should not exceed *40* pages in total (not including annexes).
[27] UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008
[28] See Annex D for rating scales. Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

(*)
- Implementing Agency (UNDP) execution (*) and Executing Agency execution (*), overall project implementation/ execution (*), coordination, and operational issues

3.3 Project Results
- Overall results (attainment of objectives) (*)
- Relevance(*)
- Effectiveness (*)
- Efficiency (*)
- Country ownership
- Mainstreaming
- Sustainability: financial resources (*), socio-economic (*), institutional framework and governance (*), environmental (*), and overall likelihood (*)
- Impact

4. Conclusions, Recommendations & Lessons
- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

5. Annexes
- ToR
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Evaluation Question Matrix
- Questionnaire used and summary of results
- Evaluation Consultant Agreement Form
- *Annexed in a separate file:* TE audit trail
- *Annexed in a separate file:* Terminal GEF Tracking Tool

ANNEX G: EVALUATION REPORT CLEARANCE FORM

(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)

Evaluation Report Reviewed and Cleared by
UNDP Country Office
Name: _____
Signature: _____ Date: _____
UNDP GEF RTA
Name: _____
Signature: _____ Date: _____

ANNEX H: TE REPORT AUDIT TRAIL

The following is a template for the evaluator to show how the received comments on the draft TE report have (or have not) been incorporated into the final TE report. This audit trail should be included as an annex in the final TE report.

To the comments received on (*date*) from the Terminal Evaluation of (*project name*) (UNDP *PIMS #)*

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):

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken

Annex 2: Mission Itinerary

Program for the Terminal Evaluation Team of Susan Legro (International Expert) and Zhannat Bekbolatova (National Expert), 27.10.-06.11.2015, Kazakhstan (Astana, Arsanay, and Karagandy).

#	Time	Action	Notes
		27 October	
1	9.30-10.00	Introduction meeting with the Project Manager, National Expert and the Project team	UNDP Office , Bokeykhanov str, 14
2	10.00-11.00	Meeting with Deputy Resident Representative, UNDP Kazakhstan Munkhtuya Altangerel	Overview of partnership with UNDP/GEF Project "Energy Efficient Design and Construction of Residential Buildings".
3	11.00-11.30	Meeting with Rassul Rakhimov, Acting Director, Environment and Energy Department	Project "Energy Efficient Design and Construction of Residential Buildings". Results, lessons learned.
4	11.30-12.40	Visiting School #9 , introduced by Alexander Yentin, General director of JSC "Enkom-ST"	Demonstration of pilot project, implemented within the already completed UNDP project on district heating.
6	13.00-14.00	Lunch	
7	14.00-15.40	Meeting with Ilya Trofimovich Ten, Scientific Research Institute of Design	Overview on large panel building construction in Kazakhstan, benefits
8	16.00-17.00	Meeting with Aiman Shopayeva	Amendments to Building Regulations (SNIP). Results and Calculations. Enforcement of new code requirements. Commissioning of the constructed building in Karagandy.
	17.00-18.30	Meeting with the former manager of the project Bayan Abylkayirova	Obstacles during the project. Results. Government Cooperation during construction process. Lessons learned.

28 October			
1	6.45	Departure to Karagandy	UNDP Car
2	10.30	Arrival to Karagandy	Accommodation in "Merey" and "Chaika" hotels
3	10.30-11.00	Coffee break	
4	11.00-14.30	Meeting with the Head of the Ergonomika company, Sergey Poleshuk; meeting with experts of the not-for-profit energy efficiency advice center, PRO ECO, Darya Miroshnichenko and Nursultan Aubakirov	Example of successful energy saving company. Introduction to the departments. Overview of problems during realization of energy saving projects.
5	14.30-15.40	Visiting pilot project as new energy saving apartment house at 106 Yermekova Street	Energy efficient constructed Demo building. Demonstration of the new energy saving equipment. Discussion with the habitats of the house.
6	15.50-16.30	Visiting pilot project of apartment house from the previous UNDP project on Heat Supply in Karaganda	Demonstration of the new energy saving equipment. Discussion with the habitats of the house.
7	18.20-20.00	Meeting with regional administration representative (Deputy Head of Department of Energy and Housing Sector) Tatyana Orlova	Overview of partnership with UNDP/GEF Project "Energy Efficient Design and Construction of Residential Buildings".
29 October			
1	9.40-12.20	Taking part in the ceremonial opening of the energy efficiency labeling for energy-saving building. Meeting with construction company representatives Elena and Alexander Kiku	Kamennyi dom, Yerzhanova str, 53/2. Demonstration of the new energy saving equipment. Energy Efficient window producing companies.
2	12.20-12.40	Visiting pilot project of apartment house at 26 Mustafina St.	Observation from the outside.
3	12.40-13.30	Travel from Karagandy to the village of Arsanay	UNDP car
4	13.30-15.30	Visiting "National Academy of Green Technologies", meeting with the Chairman of the Public Fund "Akbota",	Overview of UNDP/GEF partnership. Demonstration of new

		Tatyana Nemzan	installed technologies.
5	15.30-18.00	Departure /Arrival to Astana	
30 October			
1	9.30-10.00	Working on project	UNDP Office
2	10.00-11.00	Interview to 'Stroyetlnyi buliten' magazin	Interview to local magazine.
3	11.00-12.00	Working on project	UNDP Office
4	12.00-12.50	Yulia Nichkasova, International Consultant (Policy/Regulatory Barriers)	Overview of the project.
5	13.00-14.00	Lunch	
6	14.30-15.30	Meeting with Managing Director of the Research Institute of Energy and Energy Saving Alibek Kabylabay	Overview of UNDP/GEF partnership. Energy saving obstacles in housing sector.
7	15.30-16.30	Serikbolat Esengabulov, former project staff (currently on the faculty at Nazarbaev University)	Overview of UNDP/GEF partnership. Problems accrued during construction. Lessons learned.
2 November			
1	9.30- 13.30	Participation in the presentation of the definition of energy efficiency and greenhouse gas emissions by the example of Astana	Mr. Ilya Soloviev - JSC " Aktino SKB' "Astana Teplotranzit"
2	14.30-15.30	Meeting with President of "National Chamber of Housing and Construction" - Toleutai Rakhimbekov and Chairman of the Board of "National Chamber energy saving, Eldos Abakanov - NGOs	Overview of UNDP/GEF partnership. Energy saving content among students.
3	15.50-17.30	Meeting with international expert Leonid Danilevsky	Overview of Karaganda construction. Obstacles during building process. Technologies used during construction. Lessons learned.
4	17.30-18.00	Meeting with former Head of energy and environment department for UNDP Kazakhstan (2010-2014) Stanislav Kim	Discussion on project.
3 November			
1	9.30-12.30	Working on project	UNDP office
2	12.30-13.30	Lunch	
3	14.00-15.30	Meeting with project staff (Technical Expert Aiman Shopaeva)	Explanation of calculated terms. CO2 emission.
4	15.30-17.30	Work on evaluation	UNDP office
4 November			
1	8.00-19.00	Participating in final project conference	Marriott Hotel

2		Meeting with National Project Director Daribala Turusheva	Overview of the process of including amendment to the Norms.
3		Lunch	
4		Meeting with Dean of Department of Civil Engineering. Kazakh Leading Academy of Architecture and Civil Engineering	Education content on energy efficiency among the students. Process of adding Energy saving subjects to the Educational Program of Academy.
5 November			
1	8.00-13.00	Participating in conference "Sustainable cities"	Marriott hotel
2	13.00-14.30	Lunch	
3	14.30-17.30	Discussion and drafting; discussion of briefing	UNDP office
6 November			
1	9.30-13.30	Work on evaluation; review of audits and administrative documentation with project staff	UNDP office
2	13.30-14.30	Lunch	
3	14.30-18.00	Work on evaluation	UNDP office

Annex 3: List of People Interviewed

#	Name	Title	Organization
1	Munkhtuya Altangerel	Deputy Resident Representative of UNDP in Kazakhstan Republic	UNDP
2	Rassul Rakhimov	Director of Environment and Energy Department	UNDP
3	Alexandr Belyi	Project Manager	UNDP CO, EEB
4	Bayan Abulkairova	Previous Project Manager	
5	Ainur Amirkhanova	Procurement Specialist	
6	Dina Madieva	Administrative and Finance Assistant	
7	Aiman Shopaeva	National Expert of Energy Efficiency	
8	Irina Goryunova	Head of Strategic Support Unit	UNDP CO, EEU
9	Marina Olshanskaya	UNDP-GEF RTA	UNDP Regional Hub (Istanbul)
10	Stanislav Kim	Former Head, Energy and Environment Unit, UNDP Kazakhstan	UNDP Regional Hub (Istanbul)
11	Daribala Turushova	Head of Department, National Project Coordinator	Committee on Construction and Housing and Municipal Infrastructure
12	Ilya Trafimovich Ten	Chief Engineer	Scientific Research Institute of Design
13	Toleutay Rakhimbekov	Chairman	National Chamber of Housing and Communal Services
14	Alibek Kabulbay	Chief	Energy and Energy Efficiency Institute
15	Tatyana Orlova	Deputy of head of Energy and Housing sector	Akimat of Karagandy Region
16	Sergey Poleshuk	General Director	«Ergonomix » LTD
17	Alexandr Entin	General Director	«Enkom -ST» LTD
18	Eldos Abakanov	Chairman	National Chamber of Energy and Recourse saving
19	Alexander Kiku	Program Coordinator	
20	Elena Kiku	Program Coordinator	
21	Tatyana Nemzan	Chairman	Public fund “Akbota”
22	Yuliya Nichkasova	Consultant	
23	Serikbolat Esengabulov	Expert	Nazarbayev University
24	Ilya Soloviev	Director	JSC " Aktino SKB'
25	Leonid Danilevsky	International Expert	
26	Danyar Azimkhan	Director	KazGBC
27	Nursultan Aubakirov	Project Manager	PRO ECO
28	Darya Miroshnechenko	Specialist	PRO ECO
29	Jiri Zeman	Consultant, MTE	
30	Alexei Sankovski	Chief of Party	KCCMP (a USAID project)

Annex 4: Summary of Field Visits

#	Organization/Place	Location
1	School #9	Astana
2	Ergonomix Company	Karagandy
3*	Apartment house on 106 Yermekova St.	Karagandy
4	Apartment house on 8 Stepnoy St.	Karagandy
5	Apartment house on 2 Yerzhanova St.	Karagandy
6*	Apartment house on 26 Mustafina St.	Karagandy
7	National Green Academy	Arnasay village
8	Astana teplotranszit	Astana

* Indicates pilot building under the project evaluated.

Annex 5: List of Documents Reviewed

Selected Project Documentation

Atlas Risk Log (accessed November 6, 2015).

Project Steering Committee. Minutes from the following meetings: 8 April 2011 (1st PSC Meeting); 5 May 2011 (1st Meeting of the Working Group on the Pilot Building Selection); 5 December 2011 (2nd PSC Meeting); 12 June 2012 (3rd PSC Meeting); 9 August 2012 (Extra 4th PSC Meeting – to approve participation in the panel construction initiative); 5 December 2012 (5th PSC Meeting); 11 December 2013 (7th PSC Meeting).

UNDP (2009). Request for CEO Endorsement (RCE) submitted to the Global Environmental Facility for the project.

United Nations – Republic of Kazakhstan (2009). United Nations Development Assistance Framework for the Republic of Kazakhstan: 2010-2015.

UNDP Kazakhstan – Republic of Kazakhstan (2009). Country Programme Action Plan, 2010-2015.

UNDP (2010). "Energy-Efficient Design and Construction of Residential Buildings." Project document [English and Russian versions]. Astana, 2010.

Zeman, J. and Panchenko, N. (2013). Mid-Term Evaluation Report of the UNDP/GEF Full Size Project "Energy-Efficient Design and Construction of Residential Buildings." Final Version: July 2013.

Project-Related Reports and Publicity

It should be noted that there are numerous project-related publications, ranging from technical reports to outreach materials and informational bulletins related to project implementation. All materials are available in Russian, and many are also available in English. This list does not include the majority of these materials, but they are available through the project website. Many other sources of project-related publicity are also available, ranging from press clippings, video clips, and an entire television program on energy efficiency.

Project website: www.eep.kz [accessed October 2015]

Aubakirov, Nursultan (2015). "The results of monitoring of energy consumption in the pilot project of UNDP / GEF in Karaganda". "Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Beliy, Alexandr (2015). “Key Results and achievements of the project”. “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Chao, Mark (2015). “Summary of Activities and Outcomes from the UNDP/GEF Full-Sized Project ‘Energy-Efficient Design and Construction of Residential Buildings.’” Astana: UNDP, 2015.

e-Karaganda [on-line newspaper] (2015). “В Караганде жилой дом получил сертификат энергоэффективности ‘А+.’” Karaganda: October 30, 2015.

Kazeikin, Vladimir (2015). “On the method of valuation of the life cycle of the building (LCB) as a decision-making tool for the implementation of energy efficient technologies in construction. The results of calculations on the cost of LCB example pilot site of UNDP / GEF in Karaganda”. “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Taubaldieva, Aksaule (2015).”The integration of educational processes for the promotion of energy efficiency in buildings: the contribution of UNDP”. “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Other Relevant Documentation

Alers, Marcel (2014). “UNDP’s Approach to Market Transformation for Energy Efficiency.” Presentation at conference on “Energy Efficiency in Cities,” Mexico, June 17, 2014.

Asian Development Bank (2013). *Kazakhstan Country Gender Assessment*.

Azimkhan, Daniyar (2015). “Kazakhstan sertification system of the green buildings.” Presentation from the “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Danilevsky, Leonid (2015). “Analysis of the energy consumption of buildings as a tool for compliance with building codes for energy efficiency.” Presentation from the “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Government of Kazakhstan (2009). Постановление Правительства Республики Казахстан от 26 января 2009 года № 50 Об утверждении нормативов энергопотребления [in Russian].

Government of Kazakhstan (2012). “Law on Energy Saving.”

Kazakhstan 2050 Website. www.strategy2050.kz/en

Sharipov, M. (2015). “Existing and new technical standards in the design and construction of energy efficient buildings, the prospects for the development of rule-making in the construction industry”. “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015.

Global Environmental Facility (GEF) and Conservation Development Centre (2009). Towards Enhancing the Impacts of Environmental Projects. The ROtl Handbook: August 2009. Washington, DC: GEF EO, 2009.

UNDP. *Handbook for Planning, Monitoring, and Evaluating for Development Results*.. New York: UNDP, 2009.

UNDP (2012). *Project-Level Evaluation: Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects*. New York: UNDP Evaluation Office, 2012.

Zhukenova, A. (2015). “The main directions of the Concept of transition of the Republic of Kazakhstan to the "green economy". “Promoting design and construction of energy efficient residential buildings in Kazakhstan" conference, Astana, November 4, 2015

Annex 6: Evaluation Question Matrix

Evaluative Criteria 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 at the local, regional and national levels?			
• Are project outcomes contributing to national development priorities and plans in accordance with the national legal and regulatory frameworks?	• % of energy consumption reduced in pilot residential buildings (*expressed in terms of TJs or MWh, depending on the situation*) • *consistency of project with government policies and programs*	• *APRs/PIRs* • *Other expert reports on Kazakhstan and Central Asia* • *Public statements* • *National Policy Docs. (e.g. Green Economy Concept)*	• UNDP/GEF Monitoring & Evaluation Policies
• How does the project relate to the GEF Strategic objective CC – 1 "To promote energy-efficient technologies and practices in the appliances and buildings" through improved energy performance in apartment buildings?	• # of adopted and mandatory energy efficient building codes • *Extent of application of energy-efficient design and construction principles* • *Use of efficient materials and technologies in new buildings*	• *Government register* • *Project technical reports* • *APRs/PIRs* • *MTE*	• UNDP/GEF Monitoring & Evaluation Policies
• How did the project contribute to GHG emissions reduction within the project implementation cycle and beyond?	• # of tons of CO_2e emission reductions **direct reductions (pilot buildings)* **direct post-project reductions (same)* **indirect (new codes, awareness-raising)*	• *Technical reports* • *Interviews* • *CC Tracking Tool* • *APRs/PIRs* • *Other stakeholder consultations*	• UNDP/GEF Monitoring & Evaluation Policies
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
• Are the achieved project outcomes commensurate with the original or modified project objectives?	• Yes/No	• *APRs/PIRs* • *Interviews* • *Field Visits*	• UNDP/GEF Monitoring & Evaluation

		• *MTE findings*	Policies
• Did the project outcomes provide the most effective means of achieving results?	• Yes/No	• *Original Logframe Analysis* • *Modified Logframe Analysis* • *Interviews*	• UNDP/GEF Monitoring & Evaluation Policies, Project and government reporting/statistics review
• How effective are project awareness raising and outreach activities/products on promoting energy efficiency in apartment buildings among all project stakeholders?	• Extent of influence the design and construction and public administration practices, including in sectors other than apartment buildings (e.g. residential and commercial)	• Project reporting • *Publication review* • *Interviews/consultations with stakeholders*	• UNDP/GEF Monitoring & Evaluation Policies
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
• How efficient was the financial management of the project, including specific reference to cost-effectiveness of its interventions?	• Extent to which results have been delivered with the least costly resources possible	• *CDRs* • *APRs/PIRs* • *Procurement documentation* • *Audit reports*	• UNDP/GEF Monitoring & Evaluation Policies
• What was the role of UNDP and National Implementing Agency in meeting the requirements set out in UNDP Programme and Operations Policies and Procedures?	• Extent of influence to ensure meeting the required international standards	• *APRs/PIRs* • *Interviews*	• UNDP/GEF Monitoring & Evaluation Policies, Project reporting review
• Are the systems for accountability and transparency of project management approach/results and meeting the relevant national norms and standards in place?	• # of national norms and standards met *[to be discussed]*	• Project and national reporting *[to be discussed]*	• UNDP/GEF Monitoring & Evaluation Policies
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
• Were the risks identified in the project document and PIRs appropriate and were corresponding risk management strategies/systems adopted	• Extent of risk appropriateness (scaled rating)	• *Prodoc* • *Atlas Risk Log*	• UNDP/GEF Monitoring &

and implemented?	• Yes/No	• *APRs/PIRs* • *External literature*	Evaluation Policies
• Whether or not national stakeholders participating in project management and decision-making have ownership for project outcomes and their further replication and scaling-up?	• Yes/No • *Extent of ownership (scaled rating)*	• *Minutes from Project Board meetings* • *Interviews* • *Co-financing review*	• UNDP/GEF Monitoring & Evaluation Policies
• Was the project sustainability strategy relevant and efficient?	• Yes/No • *Extent of relevance (scaled rating)* • *Extent of efficiency (scaled rating)*	• *Project documentation* • *External reference literature on Kazakhstan*	• UNDP/GEF Monitoring & Evaluation Policies
• Are there any environmental risks that may pose a threat to the sustainability of the project outcomes?	• Yes/No	• *National environmental assessments* • *Interviews*	UNDP/GEF Monitoring & Evaluation Policies
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
• What contribution did the demonstration energy efficient buildings (green homes and other buildings built with indirect influence of project interventions, if any) have on improving the environment situation in their locations?	• # of tons of CO_2e Emission reductions **direct reductions (pilot buildings)* **direct post-project reductions (same)*	• *Project monitoring* • *National GHG inventories*	• UNDP/GEF Monitoring & Evaluation Policies • *GEF ROtI Guidance*
• How the project did enable reducing pressure on corresponding natural resources (e.g. through reduced use of primary energy sources, and/or use of renewables)?	• *# of TJ (or MWh) of primary energy resources saved*	• *National energy balance* • *Project monitoring*	• UNDP/GEF Monitoring & Evaluation Policies
• *What kinds of changes due to the project have been significant to the stakeholders and beneficiaries? Have there been any unintended consequences? Are there good practices or lessons learned that would be relevant to similar projects in Kazakhstan or elsewhere?*	• *Responses will be open-ended, qualitative responses gathered using the "Most Significant Change" (MSC) Technique*	• *Interviews with stakeholders and beneficiaries*	• *MSC Guidance: http://www.mande.co.uk/docs/MSCGuide.pdf*

Annex 7: Questionnaire Used and Summary of Results

For in-country mission:

Because of the varied nature of the stakeholders and the very wide variety of their involvement in the project, a standardized questionnaire was not used. However, a selection from the following pool of questions was used with interviewees. In addition, the questions regarding project efficiency, implementation, and results from the ToRs for the terminal evaluation were discussed, and stakeholder assessments (and examples to support these assessments) were solicited and documented.

For All Stakeholders:

- Name of Interviewee
- Institutional Affiliation
- Relationship to Project
- How have you participated in the project?

Question Pool:

- What would you say has been the most significant change you have seen due to the project activities?
- In your opinion, which project activities have been the most effective?
- Which have been less effective?
- How relevant is the project and its activities to the problems facing Kazakhstan today?
- Can you identify any external influences (policy, economic, social) that have influenced the project? Examples might include changes in tariffs, institutional restructuring, or something else.
- Do you see any potential risks that could affect the results that the project has achieved after it finishes?
- Have you participated in or observed other internationally-funded energy and/or climate change mitigation projects?
    - If so, how would you compare this project to other projects in this area?
- How useful have the services provided by the project been to you or your organization?
- How effective has the project been in terms of generating policy change? How efficient is the project at using resources?

- Of the project results, which would you say is the single most important?
- Can you identify any long-term sustainable benefits from the project already?
- Do you think that the project's achievements will continue to generate benefits after it finishes this year?
    - If so, in what way?

- What have been the biggest difficulties in implementing the part of the project in which you have been involved?
- What would you say is a "good practice" that you have seen from the project?
    - Would it be relevant to other countries in addition to Kazakhstan?
- Do you feel that you are sufficiently informed about the project's progress and activities?
- Where do you get your information about the project?
- Is there a particular article, presentation, media appearance, or publication that you remember?
    - What was it about?
- Is there anything else you would like to share that would be relevant to the evaluation?

For International Project Consultants and other Stakeholders outside of Kazakhstan:

International Project Consultants will receive the following questions in writing via e-mail, and their written responses will be integrated into the findings and conclusions of the terminal evaluation.

1. Consider the project component in which you were involved: in your opinion, how relevant will this component be for Kazakhstan in the future? In what way?

2. What do you perceive as the biggest challenges related to the field in which the project works in Kazakhstan?

3. Are there any lessons learned or good practices that you could share from your observations as an international consultant with this project?

4. Is there anything else you would like to share that would be relevant to the evaluation?

Annex 8: Evaluation Consultant Agreement Form

Evaluation Consultant Agreement Form[29]

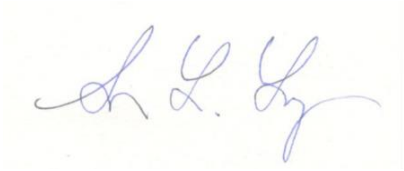
Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Susan L. Legro

Name of Consultancy Organization (where relevant)**:** Not applicable

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

Signed at *Prague, Czech Republic* on 21 August 2015

Signature: 

Evaluation Consultant Agreement Form

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

Name of Consultant: Zhannat Bekbolatova

Name of Consultancy Organization: Not applicable

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

Signed at *Almaty, Kazakhstan* on 09 November 2015

Signature:

[29] www.unevaluation.org/unegcodeofconduct

Annex 9: Project Impact Estimate

	Housing Stock	Floor space (m^2)	Specific mean heat con-sumption (kWh/m^2)	Overall heat energy consumption (million kWh)	Gcal	CO_2 (tonnes)
Baseline	Existing	177.058	216	38244.528	**32852049.55**	**17,283,463.27**
	New construction	10.115	216	2184.84	**1876777.56**	**987,372.67**
	Retrofitted	*				
	Total	**187.173**		**40429.368**	**34728827.11**	**18,270,835.94**
With Project	Existing	157.913	216	34109.208	**29299809.67**	**15,414,629.87**
	New construction 2014,2015	10.115	133	1345.295	**1155608.405**	**607,965.58**
	New construction 2013	6.843	133	910.119	**781792.221**	**411,300.89**
	New construction 2012	6.05	133	804.65	**691194.35**	**363,637.35**
	Retrofitted 2014	2.172	183.6	398.7792	**342551.3328**	**180,216.26**
	Retrofitted 2012	2.346	183.6	430.7256	**369993.2904**	**194,653.47**
	Retrofitted 2011	1.734	183.6	318.3624	**273473.3016**	**143,874.30**
	Total	**187.173**		**35853.2822**	**30797969.41**	**16, 202,811.71**
	Savings			**4576.0858**		
				11.3	**%**	**2,068,024.24**

* Only new and retrofitted housing in the period of project implementation

** Reduction in emissions by 2015, taking into account the impact of the project

Annex 10: Pilot EE Building at 106 Yermekova St. (Case Study)

INTRODUCTION

The new pilot building designed, constructed, and commissioned under this project is both an example of the great potential for energy savings in the residential building sector in Kazakhstan and an example of the barriers to realizing these savings to their full extent. This case study is attached as an appendix because some of the difficulties that have arisen are not measured in the project results framework; however, they raise important institutional and social concerns, and they can inform future decision-making.

CHRONOLOGY OF EVENTS

The progress of the pilot building is thoroughly documented in the project's annual PIRs. The **selection** process for a building to serve as the pilot for energy efficiency improvements under Component 4 of the project was thorough and well documented. The regional administration in Karagandy Region expressed interest in participating, and a planned building on Yermekova St. to be built by the Ministry of Employment was selected in the spring of 2011 as the pilot building to demonstrate new construction. One reason for the selection was the presence of a similar building planned adjacent to the proposed pilot building. The similar could then serve as a baseline for energy use.

Several stakeholders interviewed commented on difficulties in the **design** stage, which involved making recommendations for a building that was mostly designed. UNDP-supported experts reviewed the design and identified some shortcomings, such as cold bridges that were accidentally included in the building's external façade. They also identified a variety of energy-saving measures, ranging from air exchangers with waste heat recovery on each floor to thermostatic valves and smart lighting (with motion detectors) at the apartment level. According to the agreement between UNDP and its partner, the "baseline" building was supposed to be as similar as possible for purposes of comparison; however, it was built with some crucial differences, such as a hot water system connected to the heat grid (the pilot building uses an electric hot water heating sytem).

Procurement was fairly labor-intensive and is described in the "Lessons Learned" section of the evaluation. A building contractor was procured by the City Administration under its procedures. **Construction** of the 10-story, 170-unit building with four entryways proceeded. The expected energy efficiency rating of the building was "B," which would represent higher thermal performance than building codes required (the estimated thermal performance of the baseline building, by comparison was "D"). As constructed, the building included additional insulation of the building envelope, energy-saving windows, air exchangers with waste heat recovery units, horizontal heat distribution piping, apartment-level thermostats and heat meters, and a centralized dispatching system for heat supply and ventilation. The incremental cost of construction was calculated at 9.5% over the costs of the baseline building.

The building was commissioned in the fall of 2013. Following construction, the **ownership** of the building was transferred from the Ministry of Employment to the City Administration of Karagandy. The building, which consists of rental apartments, currently has two of its four entryways occupied by tenants. Several people interviewed reported that there have been difficulties with finding tenants, because the apartments are relatively large (and therefore more expensive) compared to the local market.

The first winter in **operation**, the building experienced problems with its air exchangers[30] and with the metered billing systems. Both of these problems were resolved after UNDP hired a local company to operate the systems, and all of the equipment operated as anticipated during the 2014-2015 heating season. With the equipment working properly, the project measured savings against the baseline building of 47% during the heating season (Aubakirov 2015). However, following the conclusion of a service agreement for the equipment arranged by the project, the air exchangers were taken out of operation, because the Karagandy City Administration failed to conclude an agreement with a service technician.

Unfortunately, a management issue has reduced economic savings by the occupants. Because they have apartment-level heat meters, occupants qualify for a heat tariff that is 28% lower than the tariff for consumers in buildings with a building-level meter. However, only the building owner can request the lower tariff from the district heating company. The owner of the building (the City Administration) has not requested this tariff in spite of repeated appeals from the project team.

SITE VISIT

The evaluation team visited the building mid-day on Wednesday, October 28th. The outdoor air temperature was approximately 2-3 degrees C. The team observed the heating point at the building level, and they noted the very low temperature of the incoming heat from the network: 47C. On the same afternoon, the team visited another DH-connected apartment building in which the incoming temperature was 70C.

[30] Opinions differed among interviewees as to whether this was due to improper installation or to extreme climate conditions.

Photo on the left: incoming temperature at the new pilot building
Photo on the right: incoming temperature at another building on the network

Clearly, the heating situation in the building was affected by the performance of the district heating company. Infrastructure problems in the transmission and distribution network, such as insufficient insulation in aboveground transmission pipes, were also

observed.

Although it was the middle of the day, several apartments had balcony lights on, indicating that the motion sensors had been disabled. This was an example of occupant behavior influencing the energy performance of an efficiently designed building.

The team also visited the dispatching center and observed the meters and the air exchanger on the ground floor nearest the dispatching center (see photo below). The technician accompanying the team confirmed that the unit was in working order – however, it was not in operation.

Several tenants approached the team during the site visit and voiced complaints about their hot water supply, which three tenants stated had not been working in three weeks. This was not something that the project was involved in, because the pilot building uses an electric water heating system (which the team did not observe). As with the building-level heating equipment, the City Administration is responsible for the hot water supply in the building. Other problems, such as security concerns related to non-residents using the rooftop, seemed to be neglected by the building owner.

It seemed difficult for the tenants to understand the boundaries of the responsibilities of the project and the building's current owner, the City Administration. It was also difficult and frustrating for tenants to understand that any decisions about communal services in the building, including action on their heating tariff could only be made by the City Administration as the building's legal owner. One resident interviewed mentioned an additional factor: fear on the part of the tenants that if they complained about the quality of services in the building, they could be evicted.

Tenants were also frustrated with the higher-than-necessary tariff for heating, and one of them mentioned a key problem with the fuel benefit (a monthly cash supplement of 7000 KTG for which low-income families are eligible): the process of getting the subsidies, which includes confirming eligibility each month, is incredibly burdensome. As one woman, a tenant in the pilot building, said, "I have six children. I can't leave them alone [to go do paperwork]."

KEY ISSUES RAISED

- The most important short-term issue is the well-being of the occupants. While the project team's formal involvement with the building has ended, it has nonetheless been writing to the City Administration for a year to urge them to provide acceptable levels of communal services for their tenants. Other stakeholders also expressed frustration about the lack of movement at the city level and mentioned a problem with staff turnover (there have been four contact points in five years). The current situation of the tenants is saddening and frustrating, as it is beyond the control of the project. However, the Project Steering Committee and UNDP Kazakhstan should continue to urge the City Administration to improve the situation at the pilot site.
- The sustainability of O&M arrangements should be consider during the selection process and built into the arrangements with implementing partners.
- Even an efficient building may not be able to provide a comfortable living environment when there are problems with heat supply quality. In a way, this issue relates closely to the first, because the City Administration could take moves to pressure the DH company to improve if it chose to do so.
- Residents were not explicitly named in the original project design as beneficiaries. As noted in the evaluation's recommendations, future projects would do well to include them and to monitor comfort and satisfaction.
- Stakeholders differed in their opinions about whether technology-intensive measures such as the air exchangers with waste heat recovery units were worthwhile investments. This is an open point for discussion. Those in favor felt that it was important to have a high-tech demonstration building to serve as a "beacon," while others felt that more low-tech or design innovations could have reduced complications in construction and O&M.

Annex 11: Management Response Tracking Template

Author	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
Marina Olshanskaya, UNDP Regional Technical Advisor	1	Page 6	Need to include table with estimate of co-financing at project closure.	A table has been added on page 24 under the section on co-financing, and these numbers have been included in Table 1 as well.
Ibid.	2	Page 20	Elaborate here also on the appropriateness and the role of NIM partner for the project.	Text has been added to this section with more details regarding the NIM partner.
Ibid.	3	Page 22	Specify the previous and current institutional affiliation of the NPD	This information has been added in the text.
Ibid.	4	Page 28	Should emphasize the importance of an on-time finish for the project	Wording has been strengthened. This is probably the only project in its cohort that has finished on time.
Ibid.	5	Page 31, Reviewer comments for 1.3	Need to correct typographical error	Corrected.
Ibid.	6	Page 50	Need to strengthen / place into context the project's administrative accomplishments, particularly its on-time implementation, relative to the larger UNDP-GEF portfolio	Wording has been strengthened.
Ibid.	7	Page 52	Apparently, UNDP is not allowed to provide grants to anyone, including to homeowners -	Noted – text has been re-worded for clarification.
Ibid.	8	Page 100	"Please include in the recommendations [regarding the inclusion of residents as beneficiaries and the need to monitor their satisfaction] to UNDP-GEF"	Included as Recommendation #1 for UNDP RBEC.
Stephanie Ullrich, UNDP Bureau for Policy and Programme Support, Sustainable Devleopment Cluster	1	Methodology Section	"In the Methodology section, the principles for ensuring the quality and integrity of the evaluation (e.g. quality assurance measures, limitations of the evaluation) should be described. In addition, the evaluation criteria (e.g. relevance, efficiency, effectiveness, sustainability and impact) should be identified, explained, and defined. The criteria should be defined (there are definitions in the UNDP TE Guidance that the evaluators can refer to)."	Information on quality assurance and limitations of the evaluation have been added on page 12. Evaluation criteria are, in fact, defined in Annex 6 (which is already referenced on page 12) and were also included in the TE Inception Report.
Ibid.	2	Findings Section	"I find most of the ratings to be well-justified with evidence (with a few exceptions, see the next point below), but you are best to comment on these given	In order to comply with the UNDP Code of Conduct, which requires evaluators to "present information that is

			your technical knowledge of the project. That being said, there are many Highly Satisfactory (HS) ratings given (for M&E implementation, project efficiency, UNDP implementation, overall implementation/execution, and many outcomes/outputs); generally HS ratings are reserved for categories/projects that exceeded expectations, have no shortcomings, and are considered best practice (whereas Satisfactory [S] is given for categories/projects that have done very well and have met their expectations with only minor shortcomings). I would therefore recommend checking these categories to see if indeed these HS ratings are justified, or if some of them are a little inflated."	complete and fair in its assessment of strengths and weaknesses," the evaluation team must adhere to the definition of ratings as they are clearly stated in the Terms of Reference and in Table 3 of the Terminal Evaluation Report; i.e., HS = "The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency." Additional documentation has been added at several points in the report to support the ratings issued, and comparisons are provided in relation to the regional project portfolio.
Ibid.	3	Page 46	3. The following ratings could use more justification: o Relevance (p. 46): there is no connection drawn between the project and to country programme documents and/or country programme action plans (this is only briefly mentioned in regards to UNDP implementation). This section is generally lacking in evidence. o Efficiency (p. 46): it is unclear how the efficiency criteria is defined by the consultants. This area is also lacking in evidence.	This information on country programming documents was provided under the description of "Alignment" and has now been added to the section on "Relevance" and additional information has been provided. Efficiency criteria ("Was the project implemented efficiently, in-line with international and national norms and standards?") were, in fact, provided in the TER in Annex 6. Discussion has been added to the section referenced here in support of the evaluation questions referenced.
Ibid.	4	N.A.	4. The TE does discuss mainstreaming, but it doesn't adequately discuss the extent to which the project was able to mainstream of UNDP programme principles into its results. In this way, the report should also discuss the project's linkage to the United Nations Development Assistance Framework. As stated in the ToR, the TE should assess	Text has been added under the "Mainstreaming" section and in the "Conclusions" section.

			the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender (as it's already done), as applicable. The conclusions should also touch on the project's contribution to UNDP programme principles (e.g. gender equality, human rights and capacity development)."	
Ibid.	5	Page 49	5. In the Impact section (p. 49), there is an analysis on the project's impacts in regards the meeting the project objective, however the TE doesn't fully address the ToR in regards to impact analysis. As stated in the ToR, the TE should also assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluation includes whether the project has demonstrated: a) verifiable improvements in ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.	As this is a climate change mitigation project, and the development objective refers specifically to the mitigation of greenhouse gas emissions (which is defined as an impact by virtue of its being "Reduced Threats to Global Environmental Benefits"), GHG reduction estimates are seen as the primary impact of the project. Improvements in energy efficiency may be defined as verifiable reductions in stress on ecological systems due to the reduced use of fossil fuel, and this clarification has been added to the discussion of project impacts referenced.
Ibid.	6	Recommend-ations Section	6. Some of the recommendations are vague and could use more specificity. In addition, the recommendations should provide advice for the intervention's exit strategy or sustainability. The recommendations are clearly stated, but I recommend that the consultants also number and prioritize the recommendations.	The recommendations on pages 54-56 have been numbered. The recommendations do not address the project's exit strategy, because the project has provided this (as documented) in the form of existing and new projects in the portfolio and in the form of the building codes and enforcement capacity, which are self-sustaining.