

# **FINAL EVALUATION REPORT**

of the

UNDP/GEF Full Size Project

**Kazakhstan:**

## **Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply**

Atlas Project ID: 00051578

PIMS: 1281

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## Abbreviations and acronyms

AAO	Association of Apartment Owners
ADB	Asian Development Bank
APR	Annual Project Review
AREM	Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies
ADS ZhKH	Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure
AWP	Annual Work Plan
bil	billion, 1 000 millions
CHP	Combined Heat and Power (equivalent to co-generation)
CO	UNDP Country Office
DH	District Heating
EA	Executing Agency
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EPC	Energy Performance Contract
ESCo	Energy Service Company
GEF	Global Environment Facility
GHG	Greenhouse Gas
HOB	Heat Only Boiler
LogFrame	Logical Framework Matrix
M&E	Monitoring and Evaluation
MEMR	Ministry of Energy and Mineral resources of Republic of Kazakhstan
MTE	Mid-Term Evaluation
NGO	Non-Governmental Organization
PDF	Project Development Facility
PIMS	Project Information Management System (UNDP GEF)
PIR	Project Implementation Review
PIU	Project Implementation Unit
PPP	Public Private Partnership
RK	Republic of Kazakhstan
ToR	Terms of Reference
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US AID	United States Agency for International Development

## 1. Executive Summary

GEF Project ID:	1281
GEF Agency Project ID:	00051578
Country:	Kazakhstan
Project Title:	Removing barriers to energy efficiency in municipal heat and hot water supply
GEF Agency:	UNDP
Other Executing Partner:	Agency for Construction and Housing and Municipal Infrastructure – executing agency (originally AREM – Agency for Regulation of Natural Monopolies)

The Project development started by approval of PDF-A in 1998 and PDF-B in 1999. The full size Project Document was developed in 2004. The Project document was signed by the Government and UNDP on December 15, 2006.

The whole project preparation phase including development and approval of the project document lasted 9 years (1998-2006). The originally four-year project was planned to be closed in December 2010.

During the project implementation phase the project has been extended twice (by 1 and 1.5 years), and is scheduled to be completed in June 2013. Originally planned project implementation period of 4 years was extended to last 6.5 years in total.

**Table 1: Project Timeframe**

	Expected date	Actual date
CEO endorsement/approval		2005
Agency approval date		12/2006
Implementation start		2007
Midterm evaluation completion		9/2009
Project completion	12/2010, 12/2011 6/2013	6/2013
Terminal evaluation completion	3/2013	5/2013
Project termination	6/2013	6/2013

GEF has provided a grant of 3.29 mil USD for project implementation.

Planned co-financing of 7.18 mil USD consisted of the government of the Republic of Kazakhstan in kind support of 0.13 mil USD, and cash co-financing from Almaty municipality in the amount of 1 mil USD, Kokshetau municipality 3.19 mil USD, and private Kokshetau Power utility 2.86 mil USD.

The total budget of the project was planned to be 10.47 mil USD.

The actual cash co-financing provided was 54.8 mil USD, of which 48 mil USD by the National Program on Modernization of Housing and Municipal Infrastructure (as of 3/2013).

## **1.1 Brief description of project**

The project objective is to reduce greenhouse gas emissions from the municipal heat and hot water supply systems in Kazakhstan and to lay down the foundation for the sustainable development of these services taking into account local as well as global environmental considerations. The project was designed to build the capacity and create incentives for the implementation of new institutional and financing mechanisms with the target to leverage new, local sources of financing for the energy efficiency investments needed.

Within this framework, the project was designed to:

- (i) assist the Government of Kazakhstan in reviewing and improving the legal and regulatory framework dealing with the heat and hot water supply sector, with a specific emphasis on the tariff issues and consumption based billing to motivate energy efficiency;
- (ii) build the capacity of the local heat supply companies to develop and manage their services on a commercial basis and to attract financing for the investments needed;
- (iii) build the capacity of the local tenants and home owner associations to manage the heat and hot water supply services and to implement cost-efficient energy saving measures at the building level;
- (iv) introduce and gain experience on new institutional and financing arrangements such as Energy Service Companies (ESCOs) and reduce the risks and uncertainties of energy efficiency investments in the heating sector otherwise by facilitating the implementation of selected pilot activities, and
- (v) monitor, evaluate and disseminate the project results and lessons learnt thereby facilitating their effective replication.

## **1.2 Context and purpose of the evaluation**

This Final Evaluation has been performed on a request of UNDP CO Kazakhstan as the GEF Implementing Agency as a part of a standard project monitoring and evaluation procedure of UNDP/GEF projects.

The Final Evaluation including on-site mission has been performed during the period April - May 2013.

## **1.3 Main conclusions, recommendations and lessons learned**

The project was developed with a goal to reduce GHG emissions from district heating in Kazakhstan and an objective to remove barriers to energy efficiency in municipal heat and hot water supply systems in Kazakhstan and to lay foundation for the sustainable development of these services taking into account local as well global environmental considerations.

The project was designed to work in three components:

1. Legal and regulatory changes
2. New institutional and financial models, and
3. Lessons learned analyzed and disseminated



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Key components of the project were planned to be two large pilot projects – energy efficiency rehabilitation of the DH utility in Kokshetau, and a creation of municipal ESCo in Almaty – that were designed to generate annual savings of 30 000 tCO<sub>2</sub> .

DH utility and municipality in Kokshetau have provided in 2004 when Project Document has been finalized written commitment to provide co-financing for the project over the period of next two years, the co-financing commitment of Almaty municipality was not time bound.

Because of a lengthy period between Project Document submission in 2004 and a project approval and signature in December 2006, the co-financing commitment of Kokshetau DH utility and municipality have expired even before the actual start of the project. In addition to this, because of low tariffs and poor financial performance, the private DH utility in Kokshetau has bankrupted in the meantime, and the designed project that accounted for 95% of planned GHG savings could not have been implemented.

The actual project implementation started with a half year delay in mid 2007, after the project manager and key project staff have been hired.

The first implementation period between the inception workshop in September 2007 and the Mid-Term Evaluation in September 2009 witnessed some progress in work, some project activities have been redefined, the capital city Astana has been involved as a project partner and two pilot projects in Astana have been implemented. However, no alternative solution for the abolished major GHG savings generating pilot project in Kokshetau has been found, the ESCo pilot project in Almaty was delayed, the project faced significant uncertainty how to reach projected GHG savings. The National Project Director has been replaced in 2008, and in 2009 also a new Project Manager has been appointed. MTE rated project implementation with the second worst grade on a four grade scale.

After MTE and under a leadership of the new Project Manager and with an active support from the UNDP CO the project received a new drive and adopted effectively active adaptive management.

In 2009 the Executing Agency has been replaced. The newly created Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure has been appointed to serve as an Executing Agency instead of the former AREM, Agency for Regulation of Natural Monopolies. After even the pilot ESCo project in Almaty failed, the project focus was changed from originally planned large supply-side projects to small scale building level DH energy efficiency projects in Astana, one pilot project in Almaty, and ESCo pilot projects with a private company in Karaganda.

During the second phase of project implementation after MTE and with a total project extension of 2.5 years till June 2013, the project has delivered practically all projected results and it catalyzed the initiation of the country's DH transformation towards more energy efficient one.

Under the Legal and regulatory component, the project developed a draft of the Law on Energy Efficiency that was approved in 1/2012, prepared several policy and analytical papers, methodology on energy planning adopted by the Ministry of Industry and New Technologies, and thanks to the project long-term close cooperation with the government the project managed to reach one of its major achievements – to incorporate energy efficiency component into the newly developed 5.8 bil USD 2011-2020 National Program on Modernization of Housing and Municipal Infrastructure. Till 3/2013, the Program has spent already about 48 mil USD, or 40% of the total expenditures, on energy efficiency upgrades and has already generated about 30-40 000 tCO<sub>2</sub> savings annually.

Within the second project component - New institutional and financial models, the project has demonstrated in 17 building level projects in Almaty, Astana and Karaganda three different financial schemes based on a

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revolving principle, when the financial savings are accumulated and spent for further EE investments. Pilot projects were based on a close cooperation with and training of municipalities, district heating (DH) utilities, Association of Apartment Owners (AAOs), building maintenance companies and in Karaganda establishment of ESCo type services with a local private company. Pilot investment projects were rather small scale, were implemented at individual multiapartment or school buildings and included installation of heat metering, heat substation with heat exchangers and heat flow regulation, and new building level domestic hot water supply. Due to their smaller size they did not reach the expected GHG savings of 5 000 tCO<sub>2</sub>/year. However, these GHG savings were more than offset by GHG savings generated by the National Program that can be fully accredited to the project. The project worked with Astana, Karaganda and Pavlodar and developed jointly regional/municipal energy saving plans, concept of energy management and methodology of energy auditing in public sector. The project has developed a feasibility study of the 90 mil USD modernization of the Kustanai DH utility (replacement of old natural gas CHP and HOBs with new combined-cycle CHP and efficient burners) with annual savings of 260 000 tCO<sub>2</sub>.

Under the third component numerous information dissemination and training activities have been performed targeted to municipalities, AAOs, regional governments, private service companies, energy consumers and general expert audience. Monitoring protocol for EE projects in residential and municipal buildings has been developed and applied in pilot buildings.

The project trained and strengthened capacity of governmental agencies, municipalities, AAOs, and private building service and energy service companies that gained sufficient expertise and are dedicated to EE and already work in energy efficiency within their own budgets.

During the project implementation the UNDP and its PIU has gained an excellent reputation and is nowadays widely recognized in the country as a skilled and professional team with unique expertise in energy efficiency. The Government of RK has provided 0.7 mil USD and selected UNDP to implement a follow-up complex energy efficiency project in a small Prigorodnyi settlement. The Government did not choose UNDP because of a potential funding source, but because of its excellent local expertise and skills.

Despite the success of the project, there is still a long way to go to fully utilize the energy efficiency potential. Heat tariffs are still low and do not cover full costs. DH thus does not attract private capital and energy efficiency improvements rely heavily on subsidies from public budgets. Building level heat metering is not mandatory in all existing buildings, the project did not demonstrate benefits of apartment level consumption based billing and installation of radiator level heat costs allocators and thermostatic valves because it evaluated the payback would be too long with current heat tariffs. However, the foundations have been laid, funding from the National Program is available, financing schemes and pilot projects have been demonstrated and there are trained local experts and organizations in public and private sectors skilled enough to implement further projects in energy efficiency.

The overall rating of the project is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

Rating of individual project evaluation benchmarks is summarized in Table 2.

**Table 2: Summary Rating of the Project Implementation**

	Rating
<b>Project Formulation</b>	
Project relevance (HS) and implementation approach in ProDoc (due to expired co-financing commitment for the Kokshetau pilot project at the time of project signature)	MS
Logical Framework	S
Lessons from other projects incorporated	HS
Planned stakeholder participation	HS
Replication approach and sustainability strategy	HS
UNDP comparative advantage	HS
Linkages between project and other interventions	HS
Management arrangements	HS
<b>Project Implementation</b>	
Project implementation and adaptive management	HS
Partnerships arrangements	HS
Monitoring and evaluation	HS
Feedback from M&E used for adaptive management	HS
Financial planning and management	HS
Management by the UNDP office	HS
<b>Project Results</b>	
Overall results and attainment of objectives	HS
Relevance	R (relevant)
Effectiveness and efficiency	HS
Country ownership	HS
Sustainability	L (Likely)
Project impact	S (Significant)
<b>Overall Project Rating</b>	<b>HS</b>

**Rating scales:**

HS – Highly Satisfactory, S – Satisfactory, MS – Moderately Satisfactory, MU – Moderately Unsatisfactory, U – Unsatisfactory, HU – Highly Unsatisfactory

Relevance: R – Relevant, NR – Not Relevant

Sustainability: L – Likely, ML - Moderately Likely, MU - Moderately Unlikely, U – Unlikely

Impact: S – Significant, M – Minimal, N - Negligible

**Summary of key recommendations:**

- LogFrame is used for rating of overall project achievements, and needs to be backed up by a clear project strategy and a work plan of individual project activities

LogFrame indicators should reflect overall project objectives, outcomes and outputs, but not detailed and specific project activities. In addition to the LogFrame a clear project strategy and a work plan including all relevant key projected activities and time-bound milestones, indicators and targets should be developed for the whole project implementation period to reflect in detail the project strategy. These detailed activities and targets are subject to regular updates in annual work plans. LogFrame matrix on the other hand should remain unchanged during the implementation period if possible, with potential updates at the inception

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period and after MTE only. For operational management of project progress the LogFrame is not detailed enough. Thus annual work plans, including time bound targets and activity specific budgets are used for this purpose.

- Financial health of partnering commercial entities (utilities) should be screened during project development phase

When designing pilot projects to be implemented jointly with a commercial entity (municipal utility, private company), in addition to a feasibility analysis of proposed technical solutions and their cost-benefit analysis a long-term financial viability of a commercial entity should be assessed as well to minimize a risk of its potential bankruptcy.

- Building level DH substations and metering should ideally be utility responsibility

Building level substations, regulation and metering should ideally be owned and operated by the DH utility. This arrangement is typical in most countries because then the investment, operation and maintenance is typically less costly. In its future activities, UNDP should support governments to include this responsibility of DH utilities into national regulations or at least to perspective policies in case DH utilities are not financial capable to invest into installation of building level heat substations and metering in a short-term.

- Building level heat metering and regulation is the necessary first energy efficiency step in multiapartment buildings served by DH that should be followed by installation of apartment level heat cost allocators and thermostatic valves

Installation of building level heat metering and regulation, together with building heat substations is ideally responsibility of heat utility and it typically generates significant savings with relatively low investment. However, this still does not provide sufficient financial motivation for individual apartment owners to use their energy efficiently, especially in large multiapartment buildings. Installation of radiator level heat costs allocators (HCA) and thermostatic radiator valves (TRV) in existing systems, even when this requires reconstruction of heat piping in apartments, gives apartment owners full control of the indoor temperature comfort and heating costs and motivates them to use heat regulation instead of window opening. In newly built apartments apartment level heat metering is often preferred to installation of heat costs allocators that need in addition to annual reading of HCAs also annual calculation of individual heating bills. After demonstrated benefits of *building* level metering and regulation, UNDP should in its future activities focus on demonstration of *apartment* level heat metering and regulation as well (installation of HCA and TRV).

- Major changes in project management and even replacement of Executing Agency should be implemented if it strengthens the project implementation

Frequent changes in project management cause loss of gained knowledge and expertise. However, if the project focus or its underperformance requires changes in project management arrangements, such changes should be implemented immediately. This applies also in case of changes in governmental structures. If new specialized state agencies with a proper mandate are created (such as the case of establishment of the Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure) it provides a legitimate reason to change the Executing Agency. An important aspect of adaptive management is also adaptation to new structures of Government which better suits the purpose and mandate of the project

- Time period between ProDoc submission/approval and ProDoc signature should be minimized and co-financing commitments should cover relevant project implementation period

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In order to avoid expiration of co-financing commitments, the commitments should cover relevant period of project implementation and should take into account the period until the project document is signed and actual project implementation starts.

- Process of hiring project staff should be initiated immediately after GEF CEO approval

Project implementation period officially starts with a signature of a project document. Lengthy process of competitive hiring project manager and project staff causes often delays in effective start of project implementation by several months. These delays should be minimized in order to be able to effectively utilize whole project implementation period. Initiation of project staff hiring immediately after GEF CEO approval of ProDoc enables the project implementation to effectively start within few weeks after ProDoc signature.

### **Main lessons learned:**

- The success depends on people – skilled, professional, dedicated leaders can make a difference

The project was originally designed to rely heavily on two large pilot projects that unfortunately could not have been implemented because of external financial factors that were out of project control. After two years of weak project implementation performance, with the newly installed project manager and skilled local experts with active and effective support from UNDP CO refocused the project to work more on a local level as well as with government and achieved excellent project results. Strong personalities of project leaders (both in a project team and UNDP CO), although relatively young but dedicated, flexible and willing to learn, in combination with skilled senior experts with a good overview of international experience, delivered results and brought up the project from low to excellent rating.

- Good projects do not need long preparation

The lengthy project development phase of 9 years allowed preparing a very good project document, and also during this period the project has already worked with local stakeholders and delivered some useful results (feasibility studies of several potential DH rehabilitation projects etc). However a significant part of this work turned useless when both planned pilot projects failed because of financial problems of the DH utility and municipality. Good project document needs to be based on good understanding of local needs and opportunities and relevant international experience, but does not need to be a comprehensive and costly study. The project document should be developed and approved within significantly shorter period (ideally within one year).

- Timing of the project is critical for its success

Kazakhstan as an oil and natural gas rich and export oriented country experienced since 2000 high GDP growth between 7 and 12% (except for 2008-9), and high income to the state budget. The project heavily benefited from this good socio-economic development in Kazakhstan that is in a position to finance from its public budgets ambitious modernization program, although average income level and heat tariffs are still rather low, and DH distribution companies generate financial losses. Should the same project be implemented earlier, the results would probably be much more difficult to achieve. Should it be implemented later, the project value added might be lower, or the losses from inefficient DH unnecessarily costly.

- Low heat prices do not attract private capital to invest to DH modernization

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Heating tariffs that are regulated below full costs require significant public sector subsidies and/or guarantees for financing of DH rehabilitation and typically are not sufficiently high enough to finance all needed DH rehabilitation. On the other hand DH bills should be affordable so that the bill collection can be sufficient also for a financial viability of DH utility. Energy pricing and regulation in transition economies is highly politically sensitive issue, however without a clear policy towards increase of energy prices to a full costs recovery level most of the cost-effective energy efficiency potential tends to remain untapped.

- Active and dedicated partners are critical for long-term project success

The project pro-actively sought opportunities and identified right and committed partners beyond government agencies only, and heavily benefitted from cooperation with dedicated and active partners on a governmental level, private sector companies and AAOs. The project provided training to their staff and helped to build their capacity in energy efficiency project development, financing and monitoring. However, without such active and dedicated partners the sustainability of project achievements would be likely jeopardized.

- Support of top level politicians attracted attention to energy efficiency

The project worked closely with national politicians, members of parliament, and it was able also to attract attention of top politicians as well. President of Kazakhstan, Mr. Nazarbayev, the Prime Minister of the country, Mr. Serik Akhmetov, and a Vice Prime Minister, Mr. Umirzak Shukeev visited on different occasions different project sites, and the project presented personally to them concrete project results. The support to energy efficiency projects declared by the top level politicians has received wide media coverage, raised awareness and lead to implementation and widespread dissemination of specific project results (creation of energy efficiency information centers in the country for example).

- Initiation of project staff hiring process immediately after GEF CEO approval of the ProDoc (already before ProDoc signature) allows the project implementation to start immediately after ProDoc signature without unnecessary delays

The project effectively started its implementation with appointment of the Project Manager within several weeks after ProDoc signature. This was possible thanks to the fact that UNDP CO initiated the hiring process well in advance before ProDoc signature already, immediately after the project document was approved by GEF CEO.

- Three energy efficiency retrofit financial models were demonstrated in multiapartment buildings and can be replicated and scaled up in next projects

Three different financing models of energy efficiency retrofits (two based on revolving energy efficiency fund and one on an ESCo concept) that were demonstrated in pilot projects in Almaty, Astana, and Karaganda, can be replicated and scaled up in further energy efficiency projects funded by the State Program on Modernization of Housing and Municipal Infrastructure and/or other funding sources.

## **2. Introduction**

### **2.1 Project background**

The project idea emerged in late 1990s with a goal to address key issues Kazakhstan was facing in that time:

- Kazakhstan was a large emitter of GHGs (the third largest emitter of energy related CO<sub>2</sub> per GDP in 2001 according to the IEA)
- District heating and residential buildings have big share on GHG emissions
- District heating schemes are obsolete and inefficient
- District heating partially privatized in 1990s did not attract investors to finance DH modernization due to low heat tariffs and depends on public subsidies
- Weak Associations of Apartment Owners did not have experience and capacity to execute their ownership rights and properly maintain and reconstruct their property, including heating systems.
- Weak legal framework that would support investment in energy efficiency and DH rehabilitation

Over an extensive project development period 1998-2006 the DH problems remained unaddressed until the start of project implementation in 2007.

The project was developed within the GEF Focal Area Climate Change and the GEF Operational Programme OP5: Removal of barriers to energy efficiency and energy conservation.

The full-size 3.29 mil USD UNDP/GEF project with planned co-financing of 7.18 mil USD was implemented in 6.5 years (12/2006 – 6/2013).

### **2.2 Purpose of the evaluation**

This terminal evaluation has been performed on a request of the UNDP Kazakhstan as a standard mandatory requirement of all UNDP projects. The terminal evaluation mission took place in Kazakhstan in April 2013.

The objective of this evaluation is to assess the achievement of project's objective, the affecting factors, the broader project impact and the contribution to the general goal/strategy, and the project partnership strategy. It also provides the basis for learning and accountability for managers and stakeholders and for providing important lessons learned which can be applied to the design of future UNDP projects which aim to remove barriers to energy-efficiency.

According to the GEF and UNDP/GEF Monitoring & Evaluation Policies, the 2009 Handbook on Planning, Monitoring and Evaluating for Development Results, the terminal evaluation has four objectives:

- i. Monitor and evaluate results and impacts;  
Analyze and evaluate effectiveness of the results and impacts that the project has been able to achieve against the objectives, targets and indicators stated in the project document;
- ii. Provide a basis for decision making on necessary amendments and improvements;  
Assess effectiveness of the work and processes undertaken by the project as well as the performance of all the partners involved in the project implementation;

- iii. Promote accountability for resource use;  
Provide feedback and recommendations for subsequent decision making and necessary steps that need to be taken by the national stakeholders in order to ensure sustainability of the project's outcomes/results; and
- iv. Document, provide feedback on, and disseminate lessons learned.  
Reflect on effectiveness of the available resource use; and document and provide feedback on lessons learned and best practices generated by the project during its implementation.

## 2.3 Key issues addressed

The following key issues have been addressed in the final evaluation:

*Relevance* of the project with national development priorities, and its appropriateness,  
*Effectiveness* of the development project and partnership strategies,  
*Contribution* and worth of the project to national development priorities  
*Key drivers and success factors* enabling successful, sustained and scaled-up development initiatives, alternative options and comparative advantages of UNDP  
*Efficiency* – cost-effectiveness of funds spent to reach project objectives and results  
*Risk factors* and risk management strategies  
*Sustainability* - level of national ownership and measures to enhance national capacity for sustainability of results  
*Impact* of the project implemented on human development

A specific attention has been paid, in addition to the project implementation itself, to the evaluation of recommendations of the mid-term evaluation, to the role of UNDP, and the use of Logical Framework matrix, definition of project indicators and targets.

## 2.4 Scope and methodology of the evaluation

The methodology used for the project final evaluation is based on the UNDP/GEF Monitoring & Evaluation Policies and includes following key parts:

- I. Project documents review prior to the evaluation mission
- II. Evaluation mission and on-site visits, interviews with project management, UNDP CO, project partners and stakeholders, as well as with independent experts.
- III. Drafting the evaluation report and ad-hoc clarification of collected information/collection of additional information
- IV. Circulation of the draft evaluation report for comments
- V. Finalizing the report, incorporation of comments



## **2.5 Structure of the evaluation report**

This final evaluation report follows the structure specified in the Terms of Reference (see Annex 5: Final evaluation TOR) and according to the 2012 “Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects”.

### **3. The Project Description and Development Context**

#### **3.1 Project start and its duration**

The project idea emerged in mid 1990s. In 1998 the project PDF-A facility has been approved; the PDF-B phase was approved in 1999 and lasted from 2000 till 2004. The Full-Size Project proposal was prepared in 2004 and signed by the Agency for Regulation of Natural Monopolies and UNDP on December 15, 2006.

The whole project preparation period including development and approval of the Project Document lasted nine years (1998-2006).

Originally, the Project Document planned a four-year project to be finalized by the end of 2010. Based on recommendations collected during the inception period the Steering Committee in 2009 extended the project implementation period till the end of December, 2011. After Mid-Term Evaluation the 5<sup>th</sup> Steering Committee on November 19, 2010 approved no-cost project extension for another one and half year till end of June, 2013.

The originally planned project implementation period of 4 years has been extended in total by 2.5 years. The actual project implementation period lasted 6.5 years.

The Project Document was signed in December 2006, the project implementation was formally launched in April 2007, but it effectively started in mid 2007 with a preparation of the Inception Workshop.

The Inception Workshop was held in Astana on September 6, 2007 and the Inception Report was finalized in November 2007.

Mid-term evaluation was performed in September 2009.

Final evaluation of the project was implemented in April-May 2013.

#### **3.2 Problems that the project sought to address**

- Kazakhstan is a large emitter of GHGs

According to the 2001 data of the International Energy Agency (IEA), Kazakhstan was the third largest emitter of energy related CO<sub>2</sub> per GDP (4.68 kg CO<sub>2</sub>eq /USD<sup>1</sup>) in the world and the 29<sup>th</sup> largest emitter per capita (8.02 t CO<sub>2</sub>eq /capita).

- District heating and residential buildings have big share on GHG emissions

Kazakhstan has cold winters (heating degree-days range between 3500 and 5000). In 2002, the heat demand constituted 60% of the total consumption of energy (heat and power). More than 60% of heat energy is consumed in the cities, of which approximately 80% within the residential sector. Over 50% of the urban heating demand is covered by district heating.

- District heating schemes are obsolete and inefficient

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<sup>1</sup> Based on 1995 USD exchange rate

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District heating plants typically burn local inexpensive but carbon intensive coal. Low heating tariffs do not allow full cost recovery especially in heat distribution. There has been practically no investment in district heating to increase efficiency of the system since the Soviet time. High heat and water losses, practically no consumption based billing (only some 10% customers had installed building level metering), no heat controls characterized district heating schemes at the launch of the project.

- District heating does not attract investors and depends on public subsidies

Large district heating utilities have been privatized in late 1990s, including heat distribution companies. While large combined heat and power (CHP) plants are in general profitable, heat distribution has typically generated financial losses until the distribution company bankrupted and the ownership has been passed back to public hands, namely municipalities that have to subsidize operation of district heating distribution companies.

- Weak Associations of Apartment Owners

97% of the housing stock has been privatized for free to individual apartment owners. Legal framework for collective decision making of apartment owners has been established (Associations of Apartment Owners, service companies etc). However these entities are rather weak primarily because of lack of experience and capacity of apartment owners to execute their ownership rights and properly maintain and reconstruct their property.

- Weak legal framework

In 1997 the Parliament of the RK approved a new “Law on Energy Savings” and “National Program on Energy Savings”. However, these regulations were rather declaratory and provided little incentives for real improvements in energy efficiency.

### **3.3 Immediate and development objectives of the project**

The development goal of the project has been defined in the Project Document:

*“to improve energy efficiency and reduce the GHG emissions originating from heating and hot water supply in Kazakhstan”.*

Project Document defined project objective:

- *to reduce greenhouse gas (GHG) emissions from municipal heat and hot water supply systems in Kazakhstan,*
- *to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations, and*
- *to gain experience, build the capacity and create incentives for the implementation of new institutional and financing mechanisms for leveraging financing for the improvement of energy efficiency of the heat and hot water supply systems in Kazakhstan*

Designed project components include:

- i) strengthening the legal, regulatory and institutional framework to promote energy efficiency of the heat and hot water supply services in Kazakhstan;
- ii) enhancing the awareness and building the local capacity to implement and adopt new institutional and financing mechanisms for organizing energy efficient heat and hot water supply services and leveraging financing for them; and
- iii) compiling, analyzing and disseminating the project experiences and lessons learnt and initiating their effective replication in Kazakhstan and in other countries of the region.

### **3.4 Main stakeholders**

The project implementing agency is UNDP Kazakhstan.

AREM, the Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies, has been assigned to serve as an implementing partner/executing agency since the beginning of the project implementation period.

After the Mid-Term Evaluation of the project in 2009, the newly created Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure (Агентство РК по делам строительства и жилищно-коммунального хозяйства) has been appointed to serve as an Executing Agency and replaced AREM.

The reason for the change of the implementing partner/executing agency was twofold:

First, it was the changed focus of the project after the Kokshetau pilot project failed from supply-side pilot to more demand-side or building level DH energy efficiency measures, and AREM responsibility is utilities tariff regulation only.

Second, it was creation of the new Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure which has responsibilities exactly in the project focus – municipal and housing infrastructure, including municipal district heating.

Main project stakeholders identified in the Project Document to be actively involved in project implementation include:

- Ministry of Energy and Mineral Resources (MEMR)
- Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies (AREM), formerly Republic Antimonopoly Agency
- municipal Antimonopoly Committees
- Ministry of Natural Resources and Environmental Protection
- Ministry of Economy
- Ministry of Finance
- Municipal administrations – Akimats (Akimat of Almaty city, Akimat of Kokshetau city)
- Local/municipal district heating companies (Kokshetau Power)

- Associations of Apartment Owners
- Expert institutions (Kazakhstan Institute of Environment Monitoring, KazNIPENERGO j.s.c. design institute, Santechproject j.s.c.)
- NGOs – Society of Consumers’ Rights Protection
- Commercial private sector companies, technology suppliers

### **3.5 Results expected**

The project document designed activities to:

- (i) assist the Government in reviewing and improving the legal and regulatory framework dealing with the heat and hot water supply sector, with a specific emphasis on the tariff issues and consumption based billing to motivate energy efficiency;
- (ii) build the capacity of the municipalities and heat supply companies to develop and manage their services on a commercial basis and to attract financing for the investments needed;
- (iii) build the capacity of the local tenants and home owner associations to manage the heat and hot water supply services and to implement cost -efficient energy saving measures at the building level in general;
- (iv) introduce new institutional and financing mechanisms for energy efficiency project implementation and financing, taking into account the experiences and lessons learnt, for instance, from Energy Service Companies (ESCOs) and financing of residential building EE measures in other countries;
- (v) build the capacity for and gain experience about new institutional and financing arrangements and reducing the related risks and uncertainties by facilitating the implementation of selected pilot activities, and
- (vi) monitor, evaluate and disseminate project results and lessons learnt thereby facilitating their effective replication.

Expected project results as described in the Project Document included:

- Implemented pilot projects in Almaty and Kokshetau with annual savings of 30 000 tons of CO<sub>2</sub>
- Additional new projects with investment of 10 mil USD initiated for implementation with 10 partners (municipalities, heat utilities)
- Adoption and enforcement of new legislation and regulations, including improved tariff and billing policies (shift from flat fee to consumption based billing), related social support scheme, heat sector planning, revised technical standards, strengthening of AAOs
- Model master plans for Almaty and Kokshetau developed

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- Municipal ESCo in Almaty established and staff trained
- GHG monitoring and verification protocols developed
- Information dissemination, awareness raising and capacity building and trainings activities delivered to AAOs, municipalities and utility staff

Two key CO<sub>2</sub> saving components of the whole UNDP project have been the two large-scale pilot projects in Kokshetau (with estimated annual savings of 28 600 tCO<sub>2</sub>) and in Almaty (planned 3 350 tCO<sub>2</sub> saved annually).

The Project Document assumed the pilot project in Kokshetau will focus primarily on modernization of the DH supply side (including replacement of worn-out DH networks with preinsulated pipes, hydraulic balancing of the system, installation of new domestic hot water units at the building level, and replacing DH pumps) and some building level measures (consumption based metering, heat exchangers and building level heat controls).

Pilot project in Almaty envisaged establishment of a municipal ESCo to implement building level metering (and some building level heat controls) on the city-wide scale.

The proposed technical specifications of these two pilots have been described in the Project Document. The LogFrame target of 30 000 tCO<sub>2</sub> savings annually from pilot projects remained unchanged even after revision of the LogFrame after an Inception Report when it was already clear that the pilot project in Kokshetau will not be implemented. From the revised LogFrame, however, it is not clear how these savings should have been achieved.

Expected project results – project Outputs – as specified in the project LogFrame have been revised twice during project implementation period, after the Inception Report and after the Mid-Term Evaluation.

During the inception period the expected projects results have been reviewed and the wording of project Outputs has been slightly updated, project Outcomes remained unchanged. The changes introduced after the Inception Report are minor. Main change was the replacement of the Kokshetau pilot site (and model master plan) to Astana (however without any further details), because of financial problems of the utility in Kokshetau, and on the other hand interest and available financing in quickly developing Astana, the new country capital.

After Mid-Term Evaluation the LogFrame has been changed more thoroughly, however these changes concern primarily the format of the LogFrame, rather than the focus of the project. The number of Outputs has been reduced, and individual project activities are reflected in rather detailed specification of numerous indicators and targets practically on a project activity level. Overview of final revised project Outputs as of December 2009 (after MTE) is shown in Chapter **Chyba! Nenalezen zdroj odkazů. Chyba! Nenalezen zdroj odkazů.** All individual Indicators and specific Targets and actual achievements are discussed in Chapter 0 with a total UNDP/GEF direct investment support of 0.369 mil USD. One pilot project has been implemented in a residential building in Almaty, in Astana 9 projects in residential buildings and 2 in schools, and 5 pilot ESCo projects in Karaganda in residential buildings. Pilot projects generated in total 738 tons of CO<sub>2</sub> savings per year, of which 655 tCO<sub>2</sub>/year in residential buildings and 123 tCO<sub>2</sub>/year in public facilities. Additional 3 636 tCO<sub>2</sub>/year have been generated by energy efficiency projects initiated by the project and implemented and financed directly by municipalities with a technical and information support from the project.

The primary goal of pilot projects was twofold: to disseminate basic energy efficiency DH technology (building level heat substations with heat exchangers and heat flow regulation), building level heat metering, and building level domestic hot water heating, and mainly to demonstrate three different new financing schemes based on local (building/AAO level) revolving principle when heat cost cash savings are accumulated and used for financing of subsequent energy efficiency improvements (balancing of heat flow in building level piping, insulation of piping and others) and for replication of EE measures in other buildings of respective AAOs.

Although the pilot projects financed directly by the project are rather small and the generated GHG savings are rather marginal and just a fraction of the revised target, the savings generated by the investment from the National Program on Modernization of Housing and Municipal Infrastructure of 30-40 000 tCO<sub>2</sub> can fully be attributed to the project, because without its intervention the Program would not have the energy efficiency component that accounts for 40% of the Program spendings.

The project has developed a feasibility study of the modernization of the Kustanai DH utility (replacement of old natural gas CHP and HOBs with new combined-cycle CHP and efficient burners in HOBs) that generates sufficient income to repay 90 mil USD investment without a need to increase current heat tariffs and saves 260 000 tCO<sub>2</sub> annually.

More than 700 AAOs, 12 DH utilities, 25 local municipalities, and 5 000 energy customers have been trained in energy efficiency in district heating, summer study have and training for ESCOs in regions have been organized, and an establishment of network of energy efficiency experts in multiapartment buildings have been supported.

### 3.5.1 Results expected as of ProDoc, Inception Report and a final revision after MTE

Overview of project Outputs as originally specified in the ProDoc, revised by the Inception Report, and the final revision as of a revised LogFrame in December 2009 after the Mid-Term Evaluation of the project, is shown bellow.

#### **Project Goal: Reduce GHG emissions from district heating sector in Kazakhstan**

***Project Objective: To remove barriers to energy efficiency in municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations***

*Outcome 1: A supportive legal and regulatory framework in place to promote and provide incentives for the improvement of the energy efficiency of the heat and hot water supply services in Kazakhstan, including, as applicable, specific incentive and other mechanisms to encourage the effective implementation and enforcement of the adopted laws and regulations by the key stakeholders.*

Output	ProDoc	Inception Report	MTE
1.1	A proposal for the revised tariff and billing policy, reflecting the full costs of the service and incorporating incentives for	A proposal for improved tariff and billing policy submitted for Government approval, addressing: heat metering and consumption based billing; reduction of non-payments and	Proposals to improvement of regulatory and legal framework to provide incentives and conditions for investment

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	energy efficiency improvements, submitted for Government approval.	further development of the related social support scheme to support the most vulnerable group of the population; and other barriers hampering the introduction of new institutional and financing models for improving the energy efficiency of heating and hot water supply.	leverage into EE of municipal heat supply have been developed based on experience of EE projects preparation and implementation and approved by the Government.
1.2	A proposal for the legal and regulatory provisions to promote sustainable development of the heat and hot water supply services based on integrated resource planning principles, including a program for increasing the share cogeneration.	Reviewed master plans of Almaty and Astana and their recommended amendments adopted by the respective municipal authorities to promote energy efficiency and further increase in the use of co-generated heat (other cities as they may emerge during the implementation and depending on the available project resources).	Social relief scheme to support the vulnerable population group at implementation of EE projects with application of revolving financing mechanism in the residential sector was developed and approved by the Government
1.3		Specific provisions and concrete incentives to promote energy efficiency and increasing use of cogenerated heat adopted into the planned new Heat Law and other related amendments of the legal and regulatory framework.	Monitoring mechanism for execution and impact of RLA and other regulations to EE policy promotion (rules, etc.) was developed and approved by key stakeholders and activated
1.4	A proposal for revising outdated technical standards submitted for Government approval.	A proposal for the revision of outdated technical standards for the design and installation of heating systems submitted for Government approval	
1.5	A proposal for the legal and regulatory changes to strengthen the role of the Associations of Apartment Owners (AAOs) in managing the building and the associated heat and hot water supply services submitted for Government approval	A proposal for the legal and regulatory changes to strengthen the role of the Associations of Apartment Owners (AAOs) in managing the building and the associated heat and hot water supply services submitted for Government approval	
1.6		A mechanism for monitoring the implementation and impact of the adopted laws and regulations developed and agreed with the key stakeholders	
1.7		Trained key stakeholders contributing to the effective implementation and enforcement of the adopted policy measures including, as applicable, specific incentives contributing towards the same goal.	

*Outcome 2: New institutional and financial models were enforced to leverage the financing into EE and to enhance the capacity of local stakeholders for further implementation and replication*

Output	ProDoc	Inception Report	MTE
2.1	A public awareness raising/marketing and capacity building strategy to promote the project objectives and activities among the residents of the multiapartment buildings within the areas of the first pilot projects.)	Finalized public awareness raising/marketing and capacity building strategy for the areas of the first investment projects.	Regional Energy Saving Plans for Astana (1st stage (2009-2010) and 2d stage (2011-2014) have been developed and are under implementation
2.2	Initial public awareness raising and marketing activities completed	Initial awareness raising of the key public authorities and foreseen clients of the first investment projects completed	ESCO in Almaty and/or other regions have been established and successfully operated
	The buildings and Associations of Apartment Owners participating in the first pilot projects selected and trained		
2.3	Business plans finalized for the first pilot projects and their key staff, participating heat supply companies, relevant Government agencies and other key stakeholders trained,	Business plans for the planned new EE financing mechanisms in Almaty and Astana adopted and the required agreements for their establishment	Energy effective Associations of Apartment Owners



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	including, as applicable, partnerships with already operating ESCOs and heat supply companies in other countries.	and effective operation signed	
2.4		The staff of the new financing entities and other key stakeholders, incl. relevant public authorities, participating heat supply companies (as applicable) and/or the management and operational personnel of the buildings hosting the first investment projects trained	
2.5	The first pilot projects successfully under implementation, including the establishment and operation of the municipal ESCo in Almaty and training of its management	The first investment projects financed through the new financing mechanisms successfully under implementation, demonstrating sustainability	

*Outcome 3: Collection, analysis and dissemination of project results and lessons learned of the project, including the monitoring of GHG emissions, for the effective replication in Kazakhstan and other CIS countries/municipalities with a comparable situation*

Output	ProDoc	Inception Report	MTE
3.1	A system for monitoring/recording the GHG emission reductions of the first pilot projects and the project as a whole	A system for monitoring/ recording the GHG emission reductions of the first investment projects and the project as a whole	Monitoring/recording system for reduction of GHG emissions in the first pilot projects and in the project on the whole
3.2	Analyses of the experiences and lessons learnt under the project and recommendations for their effective replication	Analysis of the experiences and lessons learnt from the project and recommendations for their effective follow-up	
3.3	Training and other capacity building activities completed for the management and, as applicable, operating personnel of other municipalities and heat supply companies, including, as applicable, establishment of an information exchange network	The required training and other capacity building activities for facilitating effective replication of the project activities completed, including, as applicable, establishment of an information exchange network	Training and other capacity building activities on management provided for operating staff of municipalities and heat supply companies, including, as applicable, the establishment of an information exchange network
3.4	Project overall results, experiences and lessons learnt discussed and disseminated at the national and regional levels	Project overall results, experiences and lessons learnt discussed and disseminated at the national and regional level	Consultations provided on dissemination of EE experience, incl. the enforcement of developed institutional and financial models in other cities and regions with aim of finance leverage
3.5	Consultations for replicating the project experiences in other cities or city districts and leveraging financing for that completed	Consultations for replicating the project experiences in other cities or city districts and leveraging financing for that completed	Analyses of project experience, lessons learnt, results and recommendations for their effective replication and dissemination at national and regional levels

## **4. Findings**

### **4.1 Project design and formulation**

#### **4.1.1 Project relevance and implementation approach**

The project design is consistent with the objectives of the GEF Operational Program # 5 “Removal of Barriers to Energy Efficiency and Energy Conservation” and with the GEF strategic priority CC2 “Increased Access to Local Sources of Financing for Renewable Energy and Energy Efficiency”.

During the nine-year long project development phase, that included the PDF-A and PDF-B component, a detailed analysis of country specific problems and barriers in municipal district heating has been developed, including analysis of best international practices and feasibility analysis of four potential pilot projects.

This comprehensive analysis has been properly transposed into the project proposal that appropriately addressed key problems and proposed adequate project activities, including improvement of legal framework, tariff and billing policies and practices, strengthening capacities of local AAOs, demonstration of new technical, institutional and financing solutions in pilot projects, and disseminating experienced gained – as described in the project LogFrame.

The proposed utility pilot project in Kokshetau focused primarily on technical solutions and cost-benefit calculations, but did not properly evaluate associated business risks and financial viability of the Kokshetau power utility itself. The utility invested 1.6 mil USD between 2001 and 2003 already and Kokshetau Akimat another 1.49 mil USD on the rehabilitation of DH networks and domestic hot water supply in Kokshetau. However, the DH utility in Kokshetau was generating financial losses due to tariffs regulated below the full cost recovery level. This, together with a lengthy process of GEF project development and approval phase, led to a situation when already at the time of Project Document signature it was evident, that the second phase of the DH rehabilitation project in Kokshetau will not be implemented as the key UNDP/GEF pilot, because the utility in Kokshetau has bankrupted in the meantime. And at this time it was not clear how the estimated CO<sub>2</sub> savings from this pilot project, that counted for 95% of planned CO<sub>2</sub> savings from the whole GEF project, should be achieved.

The Project Document properly evaluated as the main risk of the whole GEF project potential fail in implementation of the pilot projects and as a mitigation measure it relied on the written commitment of the Akimat of Kokshetau and the DH utility “Kokshetau Power” to provide co-financing of 2.96 mil USD for the second phase of their project between 2004 and 2006 (letter attached to the ProDoc dated April 15, 2004). However, the ProDoc was not signed until December 2006, and thus for the actual project implementation period starting in 2007 there was actually no effective commitment from Kokshetau to provide co-financing.

At the launch of the project development phase, the Government and Parliament of Republic of Kazakhstan have already adopted some of the critical documents that supported energy efficiency improvements in municipal housing district heating. Kazakhstan has ratified the UNFCCC on May 17, 1995, in 1997 a new Law on Energy Savings has been approved, together with National Energy Saving Program. All these documents, including UNFCCC Initial National Communication of Kazakhstan, called for higher energy efficiency in district heating. However the legislation was rather declaratory with limited practical impact in that time.

During the project development phase only a compulsory building level district heat metering for new multiapartment buildings, but only voluntary building level metering in existing facilities have been required

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by the legislation, and only some 10% of buildings had building level metering installed at the beginning of project implementation.

The project perfectly fitted into the unique time opportunity window when governmental and municipal policy makers started to recognize the need for energy efficiency improvements of local district heating schemes, some investment projects have been already implemented (Kokshetau for example), and in the same time Kazakhstan as a relatively rich oil and gas exporting country has been generating relatively sufficient funds to co-finance some of energy efficiency measures.

Project relevance and *timing* is rated **Highly Satisfactory**.

Implementation approach in the project formulation, and specifically the proposal of the supply-side pilot project in Kokshetau that did not take into account associated business risks and financial viability of the local DH utility, together with the *lengthy period of the GEF project approval process* that caused that commitment for co-financing expired before actual project start, is rated **Unsatisfactory**.

Overall rating of project relevance, implementation approach in the project formulation is rated because of this expired co-financing commitment **Moderately Satisfactory**.

Highly Satisfactory	Satisfactory	<b>Moderately Satisfactory</b>	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
		<b>MS</b>			

#### 4.1.2 Analysis of logical framework (project logic/strategy, indicators)

The logical framework matrix specified in the Project Document and revised after the Inception Report and Mid-Term Evaluation is well structured, specifies project outcomes, outputs and output indicators, baseline, targets, source of verification and assumptions.

The final LogFrame updated after MTE includes also revised indicators and targets for the project objective which are practically summary of targets of individual project outcomes and outputs.

The LogFrame specifies in detail targets for the ESCo pilot project in Almaty. The targets for the other pilot in Kokshetau that was designed to generate 95% of project CO<sub>2</sub> savings are not described in similar detail in the LogFrame.

In other words this means that the LogFrame describes the overall project objective target in terms of CO<sub>2</sub> reductions (30 000 tons CO<sub>2</sub>/year) and financing leveraged (6.4 mil USD), but the LogFrame is not backed up with a clear strategy how these savings and financing leverage should be achieved after the envisaged pilot project in Kokshetau failed. The final LogFrame specifies a target of CO<sub>2</sub> savings from pilot projects (mainly at building level) to be 5 000 (or 4 500) tons CO<sub>2</sub>/year, and the remaining GHG reduction target of 25 000 tons CO<sub>2</sub>/year are attributed to co-financing without any detail and clear strategy how to achieve it.

It is fully appropriate that a LogFrame includes only key general objective/output level targets. However, these targets should be backed up by a clear strategy how to reach such targets.

The fail of Kokshetau pilot left the project in 2009 with a significant uncertainty and risk if and how the project objective target of 30 000 tons CO<sub>2</sub>/year will be achieved.

The LogFrame revised in 2009 after MTE introduced a number of detailed, activity specific indicators and targets, and outcome indicators were defined basically as a summary of these individual activity targets.

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Ideally, the GEF LogFrame matrix should specify “only” key general project objectives, outcomes and outputs indicators and targets. However, the LogFrame should be supplemented with a clear implementation strategy and a work plan for the whole project period with specification of individual project activities, their indicators and time-bound targets and milestones. These detailed individual project activity targets (such as “identification of target groups” etc) do not need to be included into the LogFrame matrix, but in annual project work plans.

Rating of the Logical Framework is **Satisfactory**.

Highly Satisfactory	<b>Satisfactory</b>	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	<b>S</b>	MS			

#### 4.1.3 Assumptions and risks

The Project Document properly analyzed and formulated project implementation risks and key assumptions for risk mitigation and successful project implementation.

Key project risks identified include:

- Pilot projects will not be implemented by project partners in the projected scale
- Tariff setting policy will not allow to recover full costs of DH operation and modernization
- Weak financial performance of DH utilities
- Low financial solvency of population
- Lack of experience and tradition in collective management of multiapartment buildings by apartment owners
- Inability to attract capital for financing of follow-up activities and replication
- Lack of governmental action to adopt legal, regulatory and institutional framework supporting investment to energy efficiency

Project risks mitigation measures and key success assumptions included close cooperation with and active involvement of Antimonopoly Agency, financial stakeholders, governmental agencies, targeted public awareness, trainings and education of building managers and apartment owners, development of a social support scheme for low-income households together with tariff reform, development of affordable investment projects, parallel implementation of the technical assistance component of the project, agreements with key pilot project partners, utilizing relevant experience from other countries, proper planning of project activities and most importantly skilled and experienced project management.

The risk of potential bankruptcy of the Kokshetau DH utility and the risk of expiration of written commitment to provide co-financing for the Kokshetau project due to lengthy period between submission of ProDoc and signature and actual start of the project have not been addressed in the ProDoc.

#### 4.1.4 Lessons from other relevant projects incorporated into project implementation

This project was among the first UNDP/GEF projects focused on energy efficiency in district heating (together with the project in Ukraine “Removing Barriers to Greenhouse Gas Emissions Mitigation through Energy Efficiency in the District Heating System” approved in 2000, and the project in Armenia “Improving the Energy Efficiency of Municipal Heating and Hot Water Supply“ signed early in 2005). During the

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project design phase there was no relevant local experience available in the Central Asia on DH rehabilitation programs (except for few small-scale DH rehabilitation projects like in Kokshetau), however the project development team collected information and experience on DH modernization available from other countries with former centrally planned economies in Central and Eastern Europe, including Ukraine and especially in Poland and Baltic countries.

The project designed focused correctly on improvement of legislation and regulatory framework, including tariff setting policy, capacity building of AAOs, installation of heat metering and buildings level heat regulation and properly reflected the internationally best practices.

The lessons learned incorporated into project implementation are rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.1.5 Planned stakeholder participation

As described in Chapter 3.4, the Project Document planned following local stakeholders will actively participate in project implementation:

Project implementing partner/executing agency was designed to be

- AREM, the Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies, formerly Republic Antimonopoly Agency

Other planned project partners included:

- municipal Antimonopoly Committees
- Ministry of Energy and Mineral Resources (MEMR)
- Ministry of Natural Resources and Environmental Protection
- Ministry of Economy
- Ministry of Finance
- Municipal administrations – Akimats (Akimat of Almaty city, Akimat of Kokshetau city)
- Local/municipal district heating companies (Kokshetau Power)
- Associations of Apartment Owners
- Expert institutions (Kazakhstan Institute of Environment Monitoring, KazNIPENERGO j.s.c. design institute, Santechproject j.s.c.)
- NGOs – Society of Consumers’ Rights Protection
- Commercial private sector companies, technology suppliers

The project planned to work closely with key relevant governmental ministries and agencies, municipal administrations, Associations of Apartment Owners, expert institutions, and NGOs.

Stakeholder participation in the design phase is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.1.6 Replication approach and sustainability strategy

The sustainability strategy was built on experience from other GEF and non-GEF projects implemented in countries with formerly planned economies that showed that “*stand-alone technical assistance, capacity building and training nor demonstration projects financed mainly by grants are leveraging significant additional financial resources for EE investments after the project has ended*”, as stated in the ProDoc.

In order to secure sustainability of the project, the designed project focused on “*linking technical assistance with pilot investments that do not seek to demonstrate the achieved energy savings of any particular technology per se, but the feasibility of the new institutional and financing mechanisms in terms of the cost recovery of the investments made and financially sustainable continuation of their operation*”.

In addition to this, the project aimed to promote heat metering and consumption-based billing, reform pricing policies to recover full costs, and to work with Government and municipalities to redirect DH subsidies to support of energy efficiency investment.

Replication approach as described in the ProDoc was based on:

- Technical assistance, awareness rising activities and trainings
- Potential establishment of network of municipalities for information and experience dissemination
- Implementation of pilot projects to gain hands-on experience in appropriate service delivery models to reduce replication risks
- Monitoring and evaluation of project implementation and results and disseminating lessons learned
- Public awareness rising and information dissemination

The replication potential was derived from the fact that more than 50% of population is supplied by district heating in Kazakhstan, and the Governmental Energy Sector Development Program up to 2015 envisages further grow of district heating in cities.

The project aimed not only to replicate the project experience nationally in Kazakhstan, but internationally among other CIS countries as well, and to make project results available to interested parties from other countries as well.

Replication approach and sustainability strategy has been prepared very thoroughly and is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.1.7 UNDP comparative advantage

UNDP had an experience, administrative capacity and expertise to develop and implement GEF financed energy efficiency project, it is a neutral implementing agency and can benefit from the synergy of portfolio of energy efficiency projects under implementation in an environmental governance focus area.

Already during the PDF-A and PDF-B project development phases UNDP CO Kazakhstan has involved experienced local experts with a detailed understanding of problems and barriers of local district heating schemes, as well as with good understanding of international best practices in municipal district heating and

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hot water supply modernization. Local experts worked in a team with international expert experienced both in UNDP/GEF procedures as well as energy efficiency and district heating rehabilitation issues.

The lengthy nine-year process of project development had one positive impact: already during the project development phase the UNDP team has worked closely with local governmental and municipal authorities, analyzed and proposed feasible solutions and helped them to understand importance of energy efficiency.

UNDP had a long-term presence in a country and through the project implementation it gained reputation of not only skilled project administrators but also skilled experts with detailed knowledge of local market and problems.

UNDP comparative advantage is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.1.8 Linkages between the project and other interventions within the sector

The project idea was locally generated and reacted not only on needs to rehabilitate local district heating schemes but also on first activities of the Government that slowly started to recognize the importance of energy efficiency.

The Government has adopted in 1996 the National Energy Saving Program, and in 1997 a new Law on Energy Savings, and has required heat meter installation in newly built buildings supplied by district heating, including new residential multiapartment buildings. However, neither the Program nor the Law generated expected results, because they remained to be rather declaratory only.

During the project development phase some modernization of district heating has been started already, for example in Kokshetau between 2001 and 2003 the local DH utility has spent 1.6 mil USD on DH network modernization and Akimat of Kokshetau another 1.49 mil USD.

The project design draw upon conclusions from USAID project in Atyray that promoted heat metering and improved control of heat and hot water consumption, and which showed that shift to consumption based billing can significantly increase DH costs for low-income population living in buildings with worse than average energy performance.

EBRD has provided support to Antimonopoly Committee to improve tariff regulation and motivate utilities to invest into energy efficiency improvements. New legislation has been drafted, however not adopted.

Government of Norway financed since 2002 a program to train energy auditors and to prepare technical and financial proposals for improving energy efficiency in buildings.

UNECE established a small revolving fund to finance energy efficiency improvements in municipal buildings.

The proposed project was designed to build on experience and activities of other projects implemented in Kazakhstan.

Linkages between the project and other interventions within the sector are rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.1.9 Management arrangements

Project Document envisaged that project management will include:

- National executing agency (AREM) that will appoint National Project Director and a head of a Steering Committee
- Implementing agency - UNDP CO Kazakhstan
- Project Steering Committee representing key project stakeholders (ministries, AREM, municipalities, AAOs, private sector and research institutions)
- Project Implementation Unit – including a Project Manager, International Technical Advisor and local support staff
- The Almaty pilot project was expected to be implemented by a newly created municipal ESCo
- In Kokshetau the beneficiary was planned to be the Akimat/municipality, the Kokshetau district heating company was planned to be responsible for pilot project implementation in cooperation with the PIU.

Until 2009 members of the Steering Committee included:

- Head of Steering Committee (Mr. Osmanov M. M./Mr. Smagulov K. M., deputy director, AREM)
- AREM
- Agency of RK on Construction and Housing and Municipal Infrastructure
- Akimat Almaty
- Ministry of Energy and Mineral Resources (MEMR)
- Ministry of Environmental Protection
- Ministry of Economy and Budget Planning
- Association for Consumers’ Rights Protection
- KazNIEk institute
- “Energoberezhnie” company
- UNDP CO
- PIU

Since 2010 the Steering Committee consisted of six members representing Executing Agency, Implementing Agency and four other governmental agencies:

- Mr. Maslov V. K., Agency of RK on Construction and Housing and Municipal Infrastructure/ Ministry of Regional Development
- Ms. Paniklova E., UNDP, Deputy Resident Representative
- Mr. Amreev G. M., Ministry of Industry and New Technologies
- Ms. Sospanova A. S., Ministry of Environmental Protection
- Ms. Saduova B. S., AREM – Agency on Regulation of Natural Monopolies
- Mr. Kurtaev A. A., Ministry of Economic Development and Trade/Ministry of Economy and Budget Planning



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The Steering Committee approved on its 4<sup>th</sup> meeting on January 18, 2010 creation of an Advisory Board consisting of experts representing:

- Kazakh Scientific Research Institute for Environment and Climate
- Akimat of Astana city, Department of energy and municipal infrastructure
- Kazakhstan Center for Modernization and Development of Housing and Municipal Infrastructure
- Almaty Consumers Right Protection Association
- Astana Consumers Right Protection Association
- Union of Housing Associations in Almaty
- “Ergonomika” company
- “EnKom-ST” company
- “AstanaTeploTranzit” Astana heat distribution company
- “Astanaenergobyty” – heat supply utility
- “AstanaErgoService”
- “Almatinskije Teplovyje Seti” - Almaty heat distribution company
- Akimat of Almaty city
- Akimat of Karaganda city

The role of an Advisory Board was to support project implementation and provide expert advice and guidance to project management team.

The management arrangements during project implementation followed the designed structure – including Executing Agency, Implementing Agency, Steering Committee and the Project Implementation Unit.

In early years of the implementation period the project faced significant changes in project management. Deputy Director of AREM was appointed to serve as a National Project Director. After the personal change in a position of a Deputy Director of AREM, the new Deputy was appointed in 2008 to act as the National Project Director as well.

The year 2009 witnessed major changes also in project management arrangements.

The original Executing Agency AREM, the Agency of the Republic of Kazakhstan on Regulation of Natural Monopolies was replaced by the newly established Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure. The reasons were twofold: first with the refocus of the project from large DH utility pilot project towards decentralized building level projects the project worked in an area where AREM had only limited responsibilities and interest (heat tariff policy) and second, responsibilities of the new Agency on Construction and Housing and Municipal Infrastructure cover fully the focus of the whole project.

With a change of the Executing Agency, a new Project Director has been appointed representing the Agency on Construction and Housing and Municipal Infrastructure.

Mr. Alexander Belyi, who worked so far as a PR expert in the project team, was appointed as the new Project Manager in 2009.

Since 2009, there were no other changes in the project management, and Executing Agency and positions of National Project Director and Project Manager remained unchanged.

The proposed and actual project management arrangements included all relevant local key stakeholders and are consistent with UNDP/GEF policies.

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Management arrangements are rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

## **4.2 Project Implementation**

### **4.2.1 Project implementation and adaptive management**

Although the Project Document has been thoroughly prepared during 1998-2006, already at the project start and during the project implementation (2006-2013), several project activities but also some key parts of proposed project had to be canceled and replaced by other activities. This was primarily due to a long combined period of project development and implementation (altogether 15 years) and changing situation in Kazakhstan.

However, the overall focus of the project (project goal, objective, and outcomes) remained unchanged over the whole project period and did not have to be revised.

The most important originally planned project components that were not implemented include both originally planned pilot projects in Kokshetau and Almaty that were supposed to generate the project target GHG savings of 30 000 tCO<sub>2</sub>/year (Kokshetau 28 600 tCO<sub>2</sub>/year and Almaty 3 350 tCO<sub>2</sub>/year).

The Kokshetau pilot project was canceled at the beginning of the project already, because the local private heat utility bankrupted. In Almaty the project intended to create together with the city of Almaty a municipal ESCo company. Despite some delays, the project together with Akimat worked together to prepare business plan, staffing and trainings for the ESCo company. However, after 2008 financial crisis the Akimat of Almaty decided early in 2009 that they cannot provide promised 1 mil USD to capitalize the company, and the pilot project has been stopped. Within few years, when the financial situation of Almaty improved, the city approached the project and wanted to restore the original ESCo pilot project. However, at this point the project has redirected its activities to Karaganda where it worked with Akimat and local private company to establish energy services and implement pilot projects.

The project has implemented two major changes that significantly helped to offset GHG emission savings from the canceled pilot projects in Kokshetau and Almaty.

First, it refocused its activities from working primarily with DH utility to working more on a building level DH energy efficiency improvements, and in total 17 building level pilot projects have been implemented in Astana, Karaganda and Almaty.

Second, thanks to its intensive cooperation with the government, the project was able to substantially reshape the originally planned 2011-2020 National Program on Modernization of Municipal and Housing Infrastructure to include also energy efficiency component. Originally the Program envisaged only modernization of buildings structures like a roof or façade renovation, and installation of new piping and electricity wiring, etc. Due to project intervention, building level energy efficiency improvements became eligible and later on also mandatory (heat substations with metering) for financing from the Program. The updated total 2011-2020 budget of the Program is 5.8 bil USD. Till the end of March 2013, 120 mil USD have been allocated for modernization of 1200 multiapartment buildings, of which about 40% or 48 mil USD are estimated to have been allocated for energy efficiency improvements (installation of building level heat metering, installation of building level heat exchange stations with heat controls, reconstruction of roof with new insulation, installation of new windows in hallways, and some building façade insulation).

Due to initial delays in project implementation and changes of key pilot projects the project implementation period has been extended twice, by 1 year till end of 2011, and by another 1.5 year till end of June 2013.

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Based on the review of project achievements, the evaluation found that the project worked towards project goal, objectives and outcomes, however the project implementation after changes in 2009 was flexible enough to update and/or strengthen individual project activities in order to reach overall project goal more effectively.

The overall rating of implementation and adaptive management is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.2 Partnerships arrangements

The project has developed a wide network of local stakeholders that were actively involved in implementation of each of three project components: legislation, pilot projects, and information dissemination.

A major change in actual partnership arrangements compared to the original project document was a replacement of the Kokshetau Akimat as a project partner with Akimat of Astana and Karaganda.

The project worked closely also with all relevant governmental agencies and ministries, municipalities in other regions, associations of individual AAOs, private energy and service companies, technology suppliers.

The key partner of the project has been since 2009, when it was established, a state-owned “Kazakhstan Center for Modernization and Development of Housing and Municipal Infrastructure”, j.s.c. that cooperated with the project mainly but not only in information dissemination and training activities.

The project teamed up with a private company Ergonomika that is dedicated to implementation of energy efficient technologies for heating and domestic hot water. With the project support the company expanded its services to serve as an ESCo company that installs energy efficient heating technologies, organizes financing and guarantees that investment repayment will be covered from project savings.

Project stakeholders include Ministry of Environmental Protection of the Republic of Kazakhstan, Ministry of Energy and Mineral Resources of the Republic of Kazakhstan, Ministry of Economy and Budget Planning of the Republic of Kazakhstan, Ministry of Economic Development and Trade of the Republic of Kazakhstan, Ministry of Industry and New Technologies of the Republic of Kazakhstan, Akimat of Astana, Almaty, Karaganda, AAOs, private companies, and others.

Partnerships arrangements established for implementation of the project with relevant stakeholders is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.3 Monitoring and evaluation

The project was subject to standard UNDP/GEF regular project monitoring and evaluation. Updated annual work plans, annual project progress reports and overview of project activities implemented have been evaluated by LogFrame targets and Annual Work Plans and approved by the Steering Committee. Meetings of the Steering Committee were held regularly once or twice each year.

Project reporting, including Quarterly Progress Reports, Project Annual Reviews and Project Implementation Reports have been developed regularly and submitted to UNDP CO.

The project was subject to two external financial audits in 2008 and 2009, and one internal audit in 2010. The financial audits stated the project funds have been spent in principle according to the regulations.

The Mid-Term Evaluation has been performed in 2009.

The final evaluation mission in Kazakhstan took place in April 2013, two months before the end of project.

The project has been also subject to regular monthly progress review meetings and practically daily oversight by the UNDP CO.

The Monitoring and Evaluation plan was properly designed, sufficiently funded, effectively implemented and reported in PIMS/PIRs, and after MTE with a newly appointed Project Manager adequate adaptive management has been implemented. APR/PIR self-evaluation ratings have been consistent with MTE, Marginally Satisfactory rating in 2009, Satisfactory rating since 2010 on. The project has made changes to project implementation according to MTE recommendations, except for one recommendation to demonstrate apartment/radiator level heat cost allocators and thermostatic radiator valves.

The project monitoring and evaluation is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.4 Feedback from M&E activities used for adaptive management

Feedbacks from regular monitoring and evaluation of project as well as from frequent oversight from UNDP CO have been incorporated into changes of planned project activities and LogFrame mainly during the second project implementation period after the MTE and changes in project management.

The fail of the Kokshetau pilot project was a major problem that jeopardized achievement of project targets. It took several years for the project to clearly define a new implementing strategy and refocus the project.

After the Inception Report it took another year until a revised LogFrame has been prepared in June 2008. But still the revised LogFrame did not reflect a clear strategy how the CO<sub>2</sub> savings originally planned to be achieved by the Kokshetau project should be achieved. Expected savings from the Almaty ESCo project have been increased 6 times without changing other project parameters.

The Mid-Term Evaluation report rated the overall performance of the project at a second lowest grade (marginally satisfactory in a four grade scale – HS, S, MS and U).

After the MTE the project incorporated all MTE recommendations but one into a project implementation plan, and a management response and tracking template has been used to evaluate achievements of recommendations implementation. The project did not implement the MTE recommendation to install heat-costs allocators and (thermostatic) radiator valves in a pilot project. The reason was that such installation in existing buildings would require also piping reconstruction (and reconnecting radiators from serial into parallel), and in combination with existing low tariffs the payback time in existing buildings would be too high at 25+ years.

Key MTE recommendations have been implemented:

- Project management has been strengthened and changed (new Executing Agency, new National Project Director and new Project Manager have been appointed)
- Private ESCo has been involved
- Cooperation with MEMR and banks has been strengthened, project webpage updated, international EE expert engaged

In a second phase of project implementation, the new Project Manager supported actively by the UNDP CO brought a new momentum and drive to project implementation; individual project activities have been regularly flexibly adjusted in order to reflect current situation and opportunities and to strengthen achievements of project objective.

The feedback from M&E activities used for adaptive management, especially in the second phase of project implementation after MTE, is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.5 Financial planning and management

Total GEF funded project budget is 3 290 000 USD. Project Document planned for co-financing in a total volume of 7.18 mil USD.

The original planned budget as of the project document is shown in Table 3.

**Table 3: Project Budget as of Project Document [USD]**

	<b>Year 1 2007</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4 2010</b>	<b>Total</b>	
Outcome 1	135 000	135 000	45 000	45 000	<b>360 000</b>	11%
Outcome 2	190 000	1 050 000	530 000	210 000	<b>1 980 000</b>	60%
Outcome 3	250 000	220 000	220 000	260 000	<b>950 000</b>	29%
<b>Total</b>	<b>575 000</b>	<b>1 405 000</b>	<b>795 000</b>	<b>515 000</b>	<b>3 290 000</b>	100%
	17%	43%	24%	16%	100%	

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Each year a new annual budget has been prepared for the next year and submitted for approval to the Steering Committee in the form of an Annual Work Plan. These annual budgets as shown in AWP are summarized in the Table 4.

**Table 4: Annual Project Budgets as of AWP [USD]**

	2007	2008	2009	2010	2011	2012	2013
Outcome 1	54 400	92 822	135 000	13 213	59 024	221 700	170 028
Outcome 2	60 000	147 843	393 600	473 633	510 148	366 152	62 136
Outcome 3	100 220	166 660	290 240	101 378	107 352	195 450	250 493
PIU				103 900	41 876	45 800	29 006
<b>Total</b>	<b>214 620</b>	<b>407 325</b>	<b>818 840</b>	<b>692 123</b>	<b>718 400</b>	<b>829 102</b>	<b>511 663</b>
<b>Revised</b>			<b>437 135</b>		<b>484 666</b>	<b>617 000</b>	

*Note: The total of annual budgets does not make the total project budget because the annual project budgets have been updated annually.*

In 2008 and 2009 a new project Output 4 has been incorporated that covered Energy Efficiency Framework (EE Frm) co-financed by the British Global Opportunity Fund (GOF). This activity included support for the development of energy efficiency legal framework, including the Energy Efficiency Law, Strategy for Development of Renewable Energy for Energy Savings in Heating, analysis of international best practices and organization of workshops and seminars.

Since 2010, project implementation unit costs have been planned and reported as a separate budget line.

Total project expenditures financed by GEF over the whole project implementation period since December 2006 till April 22, 2013 are 3 025 248 USD, i.e. 92% of the total GEF budget. The remaining unspent resources as of April 22, 2013 are 264 752 USD.

The project plans to fully use these funds by the end of June and to cover the costs of remaining project activities including the International Conference held in Astana in April, last payments to subcontractors (Ramboll, Bisam) and individual contractors (including final evaluation), development and print of the Final Report, remaining project staff salaries, etc.

The Table 5 shows annual project expenditures by project outcomes for each year of project implementation period as reported in Combined Delivery Reports.

**Table 5: Annual expenditures by project outcomes and years (CDR) [USD]**

	2007	2008	2009	2010	2011	2012	Till 22.4. 2013	<b>Total</b>	% of total
1	43 613	88 609	39 574	15 841	50 141	105 521	114 654	<b>457 954</b>	15%
2	55 493	153 807	224 712	491 687	264 035	242 850	45 181	<b>1 477 764</b>	49%
3	99 327	149 869	172 850	139 675	106 103	172 022	65 442	<b>905 288</b>	30%
EE Frm		10 753						<b>10 753</b>	0.4%
PIU				43 456	47 526	60 872	21 635	<b>173 489</b>	5.7%
<b>Total</b>	<b>198 432</b>	<b>403 038</b>	<b>437 136</b>	<b>690 660</b>	<b>467 805</b>	<b>581 265</b>	<b>246 912</b>	<b>3 025 248</b>	100%
%	7%	13%	14%	23%	15%	19%	8%	100%	

Financial planning is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.6 Management by the UNDP Country Office

The UNDP Country Office has provided exceptionally active and regular support to the project management team.

Thanks to a political support and leadership of resident representative, Mr. Haoliang Xu, deputy resident representative, Ms. Stelian Nedera, and a former Head of Unit, Ms. Inkar Kadyrzhanova, the project was able to implement changes in project management arrangements, including change of the Executing Agency.

During the second phase of project implementation, Ms. Irina Goryunova, Portfolio Manager of the Energy and Environment Unit of UNDP CO Kazakhstan, has been practically in a daily contact with the project management team and has actively supported project implementation at meetings with key project partners and decision makers.

Ms. Goryunova and Mr. Stanislav Kim, Head of the UNDP Energy and Environment Unit, have organized regular monthly meetings with the Project Manager to formally review actual project progress. Mr. Kim has provided his strategic leadership and guidance in overcoming key project barriers.

Ms. Elena Paniklova, UNDP Deputy Resident Representative, has represented UNDP at Steering Committee meetings.

Management by the UNDP country office, its involvement and support to project implementation, is rated **Highly Satisfactory**.



<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

#### 4.2.7 Co-financing and in-kind contributions

Planned co-financing of 7.18 mil USD consisted of the government of the Republic of Kazakhstan in kind support of 0.13 mil USD, and cash co-financing from Almaty municipality in the amount of 1 mil USD, Kokshetau municipality 3.19 mil USD, and private Kokshetau Power utility 2.86 mil USD.

However, Letters of Intent from Akimat (municipality) and power utility Kokshetau dated April 2004 attached to the ProDoc confirmed financing for the period of 2004 till 2006 only in the amount of 2.96 mil USD in total (1.7 mil USD Akimat, 0.85 power utility and suppliers loan to utility 0.41 mil USD). It is 3.09 mil USD less than stated in the ProDoc, and the commitment to provide such co-financing is for period till 2006, and thus there was no commitment from Kokshetau to provide co-financing for the period of actual project implementation period starting in 2007.

The commitment of the Akimat Almaty to provide 1 mil USD co-financing was not limited in time. However, it was signed on April 30, 2004, more than 2.5 years before the ProDoc has been signed.

The actual committed co-financing was not 7.18 mil USD as stated in ProDoc, but 4.09 mil USD only.

The actual co-financing was provided in the amount of 54.9 mil USD. Cash co-financing provided consisted of:

- 48 mil USD from the National Program on Modernization of Housing and Municipal Infrastructure
- 0.117 mil USD from the British Global Opportunity Fund
- 4.19 mil USD from the Government (Astana, Karaganda City Governments and Agency of Construction and Municipal Services) for project in public and residential buildings in Astana and Karaganda, energy audits in building and energy efficiency capacity building for targets groups
- 2.27 mil USD from the private sector (private companies) of which 1.4 mil USD for energy efficiency equipment purchases, installation and maintenance services of energy efficiency equipment providers; and 0.871 mil USD for the creation/capitalization of Karaganda ESCO
- 0.136 mil USD from other sources (apartment owners)

Almaty and Astana City Governments invested additional 73.753 mil USD from designated national budget transfers and municipal funds for replacement of heating networks and pump house retrofitting to reduce heat losses in heat distribution networks.

**Table 6: Financial Planning Co-financing**

Co financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other Sources (2) (mill US\$)		Total Financing (mill US\$)		Total Disbursement (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants			1.7 (a)	52.19 (e)		1.559 (h)	1.7	53.749		53.749
- Credits					0.41 (b)		0.41			
- Equity			1 (c)		0.85 (d)	1.00 (f)	1.85	1.00		1.00
- In-kind			0.13	0.13			0.13	0.13		0.13
- Non-Grant Instruments (1)										
- Other										
<b>Total</b>			<b>2.83</b>	<b>52.32</b>	<b>1.26</b>	<b>2.559</b>	<b>4.09</b>	<b>54.879</b>		<b>54.879</b>

(1) Non-Grants Instruments guarantees, contingent grants, etc.

(2) Other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector, etc.

(a) 1.7 mil USD Kokshetau municipality

(b) 0.41 mil USD supplier loan to Kokshetau Power Utility

(c) 1 mil USD equity to Almaty ESCo by Almaty Akimat,

(d) 0.85 mil USD equity by Kokshetau Power Utility, 2004 Letters of Intent attached to ProDoc

(e) 48 mil USD National Program on Modernization, 4.19 mil USD Astana, Karaganda governments and the Agency

(f) 0.871 mil USD ESCo capital by private company, 0.136 mil USD apartment owners own contribution

(g) Kazakhstan Center for Modernization and Development of Housing and Municipal Infrastructure - estimate

(h) 0.1 mil USD British Global Opportunity Fund, 1.4 mil USD private companies, 0.059 mil USD GEF SGP for pilots in Astana

## 4.3 Results

### 4.3.1 Overall results and attainment of objectives

During the first phase of project implementation since the effective start of the project in mid 2007 till Mid-Term Evaluation in mid 2009 the project phased significant problems due to cancellation of the planned pilot project in Kokshetau and later on in Almaty as well. The project did not have to change planned project Outcomes, however its strategy and GHG savings were built upon these two large utility rehabilitation and municipal-wide ESCo pilots. During this 2-year period between the Inception Workshop and MTE, no new comprehensive strategy how to replace the two failed pilot projects has been developed. The project faced delays in implementation and especially it suffered from unclear vision and strategy how to reach projected targets mainly in terms of CO<sub>2</sub> savings.

After the MTE that rated project achievements with a second worst grade on a four grade scale, a new Project Manager and a new Executing Agency were appointment in 2009, and the project strategy concerning pilot projects has been redesigned. The core focus of the project shifted from DH utilities to work more closely with and develop projects on a building level. Under the new project management and with active support from the UNDP CO, the project succeed during its second phase of project implementation between 2010-2013 not only to deliver expected project results, but also to substantially influence country policies and practices and shift originally rather declaratory energy efficiency legislation to practical programs and practices with significant public budgets.

One of the major project achievements was incorporation of energy efficiency component into the National Program on Modernization of Housing and Municipal Infrastructure thanks to a long-term intervention of the project team. The 2011-2020 Program has a total budget of 5.8 bil USD, of which 2.6 bil USD for 2011-2015. Energy efficiency is a major component of the Program, about 40% of the budget spent till 3/2013, which is 48 mil USD, have been spent for energy efficiency upgrades and have generated about 30-40 000 tCO<sub>2</sub> savings annually. The existing Program with approved budget of 2.6 bil USD till 2015 thus can generate savings of about 0.5 mil tCO<sub>2</sub> annually.

Another major achievement that is not fully reflected in the LogFrame is a truly effective support and capacity strengthening of local state agencies, private companies and AAOs. Currently there are already a number of dedicated and enthusiastic local entities on the market that are implementing energy efficiency projects and that achieved their professionalism thanks to the expertise and support provided by the project team. One example of the credibility gained by the UNDP project team gained thanks to its professionalism and expertise is a contract that the government signed with UNDP as a kind of follow-up to this GEF project to implement a complex energy efficiency program in a small Prigorodnyi municipality nearby Astana. The Government selected UNDP as an implementing partner not as a source of financing, because it is the Government of RK which finances most of the project budget, but because UNDP has positioned itself as a well-recognized local entity that developed and proved unique expertise in energy efficiency project implementation. This is also a proof of sustainability of project results. The UNDP/GEF project significantly helped the country to adopt energy efficiency policies and programs and demonstrated viability of local energy efficiency financial schemes based on a revolving principle. And currently there are number of building level energy efficiency projects implemented and financed locally.

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
<b>Goal:</b> Reduce GHG emissions from district heating sector in Kazakhstan					
<b>Objective:</b> To remove barriers to energy efficiency in municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations	Status and level of enforcement of the proposed legal and regulatory changes	Non-supportive legal and regulatory framework for EE investments of municipal heat supply systems	Adoption and enforcement of the proposed legal and regulatory changes by the end of the project	<i>See bellow</i>	HS
	The status of the supported institutional and financing models for EE in heat supply and reduction of their impact to global climate	Absence of sustainable institutional and financial models for EE investments in heat supply systems	Successful completion and continuation of the financially sustainable measures in the pilot cities by the end of the project with annual reduction of GHG emissions for 5 000 tons of CO <sub>2</sub> year; owing to co-financing – for 25 000 tons of CO <sub>2</sub> year	<i>GHG savings from pilot projects: 738 tCO<sub>2</sub>/year. From co-financing (48 mil USD spent by the EE component of the Program on Modernization of Housing and Municipal Infrastructure): 30-40 000 tCO<sub>2</sub>/year</i>	HS
	Agreements on the implementation of EE investments in pilot cities and other city districts	Inadequate investments in energy efficiency	New projects/programs initiated and financing leveraged for them at the amount of at least USD 6 400 000 by the end of the project	<i>National Program on Modernization of Housing and Municipal Infrastructure 2011-2020 with total budget 5.8 bil USD, of which ca 40% allocated for EE. Already spent on EE 48 mil USD</i>	HS
<b>Outcome 1 “Legal and regulatory changes”:</b> A supportive legal and regulatory framework in place to promote and provide incentives for the	Number and status of regulatory changes and incentives for improvement of energy efficiency	Lack of incentives and/or prohibitive regulations for municipalities to invest/re-invest in	The proposed legal and regulatory changes formally adopted and effectively enforced by the end of the project creating sufficient incentives for various	<i>See bellow</i>	HS

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
improvement of the energy efficiency of the heat and hot water supply services in Kazakhstan, including, as applicable, specific incentive and other mechanisms to encourage the effective implementation and enforcement of the adopted laws and regulations by the key stakeholders		EE; AAOs and residents to implement EE measures in heat consumption of residential buildings; government to provide conditions requested for EE in municipal heat supply	stakeholders (Government, municipalities, AAOs, residents) to implement EE measures		
<b>Output 1.1</b>  Proposals to improvement of regulatory and legal framework to provide incentives and conditions for investment leverage into EE of municipal heat supply have been developed based on experience of EE projects preparation and implementation and approved by the Government	Status of proposals (development, consulting, adoption), which include: <ul style="list-style-type: none"> <li>– New version of Energy Saving Law;</li> <li>– Number and status of regulatory changes to remove the barriers for incentives progress and investment leverage into EE, among them regulatory and legal acts to Energy Saving Law after its adoption by the Government of the RoK;</li> <li>– Status of regulatory documents to support the creating ESCOs in the regions, set of documents providing the reflexivity of energy saving financing mechanism in residential</li> </ul>	Consumers have no sufficient incentives for energy saving and heat consumption management; payment for heat is made mainly upon the heat consumption norms in the absence of heat meters; AAO have no opportunities and incentives to manage the energy saving in the buildings; in the municipal buildings the lack of	<ul style="list-style-type: none"> <li>– Draft Law on Energy Saving finalized and submitted to Parliament by the 3d year of the project;</li> <li>– Proposals to the draft of main RLA to Energy Saving Law (in the part of creation and operation of ESCO and EE Funds, of energy audit issues and stimulating mechanism, etc.) prepared and submitted to the developers by the 3,5-th year of project;</li> <li>– Set of regulatory and legal changes, stipulating for the creation of ESCO in the regions and/or enforcement of revolving investments mechanisms into EE and creation of PPP mechanism for EE, developed and approved by key stakeholders by the end of project;</li> </ul>	<p><i>Approved by the Parliament in 1/2012</i></p> <p><i>Methodology of Energy Audits developed and submitted in 4/2013</i></p> <p><i>Almaty ESCo Business Plan developed in 2008, regulation developed jointly with EBRD, Karaganda ESCo Business Plan developed in 2009, five financing models analyzed and recommended</i></p>	<p>HS</p> <p>HS</p> <p>S</p>

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
	<p>and municipal buildings;</p> <ul style="list-style-type: none"> <li>- Measuring the heat consumption based on changes in heat calculation methodic in the buildings, incl. opportunities of in-apartment metering and regulation of heat consumption, opportunity to choice tariff plans by the consumers, etc.;</li> <li>- Status of state and private partnership mechanism for EE objectives in heat supply;</li> <li>- Status of regulatory and legal documents for residential multi-apartments with aim to strengthen the role of AAO and tenants in heat consumption management</li> </ul>	<p>incentives for EE is explained with budget financing processes, excluding capitalization and further use of achieved saving. In these conditions, the consumers are not striving to invest their funds into EE. The Government and municipalities are interested in EE to get over the generating capacity deficit (especially in the big cities), as well in modernization of DHS but the funds for this are severely limited; there is a partial subsidizing of hat supply companies to cover their unreasonable costs (loss of water, etc.) instead of purposeful transfers for EE</p>	<ul style="list-style-type: none"> <li>- Draft of heat metering methodic in the building with more than one owner with opportunity of separate heat consumption metering prepared and submitted for approval to interested parties by the 4<sup>th</sup> year of the project;</li> <li>- Economic justification for changes in tariff policy of DHS with opportunity differentiated payment for heat and choice of various tariff plans by the consumer developed and approved by the Government by the end of project;</li> <li>- Set of RLD for enforcement of incentives and strengthening of AAO role and tenants in heat consumption management at the building level developed by the end of project</li> </ul>	<p><i>Heat tariff methodology developed and approved in 2012 with preferential tariffs in buildings with metered heat consumption</i></p> <p><i>Analytical documents prepared and submitted, some recommendations adopted (higher DH price for non-metered consumption), recommended payment per capacity (kW) and energy (kWh) not adopted</i></p> <p><i>Draft regulatory and legal documents developed in 2009, a 8/2011 amendment requires professional companies to maintain common property of multiapartment buildings</i></p>	<p>HS</p> <p>HS</p> <p>HS</p>

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
<p><b>Output 1.2.</b></p> <p>Social relief scheme to support the vulnerable population group at implementation of EE projects with application of revolving financing mechanism in the residential sector was developed and approved by the Government</p>	Status of social support scheme (development, consultation, adoption)	Lack of costs compensation mechanism to vulnerable people for energy saving measures in the residential multi-apartments	<ul style="list-style-type: none"> <li>- Identification of target groups and the <b>social study completed</b> by the end of 2d year;</li> <li>- Proposal on <b>social relief scheme developed</b> by the end of 2,5<sup>th</sup> year;</li> <li>- Separate mechanisms of social relief approved in pilot demo projects to the 4,5<sup>th</sup> year;</li> <li>- <b>Social scheme discussed, agreed and approved</b> by key stakeholders and beneficiaries by the end of project</li> </ul>	<i>In 2010 government approved a Directive on Social Support that allows providing financial assistance to vulnerable groups not only to cover utility costs, but for energy efficiency investment as well.</i>	HS
<p><b>Output 1.3.</b></p> <p>Monitoring mechanism for execution and impact of RLA and other regulations to EE policy promotion (rules, etc.) was developed and approved by key stakeholders and activated</p>	Availability of precise and current information on impact of accepted RLA and other regulations (rules, etc.) for promotion of EE policy in the country	Lack of data and monitoring mechanism for execution and impact of accepted documents	Adequate information about the impact of accepted laws and regulations is available by the end of project	<i>Monitoring of implemented pilot projects established and progress report developed; data for the last heating season being collected (heating season was not closed until the evaluation mission); final report under development.</i>	S
<p><b>Outcome 2.</b></p> <p>New institutional and financial models were enforced to leverage the financing into EE and to enhance the capacity of local stakeholders for further</p>	<ul style="list-style-type: none"> <li>- Number, type and status of new institutional and financing models for EE</li> <li>- Leveraged financing for EE projects from public, private and</li> </ul>	Lack of sustainable and functioning financing and institutional models for EE investment	<p>ESCO in Almaty and/or other cities and country regions established, staff recruited and trained, capitalized and at least 3 EPC signed by the end of project</p> <p>Astana Municipal Energy Saving Plan (1<sup>st</sup> stage – 2009-2010)</p>	<p><i>ESCO in Karaganda operational, 5 projects implemented</i></p> <p><i>Astana Municipal Energy Saving Plan developed and</i></p>	<p>HS</p> <p>HS</p>

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
implementation and replication	<p>individual sources</p> <ul style="list-style-type: none"> <li>- GHG emission reduction from implementation of demonstration projects</li> </ul> <p>- Amount of leveraged/associated financing for implementation of EE Projects on pilot sites (Astana and Almaty)</p>		<p>developed by end of the 3d year and implemented in the part of joint measures and monitoring Astana Municipal Energy Saving Plan (2d stage – 2011-2014) developed by the end of the 4<sup>th</sup> year, discussed and joint measures with project arranged</p> <p>At least 4 AAO piloted demo projects by the 3,5<sup>th</sup> year with trained staff, prepared action-plans and financing</p> <p>Leveraged/associated financing:</p> <ul style="list-style-type: none"> <li>- Government – \$ 1 500 000</li> <li>- Private – \$ 500 000</li> <li>- Other sources - \$ 2 500 000</li> </ul> <p>Cumulative GHG mitigation impact from demonstration projects – reduction for 5 000 tCO<sub>2</sub>/year by the end of project; due to associated financing (from different sources) – for 25 000 CO<sub>2</sub>/year</p>	<p><i>1<sup>st</sup> phase implemented</i></p> <p><i>15 pilot projects with AAOs implemented</i></p> <p><i>Co-financing leveraged in total 54.879 mil USD, of which:</i>  <i>Government 52.32 mil USD,</i>  <i>Private 2.4 mil USD,</i>  <i>Other 0.159 mil USD</i></p> <p><i>GHG savings from pilot projects: 738 tCO<sub>2</sub>/year.</i>  <i>From co-financing (48 mil USD spent by the EE component of Program on Modernization of Housing): 30-40 000 tCO<sub>2</sub> and 3 636 tCO<sub>2</sub>/year from other supported projects</i></p>	<p>HS</p> <p>HS</p> <p>U</p> <p>HS</p>
<p><b>Output 2.1</b></p> <p>Regional Energy Saving Plans for Astana (1<sup>st</sup> stage (2009-2010) and 2d stage (2011-2014) have been developed and are under</p>	<ul style="list-style-type: none"> <li>- Status of measures for development of Energy Saving Plans, incl. EE measures for buildings sector;</li> <li>- Criteria for EE projects</li> </ul>	Lack of Energy Saving Action Plan for Astana, inadequate attention to the building sector at execution of Energy Saving	<ul style="list-style-type: none"> <li>- Estimation of the needs completed by the end of 1<sup>st</sup> year;</li> <li>- Memorandum with Astana Akimat signed by the end of 1,5<sup>th</sup> year;</li> </ul>	<p><i>MoU signed in June 2009</i></p> <p><i>Astana Municipal Energy</i></p>	S



Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
implementation	<p>selection into the Plans ;</p> <p>- Status of demo projects\measures on EE and reduction of GHG emissions;</p> <p>- Status and implementation of finance leveraging mechanisms for EE measures within regional Energy Saving Plans for Astana</p>	Policy, lack of complex approach to a Municipal Energy Saving Planning	- Development of RESP (1 <sup>st</sup> stage) completed by the end of the 3d year; 2d stage – by the end of the 4 <sup>th</sup> year;	<i>Saving Plan 2009-2010 developed and approved 2009, completed in 2011 with budget of 0.13 mil USD, revised in 2012 after National ESP 2012-2015 was adopted</i>	HS
			- Development of Training Program And Modules on Municipal Energy Saving planning developed by the end of the 3d year and training performed within the 4 <sup>th</sup> year;	<i>Guide on Regional Planning developed and approved by the Ministry of Industry in 2012</i>	HS
			- Demo projects implemented by the end of the 4 <sup>th</sup> year with reduction 500 tons CO2/year, at least;	<i>Savings of 146 tCO2/year in 9<sup>th</sup> and 15<sup>th</sup> school, total 289 tCO2/year incl. multiapartment buildings</i>	MS
			- Energy saving mechanisms in municipal buildings, incl. revolving mechanism and capitalization of received savings developed and approved in pilot projects in Astana by the mid of the 5 <sup>th</sup> year;	<i>Energy savings mechanism developed</i>	HS
			- Program execution monitoring made, results and lessons learnt analyzed and based on which the reports prepared by the end of project	<i>Monitoring of results established, SW and training for Akimats developed, final report to be developed</i>	S
<b>Output 2.2</b> ESCO in Almaty and\or other	- Status of legal and	Lack of ESCO,	- Lessons learnt on ESCO	<i>Analytical report and</i>	HS

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
regions have been established and successfully operated	organizational structure of ESCO, business-plan, marketing strategy;  - number of the trained personnel;  - number of signed EPC and leveraged investments into EE;  - reduction of GHG emissions on heat supply sources;  - financial regulations of the established ESCOs	inadequate information and opportunities for ESCO establishment	creation in other CIS-countries compiled and analyzed by the end of 2d year;	<i>workshops developed in 2012 by international consultant</i>	MS
			- Letter-intension signed, legal structure of ESCO in Almaty developed and approved with stakeholders by the end of the 3d year;	<i>LoI with Almaty signed in 2008, Business Plan developed, in 2009 Almaty withdrew, activities refocused to Karaganda</i>	
			- ESCO in Almaty and\or other cities\regions created within 4 years. There is the ESCO business-plan and clear model of revolving mechanism of EE measures;	<i>ESCo created in Karaganda with private company Ergonomika, BP developed</i>	HS
			- ESCO Marketing and Awareness Strategy developed and enforced by the end of the 4 <sup>th</sup> year;	<i>Marketing strategy, information campaign developed</i>	
			- ESCO staff employed and trained by the end of the 4,5 <sup>th</sup> year;	<i>ESCo team trained, incl. international training</i>	HS
			- At least, 3 EPC signed by the end of project;	<i>8 EPC projects signed</i>	HS
			- pilot projects within ESCO implemented by the 4 <sup>th</sup> year with result in reduction 4 000 tons CO <sub>2</sub> /year, at least;	<i>5 EPC projects implemented</i>	HS
			- Established ESCO financially	<i>annual savings 457 tCO<sub>2</sub></i>	U
				<i>ESCo services of Ergonomika operational</i>	HS

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
			vital by the end of project		
<b>Output 2.3</b> Energy effective AAO	<ul style="list-style-type: none"> <li>- Assessment of the needs (current awareness level among the tenants and AAOs providing the maintenance of these residential buildings);</li> <li>- Status of EE pilot projects with AAOs, incl. monitoring for GHG emissions reduction;</li> <li>- Status of enforcement of different EE financing mechanisms in residential buildings, incl. revolving energy saving mechanism;</li> <li>- Training\awareness program for tenants and AAOs about the opportunities of EE in residential buildings</li> </ul>	AAO undertake no EE measures ☹️. They are debarred from the heat consumption management processes in the buildings served by them. Tenants have no incentives and do not practice cooperation mechanisms to achieve the energy saving in their apartments	- Assessment of AAO's needs completed by the end of the 1 <sup>st</sup> year	<i>AAO needs analyzed in 2008</i>	HS
			- Buildings and AAOs for participation in pilot projects selected, personnel trained by the end of the 3d year	<i>Pilot buildings/AAOs selected, 700 AAOs trained</i>	HS
			- Two Consulting Centers for consumers/AAOs established and operate by the end of the 4 <sup>th</sup> year	<i>2 information centers established in Astana and Karaganda, and additional centers in Kostanay and Pavlodar</i>	HS
			- Training/Awareness Program for AAOs and tenants developed by the end of the 3,5 year and approved by the end of the 4 <sup>th</sup> year	<i>Training program developed and implemented with 500 AAOs in all regions of RK, training for energy managers available on a CD as well</i>	HS
			- pilot projects with AAOs selected (end of the 2d year) and launched by the 3d year	<i>Pilot buildings selected and in total 15 pilots with AAOs implemented</i>	HS
- Monitoring by the end of project made with the result in GHG emissions reduction at pilot sites in AAOs for 1000 tons CO2/year, at least	<i>Monitoring established, annual savings from pilot projects in residential buildings 655 tCO2</i>	MS			

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
<b>Outcome 3.</b>  Collection, analysis and dissemination of project results and lessons learned of the project, including the monitoring of GHG emissions, for the effective replication in Kazakhstan and other CIS countries/municipalities with a comparable situation	- Number of agreements signed for implementation of new EE investments in other cities\regions based on institutional and financial mechanisms which were enforced in the project  - Financing leveraged for expansion and/or continuation of project activities by the end of project	Lack of experience, information, institutional and financial mechanisms for implementation of EE measures in heat supply of country regions	- At least, 2 new Regional Energy Saving Plans initiated and supported by project during the development and execution – till the end of project	<i>National ESP requires all regions/municipalities to develop their own ESP, methodology developed and approved by the Ministry</i>	HS
			- 4 regional AAOs, which are not pilot sites, trained and pilot demo projects initiated by the 4,5 <sup>th</sup> year	<i>700+ AAOs (2000+ participants) across the country trained, 17 pilot project implemented</i>	HS
			- at least, 2 new EPC within ESCO activities signed by the end of project  - to implement EE Projects in other cities or regions, the investments leveraged/associated financing provided at least for amount of \$1 900 000 by the project end	<i>2 additional EPC projects implemented (5 in total), additional 3 signed</i>  <i>48 mil USD leveraged (and invested into EE) from the National Program on Modernization of Housing and Municipal Infrastructure</i>	HS
<b>Output 3.1</b>  Monitoring/recording system for reduction of GHG emissions in the first pilot projects and in the project on the whole	Status of monitoring/recording system for reduction of GHG emissions	No monitoring\recording system for reduction of GHG emissions	Monitoring and verification protocol of GHG emissions developed. Operational staff of the projects trained to compile the requested information by the end of 3,5 <sup>th</sup> year .  Assessment of GHG emissions reduction as a result of project implementation completed by the end of project	<i>Monitoring methodology developed, Akimat staff trained</i>  <i>Pilot projects GHG emission savings monitored, final results under development (heating season was closed in April)</i>	HS  MS

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
<b>Output 3.2</b> Training and other capacity building activities on management provided for operating staff of municipalities and heat supply companies, including, as applicable, the establishment of an information exchange network	<ul style="list-style-type: none"> <li>- Number of trained stakeholders (staff and the number of municipalities and heat supply companies)</li> <li>- Status of mechanisms, incentives, etc. applied by the key stakeholders in their work after the training</li> </ul>	Lack of potential and motivation of key stakeholders effectively to use and enforce the EE policy, lack of training system	<ul style="list-style-type: none"> <li>- Target stakeholders identified by the end of the 1<sup>st</sup> year</li> </ul>	<i>Target groups identified</i>	HS
			<ul style="list-style-type: none"> <li>- Awareness Strategy for target groups developed by the end of the 2d year and successfully implemented by the end of project</li> </ul>	<i>Awareness strategy developed and implemented</i>	HS
			<ul style="list-style-type: none"> <li>- At least, 6 municipalities and/or heat supply companies in the contact and trained by the end of project</li> </ul>	<i>Country wide trainings implemented (500+ AAOs, dozens municipalities, 100 energy specialists)</i>	HS
<b>Output 3.3.</b> Consultations provided on dissemination of EE experience, incl. the enforcement of developed institutional and financial models in other cities and regions with aim of finance leverage	<ul style="list-style-type: none"> <li>- Number of agreements / expressions of interest for replicating the project activities at the national and regional level</li> <li>- Amount of the leverage financing\associated financing in EE</li> </ul>	Lack of replication and effective completion of project results	At least, three expressions of interests to replicate project activities at the national and/or regional level received by the end of the project. Investments leveraged/associated financing provided at least for \$1 900 000 to implement EE measures	<i>Kapchagay, Uralsk, and Atbasar expressed their interest in EE rehabilitation. Government of RK signed a contract with UNDP to replicate the project in Prigorodnyi and provides 0.7 mil USD cofinancing. 5.8 bil USD National Program finances EE rehabs.</i>	HS

Objective/Outcomes/Outputs	Indicator	Baseline	Target	Achievements	Rating
<b>Output 3.4</b>  Analyses of project experience, lessons learnt, results and recommendations for their effective replication and dissemination at national and regional levels	- Status of the report analyzing the experiences and lessons learnt finalized  - Dissemination level of project results, experience and lessons learnt at national and regional levels	No compilation of experience and lessons learnt, no practical dissemination of experience and lessons learnt among the stakeholders	- Draft final report on project results, experience, lessons learnt with recommendations for effective replication at the minimum prior of 3 months till project end  - Draft report disseminated among the key stakeholders at the minimum prior 2,5 months till the project end  - Regional workshop to present and discuss the project results arranged  - Other informative measures initiated and held (publications, TV-broadcasting) by the end of project	<i>Final report under development, scheduled to be finalized before the end of project</i>	UA
				<i>Scheduled to be disseminated</i>	UA
				<i>International conference held in Astana in April 2013</i>	HS
				<i>Intensive media coverage of project activities and results</i>	HS

Rating: HS – Highly Satisfactory, S – Satisfactory, MS – Moderately Satisfactory, MU – Moderately Unsatisfactory, U – Unsatisfactory, HU – Highly Unsatisfactory, UA – Unable to Assess

The Unsatisfactory achievement of planned CO<sub>2</sub> savings from pilot projects have been more than offset by 30-40 000 tCO<sub>2</sub> savings generated by the energy efficiency investments of 48 mil USD financed by the National Program on Modernization of Housing and Municipal Infrastructure.

The overall rating of project results and attainment of objectives is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

The high rating of project results does not mean that the project solved all problems and barriers to energy efficiency in Kazakhstan. The successful implementation of the project has been a major, but only a first step towards more energy efficient Kazakhstan. There are many others to follow.

The project did not demonstrate energy and financial savings from implementing apartment level consumption based billing (heat costs allocators) and radiator level heat regulation (thermostatic valves), as recommended by the MTE report, because it evaluated that these measures with existing DH tariffs would not generate sufficient financial savings to repay investment costs.

District heating tariffs are still rather low, do not cover full costs and thus do not attract private capital. Investments into DH utility rehabilitation including energy efficiency improvements thus rely heavily on funding from public budgets and/or municipalities need to provide full guarantees for potential loans to municipal DH utilities. However, the need to increase DH tariffs has been finally recognized at the top policy level. President Nazarbayev stated publically on April 10, 2013 at a meeting of the Business Council under Kazakhstan President the need to increase tariffs so that “people should be motivated to improve energy efficiency” (Source Interfax Kazakhstan News Agency).

Building level heat metering and installation of building level heat substations and heat exchangers is a responsibility of building owners (AAOs). Lower DH tariffs for metered heat consumption motivate apartment owners to install building level heat meters. Currently some 15% of residential buildings have already installed building level heat meters, in some cities (Karaganda for example) already some 90%. However, the preferential tariff for metered consumption demotivates DH utilities to install building level heat meters and substations themselves. And in most countries this is a responsibility of utilities because it saves both investment and operational costs.

The project has implemented and co-financed 17 energy efficiency pilot projects with a total UNDP/GEF direct investment support of 0.369 mil USD. One pilot project has been implemented in a residential building in Almaty, in Astana 9 projects in residential buildings and 2 in schools, and 5 pilot ESCo projects in Karaganda in residential buildings. Pilot projects generated in total 738 tons of CO<sub>2</sub> savings per year, of which 655 tCO<sub>2</sub>/year in residential buildings and 123 tCO<sub>2</sub>/year in public facilities. Additional 3 636 tCO<sub>2</sub>/year have been generated by energy efficiency projects initiated by the project and implemented and financed directly by municipalities with a technical and information support from the project.

The primary goal of pilot projects was twofold: to disseminate basic energy efficiency DH technology (building level heat substations with heat exchangers and heat flow regulation), building level heat metering, and building level domestic hot water heating, and mainly to demonstrate three different new financing schemes based on local (building/AAO level) revolving principle when heat cost cash savings are accumulated and used for financing of subsequent energy efficiency improvements (balancing of heat flow in building level piping, insulation of piping and others) and for replication of EE measures in other buildings of respective AAOs.

Although the pilot projects financed directly by the project are rather small and the generated GHG savings are rather marginal and just a fraction of the revised target, the savings generated by the investment from the National Program on Modernization of Housing and Municipal Infrastructure of 30-40 000 tCO<sub>2</sub> can fully be attributed to the project, because without its intervention the Program would not have the energy efficiency component that accounts for 40% of the Program spendings.

The project has developed a feasibility study of the modernization of the Kustanai DH utility (replacement of old natural gas CHP and HOBs with new combined-cycle CHP and efficient burners

in HOBs) that generates sufficient income to repay 90 mil USD investment without a need to increase current heat tariffs and saves 260 000 tCO<sub>2</sub> annually.

More than 700 AAOs, 12 DH utilities, 25 local municipalities, and 5 000 energy customers have been trained in energy efficiency in district heating, summer study have and training for ESCos in regions have been organized, and an establishment of network of energy efficiency experts in multiapartment buildings have been supported.

**4.3.2 Relevance**

The project and its goal to reduce GHG emissions from district heating in Kazakhstan are highly relevant with GEF and UNDP priorities as well as with country priorities.

The project was financed within the GEF Focal Area Climate Change and the GEF Operational Programme OP5: Removal of barriers to energy efficiency and energy conservation.

UNDP 2005 - 2009 country program supported three national priorities including Environmental Management and Human Security with an energy efficiency component.

The 2010 – 2015 UNDP Country Program Document and Country Program Action Plan reflects the long-term development strategy of Kazakhstan till 2030 and focuses on three priority areas, including Environmental sustainability, focused on the sustainable management of natural resources; mitigation and adaptation to climate change; and preparedness for natural and man-made disasters. Within this umbrella UNDP CO works to promote “*energy efficiency and protection of environment*”.

During the 15 year project development and implementation period (1998-2013) energy efficiency in district heating became even more important component of governmental development strategies and policies than it was during the project development phase. In 2011 the government allocated 5.8 bil USD for the National Program on Modernization of Housing and Municipal Infrastructure with a strong energy efficiency component, a new Law on Energy Efficiency and Energy Savings was adopted early in 2012. Also President Nazarbayev pays increased attention to energy efficiency in his public speeches and he also visited the project pilot site in Karaganda in 2011.

Project relevance is rated **Highly Relevant**.

Relevant	Not Relevant
<b>R</b>	

**4.3.3 Effectiveness and efficiency**

***Effectiveness of project implementation***

The objective of the project *to remove barriers to energy efficiency in municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations* was achieved, although not all barriers have been fully eliminated yet, such as low DH tariffs. However, the project demonstrated that even with the existing low DH tariffs there is a cost-effective energy efficiency potential which – when utilized - generates cash savings that can be used for replication of energy



efficiency measures in other buildings heated with district heating. The project did lay foundations for sustainable replication and implementation of energy efficiency services under commercial terms, and also with financing from public sources to achieve higher energy and GHG savings.

Rating of the project objective effectiveness is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

**Cost-effectiveness/efficiency of project implementation**

The 6.5 year long project spent in total 3.29 mil USD of GEF funding, on average 0.5 mil USD/year. The project provided direct funding for co-financing of pilot projects in the amount of 0.4 mil USD (0.5 mil USD including all direct project development costs – energy audits etc).

Life-time direct project GHG emission reductions are estimated to be 461 000 tCO<sub>2</sub> (30 738 tCO<sub>2</sub>/year over a 15 year lifetime) – with the 48 mil USD invested to energy efficiency by the National Program on Modernization of Housing and Municipal Infrastructure.

The relative costs of direct project GHG emission reductions for GEF funding of 3.29 mil USD are 7.1 USD/tCO<sub>2</sub>.

Rating of the project outcome cost-effectiveness/efficiency is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>	S				

**4.3.4 Country ownership**

The project idea and the project itself were developed locally by local experts supported with international consultants familiar with UNDP/GEF procedures, and it reflected the specific problems and priority areas of Kazakhstan – high share of energy intensive DH, high energy losses, lack of heat regulation and heat metering. Especially during the second phase of project implementation the project has established very intensive cooperation with key local stakeholders, including members of Parliament, governmental decision makers, Akimats – municipal governments, Associations of Apartment Owners, private housing service companies and energy and energy service suppliers. The project has supported these stakeholders and played a critical role in strengthening their capacity in implementing and financing energy efficiency in heating system on a building level.

Project recommendations, its outcomes and outputs have been adopted into national legislation (Law on Energy Savings), and the government approved the 2011-2020 National Program on Modernization of Housing and Municipal Infrastructure with a 5.8 bil USD budget.

Representatives of government and local expert institutions have been involved in project development, five ministries and state agencies have been represented in the Steering Committee,

expert institutions, utilities, municipalities, private companies and NGOs have been represented in the project Advisory Board.

Country ownership is rated **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

**4.3.5 Mainstreaming**

The project was implemented within the UNDP 2005 - 2009 country priority Environmental Management and Human Security, and the 2010 – 2015 UNDP Country Program Document and Country Program Action Plan and long-term development strategy of Kazakhstan till 2030 priority area Environmental sustainability.

However, project implementation supported also the other interlinked development priority areas – the Poverty reduction and monitoring and Governance and participatory development. Energy efficiency in DH leads not only to GHG emission reductions, but also to energy savings and heating bills reduction. The project worked with the government also to adjust existing social support scheme to provide financial assistance to low-income households for energy efficiency retrofits. Capacity building and cooperation with governmental agencies supported quality governance of these state agencies. The project also supported capacity development and improved financial situation of inhabitants – apartment owners organized in AAOs.

Gender issues were not explicitly addressed by the project, however in practice the project implementation relied heavily on equal gender roles, including decision makers – women were represented both on a local level (heads of AAOs), as well in the implementing agency (UNDP CO Portfolio Manager).

**4.3.1 Sustainability**

Sustainability of project results even after the termination of the originally planned pilot projects has been paradoxically guaranteed by the fact that all 17 pilot projects are rather small-scale and their GHG emission reductions rather low. Core project results do not lie in implemented pilot projects only, but in numerous activities developed, implemented – with the support of the project – and also already replicated by local governmental agencies, municipalities, AAOs and private companies partly already financed by their own budgets.

In this very project the project management team did succeed to lay foundations for and catalyze implementation of energy efficiency measures on a building level district heating.

The government has established new state agencies responsible for housing and municipal infrastructure (Kazakhstan Center for Modernization and Development of Housing and Municipal Infrastructure), adopted new policies promoting energy efficiency and provided jointly with

municipalities financing for implementing energy efficiency measures in municipal district heating (National Program on Modernization of Housing and Municipal Infrastructure). The project has worked with and supported capacity development of private service companies, energy technology suppliers, building maintenance companies that have expanded their business into energy efficiency DH rehabilitation projects on a building level.

Replication of project results will face for sure in the future additional challenges, however the local stakeholders are qualified, skilled and enthusiastic enough to work effectively even after project termination with locally available funding.

Financial risks, socio-political risks, institutional framework and governance risks and environmental risks are rated to be negligible, and prospects of sustainability are rated **Likely**.

Likely	Moderately Likely	Moderately Unlikely	Unlikely
L			

**4.3.2 Project impact**

There is a significant change in attitude in Kazakhstan towards energy efficiency on a governmental as well as local level today compared to the situation at the beginning of the project. For sure this positive change cannot be attributed only to this UNDP/GEF project, but through this project UNDP has gained a reputation in Kazakhstan for its expertise, leadership and professionalism as a key local player and catalyst promoting energy efficiency.

Project initiated and promoted institutional and policy changes on the governmental level, establishment and capacity strengthening of private companies, AAOs and municipalities on a local level, energy efficiency planning on a regional/municipal level, together with a secured financing for energy efficiency retrofits in housing and municipal infrastructure through the 2011-2020 5.8 bil USD governmental Program guarantee that the project will have sustainable long-term impact on the economy and society in Kazakhstan.

Rating of the project impact is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

## 5. Conclusions, Recommendations and Lessons Learned

The project was developed with a goal to reduce GHG emissions from district heating in Kazakhstan and with an objective to remove barriers to energy efficiency in municipal heat and hot water supply systems in Kazakhstan and to lay foundation for the sustainable development of these services taking into account local as well global environmental considerations.

The project was designed to work in three components:

1. Legal and regulatory changes
2. New institutional and financial models, and
3. Lessons learned analyzed and disseminated

Key components of the project were planned to be two large pilot projects – energy efficiency rehabilitation of the DH utility in Kokshetau, and a creation of municipal ESCo in Almaty – that were designed to generate annual savings of 30 000 tCO<sub>2</sub> .

DH utility and municipality in Kokshetau have provided in 2004 when Project Document has been finalized written commitment to provide co-financing for the project over the period of next two years, the co-financing commitment of Almaty municipality was not time bound.

Because of a lengthy period between Project Document submission in 2004 and a project approval and signature in December 2006, the co-financing commitment of Kokshetau DH utility and municipality have expired even before the actual start of the project. In addition to this, because of low tariffs and poor financial performance, the private DH utility in Kokshetau has bankrupted in the meantime, and the designed project that accounted for 95% of planned GHG savings could not have been implemented.

The actual project implementation started after project signature with a half year delay in mid 2007, after the project manager and key project staff have been hired.

The first implementation period between the inception workshop in September 2007 and the Mid-Term Evaluation in September 2009 witnessed some progress in work, some project activities have been redefined, the capital city Astana has been involved as a project partner and two pilot projects in Astana have been implemented. However, no alternative solution for the abolished major GHG savings generating pilot project in Kokshetau has been found, the ESCo pilot project in Almaty was delayed, the project faced significant uncertainty how to reach projected GHG savings. The National Project Director has been replaced in 2008, and in 2009 also a new Project Manager has been appointed. MTE rated project implementation with the second worst grade on a four grade scale.

After MTE and under a leadership of the new Project Manager and with an active support from the UNDP CO the project received a new drive and adopted effectively active adaptive management.

In 2009 the Executing Agency has been replaced. The newly created Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure has been appointed to serve as an Executing Agency instead of the former AREM, Agency for Regulation of Natural Monopolies. After even the pilot ESCo project in Almaty failed, the project focus was changed from originally

planned large supply-side projects to small scale building level DH energy efficiency projects in Astana, one pilot project in Almaty, and ESCo pilot projects with a private company in Karaganda.

During the second phase of project implementation after MTE and with a total project extension of 2.5 years till June 2013, the project has delivered practically all projected results and it catalyzed the initiation of the country's DH transformation towards more energy efficient one.

Under the Legal and regulatory component, the project developed a draft of the Law on Energy Efficiency that was approved in 1/2012, prepared several policy and analytical papers, methodology on energy planning adopted by the Ministry, and thanks to the project long-term close cooperation with the government the project managed to reach one of its major achievements – to incorporate energy efficiency component into the newly developed 5.8 bil USD 2011-2020 National Program on Modernization of Housing and Municipal Infrastructure. Till 3/2013, the Program has spent already about 48 mil USD, or 40% of the total expenditures, on energy efficiency upgrades and has already generated about 30-40 000 tCO<sub>2</sub> savings annually.

Within the second project component - New institutional and financial models, the project has demonstrated in 17 building level projects in Almaty, Astana and Karaganda three different financial schemes based on a revolving principle, when the financial savings are accumulated and spent for further EE investments. Pilot projects were based on a close cooperation with and training of municipalities, DH utilities, AAOs, building maintenance companies and in Karaganda establishment of ESCo type services with a local private company. Pilot investment projects were rather small scale, were implemented at individual multiapartment or school buildings and included installation of heat metering, heat substation with heat exchangers and heat flow regulation, and new building level domestic hot water supply, and generated 738 tCO<sub>2</sub> savings annually. Due to their smaller size they did not reach the expected GHG savings of 5 000 tCO<sub>2</sub>/year. However, with other supported projects that generated 3 636 tCO<sub>2</sub> annually and with 30-40 000 tCO<sub>2</sub> savings generated annually by the National Program that can be fully accredited to the project, these total GHG savings target was reached. The project worked with Astana, Karaganda and Pavlodar and developed jointly regional/municipal energy saving plans, concept of energy management and methodology of energy auditing in public sector. The project has developed a feasibility study of the 90 mil USD modernization of the Kustanai DH utility (replacement of old natural gas CHP and HOBs with new combined-cycle CHP and efficient burners) with annual savings of 260 000 tCO<sub>2</sub>.

Under the third component numerous information dissemination and training activities have been performed targeted to municipalities, AAOs, regional governments, private service companies, energy consumers and general expert audience. Monitoring protocol for EE projects in residential and municipal buildings has been developed.

The project trained and strengthened capacity of governmental agencies, municipalities, AAOs, and private building service and energy service companies that gained sufficient expertise and are dedicated to EE and already work in energy efficiency within their own budgets.

During the project implementation the UNDP and its PIU has gained an excellent reputation and is nowadays widely recognized in the country as a skilled and professional team with unique expertise in energy efficiency. The Government of RK selected UNDP, provided 0.7 mil USD financing and signed a contract for a follow-up complex energy efficiency project in a small Prigorodnyi municipality. The Government did not choose UNDP because of a potential funding source, but because of its excellent local expertise and skills.

Despite the success of the project, there is still a long way to go to fully utilize the energy efficiency potential. Heat tariffs are still low and do not cover full costs. DH thus does not attract private capital and energy efficiency improvements rely heavily on subsidies from public budgets. Building level heat metering is not mandatory in all existing buildings, the project did not demonstrate benefits of apartment level consumption based billing and savings from installation of radiator level heat costs allocators and thermostatic valves. However, the foundations have been laid, funding from the National Program is available, financing schemes and pilot projects have been demonstrated and there are trained local experts and organizations in public and private sectors skilled enough to implement further projects in energy efficiency.

The overall rating of the project is **Highly Satisfactory**.

<b>Highly Satisfactory</b>	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
<b>HS</b>					

### 5.1 Recommendations

- LogFrame is used for rating of overall project achievements, and needs to be backed up by a clear project strategy and a work plan of individual project activities

LogFrame indicators should reflect overall project objectives, outcomes and outputs, but not detailed and specific project activities. In addition to the LogFrame a clear project strategy and a work plan including all relevant key projected activities and time-bound milestones, indicators and targets should be developed for the whole project implementation period to reflect in detail the project strategy. These detailed activities and targets are subject to regular updates in annual work plans. LogFrame matrix on the other hand should remain unchanged during the implementation period if possible, with potential updates at the inception period and after MTE only. For operational management of project progress the LogFrame is not detailed enough. Thus annual work plans, including time bound targets and activity specific budgets are used for this purpose.

- Financial health of partnering commercial entities (utilities) should be screened during project development phase

When designing pilot projects to be implemented jointly with a commercial entity (municipal utility, private company), in addition to a feasibility analysis of proposed technical solutions and their cost-benefit analysis a long-term financial viability of a commercial entity should be assessed as well to minimize a risk of its potential bankruptcy.

- Building level DH substations and metering should ideally be utility responsibility

Building level substations, regulation and metering should ideally be owned and operated by the DH utility. This arrangement is typical in most countries because then the investment, operation and maintenance is typically less costly. In its future activities, UNDP should support governments to include this responsibility of DH utilities into national regulations or at least to perspective policies in case DH utilities are not financial capable to invest into installation of building level heat substations and metering in a short-term.

- Building level heat metering and regulation is the necessary first energy efficiency step in multiapartment buildings served by DH that should be followed by installation of apartment level heat cost allocators and thermostatic valves

Installation of building level heat metering and regulation, together with building heat substations is ideally responsibility of heat utility and it typically generates significant savings with relatively low investment. However, this still does not provide sufficient financial motivation for individual apartment owners to use their energy efficiently, especially in large multiapartment buildings. Installation of radiator level heat costs allocators (HCA) and thermostatic radiator valves (TRV) in existing systems, even when this requires reconstruction of heat piping in apartments, gives apartment owners full control of the indoor temperature comfort and heating costs and motivates them to use heat regulation instead of window opening. In newly built apartments apartment level heat metering is often preferred to installation of heat costs allocators that need in addition to annual reading of HCAs also annual calculation of individual heating bills. After demonstrated benefits of *building* level metering and regulation, UNDP should in its future activities focus on demonstration of *apartment* level heat metering and regulation as well (installation of HCA and TRV).

- Major changes in project management and even replacement of Executing Agency should be implemented if it strengthens the project implementation

Frequent changes in project management cause loss of gained knowledge and expertise. However, if the project focus or its underperformance requires changes in project management arrangements, such changes should be implemented immediately. This applies also in case of changes in governmental structures. If new specialized state agencies with a proper mandate are created (such as the case of establishment of the Agency of the Republic of Kazakhstan on Construction and Housing and Municipal Infrastructure) it provides a legitimate reason to change the Executing Agency. An important aspect of adaptive management is also adaptation to new structures of Government which better suits the purpose and mandate of the project

- Time period between ProDoc submission/approval and ProDoc signature should be minimized and co-financing commitments should cover relevant project implementation period

In order to avoid expiration of co-financing commitments, the commitments should cover relevant period of project implementation and should take into account the period until the project document is signed and actual project implementation starts.

- Process of hiring project staff should be initiated immediately after GEF CEO approval

Project implementation period officially starts with a signature of a project document. Lengthy process of competitive hiring project manager and project staff causes often delays in effective start of project implementation by several months. These delays should be minimized in order to be able to effectively utilize whole project implementation period. Initiation of project staff hiring immediately after GEF CEO approval of ProDoc enables the project implementation to effectively start within few weeks after ProDoc signature.

## 5.2 Lessons Learned

- The success depends on people – skilled, professional, dedicated leaders can make a difference

The project was originally designed to rely heavily on two large pilot projects that unfortunately could not have been implemented because of external financial factors that were out of project control. After two years of weak project implementation performance, with the newly installed project manager and skilled local experts with active and effective support from UNDP CO refocused the project to work more on a local level as well as with government and achieved excellent project results. Strong personalities of project leaders (both in a project team and UNDP CO), although relatively young but dedicated, flexible and willing to learn, in combination with skilled senior experts with a good overview of international experience, delivered results and brought up the project from low to excellent rating.

- Good projects do not need long preparation

The lengthy project development phase of 9 years allowed preparing a very good project document, and also during this period the project has already worked with local stakeholders and delivered some useful results (feasibility studies of several potential DH rehabilitation projects etc). However a significant part of this work turned useless when both planned pilot projects failed because of financial problems of the DH utility and municipality. Good project document needs to be based on good understanding of local needs and opportunities and relevant international experience, but does not need to be a comprehensive and costly study. The project document should be developed and approved within significantly shorter period (ideally within one year).

- Timing of the project is critical for its success

Kazakhstan as an oil and natural gas rich and export oriented country experienced since 2000 high GDP growth between 7 and 12% (except for 2008-9), and high income to the state budget. The project heavily benefited from this good socio-economic development in Kazakhstan that is in a position to finance from its public budgets ambitious modernization program, although average income level and heat tariffs are still rather low, and DH distribution companies generate financial losses. Should the same project be implemented earlier, the results would probably be much more difficult to achieve. Should it be implemented later, the project value added might be lower, or the losses from inefficient DH unnecessarily costly.

- Low heat prices do not attract private capital to invest to DH modernization

Heating tariffs that are regulated below full costs require significant public sector subsidies and/or guarantees for financing of DH rehabilitation and typically are not sufficiently high enough to finance all needed DH rehabilitation. On the other hand DH bills should be affordable so that the bill collection can be sufficient also for a financial viability of DH utility. Energy pricing and regulation in transition economies is highly politically sensitive issue, however without a clear policy towards increase of energy prices to a full costs recovery level most of the cost-effective energy efficiency potential tends to remain untapped.

- Active and dedicated partners are critical for long-term project success

The project pro-actively sought opportunities and identified right and committed partners beyond government agencies only, and heavily benefitted from cooperation with dedicated and active partners on a governmental level, private sector companies and AAOs. The project provided training to their



staff and helped to build their capacity in energy efficiency project development, financing and monitoring. However, without such active and dedicated partners the sustainability of project achievements would be likely jeopardized.

- Support of top level politicians attracted attention to energy efficiency

The project worked closely with national politicians, members of parliament, and it was able also to attract attention of top politicians as well. President of Kazakhstan, Mr. Nazarbayev, the Prime Minister of the country, Mr. Serik Akhmetov, and a Vice Prime Minister, Mr. Umirzak Shukeev visited on different occasions different project sites, and the project presented personally to them concrete project results. The support to energy efficiency projects declared by the top level politicians has received wide media coverage, raised awareness and lead to implementation and widespread dissemination of specific project results (creation of energy efficiency information centers in the country for example).

- Initiation of project staff hiring process immediately after GEF CEO approval of the ProDoc (already before ProDoc signature) allows the project implementation to start immediately after ProDoc signature without unnecessary delays

The project effectively started its implementation with appointment of the Project Manager within several weeks after ProDoc signature. This was possible thanks to the fact that UNDP CO initiated the hiring process well in advance before ProDoc signature already, immediately after the project document was approved by GEF CEO.

- Three energy efficiency retrofit financial models were demonstrated in multiapartment buildings and can be replicated and scaled up in next projects

Three different financing models of energy efficiency retrofits (two based on revolving energy efficiency fund and one on an ESCo concept) that were demonstrated in pilot projects in Almaty, Astana, and Karaganda, can be replicated and scaled up in further energy efficiency projects funded by the State Program on Modernization of Housing and Municipal Infrastructure and/or other funding sources.

## 6. Annexes

### Annex 1: Itinerary and list of persons interviewed

Встречи в рамках заключительной оценки Проекта Программы развития ООН/Глобального Экологического Фонда в Казахстане «Устранение барьеров для повышения энергоэффективности в коммунальном теплоснабжении»

**11 апреля 2013 года, г. Алматы**

*Встреча в АО «Алматинские Тепловые сети».*

На встрече присутствовали Генеральный директор Алимбеков Даурен Асылбекович, главный инженер Изимов Айбек Маратович и начальник управления по реализации Хохлова Марина Яковлевна.

Генеральный директор дал положительную оценку проекта ПРООН, отметив, что внедрение энергосбережения во всех домах, позволит снизить затраты на отопление и снабжение населения горячей водой. Он также отметил, что в некоторых домах также началась реализация Автоматических тепловых пунктов и надеется, что со временем все старые дома в рамках выполнения программ «Модернизации ЖКХ» будут оснащены энергосберегающим оборудованием.

Оборудование АТП передано в КСК и все операции проводятся через КСК, для Тепловых сетей это очень удобно и выгодно, собираемость оплаты составляет 97 %. Одно из новшеств – это введение дифференцированных тарифов: 4358 тенге за одну Гикаллорию при наличии приборов учета тепла и 5711 тенге за одну Гикаллорию при отсутствии прибора. С введением дифференцированной оплаты увеличилось количество установленных счетчиков учета тепла. В Ауэзовском районе установили 340 счетчиков.

*Встреча в Кооперативе собственников квартир (КСК) Максат.*

Председатель КСК Ирина Акатаевна Валишева рассказала, что в кооперативе 38 домов. Когда узнали про конкурс на пилотный проект, они подали необходимые документы и выиграли конкурс. 2 марта 2010 года был подписан «Меморандум о взаимопонимании» между ПРООН, Алматинскими тепловыми сетями, Ассоциацией КСК г. Алматы и КСК «Максат». Был выбран один 56 квартирный дом, с населением 147 человек.

Была проведена большая работа с населением. Юрист КСК «Максат» Андысбаев Ерлан Естаевич рассказал, что с хозяевами каждой квартиры был заключен «Договор поручение по проведению теплосберегающих мероприятий по дому за счет средств ГЭФ/ПРООН предоставляемых на возвратной основе».

В доме установили Автоматический тепловой пункт стоимостью около 3,7 миллионов тенге. С учетом дифференцированных тарифов за два сезона было сэкономлено 1,3 млн. тенег.

**12 апреля 2013 года**

*Встреча в АО «Казахстанский Центр модернизации и развития ЖКХ» и Национальной палате ЖКХ и строительства.*

Центр ЖКХ создан в 2009 году, 100% государственное предприятие, подчиняется Министерству регионального развития.

На встрече присутствовали:

1. Рахимбеков Толеутай Сатаевич – Председатель Правления;
2. Абдыкаликов Ерже Кипшакпаевич – зам Председателя Правления;
3. Утепов Арман Тлеусович – руководитель Центра энергоэффективных технологий;
4. Мурсанина Мадина Уралбековна – директор департамента жилищного хозяйства;
5. Исламов Есенбай Исраилович – руководитель центра распределения знаний;
6. Абаканов Елдос Нурболович – главный менеджер департамента жилищного хозяйства.

Рахимбеков Т.С. рассказал о создании Центра ЖКХ. Очень полезной была поездка в Польшу, организованная Проектом ПРООН. В основу создания центра был положен польский опыт. Даже термин термомодернизация ЖКХ был заимствован из Польши.

Сейчас планируется создание Центров энергосбережений в городах :Алматы, Павлодар, Актобе и Костаная, в 2014 году такие Центры будут во всех областных центрах Казахстана.

На встрече были обсуждены основные моменты сотрудничества с ПРООН, высказались практически все участники совещания, была дана положительная оценка проекту. Председатель Правления поблагодарил ПРООН и лично Александра Белого за помощь оказанную при становлении Центра ЖКХ, а также при разработке Закона «Об энергосбережении» и 74 нормативных документов.

Он так же отметил, что одним из важных моментов является включение в Закон «Об энергосбережении» положений об обязательном энергетическом аудите зданий. Кроме того ПРООН помог при разработке Плана модернизации ЖКХ, где было записано, что обязательным при термомодернизации зданий должна быть установка Автоматических тепловых пунктов.

Кроме того, участники совещания обсудили все пилотные проекты в Астане, Алматы и Караганде. Все высказали мнение, что пилотные проекты оказали большое влияние как на принятие Закона, так и при разработке Плана модернизации ЖКХ. На этих пилотных проектах руководителям всех уровней были продемонстрированы выгоды термомодернизации. Отдельные проекты посещали Премьер-Министр Казахстана Масимов К., заместители Премьер-Министра Шукеев У. и Ахметов С, акимы Астаны, Алматы и Караганды, а также представители центральных и местных исполнительных органов. Так же была отмечена пропагандистская работа, совместно с ПРООН было разработано, издано и распространено большое количество наглядных агитационных материалов.

*Встреча с Заместителем Председателя Комитета Жилищно Коммунального хозяйства Тихонюк Николаем Петровичем.*

Он рассказал о планах развития ЖКХ в Казахстане и сотрудничестве с ПРООН. Он поблагодарил проекты о помощи при обсуждении и принятии Закона «Об энергосбережении», а также разработке подзаконных актов.

Он рассказал о дальнейших шагах Казахстана в реформировании жилищно-коммунального хозяйства. Это в первую очередь повышение тарифов на коммунальные услуги. Об этом высказался и Президент Назарбаев Н.А. на встрече с предпринимателями Казахстана. Планируется увеличить строительство квартир, сейчас в год сдается 7 млн. квадратных метров жилья, а к 2015 году планируется 12 млн. кв. метров. Мы отстаем от мировых норм 1 кв.метр на 1 жителя, но уже приближаемся к этому уровню. Причем планируется строительство энергоэффективных домов.

*Встреча с членом Комитета по управлению проектом Алибеком Кабылбай – руководителем управления энергосбережения и энергоэффективности Министерства индустрии и новых технологий Республики Казахстан.*

Он так же положительно отозвался о проекте ПРООН, особенно в части обсуждения Закона «Об энергосбережении». Рассказал, что этот Закон собирались принять в 2009 году, но, по мнению экспертов, в том числе и из ПРООН, Закон был декларативным и не имел конкретных механизмов энергосбережения, поэтому проект Закона был отозван из Парламента на доработку. Большинство предложений ПРООН были учтены, однако в Закон не вошли положения об Энергосервисных компаниях.

Так же Алибек рассказал о разработке и распространении совместно с ПРООН брошюр и других материалов по энергоэффективности и энергосбережению.

**15 апреля** была проведена встреча в гостинице Есиль с другими проектами по энергосбережению с Крюковой Валентиной Павловной – директор Центра по изменению климата.

С международным экспертом из Германии – Лариса Шрекенбах.

15 апреля 2013 года была поездка на *пилотный проект школы № 9*. Директор «EnKom-St» Ltd Энтин Александр Викторович подробно рассказал о работе с ПРООН. Показал действующую установку Автоматического теплового пункта, рассказал о все плюсах перехода на энергосберегающие технологии. Тепловой узел школы оборудован новейшим оборудованием, имеется наглядная агитация. Данный пункт посещали представители Правительства, центральных и местных исполнительных органов.

После посещения школы была встреча в *Министерстве охраны окружающей среды* с директором Департамента Соспановой Айнуур.

Она подробно рассказала о сотрудничестве с ПРООН, а также о планах министерства. В частности о разработке Стратегии перехода Казахстана к Зеленой экономике. Рассказала о перспективах развития возобновляемой экономики и внедрении зеленых тарифов на энергию от возобновляемых источников.

**18 апреля** было посещение *Международной конференции* на тему «Повышение эффективности ЖКХ Казахстана на основе внедрения инноваций, энергосберегающих технологий и лучшей практики управления», организованной «Казахстанским центром модернизации и развития жилищно-коммунального хозяйства» при поддержке Министерства регионального развития РК, Акимата Астаны и партии «Нур Отан». Одновременно действовала выставка Международного форума «ЖКХ – Экспо 2013».

18 апреля 17 00, гостиница Есиль встреча с Региональным техническим Советником Центра ПРООН по странам Европы и СНГ (Братислава) Мариной Ольшанской. Была обсуждена Матрица логических рамок проекта, основные цели проекта, индикаторы и достигнутые результаты. Была высказана положительная оценка деятельности проекта.

**19 апреля**, в городе Астана, в отеле «Пекин Палдас Soluxe Hotel Astana» в рамках реализации проекта Правительства РК и ПРООН/ГЭФ была проведена международная конференция «Повышение энергоэффективности коммунального теплоснабжения как вклад в «зеленую» экономику».

На конференции выступили:

- Ускенбаев К.А. - Вице-министр регионального развития РК;
- Киянский В.В. – Депутат Мажилиса Парламента РК,;
- Паниклова Е. – Заместитель постоянного представителя ПРООН в Казахстане;
- Рахимбеков Т.С. - Председатель Правления АО «Казахстанский Центр модернизации и развития ЖКХ»;
- Соспанова А.С. – Директор Департамента Министерства охраны окружающей среды;
- Ольшанская М. – Региональный технический Советник, Центр ПРООН по странам Европы и СНГ;
- Балобанов Т. – Австрия;
- Ларсен П. – Дания;
- Мельникова О. – Россия;
- Хилленберг Р. – Германия;
- Сиваев С. – Россия;
- Шрекенбах Л. – Германия;
- Петкова, - Болгария;
- Влачков, - Болгария;
- Башкин Б. – Россия.

Кроме того выступили представители казахстанских организаций и компаний, работающих по вопросам внедрения энергосбережения. По окончании Конференции были проведены диспуты и приняты рекомендации.

В целом отзывы о Проекте Программы развития ООН/Глобального Экологического Фонда в Казахстане «Устранение барьеров для повышения энергоэффективности в коммунальном теплоснабжении», как официальных лиц, так и людей, так или иначе работавших с проектом положительные.

## **Annex 2: List of key project short-term experts (SSA/IC)**

- Mr. Vesa Rutanen, International Project Advisor 2009, Inception Report 2007
- Mr. Erbulat Buksukbaev, 2007-2008 EE expert of the Almaty city
- Mr. Aleksey Repin, 2007 EE measures analysis and plan, Feasibility Study of DH Kostanai 2012-2013
- Ms. Irina Eserkepova, 2007-2008 GHG monitoring system of pilot projects in Astana and Almaty
- Ms. Kuralay Karakulova, 2010 legal expert on ESCo Almaty, 2011, analysis of targeted social support in multiapartment buildings
- Ms. Elena Zadvornyykh, 2011 technical expert on modernization of building level heat substations, evaluation of pilot projects 2011-2013
- Mr. Anuat Koshkarbaev, 2012-2013 legal and institutional expert on introduction of energy management system
- Ms. Natalya Druz, 2007-2013 social expert
- Mr. Valeriy Vlachkov, International expert, 2011 analysis of heat tariff policy
- Ms. Lilit Melikyan, International expert, 2012 analysis of housing reforms and DH energy efficiency incentives
- Mr. Todor Balabanov, International expert, 2012-2013 analysis of DH energy efficiency potential in housing sector
- Mr. Ralf Hillenberg, International expert, 2011 energy audits in typical multiapartment buildings, analysis of DH energy efficiency measures
- Ms. Natalya Sandalova, 2012 business models analysis of housing service companies

## **Annex 3: List of documents reviewed**

### **General documentation**

- UNDP Programme and Operations Policies and Procedures
- UNDP Handbook for Monitoring and Evaluating for Results
- GEF Monitoring and Evaluation Policy
- GEF focal area strategic program objectives
- UNDP Development Assistance Framework
- UNDP Country Program Document
- UNDP Country Program Action Plan
- Project-Level Evaluation: Guidance for Conducting Terminal Evaluations of UNDP-Supported GEF-Financed Projects, UNDP 2012

### **Project documentation**

- GEF approved Project Document and Request for CEO Endorsement
- Inception Report
- Annual Work Plans
- Annual Project Reports
- Project Implementation Review
- CDR
- Quarterly Reports
- Project Outcome Board Meeting minutes
- Project Steering Committee Meeting minutes
- Updated risk log
- Mid-Term Evaluation Report,
- Financial Audit Reports
- Project internal financial records (financial spreadsheet)

### **Project web sites:**

[www.eep.kz](http://www.eep.kz), [www.undp.kz](http://www.undp.kz), [www.beeca.net](http://www.beeca.net)

**Project deliverables – see Annex 4**

## **Annex 4: Summary of reviewed key project deliverables, reports and studies**

- Kazakhstan housing infrastructure reform: energy efficiency promotion in municipal heat supply
- Review of international experience, especially in the EU and transition countries, on formulation of tariff policy and regulations, legal framework and standards to encourage the energy efficiency investment to heat supply and residential multi-apartment buildings
- Analysis of the tariff policy and regulations, legal framework and standards in Kazakhstan to encourage the energy efficiency investment to district heating systems and residential multiapartment buildings
- Analysis, recommendations and proposals to the draft Comprehensive Energy Efficiency Plan of the RoK for 2012-2015 and to the draft Law of the RoK on Energy Saving
- Energy efficiency increase in municipal heat supply: problems and ways f their solution. Materials for Office of Prime Minister of the RK
- Study report on identification of the interest, possibilities and willingness of heat power producers and consumers to strengthen the energy efficiency for reduction of municipal payments, upgrade of enterprises and impact decrease of global climate in Kazakhstan
- Report on removing barriers to energy efficiency in municipal heat supply taking the social aspect into consideration
- Analysis of approved regional rules on defining amount and method of housing categorical aid
- Main recommendations to improvement of energy saving process at regional level
- Information on pilot initiative in the school #9
- Analysis of international experience in the sphere of municipal energy management and energy planning
- Concept for establishment of energy management system at regional (oblast) and local levels (large city – oblast centre and cities of national importance)
- Action Plan for enforcement of energy management system
- Program module (methodic) on identification of economical efficiency from enforcement of energy saving equipment (AHP) in different regions of Kazakhstan
- Energy saving in administrative (budgetary) sector: ESCO concept and model. Presentation
- Review of international experience on the development of energy performance contracts (EPCs)
- Analysis of conditions for ESCO development in municipal heat supply sector in Kazakhstan
- Ergonomika LLp as an ESCO in Karaganda. Business Plan
- Almaty ESCO. Business plan
- Analysis of energy audits: residential multiapartments in Karaganda and Almaty (in two parts)
- EE revolving mechanisms into RMA
- Information on energy saving demo area in Astana
- Reports on implemented pilot projects in Astana, Almaty, Karaganda
- Monitoring protocol for results rating of EE projects in residential and municipal buildings
- Financial feasibility study for creation of Energy Efficiency and Energy Saving Centre in Kustanai



- Feasibility study of DH modernization in Kustanai
- Concept of Module «Competent Consumer»
- Energy Efficiency and Energy Saving Law of the RK
- Recommendations to Regional Energy Saving Plan by Ministry of Industry and new technologies
- Comprehensive Energy Saving Plan of the RK for 2012 – 2015
- Housing Infrastructure Modernization and Development Plan for 2010-2020
- Astana Comprehensive Energy Saving Plan for 2009-2010
- Astana Comprehensive Energy Saving Plan for 2012-2015
- Comprehensive Energy Saving Plan for Karaganda oblast
- Other project publications and website [www.eep.kz](http://www.eep.kz)

## Annex 5: Final evaluation TOR

### TERMS OF REFERENCE

<b>Position:</b>	International expert for final evaluation of the UNDP/GEF Project "Removing barriers to energy efficiency in municipal heat and hot water supply"
<b>Project title:</b>	UNDP/GEF Project "Removing barriers to energy efficiency in municipal heat and hot water supply", 00051578
<b>Type of contract:</b>	IC (individual contract)
<b>Duty station:</b>	home-based
<b>Duration:</b>	25 working days after signing an IC

#### **Introduction:**

The Government of Republic of Kazakhstan and UNDP/GEF implement a project titled "Removing barriers to energy efficiency in municipal heat and hot water supply". The long-term objective of the UNDP\GEF Project "Removing barriers to energy efficiency in municipal heat and hot water supply" (51578) is to remove barriers to energy efficiency in the municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of municipal services taking into account local as well as global environmental considerations. The Project components are:

- (1) Assistance to the Government of the RoK in review and revision of current legislative and regulatory framework in municipal heat supply in the part of creation and improvement of regulatory frames to provide promotion and incentives to energy efficiency in heat supply;
- (2) Development and enforcement of new institutional and financial models to leverage the financing into the energy efficiency in heat supply and capacity building of stakeholders for further replication and implementation;
- (3) Compilation, analysis and dissemination of project results and lessons learnt with aim of effective replication in Kazakhstan and other CIS countries\municipalities with comparable situation.

#### **Background:**

##### **Standard UNDP/GEF Monitoring and Evaluation requirements**

*The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives: i) to monitor and evaluate results and impacts; ii) to provide a basis for decision making on necessary amendments and improvements; iii) to promote accountability for resource use; and iv) to document, provide feedback on, and disseminate lessons learned.*

*A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project e.g. periodic monitoring of indicators, PIRs – or as specific time-bound exercise such as mid-term reviews, audit reports and final evaluations.*

The evaluation is to be undertaken in accordance with the “GEF Monitoring and Evaluation Policy”(see

<http://thegef.org/MonitoringandEvaluation/MEPoliciesProcedures/mepoliciesprocedures.html>).

Evaluations in the GEF explore five major criteria:

- (i) Relevance – the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
- (ii) Effectiveness – the extent to which an objective has been achieved or how likely it is to be achieved.
- (iii) Efficiency – the extent to which results have been delivered with the least costly resources possible.
- (iv) Results – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short-to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.
- (v) Sustainability – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

The mid-term evaluation for the project was conducted in 2009. The mid-term evaluation made the following rating and conclusions in its report:

The **achievements** of the project to the date of the mid-term evaluation were summarized as follows:

Outcome 1. The project management structure was established with the Project Implementation Unit (PIU) and Project Steering Committee (Outcome 1)

Outcome 2. The draft of the new Law on Energy Saving has been finalized by the government (MEMR). Adoption is expected at the end of 2009. Despite considerable time and resources spent by the project to develop recommendations and to participate in discussions, the proposed new Law on Energy Saving does not adequately incorporate these recommendations or address the concerns outlined by the project.

Recommendations on tariff regulation in heat supply sector were submitted for consideration.

In 2008, draft rules on heat energy supply were developed, agreed with the Association of Heat Companies and submitted to MEMR for approval.

In 2008, the new methodology on “Calculation of specific norms of heat flow for small heat boilers” was developed and presented for approval by the Antimonopoly Committee.

Outcome 3. Draft Concept on social support of vulnerable people was developed and discussed with stakeholders (AAOs, Ministry of Industry and Trade). Recommendations for the Rules of Housing Aid with aim of compensation of costs of low-income families by installation and maintenance of energy saving equipment in residential multi-apartments have been prepared and submitted

Outcome 4. The “Concept for development of Housing and Municipal Utilities” was approved by the Government in May 2009. In particular, specific provisions were incorporated which support: effective maintenance of residential buildings; the role of condominiums in implementation of energy saving projects in residential buildings; ESCOs as viable financial mechanisms to realize energy efficiency projects in buildings. The Law on Housing Relations was revised and adopted in June 2009 incorporating provisions promoted by the project including obligatory registration of condominiums and the right to open an accumulative bank account by the AAO, both of which are necessary for the effective management of common property and the implementation of energy saving measures.

The project has developed a number of other recommendations and is cooperating with newly established Agency for Construction and Housing Utilities (CHU) on their incorporation in legislation, specifically:

- defining the responsibility of apartment owners with respect to common property including heat points;
- to improve the self-management in condominiums for energy saving by the owners;
- to develop financial mechanisms for the implementation of energy saving measures.

The project is developing recommended revisions to the Rules for Provision of Municipal Services and Heat Supply in order to incorporate incentives for more rational energy consumption by owners and to assist in creating an enabling environment for implementation of energy efficiency projects in residential buildings.

Outcome 5. Draft legal and regulatory documents for creation of Revolving Funds by the municipalities are under approval by stakeholders/beneficiaries;

Major **conclusions** coming out the mid-term evaluation analysis were as follows:

While the project continues to be relevant to Kazakhstan and there has been considerable interest demonstrated to develop both the policy and institutional mechanisms to increase Energy Efficiency in the heating sector, a number of factors - both external and internal - have slowed the progress and influence of the project.

#### Changing Development Context

The project PDF-A and PDF-B phases were approved in 1998 and 1999. The Full-sized Project proposal was prepared in 2004 and approved in December 2006. Several project activities and co-financing partnerships (most notably those dealing with the Kokshetau DH plants) had been cancelled at the project start. The Inception Workshop held in September 2007 was used primarily to analyse the country situation, to validate the relevance of project objective and activities and to reassess project opportunities for cooperation and impact. While the project direction was clarified during the Workshop, new structured agreements between the parties had still to be prepared and endorsed. Lengthy and, in many cases, continuing negotiations with project partners (most notably with the City of Almaty where municipal elections resulted in changes to key posts) have delayed or threatened the implementation of key project activities and outcomes.

#### Policy Development and Enactment

The Project seeks to support legal and regulatory framework changes to provide incentives for the improvement of energy efficiency in the heat sector. The project team has sought cooperation in the development of the new Law on Energy Saving and in the restructuring of heat tariffs. Despite efforts by the project team (participation in policy development forums, preparation of drafts, and lobbying) recommendations have generally not been incorporated into policy development and the progress towards enactment of legislation has been slow. Artificially low heat tariffs and the resulting long pay-back periods also for low-cost EE investments continue to pose a major barrier to energy efficiency on both the supply and demand side.

AAOs (Association of Apartment Owners)

The interest and involvement of AAOs has been very positive in the project implementation.

Pilot Projects

Two pilot projects in Astana involving heat system installations in existing buildings (one school and one apartment building) have successfully demonstrated reduced heat consumptions (some 20-25%), moderate investment costs (20-25 thousand USD per building) and payback periods between 6 and 9 years. The technical solution has a broad application and involves;

- a building-level heat flow meter (currently required by law)
- a building-level heat flow reduction valve controlled by outdoor temperature sensors
- a new heat point (location where the building receives heat from the DH system) which more effectively utilizes the heat delivered to the building

Substantial interest in pilot project results on the part of municipalities, private ESCOs and AAOs is evident.

Almaty Municipal ESCO

The establishment of the Almaty Municipal ESCO has been delayed due to administrative changes and budget shifts but also because of poor planning on the part of the project. In particular, the ESCO Business Plan prepared under the project to provide practical guidance to Almaty Municipal Government suggests the municipality establish and manage a revolving fund. However, under the present law, a revolving fund cannot be established by a municipality. Such basic local conditions should clearly have been addressed during the business plan preparation phase to ensure the credibility and relevance of the final ESCO Business Plan. The qualification for alternative financial arrangements has caused interruptions in negotiations with the municipality and additional delays in project implementation. A financial institution to manage the revolving fund has not yet been identified.

Project Management

The Project Manager was replaced in May 2009 and the National Project Director at AREM was replaced in 2008. Although both the new Project Manager and the new National Project Director have been actively involved in the project implementation (both were involved in the Inception Workshop), there is a gap in the management of the project which must be addressed immediately.

Financial

The gaps created when activities and co-financing related to Kokshetau municipality disappeared are substantial and while prospects of attracting major co-financing sources still exist, these have not been secured. In addition, the co-financing resources promised by Almaty municipality (1 million USD) are delayed and no longer certain. The new activities and project-related investments in Astana Municipality are modest in comparison.

The Evaluation Team had the following recommendations:

- 1) Involve private sector ESCOs in project activities. The project activities and outputs (including building audits and feasibility studies) currently directed to Almaty Municipality ESCO (not yet established) should be adapted for implementation by private sector ESCOs. This will facilitate the realization of energy efficiency improvements in demonstration projects according to the project schedule and the broader application of the successes already demonstrated in pilot projects. Planned training activities should be open to private sector ESCOs to improve their capacity to realize EE projects in the public and private sector. The ESCO Business Plan already prepared under the project should be revisited and encompass the local experience of private sector ESCOs.
- 2) Identify and engage financial institutions to support project activities. The EBRD has recently provided training and capacity support regarding EE investment to 2 local banks in Kazakhstan. These banks should be informed and, where possible, involved in activity planning and implementation. In particular, the financial management support for ESCO activities and EE programme implementation should be attained.
- 3) Implement first 'pilot projects' with billing by consumption at the apartment level. The clear relationship of utility costs to individual energy consumption is an important incentive for energy conservation. Radiator valves and heat cost allocators are low-cost measures which enable tenants to control and measure heat consumption in the different rooms of an apartment. The pilot action should involve training and operational assistance to AAOs to ensure accurate and transparent calculation of consumption and fair billing according to international experience.
- 4) Strengthen project management. Ensure the Project Manager has the following capacities;
  - uses Result-based Management and Risk Assessment to achieve the project objective and outcomes.
  - has an excellent overview of budget and scheduling constraints
  - has adequate technical, financial and management capacity to direct the institutional and financial models being implementedSince April 1, 2009, the project has engaged an International Technical Advisor responsible for supervising project implementation and providing objective quality control and reporting. The project team needs further training to improve knowledge of UNDP/GEF project management, monitoring procedures and requirements
- 5) Establish project cooperation with Ministry of Energy and Mineral Resources (MEMR) in the implementation of the Integrated Plan of Energy Saving for 2009-2010 (1st stage). The programme is designed to achieve a minimum reduction in energy consumption of 10% by 2015. Capacity building and training activities of the UNDP-GEF project have the potential to increase the effectiveness of actions and increase energy savings by up to 14%.
- 6) Bring an International Building EE Expert on board to calculate CO<sub>2</sub> emission reduction targets with direct reference to Logframe activities and outcomes and to ensure indicators and mechanisms which validate progress towards targets.
- 7) It is recommended to update the project website. The webpage offers a useful source of base knowledge for municipalities and AAOs.
- 8) Because of a shift in the project focus from heat and hot water supply side issues towards demand side issues, AREM is no longer considered the optimal national executing partner for this project.

As a government agency, AREM's field of responsibility does not encompass the current key objective pursuits of the project - namely reduced heat consumption in municipal and residential buildings. It is recommended that a new national executing partner with definitive common interest to cooperate on the project outcomes and objective be identified and brought on board. The newly formed Agency for Construction and Housing Utilities (CHU Agency) is one potential candidate. The Agency has been delegated responsible for state management of building and construction activity, housing relations and communal services as well as the development of state regulation policy in the areas of energy and heat supply.

9) Cooperation with government counterparts, particularly with the MEMR, needs to be intensified to ensure the legal and regulatory recommendations are agreed upon, incorporated in laws and amendments and submitted for adoption. Subsequently, a lobbying mechanism should be in place to support adoption of laws and amendments

**According to the Recommendations, the Project Management Responses and decisions of the PSC the Project Logframe was revised with the followings outcomes:**

(1) Review and revision of current legislative and regulatory framework in municipal heat supply in the part of creation and improvement of regulatory frames to provide promotion and incentives to energy efficiency in heat supply;

(2) Development and enforcement of new institutional and financial models to leverage the financing into the energy efficiency in heat supply and capacity building of stakeholders for further replication and implementation;

(3) Compilation, analysis and dissemination of project results and lessons learnt with aim of effective replication in Kazakhstan and other CIS countries\municipalities with comparable situation.

**Expected main results :**

1. The proposed legal and regulatory changes formally adopted and effectively enforced by the end of the project creating sufficient incentives for various stakeholders (Government, municipalities, AAOs, residents) to implement EE measures
2. ESCO in Almaty and/or other cities and country regions established, staff recruited and trained, capitalized and at least 3 EPC signed by the end of project
3. Astana Municipal Energy Saving Plan (1<sup>st</sup> stage – 2009-2010) developed by end of the 3<sup>d</sup> year and implemented in the part of joint measures and monitoring
4. Astana Municipal Energy Saving Plan (2<sup>d</sup> stage – 2011-2014) developed by the end of the 4<sup>th</sup> year, discussed and joint measures with project arranged
5. At least 2 new Regional Energy Saving Plans initiated and supported by project during the development and execution – till the end of project. 4 regional AAOs, which are not pilot sites, trained and pilot demo projects initiated by the 4,5<sup>th</sup> year. At least 2 new EPC within ESCO activities signed by the end of project to implement EE Projects in other cities or regions, the investments leveraged/associated financing provided at least for amount of \$1,9 mln USD by the end project

The revised Project Logframe and Annual Works Plans for 2010-2011 were prepared and adopted by the SC in 2009. This UNDP/GEF is scheduled to close in June 2013. Thus the final evaluation's focus should be a lessons-learned section for wide distribution to other countries planning similar activities in area of renewable energy and climate change mitigations.

The Final Evaluation of the UNDP/GEF Project “Removing barriers to energy efficiency in municipal heat and hot water supply” is initiated by UNDP as the GEF Implementing Agency. It aims to provide stakeholders (ADS ZhKH, PIU, UNDP-Kazakhstan Project Office and UNDP-GEF levels) with strategy and policy options for more effective and efficiently manner to support the energy efficiency improvement in municipal heat and hot water supply in Kazakhstan and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

**Objective:**

The overall purpose of the evaluation is to measure the effectiveness and efficiency of project activities in relation to the stated objective so far, and to produce possible recommendations on:

- The key elements of success of the project and further steps to be taken to secure improvement of energy efficiency in municipal heat and hot water supply in Kazakhstan;
- Any gaps remaining after the project implementation to be addressed in further initiatives by the Government;
- Identifying risks to the sustainability of the project initiatives to be considering by the Government in future improvement of energy efficiency in municipal heat and hot water supply in Kazakhstan.

The Final Evaluation is to consider the currently evolving policy and economic climate in consideration of the risks and the further development of the initiatives as the external pressures on results and executing agency have changed during the project.

Project performance will be measured based on the indicators of the project’s logical framework. Many of these indicators relate to the elimination of the key barriers to energy efficiency improvement in municipal heat and hot water supply in Kazakhstan.

The Final Evaluation serves as an agent of change and plays a critical role in supporting accountability. The emphasis of the evaluation should be the following:

*Project indicators*

The evaluators will assess the achievement of indicators of the project’s logical framework and review the work plans, planned duration and budget of the project.

Implementation

The evaluation will assess the implementation of the project in terms of quality and timeliness of inputs and efficiency and effectiveness of activities carried out. Also, the effectiveness of management as well as the quality and timeliness of monitoring and backstopping by all parties to the project should be evaluated. In particular the evaluation is to assess the Project team’s use of adaptive management in project implementation and the Project team’s fulfillment of management responses to evaluation recommendations made during the mid-term evaluation in September 2008.

*Project outputs, outcomes and impact*

The evaluation will assess the outputs, outcomes and impact achieved by the project. This should encompass an assessment of the achievement of the immediate objectives and the contribution to attaining the overall objective of the project. The evaluation should also assess the extent to which the implementation of the project has been inclusive of relevant stakeholders and to which it has



been able to create collaboration between different partners. The evaluation will also examine if the project has had significant unexpected effects, whether of beneficial or detrimental character.

The Final Evaluation will also cover the following aspects:

### *1. Progress Towards Results*

- (a) Changes in development conditions: Address the following questions with a focus on the perception of change among stakeholders:
- Has the legislative and regulatory framework in municipal heat supply been changed to provide promotion and incentives to energy efficiency in heat supply?
  - Has the new institutional and financing models to leverage the financing into the energy efficiency in heat supply and capacity building of stakeholders been developed for further replication and implementation.
  - Has ESCO in Almaty and/or other regions been established and successfully operated and at least, 2 new EPC within ESCO activities signed by the end of project
  - Has the Astana Municipal Energy Saving Plan been developed and implemented in the part of joint measures and monitoring,
  - Has the 2 new Regional Energy Saving Plans been initiated and supported by project during the development and execution and 4 regional AAOs, which were not pilot sites, been trained and pilot demo projects initiated by the 4,5th year
- (b) Measurement of change: Progress towards results should be based on a comparison of indicators before and after (so far) the project intervention. Progress can also be assessed by comparing conditions in the project site to conditions in similar unmanaged sites;
- (c) Project strategy: how and why outcomes (listed as outputs in the project document) and strategies contribute to the achievement of the expected results:
- Examine their relevance and whether they provide the most effective route towards results.
- (d) Sustainability: Extent to which the benefits of the project will continue after it has come to an end. Relevant factors include for example: development of a legislative and regulatory framework to support promotion and incentives to energy efficiency in heat supply, , establishment of institutional and financial models to leverage the financing into the energy efficiency in heat supply, etc;
- (e) Gender perspective: Extent to which the project accounts for gender differences when developing and applying project interventions. How are gender considerations mainstreamed into project interventions? Suggest measures to strengthen the project's gender approach.

### *2. Project's Adaptive Management Framework*

- (a) Monitoring Systems:
- Assess the monitoring tools currently being used:
    - Do they provide the necessary information?
    - Do they involve key partners?
    - Are they efficient?
  - Ensure the monitoring system, including performance indicators, at least meets GEF minimum requirements<sup>1</sup>. Apply SMART indicators as necessary.
  - Apply the GEF Tracking Tool and provide a description of comparison with initial application of the tool.

(b) Risk Management:

- Validate whether the risks identified in the project document and PIRs are the most important and whether the risk ratings applied are appropriate. If not, explain why. Describe any additional risks identified and suggest risk ratings and possible risk management strategies to be adopted.
  
- Assess the project's risk identification and management systems:
  - Is the UNDP-GEF Risk Management System <sup>2</sup> appropriately applied (with particular emphasis on the establishment of municipal ESCO in Kazakhstan with objective to develop and implement energy efficiency projects in municipal heat and hot water supply)?
  - How can the UNDP-GEF Risk Management System be used to strengthen project management?

(c) Work Planning:

- Assess the use of the logical framework as a management tool during implementation and any changes made to it.
  - Ensure the logical framework meets UNDP-GEF requirements in terms of format and content.
  - What impact did the retro-fitting of impact indicators have on project management?
- Assess the use of routinely updated workplans.
- Assess the use of electronic information technologies to support implementation, participation and monitoring, as well as other project activities.
- Are work planning processes result-based<sup>2</sup>?
- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions. Any irregularities must be noted.

(d) Reporting:

- Assess how adaptive management changes have been reported by the project management.
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

### *3. Underlying Factors*

- Assess the underlying factors beyond the project's immediate control that influence outcomes and results. Consider the appropriateness and effectiveness of the project's management strategies for these factors.
- Re-test the assumptions made by the project management and identify new assumptions that should be made.
- Assess the effect of any incorrect assumptions made by the project

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<sup>2</sup> UNDP-GEF's system is based on the Atlas Risk Module. See the UNDP-GEF Risk Management Strategy resource kit, available as Annex XI at <http://www.undp.org/gef/05/monitoring/policies.html>

<sup>3</sup> RBM Support documents are available at <http://www.undp.org/eo/methodologies.htm>

#### *4. UNDP Contribution*

- Assess the role of UNDP against the requirements set out in the UNDP Handbook on Monitoring and Evaluating for Results. Please consider
  - field visits;
  - Steering Committee meetings/TOR follow-up and analysis ;
  - PIR preparation and follow-up;
  - GEF guidance.
- Consider the new UNDP requirements outlined in the UNDP User Guide <sup>4</sup>, especially the Project Assurance role, and ensure they are incorporated into the project's adaptive management framework.
- Assess the contribution to the project from UNDP "soft" assistance (i.e. policy advice & dialogue, advocacy, and coordination).

#### *5. Partnership Strategy*

- Assess how partners are involved in the project's adaptive management framework:
  - Involving partners and stakeholders in the selection of indicators and other measures of performance
  - Using already existing data and statistics
  - Analysing progress towards results and determining project strategies.
- Identify opportunities for stronger substantive partnerships.
- Assess how local stakeholders participate in project management and decision-making. Include an analysis of the strengths and weaknesses of the approach adopted by the project and suggestions for improvement if necessary.

Consider the dissemination of project information to partners and stakeholders and if necessary suggest more appropriate mechanisms.

#### **Scope of work:**

The Final evaluation is to consider that a mid-term evaluation has been completed and that the management of the project has prepared management response to this evaluation and to a certain degree, tailored further activities in the project taking into consideration the recommendations from the mid-term evaluation.

It is in the interests of the Project team and UNDP Kazakhstan that the evaluators dedicate more effort to evaluate progress in the areas which have been launched, or which have achieved significant progress or which have been identified by the Project team or UNDP Kazakhstan as problematic.

In this regard, the project evaluators are asked to pay particular attention to:

Ownership of the project by the ADS ZhkH is one of the key factors in the project's success to achieve success in the project implementation and thus, the evaluators are asked to make an objective assessment of the ownership of the project outcomes/results by the ADS ZhkH.

#### **Expected results and payments:**

The key product expected from the final evaluation is a comprehensive analytical report in English and Russian that should, at least, include the following contents:

*Please note that some of the categories in the findings and conclusions need to be rated in conformity with the GEF guidelines for final evaluations.*

### **1. Executive summary**

- Brief description of the project
- Context and purpose of the evaluation

*Main conclusions, recommendations and lessons learned*

### **2. Introduction**

- Project background
- Purpose of the evaluation
- Key issues addressed
- The outputs of the evaluation and how they will be used
- Methodology of the evaluation
- Structure of the evaluation

### **3. The Project and its development context**

- Project start and its duration
- Implementation status
- Problems that the project seeks to address
- Immediate and development objectives of the project
- Main stakeholders
- Results expected
- 

### **4. Findings and Conclusions**

In addition to a descriptive assessment, all criteria marked with (R) should be rated using the following divisions: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory

#### **4.1. Project Formulation**

- Conceptualization/Design (R). This should assess the approach used in design and an appreciation of the appropriateness of problem conceptualization and whether the selected intervention strategy addressed the root causes and principal threats in the project area. It should also include an assessment of the logical framework and whether the different project components and activities proposed to achieve the objective were appropriate, viable and responded to contextual institutional, legal and regulatory settings of the project. It should also assess the indicators defined for guiding implementation and measurement of achievement and whether lessons from other relevant projects (e.g., same focal area) were incorporated into project design.
- Country-ownership/Driveness. Assess the extent to which the project idea/conceptualization had its origin within national, sectoral and development plans and focuses on national environment and development interests.
- Stakeholder participation (R) Assess information dissemination, consultation, and “stakeholder” participation in design stages.
- Replication approach. Determine the ways in which lessons and experiences coming out of the project were/are to be replicated or scaled up in the design and implementation of other projects (this also related to actual practices undertaken during implementation).
- Other aspects to assess in the review of Project formulation approaches would be UNDP comparative advantage as IA for this project; the consideration of linkages between projects and other interventions within the sector and the definition of clear and appropriate management arrangements at the design stage.

## 4.2. Project Implementation

- Implementation Approach (R). This should include assessments of the following aspects:
  - (i) The use of the logical framework as a management tool during implementation and any changes made to this as a response to changing conditions and/or feedback from M and E activities if required.
  - (ii) Other elements that indicate adaptive management such as comprehensive and realistic work plans routinely developed that reflect adaptive management and/or; changes in management arrangements to enhance implementation.
  - (iii) The project's use/establishment of electronic information technologies to support implementation, participation and monitoring, as well as other project activities.
  - (iv) The general operational relationships between the institutions involved and others and how these relationships have contributed to effective implementation and achievement of project objectives.
  - (v) Technical capacities associated with the project and their role in project development, management and achievements.
- Monitoring and evaluation (R). Including an assessment as to whether there has been adequate periodic oversight of activities during implementation to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan; whether formal evaluations have been held and whether action has been taken on the results of this monitoring oversight and evaluation reports.
- Stakeholder participation (R). This should include assessments of the mechanisms for information dissemination in project implementation and the extent of stakeholder participation in management, emphasizing the following:
  - (i) The production and dissemination of information generated by the project.
  - (ii) Local resource users and NGOs participation in project implementation and decision making and an analysis of the strengths and weaknesses of the approach adopted by the project in this arena.
  - (iii) The establishment of partnerships and collaborative relationships developed by the project with local, national and international entities and the effects they have had on project implementation.
  - (iv) Involvement of governmental institutions in project implementation, the extent of governmental support of the project.

Financial Planning: Including an assessment of:

- (i) The actual project cost by objectives, outputs, activities
- (ii) The cost-effectiveness of achievements
- (iii) Financial management (including disbursement issues)
- (iv) Co-financing<sup>5</sup>

Sustainability. Extent to which the benefits of the project will continue, within or outside the project domain, after it has come to an end. Relevant factors include for example: development of a sustainability strategy, establishment of financial and economic instruments and mechanisms, mainstreaming project objectives into the economy or community production activities.

Execution and implementation modalities. This should consider the effectiveness of the UNDP counterpart and Project Co-ordination Unit participation in selection, recruitment, assignment of

experts, consultants and national counterpart staff members and in the definition of tasks and responsibilities; quantity, quality and timeliness of inputs for the project with respect to execution responsibilities, enactment of necessary legislation and budgetary provisions and extent to which these may have affected implementation and sustainability of the Project; quality and timeliness of inputs by UNDP and GoC and other parties responsible for providing inputs to the project, and the extent to which this may have affected the smooth implementation of the project.

## Results

Attainment of Outcomes/ Achievement of objectives (R): Including a description *and rating* of the extent to which the project's objectives (environmental and developmental ) were achieved using Highly Satisfactory, Satisfactory, Marginally Satisfactory, and Unsatisfactory ratings. If the project did not establish a baseline (initial conditions), the evaluators should seek to determine it through the use of special methodologies so that achievements, results and impacts can be properly established.

This section should also include reviews of the following:

Sustainability: Including an appreciation of the extent to which benefits continue, within or outside the project domain after GEF assistance/external assistance in this phase has come to an end.

Contribution to upgrading skills of the national staff

## **5. Recommendations**

- 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

## **6. Lessons learnt**

This should highlight the best and worst practices in addressing issues relating to relevance, performance and success.

## **7. Evaluation report Annexes**

- Evaluation TORs
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Questionnaire used and summary of results
- Comments by stakeholders (only in case of discrepancies with evaluation findings and conclusions)

### ***Evaluation approach***

An outline of an evaluation approach is provided below, however it should be made clear that the evaluation team is responsible for revising the approach as necessary. Any changes should be in-line with international criteria and professional norms and standards (as adopted by the UN Evaluation Group <sup>6</sup>). They must be also cleared by UNDP before being applied by the evaluation team.

The evaluation must provide evidence-based information that is credible, reliable and useful. It must be easily understood by project partners and applicable to the remaining period of project duration.

The evaluation should provide as much gender disaggregated data as possible.

The Final Evaluation will be done through a combination of processes including a desk study, site visits (Astana, Almaty) and interviews with all stakeholders. The methodology to be used by the evaluation team should be presented in the report in detail. It shall include information on:

- Documentation review (desk study) - the list of documentation to be reviewed is included in the Annex 1 to the Terms of Reference;
- Interviews will be held with the following organizations and individuals at minimum: UNDP Kazakhstan, UNDP/GEF RTA, MINT, ADS ZhKH, Steering Committee, project team, municipalities project developers and interesting organizations and NGOs;
- Field visits;
- Questionnaires;
- Participatory techniques and other approaches for the gathering and analysis of data.

### **Evaluation team**

The Final Evaluation will be carried out by team of two external consultants:

- International consultant - expert on areas of international projects' monitoring and evaluation with the focus on climate change, sustainable development, energy efficiency, particularly in municipal heat and hot water supply, and
- National consultant – expert on areas of environmental management, climate change, energy and energy efficiency.

The evaluation team is responsible for the successful completion of the evaluation and finalizing the Final Evaluation report.

Team Qualities:

- Recent experience with result-based management evaluation methodologies;
- Experience applying participatory monitoring approaches;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Recent knowledge of the GEF Monitoring and Evaluation Policy;
- Recent knowledge of UNDP's results-based evaluation policies and procedures
- Competence in Adaptive Management, as applied to climate change and energy resource management projects;
- Recognized expertise in the management of energy for sustainable use;
- Familiarity with energy sector and energyefficiency policies and regulation in Kazakhstan;
- Demonstrable analytical skills;
- Work experience in relevant areas for at least 10 years;

- Project evaluation experiences within United Nations system will be considered an asset;
- Excellent English/Russian communication skills.

Specifically, the international expert (team leader) will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology (including the methods for data collection and analysis);
- Assist in drafting terms of reference of the national consultant(s)
- Decide the division of labor within the evaluation team;
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft related parts of the evaluation report; and
- Finalize the whole evaluation report.

The National Consultant will provide input in reviewing all project documentation and will provide the International Consultant with a requested information during the evaluation mission. Specifically, the national expert will perform tasks with a focus on:

- Collect necessary information regarding energy sector, renewable energy in Kazakhstan
- Review documents and materials available in Russian only;
- Participate and provide support (including translation/interpretation when necessary) during mission
- Conduct an analysis of the outcome, outputs and partnership strategy (as per the scope of the evaluation described above);
- Draft related parts of the evaluation report;
- Assist Team leader in finalizing document through incorporating suggestions received on draft related to his/her assigned sections;
- Proof reading of the Russian version.

The evaluation will be undertaken in-line with GEF principles <sup>7</sup> :

- Independence
- Impartiality
- Transparency
- Disclosure
- Ethical
- Partnership
- Competencies and Capacities
- Credibility
- Utility

The evaluators must be independent from both the policy-making process and the delivery and management of assistance. Therefore applications will not be considered from evaluators who have had any direct involvement with the design or implementation of the project. This may apply equally to evaluators who are associated with organizations, universities or entities that are, or have been, involved in the delivery of the project.



Any previous association with the project, executing agency, the Ministry of Environment, or other partners/stakeholders must be disclosed in the application. This applies equally to firms submitting proposals as it does to individual evaluators.

If selected, failure to make the above disclosures will be considered just grounds for immediate contract termination, without recompense. In such circumstances, all notes, reports and other documentation produced by the evaluator will be retained by UNDP.

The Team Leader will have overall responsibility for the delivery and quality of the evaluation products. Team roles and responsibilities will be reflected in the individual contracts. If a proposal is accepted from a consulting firm, the firm will be held responsible for the delivery and quality of the evaluation products and therefore has responsibility for team management arrangements.

**Implementation Arrangements**

The principal responsibility for managing this evaluation lies with UNDP Kazakhstan. It is the main operational point for the evaluation responsible for liaising with the project team to set up the stakeholder interviews, arrange field visits and co-ordinate with the Executing Agency and other counterparts. UNDP Kazakhstan will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team.

The timeframe for submission of the first draft of the report: 4 weeks upon a date of arrival to Kazakhstan with mission.

The report should be submitted to UNDP Country Office in Kazakhstan (to the attention of Mr. Stanislav Kim, e-mail address: [stanislav.kim@undp.org](mailto:stanislav.kim@undp.org) mailing address: 26, Bukey Khan Str., 010000, Astana Kazakhstan, tel. (+7-7172) 592550

Prior to approval of the final report, a draft version shall be circulated for comments to government counterparts, project management, UNDP CO and UNDP/GEF Regional Technical Advisor for Climate Change for Europe and CIS): The Project Director and members of the project steering group members representing the following institutions:

If any discrepancies have emerged between impressions and findings of the evaluation team and the aforementioned parties, these should be explained in an annex attached to the final report.

The activities and timeframe are broken down as follows:

<b>Activity</b>	<b>Timeframes and responsibilities</b>	<b>Amount (per cent)</b>
Desk review	5 days for international expert (3 days for national expert)	50%
Briefing of evaluation consultants	1 day by the project team and UNDP	

Field visits, interviews, questionnaire, debriefing	6 day for international expert (6 days for national expert)	
Preparation of draft report, validation of preliminary findings with stakeholders through circulation of initial reports for comments, meetings and other types of feedback mechanisms	8 days for international expert (6 days for national expert)	50%
Preparation of final evaluation report (including comments)	5 days for international expert (3 days for national expert)	

Working days:

Team Leader (international expert) – 25 working days

National expert – 19 working days

The dates for the in-country mission to Kazakhstan are suggested for 2d half of April 2013.

Responsibility:

The consultant shall present the results in the form of a written report in standard format (as a word and pdf file and in electronic version) with an executive summary; a draft version of the report is to be submitted for comments before its finalization.

Presentation should be done in Power Point.

- Reports to the Project Manager and relevant staff at UNDP country office in Kazakhstan.
- Ensures timely and quality execution of the Terms of Reference
- Ensures unconditional carrying out of requirements of the Contract

Knowledge and skills:

- University degree in the field of economics, energy management, environmental policy or in related professions;
- Recent experience with result-based management evaluation methodologies;
- Experience applying participatory monitoring approaches;
- Experience applying SMART indicators and reconstructing or validating baseline scenarios;
- Recent knowledge of the GEF Monitoring and Evaluation Policy;
- Recent knowledge of UNDP's results-based evaluation policies and procedures;
- Competence in Adaptive Management, as applied to climate change and energy resource management projects;
- Recognized expertise in the management of energy for sustainable use;
- Familiarity with energy sector and renewable energy policies and regulation in Kazakhstan;
- Work experience in relevant areas for at least 10 years;
- Project evaluation experiences within United Nations system will be considered an asset;
- Excellent English, communication skills

## Annex 1. List of documents to be reviewed by the Evaluators

Following documents can be used as a basis for evaluation of the project (titles underlined are available in Russian with an English annotation):

Document	Description
Project document	The Project Document and Revisions
Project reports	Project Inception Report Annual Progress Reports Mid-term Evaluation Report
Annual Project Report to GEF	Project Implementation Reviews (PIRs)
Minutes	Steering group meetings Meetings with experts, team staff etc.
Other relevant materials:	Financial Audit Reports
Information materials produced by the project activities	<p>Management Plans, Project reports and project materials produced by the project:</p> <ol style="list-style-type: none"> <li>1. Kazakhstan housing infrastructure reform: energy efficiency promotion in municipal heat supply, by L. Melikyan</li> <li>2. Review of international experience, especially in the EU and transition countries, on formulation of tariff policy and regulations, legal framework and standards to encourage the energy efficiency investment to heat supply and residential multi-apartment buildings, by V.Vlatchkov</li> <li>3. Analysis of approved regional rules on defining amount and method of housing categorical aid , by K.Karakulova,</li> <li>4. Reports on implemented pilot projects in Astana, Almaty and Karaganda sites which are available on <a href="http://www.eep.kz">www.eep.kz</a></li> </ol> <p>Articles in local and international news papers and magazines:</p> <ol style="list-style-type: none"> <li>1. The regulatory framework is being developed to attract private investments to housing and communal services // <a href="http://www.pm.kz/news/show/24/-dlja-privlechenija-chastnyh-investitsij-v-zhkh-razrabatyvaetsja-normativno-pravovaja-baza/26-02-2012?lang=ru">Website of Prime-minister of Kazakhstan, www.pm.kz, February 26, 2012 //http://www.pm.kz/news/show/24/-dlja-privlechenija-chastnyh-investitsij-v-zhkh-razrabatyvaetsja-normativno-pravovaja-baza/26-02-2012?lang=ru</a></li> <li>2. Association of apartment owners: light at the end of the tunnel // "Info-tses" Newspaper, 03.05.2012// <a href="http://www.info-tses.kz/red/article.php?article=103020">http://www.info-tses.kz/red/article.php?article=103020</a></li> </ol>

	<p>3. Energy-saving will support the vulnerable population //June 8, 2012  <a href="http://kz.beeca.net/novosti/ee-v-teplosnabzhenii/329">//http://kz.beeca.net/novosti/ee-v-teplosnabzhenii/329</a></p> <p>5. Women’s leadership and energy-efficiency // April 20, 2012  <a href="http://kz.beeca.net/novosti/ee-v-teplosnabzhenii/309">//http://kz.beeca.net/novosti/ee-v-teplosnabzhenii/309</a></p> <p>6. First results of pilot energy service models in Kazakhstan are announced // Bnews.kz/ April 4, 2012  <a href="http://www.bnews.kz/ru/news/post/71893/?utm_source=twitterfeed&amp;utm_medium=twitter">http://www.bnews.kz/ru/news/post/71893/?utm_source=twitterfeed&amp;utm_medium=twitter</a></p> <p>7. Any small thing can give a significant economic benefit // “Building reporter” newspaper, 12.09.2011  <a href="http://www.svestnik.kz/index.php?option=com_content&amp;view=article&amp;id=175:2011-12-09-09-37-23&amp;catid=2:2011-06-21-06-05-46&amp;Itemid=20">http://www.svestnik.kz/index.php?option=com_content&amp;view=article&amp;id=175:2011-12-09-09-37-23&amp;catid=2:2011-06-21-06-05-46&amp;Itemid=20</a></p> <p>8. Heat meters save up to 30 KZT per square meter // Bnews.kz //May 15, 2012,  <a href="http://www.bnews.kz/ru/news/post/77383/">http://www.bnews.kz/ru/news/post/77383/</a></p> <p>9. An expert called Kazakhstan “an energy-wasteful” state //”Panorama” newspaper» 11.18.2011 г.  <a href="http://panoramakz.com/index.php?option=com_content&amp;task=view&amp;id=13273">http://panoramakz.com/index.php?option=com_content&amp;task=view&amp;id=13273</a></p> <p>10. Revolving funds will create efficiency___// <a href="http://e-audit.kz/index.php?option=com_content&amp;view=article&amp;id=1:effect-sozd-fondy&amp;catid=47:2011-10-01-13-41-00&amp;Itemid=66">http://e-audit.kz/index.php?option=com_content&amp;view=article&amp;id=1:effect-sozd-fondy&amp;catid=47:2011-10-01-13-41-00&amp;Itemid=66</a></p>
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\*Most of the project information is available on [www.eep.kz](http://www.eep.kz)