

Kazakhstan Sustainable Energy Programme

OUTCOME EVALUATION REPORT

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Executive Summary

The Outcome Evaluation covers UNDP's sustainable energy programme for 2005-2008, consisting of:

- 1) Kazakhstan Wind Power Market Development Initiative,
- 2) Project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply,
- 3) Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change and
- 4) GEF Small Grants Programme .

The purpose of the Evaluation is to determine whether, and to what extent, these projects collectively contributed to changes towards sustainable energy development in Kazakhstan. Specific attention is paid to the primary outcome of *increasing the poor's livelihood opportunities through sustainable energy sources*, signified by a 50% increase in the amount of energy produced from renewable sources against the baseline production in 1999.

Background

Energy exports contribute to more than half of Kazakhstan's national revenue. Domestic consumption is dominated by coal (47.8%), followed by gas (29.6%) and crude oil (21.2%). The industrial sector is the largest consumer of energy (40%), followed by the transport sector (10%) and the residential sector (7%).

The share of renewable energy sources in total primary energy supply (TPES) is negligible, with the base year (1999) production, mostly from large-scale hydropower, forming only 1.5% of TPES. Energy efficiency levels are low, the overall energy intensity of the economy more than double that of China and four times that of industrialized countries. National energy consumption, growing at 7-8% annually in recent years, has thus tended to outstrip supply.

At the household level, nearly three-fourths of the energy consumed is for heating. Access to modern energy for other social and economic activities is constrained, especially in remote rural areas that are uneconomical for extending centralized supply. The poor and near-poor who account for some 58% of the population are especially vulnerable. Lack of energy contributes to low and unstable incomes and income-earning opportunities, food insecurity, inadequate drinking water, and adverse health impacts.

The government has, therefore, prioritized raising people's incomes, productivity and living standards through improved livelihood opportunities, especially among the self-employed and those working in the informal sector. The corresponding energy strategy seeks to reduce reliance on fossil fuels for domestic consumption by expanding the use of renewable energy and improving energy efficiency to lower energy costs and enhance energy access. This converges with environmental objectives to minimize CO₂ emissions, 95% of which come from fossil fuel use.

Findings on outcome

1. The projects are consistent with, and address, national goals and UNDP's mandate to promote sustainable energy development as a part of sustainable development. Renewable energy production, the main outcome indicator, has risen from 1.5% of TPES in 1999 to 2% in 2008. While this falls short of the targeted increase to 2.25%, the difference can be overcome in the near future.
2. However, the projects do not directly address the issue of increasing the livelihood opportunities of the poor through sustainable energy sources, and there is insufficient evidence to conclude reaching the desired renewable energy production target will translate into raising the poor's consumption of renewable energy.
3. The GEF Small Grants Programme comes closest to addressing the desired outcome as it is focused on small-scale renewable energy projects in rural areas. While its outreach to the bottom poor and its scale of funds are limited, it has helped improve rural livelihood opportunities with potential benefits to the poor by way of new local employment opportunities.
4. The Project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply has sought to assess the impacts of its activities on poor and low-income consumers. However, its contributions to their incomes or savings are yet to be demonstrated. On the other hand, some of its activities could disadvantage poor and low-income consumers via higher heating and hot water costs.
5. The remaining projects either do not have a poverty focus or have not sought to acquire one either in their objectives or in the course of project implementation.
6. Overall, the projects evaluated are better viewed as initial actions laying the groundwork for sustainable energy solutions that can be followed up in future with a sharper focus on the poor's energy access and livelihood. Their present inability to cater for the desired outcome owes to a divergence between UNDP's strategic priorities and the project priorities of GEF, which is the principal source of funds for all the projects.
7. Subject to these limitations, the projects have made significant contributions to heightening awareness of sustainable energy considerations in Kazakhstan's national energy strategy, policy and market perception, as reflected by (a) an active national discourse on renewable energy and energy efficiency, (b) the formulation of draft renewable energy and energy efficiency laws, (c) new institutional capacities in these areas, (d) growing understanding of the benefits of improving energy efficiency, and (e) an appreciation by current and potential UNDP partners.
8. These achievements can yield benefits beyond the projects' life as an institutional momentum has been built up among key government agencies. Persistent global energy security and environmental offer a further motivation. However, improving the poor's livelihood opportunities through sustainable energy initiatives will depend on UNDP's ability to incorporate more explicit project objectives for the purpose.

Findings on outputs

Kazakhstan Wind Power Market Development Initiative

The project's key outputs consist of: (a) contributions to the renewable energy law, (b) wind mapping of eight most promising sites across the country, (c) pre-feasibility studies of ten wind energy projects and (d) preparation of the National Wind Energy Programme. The project has generated several supporting outputs, including analytical work on mobilizing private investment and developing innovative financing mechanisms, and organized a number of public forums, conferences and workshops to raise awareness and acceptance of renewable energy.

However, the 5 MW pilot project at Djungar Gate is yet to be commissioned due to the extended process of enacting the renewable energy law (now enacted). The latest version of the draft law available to the Evaluation does not contain clear provisions for investment or price support poor and low income consumers. As such, its application to rural supply may or may not enhance the outreach of renewable energy-based power to these populations. Within the scope of the current project, the outputs generated have low or no linkages to improving the poor's livelihood.

The project has nonetheless succeeded in elevating the status of wind and other renewable energy sources on the national energy agenda.

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

The project's main outputs comprise: (a) contributions to the draft energy efficiency law, reviewing technical standards/norms on planning and development of heat supply systems, (c) reviewing energy audit practices in public and residential buildings, (d) capacity-building of heat supply companies, tenants and home owner associations at Astana and Almaty for cost-effective energy savings measures, (e) developing institutional capacities and implementation interest within the *Akimats* (mayoralties) of the two cities and among ministries in charge of energy and the environment, (f) raising consumer and public awareness. The outputs have been well-received by stakeholders, such as Apartment Owners Associations, the private sector, and local and national government agencies.

The project's attention to the social implications of energy efficiency improvement measures is noteworthy. Several papers/reports have been developed on the impacts on low and fixed income consumers. However, the project's thrust on promoting energy efficiency through market pricing can be detrimental to these consumers by raising their heat and hot water supply expenses. Social support to overcome the problem relies on the direct cash subsidies under the government's housing support, the main social protection vehicle. Although the volume of the housing support has been increasing until 2007, it might decline due to the 2008-2009 global economic crisis that has shrunk public revenue. The pursuit of energy efficiency measures, therefore, needs to draw a balance between economic/market efficiency and social/income impacts on the poor.

Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change (UNFCCC)

The project's principal outputs, consisting of (a) a greenhouse gas inventory, (b) second national communication to UNFCCC and (c) contribution to the government's adaptation policy and capacity building of concerned government agencies have been delivered four months ahead of schedule in November 2008. The outputs are rated highly by the Ministry of Environment and environmental NGOs, and they are crucial to help Kazakhstan meet its international environmental obligations, particularly through renewable energy and energy efficiency as alternatives to fossil fuels.

The project's connections to the poor's livelihood opportunities are tenuous to non-existent. This is inherent in its scope.

GEF Small Grants Programme

The programme has financed 27 renewable energy projects since 1997 and is planning more. These projects concentrate on rural energy supply through decentralized renewable energy options and they are linked to income-generating activities in rural communities, with end-user contributions of 30-50%. Although the scale of the projects is small, they have the closest relevance to the poor's livelihood among the projects evaluated.

A limitation of the programme is its inability to cater for the bottom poor, with most families/communities targeted falling into the middle income bracket. However, there are instances of community-scale projects benefiting poor families through casual or permanent employment in new enterprises made possible by renewable energy supply.

Findings on resources, partnerships and management

Resources

Although the projects evaluated have been sufficiently funded, they have relied excessively on GEF support. Against envisaged co-financing of USD 5 million, the Kazakhstan Wind Power Market Development Initiative was able to raise just USD 240,000 (3.3%), while the Project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply was somewhat more successful by raising USD 1 million against an expected USD 7.18 million. The lack of co-financing from other sources that might have placed greater emphasis on poverty reduction is a primary reason for the projects' limited success in achieving the overall outcome.

Partnerships

UNDP's partnership strategy has been effective at the project level to pursue the overall goal of sustainable energy development. Key national government ministries/agencies responsible for policy formulation and implementation have been closely engaged in the projects, private sector investment interest in public-private partnerships has been raised,

new institutional structures have been catalyzed, and a multiplicity of stakeholders has been drawn into project activities through information sharing and group events. Multilateral agencies, such as the UK Government under its Strategic Programme Fund and the European Bank for Reconstruction and Development see a high degree of complementarity between their initiatives and UNDP's.

The partnership strategy, however, has not included national agencies concerned with poverty, especially the Ministry of Labour and Welfare, local governments in underdeveloped poverty-prone regions, and NGOs engaged in poverty reduction. The exception is the GEF Small Grants Programme which has worked with rural partners.

Management

The management structures and working methods employed to design, implement and monitor the project have been appropriate and effective to achieve project level objectives. However, there are clear gaps between project objectives and the overall programme outcome. Subject to this limitation, the project teams are capable, motivated and focused.

Conclusion

The rating of individual projects is as follows:

Project	Outcome	Outputs	Sustainability	Relevance	Cost-Effectiveness
Kazakhstan Wind Power Market Development Initiative	Unchanged	Partially achieved	Sustainable	SED: Relevant PRL: Not relevant	Yes
Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply	Unchanged, some negative change	Partially achieved	Sustainable	SED: Relevant PRL: Somewhat relevant	Yes
Preparation of Kazakhstan's Second National Communication to UNFCCC	Unchanged	Achieved	Sustainable	SED: Relevant PRL: Not relevant	Yes
GEF Small Grants Programme	Positive change	Achieved	Sustainable	SED: Relevant PRL: Relevant	Yes

SED: Sustainable energy development; PRL: Poverty reduction through livelihood

Recommendations

- UNDP's programming strategy under the sustainable energy should be reviewed to minimize a mismatch between its own strategic priorities and those of its donors. This is best achieved by sourcing project funds from a multiplicity of donors.
- Enhancing the poor's energy access should be a core component of UNDP's poverty reduction strategy for Kazakhstan. Future programmes/projects on sustainable energy should pay closer attention to the poor's energy access in rural areas, with an emphasis on direct and explicit interventions with the potential for near-term relief.
- UNDP's focus on climate change and environmental issues remain important to accelerate progress with renewable energy and energy efficiency, but linkages between environment and poverty need to be identified more closely in future initiatives.

- Future projects on energy access should address the needs of underdeveloped regions and provinces, working more closely with local governments and establishing new local level partnerships with communities, NGOs and the private sector. The poor need to be involved through participatory processes in project identification, implementation and monitoring.
- The trend towards energy market liberalization to promote renewable energy and energy efficiency can have adverse impacts on the poor through higher energy prices under increasingly privatized markets. UNDP should consider in its next phase an initiative to establish and develop an independent energy regulator that can facilitate deregulation while safeguarding the interests of poor consumers.
- The feasibility of lifeline tariffs and smart subsidies focusing on energy production rather than capacity installed, along with other measures like discount vouchers and smart cards, for electricity and heating should be explored in the future as an alternative to Kazakhstan's current reliance on broad-based indirect energy subsidies.
- UNDP needs greater adaptability to changing circumstances at the project implementation level to better ensure the achievement of outputs or outcomes through alternative paths if the initial circumstances of a project change during the course of implementation.

1. Introduction

1.1 The Outcome Evaluation covers three UNDP projects carried out during 2005-2008 under the broad theme of 'sustainable energy development':

- *Kazakhstan Wind Power Market Development Initiative*, aimed at assisting the formulation of a National Programme on Wind Energy Development; providing wind mapping, information and local capacity-building support to develop and finance wind energy projects; facilitating an initial 5 MW wind farm project; and disseminating the lessons learned from it. (USD 2.55 million)
- *Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply*, with the objective of reducing GHG emissions by assisting the review and improvement of the legal and regulatory framework; building the capacity of local heat supply companies, tenants and homeowner associations to implement energy saving measures; introducing new institutional and financing arrangements, and disseminating the lessons learned. (USD 3.2 million)
- *Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change (UNFCCC)* to support the development and implementation of the national climate change policy through institutional capacity development for national communications under UNFCCC, in particular the Second National Communication. (USD 405,000)

The combined budget for these projects is USD 6.60 million, consisting of USD 6.26 million from the Global Environment Facility (GEF), USD 2881,096 from the UK Strategic Programme (SPF) and USD 281,096 from the Renewable Energy and Energy Efficiency Partnership (REEP)¹. In addition, the Evaluation draws upon experience with projects under the Small Grants Programme of GEF that has a limit of USD 50,000/project.

1.2 The broad objective of the Evaluation is to determine whether these projects collectively contributed to changes towards sustainable energy development within Kazakhstan through their outputs and partnerships with national agencies, institutions and stakeholders, and how any such changes could be preserved and improved upon in future activities. *The Evaluation specifically looks at the contribution of the projects to increase the poor's livelihood opportunities through sustainable energy sources.* The indicator of this is defined in the Terms of Reference as a 50% increase in the amount of energy produced from renewable sources against the baseline production in 1999.

1.3 'Livelihood' is commonly equated with means of income from employment or other economic activities that address income poverty. However, UNDP adopts a broader definition that encompasses both production and human productivity, the latter covering a range of non-income factors — such as, health, education, information, communication, social empowerment and gender equality — that contribute to the reduction of human poverty. The Evaluation follows this broader definition, with the

¹ Excluding additional cash and in-kind support envisaged from the Government of Kazakhstan (GoK), private entities and other national organizations.

understanding that its primary task is to establish whether or not, and to what extent, the projects it covers have contributed to reducing poverty. This allows it a wider perspective in interpreting the results of the projects than might have been possible under a stricter definition of livelihood in income terms alone.

- 1.4 However, the requirement of the ToR to associate livelihood opportunities for the poor with renewable energy restricts the scope of the Evaluation even under such a broad definition of livelihood. Of the projects covered, only the Kazakhstan Wind Power Market Development Initiative and the GEF Small Grants Programme deal with renewable energy directly. The other two projects address renewable energy either as a future prospect or as one of several components of a long-term strategy towards the broad goal of sustainable energy development. The Evaluation, therefore, focuses more sharply on the first two projects while establishing linkages with the desired outcome, and examines the others in more general terms in relation to poverty.
- 1.5 The Evaluation was carried out during December 2008-February 2009. The basis for its findings and recommendations comprise: (a) background documents on UNDP's overall outlook and country strategy for Kazakhstan, (b) project-specific technical papers and monitoring/evaluation reports, (c) relevant external reports/data on Kazakhstan, and (d) interviews with concerned UNDP project staff, national partner agencies, selected NGOs and co-sponsors, and energy consumers/consumer organizations. The interviews took place at Astana and Almaty in December 2008².
- 1.6 The findings of the Evaluation are presented in the next three sections on (a) outcome, (b) outputs and (c) resources, partnerships and management of the projects reviewed. UNDP's Results-Based Management guidelines³ define 'outcome' as actual or intended changes in development conditions⁴, as distinguished from 'outputs' that are tangible products or services emerging from programme or non-programme activities. While the primary focus of the Evaluation is on the combined outcome of the projects reviewed, the outputs of individual projects are integral to this as they are the building blocks of the former. UNDP's contributions to the projects by way of resources, partnership strategies and management are reviewed to assess their effectiveness in generating the outputs and, by extension, the outcome.

2. Background

- 2.1 Kazakhstan is a net energy exporter with energy exports contributing to more than half of the national export revenue. Exports of coal, crude oil, oil products, natural gas and electricity were 87.7 mtoe in 2006 against imports of 18.4 mtoe. Coal forms 47.8% of the total primary energy supply (TPES), followed by gas (29.6%) and crude oil

² See Annexes II and III.

³ UNDP, 2003.

⁴ Compared to a baseline or starting point.

(21.2%). The industrial sector consumes 40% of the final energy, followed by the transport sector (10%) and the residential sector (7%)⁵.

- 2.2 The electricity sector is the largest fossil fuel consumer, with 83% of the power generation from fossil fuels coming from coal. Electricity generation and consumption have been growing at more than 6% annually since 2006, with the former growing somewhat faster than the latter. As a result, Kazakhstan does not face an overall electricity supply deficit. However, the concentration of 60% of the power generation capacity in the Northern Region combined with insufficient transmission network facilities results in a deficit situation in all other regions⁶.
- 2.3 The contribution of renewable energy to national energy supply is negligible. It is stated to have been 1.5% in the base year (1999), mostly in the form of large scale hydropower⁷. Energy efficiency levels are low, with many power generation plants more than 40 years old, power and heat transmission and distribution system losses high (up to 50% of energy generated), and physical assets in the industrial sector, the largest energy consumer, deteriorated. The overall energy intensity of the economy is estimated at 2.8 kWh/USD, more than double that of China and four times the industrialized country average of about 0.7 kWh/USD.
- 2.4 Because of this, and in spite of its energy abundance, Kazakhstan's annual energy consumption growth of 7-8% in recent years has tended to outstrip supply. This calls for rehabilitation of the existing energy infrastructure, supply capacity expansion and rationalization of demand. Private interest in energy infrastructure investment is currently constrained by a low tariff structure that inhibits adequate returns on investment. Tariff reforms are, hence, a part of the government's focus.
- 2.5 Kazakhstan's annual per capita energy consumption is 2.58 toe, of which 0.37 toe or 4,293 kWh (14%) is electricity consumption. While this might seem adequate, nearly three-fourths of the energy consumed by households is for heating due to extreme winter temperatures. Access to energy for other social and economic activities is constrained, especially in remote rural areas characterized by high population dispersion over a large land mass and ensuing low population densities. Extending supplies to these areas carries a high cost, estimated at up to US Cents 5/kWh for electricity.
- 2.6 With an annual growth rate of 9.1% in recent years and a per capita GDP of USD 6,700 in 2006, extreme poverty (daily per capita income less than USD 1) in the country is relatively low at 18.2%⁸. However, the proportion of near-poor (daily income between USD 1 and 2) is high at 40%. These people are characterized by low and unstable incomes, insecurity of employment and lack of stable income-earning opportunities. Significant regional, rural-urban and gender socio-economic disparities exist across the

⁵ IEA, 2008.

⁶ UNDP, 2008b.

⁷ The share of hydropower in power generation was about 12% in 2006.

⁸ UNCT, 2008.

country, food security remains a serious concern, and key human development indicators like drinking water supply and infectious diseases lag behind. Raising people's incomes, productivity and living standards through improved livelihood opportunities, especially among the self-employed and those working in the informal sector is, therefore, a critical priority of the government.

- 2.7 The corresponding energy strategy envisages reducing the reliance on fossil fuels for domestic consumption by expanding the use of renewable energy and improving energy efficiency to lower energy costs and enhance energy access. Simultaneously, sector reforms have been initiated to rationalize tariffs as a means of curbing wasteful consumption and attracting private investment in supply capacity. The strategy converges with environmental objectives to minimize CO₂ emissions to which the energy sector is the main (95%) contributor and the country as a whole is the largest (40%) contributor in Central Asia.
- 2.8 There are, however, numerous barriers in the way of shifting the country towards a more sustainable energy path. No economic incentives for renewable energy are available and conventional electricity prices are low. The lack of alternatives to centralized power and fossil fuels in remote areas, coupled with low purchasing power, has forced the poor and low income populations to resort to traditional biomass fuels that offer little prospect for improving livelihoods and reducing poverty.
- 2.9 The projects covered by the Evaluation are intended to respond to the foregoing. The Evaluation notes they were initiated at a time of surging international fossil fuel prices that benefited Kazakhstan as an energy exporter. Global fossil fuel prices have plunged steeply since the second half of 2008, with the current situation marked by new uncertainties over global demand and the future direction of energy prices. The ongoing global financial crisis is a parallel phenomenon with implications for economic development, poverty reduction and strategies to enhance energy access.

3. Findings on Outcome

- 3.1 Kazakhstan's heavy dependence on fossil fuels to meet domestic energy demand, its rising energy deficit, the high energy intensity of its economy, the contribution of the energy sector to GHG emissions, and the need for renewable energy and energy efficiency options offer a compelling rationale for the three projects that are the main focus of the Evaluation. The projects are consistent with national goals to reduce domestic energy costs and to minimize GHG emissions through renewable energy options and higher efficiency in energy production and end-use. To that extent, they are in line with UNDP's overall mandate to promote sustainable development, which subsumes sustainable energy development.

- 3.2 However, none of the projects directly addresses the issue of increasing the livelihood opportunities of the poor through sustainable energy sources⁹. Their stated objectives and outputs concentrate on market creation to facilitate the entry of renewable energy and energy efficiency options, investment promotion, resource conservation and environmental impact mitigation. As a result, while the projects address broad sustainable energy goals, their relevance to the poor is limited and indirect at best.
- 3.3 Annual Performance Reports/Project Implementation Reviews (APRs/PIRs) assert 'potential' linkages to poverty reduction that are not proven yet. For example, the Project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply believes its activities can contribute to poverty reduction by reducing the expenditure of residential consumers on heat and hot water supply through the introduction of efficient technologies¹⁰. However, there is little concrete evidence to show this has taken place. Although the project has prioritized buildings with the highest potential for energy savings, some of its measures could disadvantage poor residential consumers by raising their monthly heat bills.
- 3.4 This needs to be viewed against evolving national perceptions of energy sector priorities. Until 2007, low domestic energy prices and rising energy export revenues had cultivated a sense of energy adequacy. Renewable energy and energy efficiency considerations were brought into the policy agenda mainly as a means to reduce environmental pollution and to meet national commitments towards climate change impact mitigation. The emerging prospect of energy supply deficits has prompted policy attention to the economic benefits of such energy options, but this is still at a nascent state of development. The relatively low incidence of extreme poverty and a generous welfare programme have meant energy access issues have been at the background until very recently.
- 3.5 Given this situation, the real issue is not so much if the projects evaluated have contributed to the intended outcome. Rather, the question is whether the stated outcome is appropriate to the projects that had an altogether different set of objectives. The finding of the Evaluation is that it is appropriate if the projects are viewed as an initial set of actions to lay a broad groundwork for sustainable energy solutions that can be built upon with a sharper focus on energy access concerns of the poor under subsequent programming cycles of UNDP. Such a view draws on the experiences of other Asian countries where the penetration of renewable energy and energy efficiency into entrenched conventional energy markets initially focused on establishing their technical and commercial feasibility. Extending the benefits of such solutions to the poor came later and, in many countries, it is still an ongoing process.
- 3.6 Data available to the Evaluation indicates the contribution of renewable energy, including large hydropower, has risen from 1.5% of TPES in 1999 to about 2% in 2008. The main outcome indicator of renewable energy production being increased by half

⁹ However, as noted in Sec. 4.11, the project on *Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply*, has made an attempt to assess potential impacts on low and fixed income consumers.

¹⁰ UNDP-GEF, 2008a.

between 1999 and 2009 is, thus, still conceivable. For instance, a single hydro power plant or a few wind farms of about 300 MW could make up the remaining gap. But there is insufficient evidence to conclude that such an increase at the national level translates, or will translate, into a rise in the poor's consumption of energy from renewable sources. This has occurred to a limited extent only under the GEF Small Grants Programme, subject to the very small size of its projects.

- 3.7 Differences between the overall outcome of the projects evaluated and their individual objectives/outputs arise from a lack of convergence between UNDP's strategic priorities and the project priorities of GEF, the main source of funds for the projects. UNDP's priorities consist of environment and sustainable development, poverty eradication and democratic governance. GEF's priorities focus on environmental impact mitigation and adaptation, except under the Small Grants Programme which has supported small-scale off-grid renewable energy projects to enhance access.
- 3.8 The Evaluation notes though that GEF's Strategic Objective 2 does address productive uses of renewable energy in the rural context. If it had been applied to the current set of projects, they could have had a closer connection to the poor's livelihood. The stated indicators of the objective are an increase in the number of businesses and households served by renewable energy, and renewable energy-based electricity generation. Given their intended outcome, not extending this objective to the projects is inexplicable.
- 3.9 Notwithstanding the foregoing, the three main projects evaluated have achieved or are capable of achieving their major internal objectives. The exception is the Kazakhstan Wind Power Market Development Initiative which has faced an uphill battle to complete its key pilot project component to establish a 5 MW¹¹ wind farm at Djungar Gate due to the extended process of enacting the proposed renewable energy law, which has undergone several revisions and still awaiting final legislative approval.
- 3.10 Subject to the foregoing, the Evaluation finds the projects have contributed significantly to heightened awareness of broad sustainable energy considerations in Kazakhstan's national energy strategy, policy and market perception. This is reflected by:
 - a) an active national discourse on renewable energy and energy efficiency within and outside of the government;
 - b) the formulation of a draft renewable energy law and a draft energy efficiency law, which have gone through extensive debate and refinement through interaction within the government and the legislature, and among key stakeholders, including the business community;
 - c) new institutional capacities to devise and implement actions, such as the development of efficiency standards for energy-intensive sectors/sub-sectors;

¹¹ Subsequently scaled up to 50 MW to attract private investment interest.

- d) a growing understanding among energy consumers of the benefits of improving energy efficiency; and
 - e) an appreciation of UNDP's initiatives by current and potential partners, especially multilateral agencies working in complementary directions.
- 3.11 The outcome and outputs of the projects can lead to benefits beyond the projects' life since there is now an institutional momentum built up through close interaction with key government agencies and two major laws supportive of sustainable energy development are imminent. Persistent global energy security and environmental concerns offer a further motivation for such benefits to be pursued with greater vigour in the future. However, the prospects of future projects contributing to the poor's energy access and livelihoods depend very much on UNDP's ability to incorporate explicit objectives to the effect and to define a sharper set of indicators to measure outcomes.
- 3.12 Potential barriers for the future depend on the direction of international energy prices and the time taken by the global economy to recover from its present downturn. If global oil prices resume their decline towards their early 2003 levels, the competitiveness of renewable energy and energy efficiency options will be eroded and energy consumptiveness may be revived in a new era of cheap fossil energy. A protracted global economic recovery will curtail the demand for energy exports and shrink the economic capacity of the government to undertake sustainable energy initiatives. Such a weakening of political and policy resolve has been observed under prior spells of energy price and economic slumps although the present situation is too fluid to predict.
- 3.13 On the other hand, a resumption of the oil price uptrend (and a corresponding rise in gas and coal prices) will preserve the emphasis on renewable energy and energy efficiency. Even if oil prices eschew their recent exuberance and stabilize within a range of USD 65-75 a barrel in the near future, the prospects for continued emphasis on sustainable energy options are promising. For instance, UNDP's Asia-Pacific regional study on the impacts of oil prices indicates most renewable energy options will be competitive against fossil fuels in this range.

4. Findings on Outputs

- 4.1 The immediate outputs of the projects evaluated are relevant to the overall goal of sustainable energy development. As noted earlier, these outputs are set within the priorities of GEF with low or no emphasis on the poor's energy access. Perhaps because of this, certain project strategies and outputs are either indifferent to or may have adverse implications for the poor's energy access.

Kazakhstan Wind Power Market Development Initiative

4.2 The Kazakhstan Wind Power Market Development Initiative has generated several important outputs¹² as planned, including in particular:

- a) its seminal contributions to the emerging renewable energy law, which is essential to open up the market for renewable energy options;
- b) a wind mapping exercise carried out across the country leading to identification of the eight most promising sites with a high wind energy potential;
- c) pre-feasibility of studies of ten wind energy projects; and
- d) preparation of the National Wind Energy Programme.

A number of other supporting outputs have been generated by the project, including analytical work on mobilizing private investment interest and developing innovative financing mechanisms, and several public forums, conferences and workshops to raise awareness and acceptance of renewable energy. These developments offer a promising foundation for renewable energy project and market development.

4.3 However, the 5 MW pilot project at Djungar Gate is yet to be commissioned with UNDP's efforts confined so far to establishing its technical and economic feasibility, facilitating the entry of private investors and improving perceptions about renewable energy among policy makers. In turn, this has depended on the enactment of the renewable energy law which has undergone several revisions. Comparing the latest revision to the original draft leads to the conclusion that the final law enacted will be considerably scaled down from initial ambitions¹³. In particular, the proposed use of renewable energy certificates is excluded from the law and, in its place, there is an obligation for regional energy companies to purchase renewable energy power with an emphasis on rural and remote area supply.

4.4 The latest draft law envisages the following key enabling provisions to:

- Establish a central body to oversee renewable energy development through appropriate policies; technical standards and specifications; approval of plans, programmes and project locations; monitoring of progress with raising the share of renewable energy in power and heat generation; and coordination of the activities of public utilities, private industry and R&D institutions.
- Empower regional government agencies to develop renewable energy development programmes for remote unelectrified areas and to identify renewable energy projects of up to 25 MW.
- Oblige regional electricity distribution companies to purchase renewable energy power up to 50% of their electricity system loss, and to purchase additional renewable energy power to cover losses in the national grid.
- Authorize agencies of the government that control natural monopolies to determine, in coordination with the central renewable energy agency, the purchase price of renewable energy power.

¹² See Annex IV.

¹³ GoK, 2007b & 2008b.

- Approve direct agreements between qualified renewable energy producers and consumers for power and heat supply.
- 4.5 The draft renewable energy law does not contain clear provisions for investment or price support to poor and low income consumers, especially those in the rural areas, who face problems of affordability. As such, its application to rural supply may or may not enhance the outreach of wind power or other renewable energy-based power to these population segments, especially given the current low level of interest on the part of national utilities towards rural supply.
 - 4.6 Until the renewable energy law is enacted, assuring suppliers of a guaranteed purchase price from utilities and an acceptable return on investment, it will be difficult to get a firm private sector commitment to the Djungar Gate pilot project or similar projects identified in other locations across the country. Nevertheless, in anticipation of the enactment, one investor has expressed interest in a substantially scaled up (50 MW) project at the site consistent with expectations on returns on the investment.
 - 4.7 Some of these issues could have been circumvented if the mid-term evaluation's recommendations to utilize the remaining funds of about USD 1 million earmarked for the Djungar Gate pilot project¹⁴ had been adopted. The mid-term evaluation had proposed the funds be used to conduct additional feasibility studies in other sites across the country or, interestingly, to finance several off-grid wind power projects in rural areas to get a diversity of experience different from the on-grid experience of setting up the Djungar Gate project¹⁵. However, due to stated lack of GEF interest and insufficient flexibility in the new log frame for 2009-2010, these options were not pursued. The project has continued to emphasize the pilot project with additional activities to support introduction of the renewable energy law, start-up of a renewable energy certificate programme (as envisaged in the initial draft of the law) and wind monitoring of other sites¹⁶.
 - 4.8 The project team's inability to explore off-grid option suggests a determination to make the Djungar Gate pilot project happen and/or a fixation with grid-connected wind power, in accordance with the project boundaries defined by GEF. This tends to overlook the strategy outlined under the National Wind Power Development Programme¹⁷, which is also a key output of the project. The programme envisages support to small-scale wind power development for consumers in remote unelectrified or unprofitable (for grid power) areas as one of five mainstream areas of pursuit. It specifically identifies such support with remote rural farms to enhance agricultural productivity through financial assistance for initial investments by end-users. The higher cost of off-grid wind power supply to remote areas and the low priority of offgrid options for GEF due to their perceived low impact on climate change might have been a disincentive to the project team to accommodate these elements of the

¹⁴ To be paid to the private investor to support the pilot project once the wind turbines are in operation.

¹⁵ UNDP, 2007g.

¹⁶ UNDP, 2007h.

¹⁷ UNDP, 2008b.

programme within the project's scope¹⁸. Nevertheless, the lack of consideration of off-grid options is a missed opportunity for the project to make a contribution to the outcome being evaluated.

- 4.9 On the whole, the project has succeeded in elevating the status of wind and other sources of renewable energy on the national energy agenda. Its contributions to the renewable energy law and its close interaction with private industry interests are noteworthy accomplishments as they have potentially far-reaching positive consequences for the future of renewable energy market development in the country. The final set of project activities to disseminate the lessons learned from the pilot project is yet to be undertaken pending a conclusion on the pilot project. Since the project has been extended till the end of 2010, opportunities to generate its unaccomplished outputs remain open.

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

4.10 The project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply had a late start in December 2006 and is scheduled to last till December 2011. In spite of its limited duration, it has achieved its planned outputs till date with several positive achievements, such as:

- a) contributing to the development of the draft energy efficiency law;
- b) reviewing current technical standards and norms on planning and development of heat supply systems;
- c) reviewing current practices of energy audit in public and residential buildings, and making recommendations on heat loss reduction;
- d) building the capacity of local heat supply companies at Astana and Almaty to develop and manage their services on a commercial basis and to attract financing for needed investments;
- e) building the capacity of local tenants and home owner associations at Astana and Almaty to manage heat and hot water supply services, and to implement cost-effective energy saving measures at the building level;
- f) developing institutional capacities and implementation interest within the *Akimats* (mayoralities) of Astana and Almaty, and key ministries, such as the Ministry of Energy and Mineral Resources and the Ministry of Environment;
- g) monitoring, evaluating and disseminating project results and lessons learnt so far among consumers, stakeholders and the general public; and
- h) initiating and expanding a lively public awareness and information dissemination programme using a variety of media channels.

4.11 A noteworthy feature of the project is its attention to the social implications of energy efficiency improvement measures, such as heat metering and tariff reforms. A number

¹⁸ According to the National Wind Power Development Programme, the cost of electricity from even grid-connected wind farms is estimated to be KZT 8-12/kWh compared to the KZT 3-4.5/kWh from conventional grid supply.

of papers/reports have been developed to examine these aspects, with attention to impacts on low and fixed income consumers. In fact, of the three projects covered by the Evaluation, only this project makes a serious attempt to address these issues. However, as noted further down, the conclusions and proposals of these exercises leave room for improvement.

- 4.12 While these outputs are still a work in progress, stakeholder responses assessed by the Evaluation are largely positive. Representatives of Apartment Owners Associations (AOAs), private equipment suppliers, and local and national government agencies are enthusiastic about the results so far. The Ministry of Energy and Mineral Resources, in particular, has embarked on an intensive energy efficiency programme under which over 400 power producing enterprises have been surveyed, and energy consumption norms for various sectors and industries are being developed with priority to reducing electricity and oil & gas transmission and distribution losses. Future planned outputs within the duration of the project include the establishment of an energy service company (ESCO) to identify and finance consumer level efficiency improvement and an assessment of heat pump technology to replace current fossil fuel-based systems for heat generation. Overall heat savings of 25-30% are expected as a result of the project.
- 4.13 In spite of these achievements, the project's thrust on promoting energy efficiency through market pricing tends to obscure its implications for poor and low income populations. The main consumer level strategy so far has been to rehabilitate outdated heating equipment in public buildings, including tenements and schools, through pipe insulation, thermostat controls and the installation of heat meters. A complementing strategy pursued at the supplier end has been to improve the heat generation and transmission/distribution equipment, such as boilers and heat and hot water distribution pipelines. The promotion of heat metering and consumption-based tariffs to replace the current flat tariff structure based on floor area or other consumption norms links the two with the view to curb wasteful consumption and to generate additional revenue, based on cost recovery principles, for heat supply utilities.
- 4.14 Depending on the floor area occupied by apartment dwellers, these strategies could raise the cost of heat and hot water to those with low fixed incomes, such as pensioners, the cost of whose minimum requirements exceeds the amount incurred under the flat tariff structure with its implicit subsidy. In particular, the two-part tariff envisaged — consisting of a fixed connection or metering charge and a variable consumption charge — could result in a significant increase in monthly household bills, although it has been argued that under-recovery of supply costs by utilities will affect their commercial viability and inhibit investment in more efficient heating infrastructure. The project has sought to address the issue through studies to examine ways of providing social support to those affected.
- 4.15 District heating costs have surged between 2005 and 2007 as a result of the shift to more commercial tariffs. In Astana and Almaty cities, the two pilot sites of the project, the cost increases amount to 12.4% and 11.9% respectively, compared to the national

average increase of 6.4%¹⁹. Similar trends are observed in hot water costs. The project envisages the creation of energy service companies (ESCOs) to provide upfront financing to residential consumers to acquire meters and upgrade their heating systems and equipment, with an estimated payback period of 2-3 years from savings in consumption bills. However, this does not quite address the immediate problem of rising monthly bills which have a disproportionate impact on low income families that already spend a relatively high share of their monthly expenditure on heating and hot water.

- 4.16 The proposed solution to this problem relies on cash grants from the mayoralties under the government's ubiquitous 'housing support', which is a direct cash subsidy offered by the Ministry of Labour and Welfare to poor and vulnerable households to compensate them for higher than affordable costs of municipal services, consumption and house maintenance. Recent trends suggest the extent of this support has been increasing²⁰. For instance, in 2003, only family expenses forming at least 30% of their total expenditure were eligible for the support in Almaty. By 2007, this had been reduced to 10%, meaning a greater number of expense items qualified for support. Expenses on heating and hot water supply fall within this threshold and are, thus, eligible for compensation.
- 4.17 However, this needs to be viewed against the post-2007 decline in energy export prices and the 2008-2009 global economic crisis that has shrunk public revenue which is the source of the government's social protection programme. Consequently, there is a risk of housing support declining in a climate of economic adversity coupled with rising price inflation — including energy price inflation — which makes it an uncertain vehicle to cushion the impacts of higher heating tariffs on poor and low income households.
- 4.18 In effect, Kazakhstan faces the classic dilemma of energy market liberalization, the immediate impacts of which on the poor and vulnerable populations are almost always negative, unless the liberalization process is carefully phased and accompanied by appropriate positive discrimination in tariff policies administered by a regulatory body charged with safeguarding the interests of low-end consumers. The information and analysis generated by the project suggest the need for a better balance between economic efficiency and commercialization rationale on the one hand, and, on the other, social welfare and income impacts on the poor.
- 4.19 Studies initiated by the project on the issue have considered seasonal, time-of-use, non-firm or interruptible supply and lifeline tariff options. Their outcomes have been conveyed to the Anti-Monopoly Agency which currently sets tariffs. The government has yet to exercise a choice among the options recommended. The draft energy efficiency law is silent on the issue as it does not address the social considerations of energy market reforms needed to improve energy efficiency²¹. Meanwhile, there are

¹⁹ UNDP-GEF, 2008b.

²⁰ UNDP, 2007b.

²¹ GoK, 2008a.

indications of stiff resistance from low income apartment dwellers to the installation of heat meters that are gradually being made obligatory by supply companies.

Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change

4.20 The project on Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change has been concluded four months ahead of schedule in November 2008. Its principal outputs have been the development of a GHG inventory, preparation of the second national communication to UNFCCC, contribution to the government's adaptation policy, and capacity building of concerned agencies, especially the Ministry of Environment. As a part of these outputs, the project has assessed the potential for renewable energy and energy efficiency in the country. The project outputs are rated highly by the Ministry of Environment and environmental NGOs, such as the Centre for Climate Change Coordination.

4.21 While the outputs of the project are crucial to Kazakhstan's international environmental obligations and to the promotion of renewable energy and energy efficiency as alternatives to fossil fuels, their connection to the poor's livelihood opportunities are tenuous to non-existent. However, this is inherent in the project's scope and should not reflect adversely on its effectiveness. Future follow-ups of the project could feature more explicit environment-poverty linkages that are now emerging as an area of international concern, for instance, under the UNDP-UNEP Environment-Poverty Initiative.

GEF Small Grants Programme

4.22 Although the GEF Small Grants Programme was not listed in the Terms of Reference of the Evaluation, it was included subsequently following discussions with the higher management of UNDP, Kazakhstan. In spite of the USD 50,000 limit on individual project size imposed by GEF policies, the programme's activities bear the closest to the outcome evaluated — improving livelihood opportunities of the poor through increased access to renewable energy.

4.23 The programme has financed some 27 renewable energy projects since 1997 with more projects in the planning stage. These projects concentrate on rural supply through decentralized renewable energy options, such as solar driers for fruit and herbs drying, wind power stations to replace isolated diesel generators in remote farms and communities, and hydraulic rams for water supply to mountainous areas. The projects effectively combine livelihood activities with renewable energy. End-users contribute 30-50% of project costs, reinforcing their stake and ownership.

4.24 A limitation of the programme from the poverty perspective is its inability to cater for the bottom poor, as defined by the national poverty line. Most families/communities targeted by projects fall into the middle income bracket. The perception, corroborated

by other sources, is that the really poor in Kazakhstan are overly dependent on state welfare and are generally disinterested in making cash and/or labour contributions even if a project directly benefits them. However, there are instances of community-scale projects indirectly benefiting poor families within a community through casual or permanent employment.

5. Findings on Resources, Partnerships and Management

- 5.1 UNDP's initial budgets for the Kazakhstan Wind Power Market Development Initiative and the project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply envisaged mobilizing non-GEF co-financing of USD 5 million and USD 7.18 million, respectively. Actual co financing raised by the former amounted to USD 240,000 or just 3.3% of what was budgeted, while the *Akimat* of Almaty has agreed in principle to a USD 1 million co-financing for an ESCO under the latter. In general, UNDP has relied extensively on GEF support to fund these projects, and exclusively on such support for the project on Preparation of Kazakhstan's Second National Communication to the UN Framework Convention on Climate Change and the GEF Small Grants Programme.
- 5.2 The overreliance on GEF funds dissonates against UNDP's stated outcome for sustainable energy development in that it has concentrated most resources to just one of its strategic priorities at the cost of others, crucially the objective to eradicate poverty. One explanation offered for this is that Kazakhstan is a low priority for donors whose development assistance has a more direct focus on poverty due to the country's energy affluence, energy exporter status and relatively low poverty incidence. While this is plausible, the Evaluation is of the view that a more diversified donor base may not have been seriously attempted. Indications are that UNDP's own internal resources, however limited, were also not considered to address the poverty reduction objective under this programme, possibly due to the programme's success in mobilizing substantial GEF funding in absolute terms.
- 5.3 UNDP's partnership strategy has been quite effective at the project level to pursue the overall goal of sustainable energy development. Where it lacks is the exclusion of national agencies concerned with poverty, in particular the Ministry of Labour and Welfare, local governments in underdeveloped and poverty-prone regions, and NGOs engaged in poverty reduction work. Much of the work carried out under the projects has involved central government agencies and institutions/groups in the national capital and in urban centres, with the exception of the GEF Small Grants Programme which has worked with rural partners.
- 5.4 Subject to these limitations, the partnership strategy pursued under individual projects has yielded several positive results that are encouraging for the future sustainability of the work accomplished so far:
 - A broad-based awareness and interest have been generated in renewable energy, energy efficiency and environmental impact mitigation/adaptation among all

partners actively engaged in projects, crucially key government agencies responsible for policy formulation and implementation.

- The private sector's interest in investment and future public-private partnerships has been raised, both in renewable energy and in energy efficiency.
- New institutional structures have been catalyzed, such as the planned department of renewable energy under the Ministry of Energy and the proposed ESCO to be co-financed up to two-thirds of total cost and managed by the Almaty mayoralty.
- Opportunities for peer-to-peer sharing of information and experience have been created under the energy efficiency project, as attested by the keenness of AOAs to participate in the future expansion of the project's coverage to other apartment buildings.
- Successive intensive consultations via workshops, meetings and discussions with a multiplicity of stakeholders during the course of developing the renewable energy and energy efficiency laws have contributed to the establishment of a participatory process in major energy policy decisions.
- Other donors, such as the UK Government under its Strategic Programme Fund and the Renewable Energy and Energy Efficiency Partnership, have appreciated UNDP's special capabilities to bring together diverse government agencies and stakeholders, and they have made (modest) financial contributions to the renewable energy and energy efficiency projects. The UK Government has expressed its interest in future collaboration in these areas.
- Other multilateral agencies like the European Bank for Reconstruction and Development (EBRD), which has a strong focus on energy investment, see a high degree of complementarity between their initiatives and UNDP's undertakings. EBRD has expressed a willingness to co-finance ESCOs for energy efficiency.

5.5 The management structures and working methods employed by UNDP to design, implement and monitor the projects have been appropriate and effective to achieve project level objectives. However, there are clear gaps, as outlined in the preceding parts, in matching project objectives to programme outcome in the present case. This is an overall weakness induced by a disconnect between UNDP's strategic priorities and the priorities of external funding sources. Within the boundaries of the projects themselves, the project teams set in place are capable, motivated and focused on achieving their respective objectives, and they have succeeded for the most part.

6. Conclusion

To sum up, of the projects featuring in the Evaluation, the GEF Small Grants Programme has the closest relevance to the overall outcome of enhancing livelihood opportunities of the poor through renewable energy. While the other projects, which are much larger in scale, can potentially contribute to this outcome in their follow-up phase under UNDP's next programme cycle, they have generally not made such a contribution in their current phase. On the contrary, some of their strategies and outputs may have adverse implications for the

poor's livelihood unless appropriate safeguard measures are put in place. The Evaluation's rating²² of individual projects is presented in the following table:

Project	Outcome	Outputs	Sustainability	Relevance	Cost-Effectiveness
Kazakhstan Wind Power Market Development Initiative	Unchanged	Partially achieved	Sustainable	SED: Relevant PRL: Not relevant	Yes
Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply	Unchanged, some negative change	Partially achieved	Sustainable	SED: Relevant PRL: Somewhat relevant	Yes
Preparation of Kazakhstan's Second National Communication to UNFCCC	Unchanged	Achieved	Sustainable	SED: Relevant PRL: Not relevant	Yes
GEF Small Grants Programme	Positive change	Achieved	Sustainable	SED: Relevant PRL: Relevant	Yes

SED: Sustainable energy development; PRL: Poverty reduction through livelihood

7. Recommendations

7.1 The first priority for UNDP is to review its overall programming strategy under the sustainable energy development theme so as to minimize the current mismatch between outcomes based on internal strategic priorities and outputs derived from donor priorities. There are two ways of achieving this:

- a) mobilizing needed project resources from a multiplicity of sources so that the priorities of any single source do not eclipse the desired outcome; or
- b) setting the programme outcome only after a core set of projects has been successfully funded and initiated.

Of the two, the Evaluation recommends the first.

7.2 Poverty reduction remains a strategic priority for UNDP in Kazakhstan. Rightly so due to the new uncertainties created by the global economic crisis that will not leave an energy exporter like Kazakhstan unscathed. The risk of increase in the incidence of absolute poverty is quite high for the country with 40% of the population classified as near-poor. This is already happening around the world in several countries, with the World Bank estimating as many as 53 million people pushed into poverty by the global economic crisis — on top of the 130-155 million already becoming poor due to the fuel and food crises of 2007/2008²³.

7.3 Enhancing the poor's energy access should be a core component of UNDP's poverty reduction strategy. UNDP's own assessment indicates electricity and fuel supplies to rural areas remain unreliable due to long distances and ageing transmission and distribution networks. According to the Ministry of Agriculture²⁴, about 9,000 farms and 255 remote towns are currently without centralized power supply. Any future

²² UNDP, 2002a.

²³ World Bank, 2009.

²⁴ UNDP, 2008b.

UNDP programme on sustainable energy needs to pay closer attention to the energy access concerns of the poor in these locations, recognizing the importance of direct and explicit interventions with the potential for near-term relief as opposed to uncertain longer term trickle-down benefits. This could build upon the broad base established under the current phase to enlarge the role of renewable energy and energy efficiency to overcome national demand-supply imbalances.

- 7.4 Consistent with this, UNDP should retain its focus on climate change and environmental issues that attract substantial support from donors, and are essential to accelerate progress on renewable energy development and energy efficiency as, for instance, by Kazakhstan's ratification of the Kyoto Protocol. Such a convergence of energy and environment is already reflected in UNDP's next programme. But this can repeat the divergence between environmental and poverty concerns experienced in the present phase without an explicit adoption of the latter as a core element of any sustainable energy development strategy. A useful starting point towards this could be explored under the UNDP-UNEP Environment-Poverty Initiative.
- 7.5 Since poverty and energy access issues are more pronounced in the rural areas of Kazakhstan, future work needs to move geographically closer to the problem. This implies consideration of renewable energy solutions for specific underdeveloped regions and provinces, working more closely with local governments while retaining linkages with the central government, and establishing new local level partnerships with communities, NGOs and the private sector. Crucially, UNDP should seek to incorporate into its mainstream energy projects more participative processes directly involving poor and low income energy consumers in project identification, implementation and monitoring — as has been successfully carried out under the GEF Small Grants Programme.
- 7.6 All liberalization of energy markets will invariably raise energy prices suppressed under earlier price regulation and subsidies in the short to medium term. The impact of this on the poor is immediate and severe as it excludes them from so-called level playing fields where alternative energy solutions become more competitive against conventional ones. While such competitiveness is desirable and necessary to promote the prudent use of energy resources and to mobilize needed private investment in energy infrastructure, it can worsen the poor's energy access gaps against uncertain promises of longer term reduction in energy costs. The national Anti-Monopoly Agency is, thus, justified in its caution over energy tariff reforms proposed under UNDP's renewable energy and energy efficiency projects. UNDP should consider in its next phase an initiative to establish and develop an independent energy regulator that can facilitate deregulation while shielding poor consumers from its near-term impacts.
- 7.7 As a corollary to the above, UNDP may examine the feasibility of lifeline tariffs and smart subsidies focusing on energy production rather than capacity installed, along with alternatives such as discount vouchers and smart cards, for electricity and heating linked to minimum consumption norms and income levels. Kazakhstan's current reliance on broad-based indirect subsidies under its social safety net programme

should be phased out insofar as energy is concerned as it tends to hide rather than reveal the true cost of energy and the support provided by the government to bridge affordability gaps.

- 7.8 The proposed RAF allocation of USD 15 million from GEF to Kazakhstan for efficient lighting, building architecture and vehicle emissions could be usefully expanded to include industrial energy efficiency since this sector is the largest consumer of energy. UNDP could gain a quick headway in this sector since the Ministry of Energy and Mineral Resources is already working on it.
- 7.9 Finally, UNDP needs greater adaptability to changing circumstances at the project implementation level. A single-minded pursuit of initial objectives regardless of subsequent developments that call for change signals a rigidity that might not achieve desired outputs or outcomes through alternative paths. This is especially relevant to the energy sector which has displayed exceptional volatility on both the supply and the demand sides as reflected by whipsawing energy prices.

United Nations Development Programme in Kazakhstan

Terms of Reference for Outcome Evaluation

**Livelihood Opportunities for the Poor are Increased
Through Expanded Access to Sustainable Energy**

A. PURPOSE OF THE EVALUATION

The overall purpose of the current evaluation exercise is to learn lessons about UNDP's contribution to the outcome over the Country Programme cycle for the elaboration of the next Country Programme. The evaluation exercise is commissioned according to the CPAP 2005-2009 evaluation plan of UNDP Kazakhstan.

B. BRIEF NATIONAL CONTEXT

Kazakhstan is a middle-income country with an estimated gross national income per person of \$5,010 in 2007 (GNI, Atlas method). The Government of Kazakhstan estimate of the GDP per capita in 2007 is \$6,700. It is the largest country in Central Asia and one of the most sparsely populated in the world. Kazakhstan ranks 73 in the 2007/2008 Human Development report (with an HDI of 0.794), with 6 positions up since previous year report (HDI of 0,774). Although income per person is expected to rise, some inequalities remain. In 2006 overall poverty headcount ratio (at national poverty line²⁵) was estimated at 18 percent of population. However, poverty rates exceeded 37 percent in oil-rich Kyzylorda oblast and 25 percent in two other oblasts, grain-producing Akmola oblast and oil-rich Mangistau oblast. The latter is leading in terms of rural poverty which was over 63 percent in 2006. About 40% of the population of Kazakhstan is at risk of poverty, as their income is above 1 but less than 2 subsistence minima, and they would be affected by any economic fluctuations or crisis. The country also has some of the lowest social indicators in the Europe and Central Asia region, such as access to safe drinking water as well as incidence of tuberculosis. HIV/AIDS infection rates are increasing very fast, although from a small base.

Kazakhstan has declared its objective to enter the group of 50 countries with most competitive economies in the world. The most frequent reference in this regard is the Global Competitiveness Index of the World Economic Forum. Kazakhstan was first rated in GCI in 2005²⁶. A disaggregating of the data by indicators under this index shows that the country scores worst on institutions, health and primary education.

Kazakhstan is the largest producer of anthropogenic greenhouse gas in Central Asia and is third among former Soviet republics. According to the 2002 greenhouse gas inventory, net emissions in Kazakhstan, accounting for CO2 absorption by forests, were 178.6 t of CO2 equivalent. In 2003, net

²⁵ The poverty line in Kazakhstan is defined by the subsistence minimum. The subsistence minimum is composed of food and non-food items and its current national average value is 11769 Tenge (app. \$98)

²⁶ Ranking for Kazakhstan: 2005 – 51, 2006 – 56, 2007 – 61

emissions reached 180.5 mln t of CO2 equivalent. The energy sector emits about 95% of the total, including about 35 % from fossil fuel power plants.

Kazakhstan is lagging far behind several industrially developed countries in terms of energy use per GDP. Kazakhstan uses almost 2.8 kWh per \$1 GDP, while such countries as Great Britain, Germany, Italy and Japan use 0.22-0.3 kWh, and the USA, France, Turkey and Korea spend 0.4-0.6 kWh; Canada and China spend 0.8-1.2 kWh. One of the reasons is the deterioration of the basic operating assets of industrial enterprises. In several branches of the industrial sector, physical deterioration is approaching 50% and more, which leads to a reduction of the economy's competitive capacity and hinders socio-economic development of the country.

A need for Kazakhstan to increase the use of renewable energy and improve energy efficiency was highlighted by several key governmental strategic documents, among such are: (i) a strategy on entering 50 most competitive economies in the world, (ii) a programme on 30 corporate leaders, and a (iii) concept on transition to sustainable development for the period of 2007-2024.

These documents call for a need to improve energy efficiency across various sectors of economy and to diversify country's contemporary use of energy sources, largely favouring the development and use of renewable energy and energy efficiency mechanisms. The Ministry of Environmental Protection (MEP) developed a strategy to promote energy efficiency and RE in the country (presidential approval to be granted before the end of 2008). The Concept sets targets for saving energy through an increase of energy efficiency up until 2024, with an intermediate target of an increase of up to 33 per cent by 2009. There are also medium- and long-term targets for developing renewable energy sources (e.g. by 2012, the share of alternative energy sources in Total Primary Energy Supply (TPES) is to be some 0.5% and by 2018, 5%). Development of renewable energy will focus on wind and solar energy and heat pumps.

In December 2007, during the meeting of the Foreign Investors Council, President Nazarbayev called for RE technology transfer to the Kazakhstani market. Given the fact that Kazakhstan still follows the 1997 Law on energy efficiency—which is outdated and poorly implemented—the importance of energy efficiency and saving measures was reiterated by the President in his Annual address to the Nation in February 2008. The emphasis now is on turning these words into practical actions.

C. SUBJECT OF THE EVALUATION

According to the evaluation plan of the UNDP Kazakhstan office, an evaluation is to be conducted for the following outcome stated in the Country Program Action Plan (CPAP) 2005-2009:

Outcome 3.2: Livelihood opportunities for the poor are increased through expanded access to sustainable energy

Indicator: The amount of energy produced through renewable energy

Baseline: In 1999, the percent of energy consumption from renewable resources was 1.5% of total consumption (or 527 tons of oil equivalent)

Target: By 2009, the percent of energy consumption from renewable sources will increase by half

D. OBJECTIVE AND SCOPE OF THE EVALUATION

This is a summative evaluation, aiming to determine lessons learned from program and project activities for sustainable energy development in Kazakhstan that were implemented with partners during 2005-2008. The evaluation shall identify changes that happened within the last 4 years as they relate to the development outcome, and the degree of these changes. It shall also assess whether UNDP's strategic positioning in the outcome can be improved and whether the existing partnership arrangements with the local partners proved to be successful and relevant. The main objective is to determine whether UNDP program activities have the continuing contribution to increased access of the poor to sustainable energy sources.

Since this is an evaluation carried out at the end of the development interventions planned for in the current CPAP, evaluators shall give greater importance to assessing efficiency and effectiveness of UNDP's contributions to the outcome: whether the size of resources, both financial and human, and partnership strategies continue to be cost-effective and may be applied in the next Country Programme.

Evaluators shall take into account and rank the following items:

- Status of and degree of change in the outcome, and factors influencing the outcome
- UNDP strategic positioning on achieving the outcome
- Relevance of the outcome and outputs
- Partnership strategy
- Sustainability: whether there is ownership and capacity to maintain and manage development in the outcome

The main partners to be involved in the evaluation are: Ministry of Energy and Mineral Resources, Ministry of Environmental Protection, Antimonopoly Agency, local governments (Akimats of Almaty and Astana Cities), NGOs (Consumer Rights Protection Association, Climate Change Coordination Center, Clean Energy, etc), the British Embassy, OSCE, World Bank, EC, ADB and other donor agencies.

Worksheet on Outcome Evaluation: Categories of Analysis/Scope

Category	Notes
Change in outcome	Review indicators and benchmarks to determine extent/degree of change in the outcome by assessing progresses made to-date vis-à-vis baseline. Focus on the how and why outputs and strategies contributed to achieving outcome. Focus on questions of relevance, effectiveness, sustainability and impact.
Factors affecting outcome	These are social, political, economic, and environmental factors. As such, the evaluation scope shall be as broad as possible so as to take all factors into account.

UNDP's contribution to outcome	Conduct quantitative and qualitative assessments of contributions from UNDP's interventions vis-à-vis outcome indicator baseline. Assessment should focus on determine the continued validity of the strategies applied to-date by UNDP so as to decide whether they should be re-formulated for the new program.
Partnership strategy	Determine whether the best possible synergies have been established among partners and the steering role played by UNDP within this context. Assess whether other stakeholders and sponsors should not be included in the next phase.

Specifically, the outcome evaluation should address, but not be limited to, the following issues:

1. Outcome analysis
 - Were the outcome and associated projects relevant, appropriate and strategic to national goals and the UNDP mandate?
 - Were the actions to achieve the outputs and outcomes effective and efficient?
 - Did the outputs and outcome lead to benefits beyond the life of the existing projects?
 - Which findings may have relevance for future programming?
 - Are the stated outcome, indicator and target appropriate for the development situation in Kazakhstan and UNDP's program of assistance in this field?
 - What is the current status and prospects for achieving the outcome with the indicated inputs and within the indicated timeframe?
 - What are the main factors (positive and negative) within and beyond UNDP's interventions that affected or are affecting the achievement of the outcome? How have these factors limited or facilitated progress towards the outcome?
 - Were UNDP's proposed contributions to the achievement of the outcome appropriate, sufficient, effective and sustainable?
2. Output analysis
 - What are the key outputs that have been produced by UNDP to contribute to the outcome?
 - Are the UNDP outputs relevant to the outcome?
 - Are the monitoring and evaluation indicators appropriate to link these outputs to the outcome, or is there a need to improve these indicators?
 - Is sufficient progress been made with regard to UNDP outputs?
3. Resources, partnerships, and management analysis
 - Was UNDP's resource mobilization strategy in this field appropriate and effective in achieving this outcome?
 - Was UNDP's partnership strategy in this field appropriate and effective in achieving this outcome?
 - Are UNDP's management structures and working methods appropriate and effective in achieving this outcome?
 - Overall, assess the scope, relevance, efficiency and sustainability of UNDP's resources mobilization, partnership and management arrangements in achieving this outcome.
4. Recommendations
 - Based on the above analysis, how should UNDP adjust its programming, partnership arrangements, resource mobilization strategies, working methods and/or management structures in the next country programming cycle?

E. METHODOLOGY

Overall guidance on outcome evaluation methodologies is provided in the UNDP Handbook on Monitoring and Evaluation for Results and the UNDP Guidelines for Outcome Evaluators. Based on these guiding documents, and in consultation with UNDP Kazakhstan, the evaluators should develop a suitable methodology for this outcome evaluation.

The evaluation will be based on a review of relevant background material on the development context in Kazakhstan, including NHDRs for 2005-2008, country MDGR (2002) and RMDGR (2005, 2007) as well as other relevant documents. The current status of and degree of change in the outcome shall be assessed against the baseline for the outcome and the indicators and benchmarks used in relation to UNDAF, CPD and CPAP, relevant project/program documents, progress and monitoring reports of projects/programs, contextual information from partners. The evaluation should combine literature review, field visits, and discussions with stakeholders and meetings with key partners and beneficiaries.

Outcome to be evaluated: Livelihood opportunities for the poor are increased through expanded access to sustainable energy

Associated UNDP projects:

With funding from the Global Environmental Facility (GEF), the Global Opportunities Fund (GOF) and the Renewable Energy and Energy Efficiency Partnership (REEEP), UNDP supports national efforts in addressing the threats of global warming. This is done through promoting improved energy efficiency in heat and water supply systems and increased use of renewable energy sources. Specific projects focuses on (i) strengthening of institution capacities for regular GHG inventory and development of response mitigation/adaptation strategies; (ii) enhancing energy efficiency and renewable energy policy framework; (iii) demonstrating the country's potential for wind energy; (iv) and energy efficiency in municipal heat and hot water supply.

GEF funded projects (US\$ 6,260,000):

(i) **Preparation of Kazakhstan's Second National Communication to the UNFCCC Framework Convention on Climate Change.** This project aims to prepare the Second National Communication (SNC) of the Republic of Kazakhstan under the United Nations Framework Convention for Climate Change (UNFCCC) over a three-year period. The main outputs of the project are the establishment of the institutional structure and strengthening of capacities for development of national communications in the Republic of Kazakhstan on a continuous basis.

(ii) **Kazakhstan-Wind Power market development initiative.** The objective of the full-scale project is to promote the development of the wind energy market in Kazakhstan by: (a) assisting the Government to formulate a National Program on Wind Energy Development; (b) providing information for and building the local capacity to develop wind energy products in Kazakhstan and to organize financing them (including site "mapping" and expansion of the wind speed measurement program); (c) facilitating construction of the first 5MW wind farm to prepare ground for and reduce

the risks of further investments; and (d) monitoring, analyzing and disseminating the experiences and lessons learnt during the implementation of the project.

(iii) **Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply.** The objective of the project is to reduce greenhouse gas (GHG) emissions from the 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. Within this framework, the project will (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.

REEEP-funded project (US\$ 58,528):

(i) **Support for renewable energy for inclusion in legislation in Kazakhstan.** This includes (a) generation of draft legislation in a form that can be submitted to the Kazakhstan legislature for debate and possible adoption; (b) presentation of a proposed schedule for implementation of a national programme for renewable energy; (c) increased political debate on the role and value of RES in the energy balance of Kazakhstan and that its promotion brings economic, environmental and development benefits for Kazakhstan and the global environment.

UK Strategic Programme Fund (SPF)-funded projects (US\$ 281,096):

(i) **Supporting sustainable energy development in Kazakhstan.** The purpose of the project is to support the passing of legislation for renewable energy, to raise the level of knowledge and expertise among decision makers and to transfer skills and knowledge to renewable energy stakeholders in Kazakhstan.

(ii) **Enhancing energy efficiency and renewable energy policy framework in Kazakhstan.** The objective of the project is to support the national strategic policy framework development in efficient energy use and renewables sectors through wider and more active stakeholder consultation in drafting process and application of best international standards. The project expects to produce the following results: (a) Action Plan of the National Strategy on Efficient Use of Energy and Renewable Energy (EUE/RE) agreed with stakeholders and submitted to the Kazakh Government for approval; (b) Final draft law on Energy Efficiency agreed with stakeholders and submitted to Kazakh Government for approval.

Associated total funds: US\$ 6,599,624

UNDP work in outcome: UNDP has worked in the outcome for 4 years at the time of the evaluation.

F. PRODUCTS EXPECTED FROM THE EVALUATION

The key product expected from this outcome evaluation is a comprehensive analytical report that includes, but is not limited to, the following components:

- Executive summary
- Introduction
- Description of the evaluation methodology
- Analysis of the situation with regard to outcome, outputs, resources, partnerships, management and working methods
- Key findings
- Conclusions and recommendations for the future program implementation

The report should be clear, present well-documented and supported findings, and provide concrete and implementable recommendations. For more detailed information, please see the UNDP Guidelines for outcome evaluators. UNDP should be able to share it readily with partners and it should generate consensus around the finding and recommendations.

E. EVALUATION TEAM

The evaluation team will consist of two consultants: one international consultant (Team Leader) and one national consultant. The international consultant should have an advanced university degree and at least 10 years of work experience in the field of energy and/or environmental management or a related field, at least 5 years of work experience in developing countries (preferably with an international development organization in a transitional economy), and sound knowledge of results-based management with a focus on result-oriented monitoring and evaluation. Russian language skills will be an asset. The Team Leader will have overall responsibility for the quality and timely submission of the evaluation report to UNDP.

Specifically, the team leader will perform the following tasks:

- Lead and manage the evaluation mission;
- Design the detailed evaluation scope and methodology and approach;
- Ensure efficient division of tasks between the mission members;
- Conduct the outcome evaluation in accordance with the proposed objective and scope of the evaluation;
- Draft and communicate the evaluation report;
- Finalize the evaluation report in English and submit it to UNDP.

The national consultant should have advanced university degree and at least 5 years of work experience in the area of energy and/or environmental management. S/he should have a sound knowledge and understanding of the energy sector in Kazakhstan, and have experience in conducting evaluations. S/he will perform the following tasks:

- Review documents;
- Participate in the design of the evaluation methodology;

- Conduct the outcome evaluation in accordance with the proposed objective and scope of the evaluation;
- Draft related parts of the evaluation report;
- Assist the Team Leader in finalizing the draft evaluation report through incorporating suggestions received.

F. IMPLEMENTATION ARRANGEMENTS

To facilitate the outcome evaluation process, UNDP Kazakhstan will set up an Evaluation Focal Team (EFT). The EFT—with support from the Head of the Energy and Environment Unit—will assist in connecting the evaluation team with the program unit, senior management, and key stakeholders. In addition, the EFT will assist in developing a detailed evaluation plan; conduct field visits; and organize meetings. During the evaluation, the EFT will help identify key partners for interviews by the evaluation team. However, the evaluation will be fully independent and the evaluation team will retain enough flexibility to determine the best approach in collecting and analyzing data for the outcome evaluation.

Mission Schedule

Activity	Timeframe	Place	Responsible Party
Evaluation design, methodology and detailed work plan	13-19 October 2008 (5 days)	On-line	UNDP CO, international and national consultants
Desk review	20-25 October 2008 (5 days)	On-line	International and national consultants
Field visits, interviews, consultations	26 October – 07 November 2008 (10 days)	In Kazakhstan (Almaty, Astana)	International, national consultants and EFT
Preparation of draft evaluation report	10-21 November 2008 (5 days)	On-line	International, national consultants
Submission of draft evaluation report	24 November 2008	Online	International, national consultants
Feedback on draft report from partners and UNDP	5 December 2008	Online	EFT
Finalization of evaluation report	08-12 December 2008 (5 days)	On-line	International, national consultants

G. DOCUMENTS FOR STUDY BY THE EVALUATORS

1. UNDP Handbook on Monitoring and Evaluation for results
2. UNDP Guidelines for Outcome Evaluators
3. Ethical Code of Conduct for Evaluation in UNDP
4. UNDP Result-Based Management: Technical Note
5. UN Development Assistance Framework (UNDAF) for Kazakhstan 2005-2009
6. Country Program Document for Kazakhstan 2005 – 2009
7. Country Program Action Plan for Kazakhstan 2005 – 2009
8. Common Country Assessment
9. Millennium Development Goals Report in Kazakhstan 2002, 2005
10. National Human Development Reports
11. Environment and Development Nexus in Kazakhstan
12. Concept on Transition to Sustainable Development
13. The State Program “Strategy of Development of the Republic of Kazakhstan by 2030”
14. Concept on Environmental Safety by 2015
15. Sectoral programs and reports (Ministry of Energy and Mineral Resources, Ministry of Environmental Protection, Antimonopoly Committee, Akimats of Almaty and Astana Cities)
16. Draft law on renewables
17. Draft law on energy efficiency
18. Initial and Second National Communications to UNFCCC
19. National Strategy on Efficient Use of Resources and Renewable Energy
20. Project Implementation Reviews of GEF projects (2005-2008)
21. Mid-term evaluation of UNDP/GEF project “Wind Power Market Development”
22. Project reports

Annex II: List of Documents Consulted

General Background

GoK, NORAD, UNEP, UNDP & NESDCA, 2006, Priorities of the Concept of Transition of the Republic of Kazakhstan to Sustainable Development, Ministry of Environment of the Republic of Kazakhstan, Norwegian Agency for Development Cooperation, United Nations Environmental Program, United Nations Development Program, Public Association 'The Network of Experts for Sustainable Development of the Central Asia'.

GoK-UNDP, 2005, Country Programme Action Plan 2005-2009, Government of Kazakhstan-United Nations Development Programme.

OECD, 2002, OECD/DAC Glossary of Key Terms in Evaluation and Results-Based Management, Development Co-operation Directorate, Organization for Economic Co-operation and Development.

UN, 2006, Evaluation Policy of UNDP, Executive Board of the United Nations Development Programme and the United Nations Population Fund, May 2006.

UNCT, 2008, Kazakhstan Country Analysis 2008, United Nations Country Team, August 2008.

UNDP, 2001, Managing for Results: Monitoring and Evaluation in UNDP, United Nations Development Programme, November 2001.

_____, 2002a, Handbook on Monitoring and Evaluation for Results, Evaluation Office, United Nations Development Programme.

_____, 2002b, Guidelines for Outcome Evaluators, Evaluation Office, United Nations Development Programme.

_____, 2003, RBM in UNDP: Technical Note, United Nations Development Programme, January 2003.

_____, 2004, Country Programme Document for Kazakhstan: 2005-2009, United Nations Development Programme July 2004.

_____, 2006, Kazakhstan Overview, Power Point presentation, United Nations Development Programme, April 2006.

_____, 2007a, Overcoming Vulnerability to Rising Oil Prices: Options for Asia and the Pacific, United Nations Development Programme.

World Bank, 2009, 'Crisis Hitting Poor Hard in Developing World, World Bank Says', Press Release No. 2009/220/EXC, World Bank at http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22067892~pagePK:34370~piPK:34424~theSitePK:4607,00.html?cid=ISG_E_WBWeeklyUpdate_NL.

Project on Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply

Alimgazin, A, Business Plan of the Project: Introduction of Energy Saving Technology Using Heat Pump Installations for Efficiency of Heat Supply of a Pilot Object in Astana City – Residential Complex of Kulsay VIP-borough (Karaotkel mic.).

BISAM Central Asia, 2008, Report on the Results of Research Under the Project: Identification of the Interest, Possibilities and Willingness of Heat Energy Producers and Customers to Strengthen the

Effectiveness for Reduction of Utility Bills, Improvement of Enterprises and Impact on Global Climate, Business Information, Social and Marketing Research Center, March 2008.

Ekeibayev, Dusenkhan, 2007, Analysis of the Market and Assessment of Local Capacity on Introduction of Energy Efficient Measures on Provision with In-house Heat Meters and Apartment Meters for Hot Water, UNDP.

GoK, 2008a, Law of the Republic of Kazakhstan on Energy Saving (Draft), November 2008.

Koishibayev, T, Advantages and Drawbacks of a Two-rate Tariff with Users' Fee for Heat Energy.

Lyubov, Inyutina, Energy Saving Potential in Respect to Prevent the Global Climate Change, UNDP.

UNDP, 2007b, Standard Progress Report 2007.

____, 2007c, Review of Social Aspect in Energy Efficiency and Saving in Residential Sector of Kazakhstan with Recommendations on Tariff Policy Changes and Suggesting in Legal and Regulatory Environment for AAOs Role Strengthening by Building Heat Management, 2007.

____, 2007d, Energy-Efficient AAOs.

UNDP-GEF, 2008a, Annual Performance Report/Project Implementation Review, 1 May 2007-30 June 2008.

____, 2008b, Concept to Support the Vulnerable Population in Terms of Commercialization of Heat Supply Services, 2008.

____, 2008c, Action Plan for 2008 – 2009 on Implementation of Concept to Support the Vulnerable Population in Terms of Commercialization of Heat Supply Services, 2008.

GoK, 2007a, Strategy on Efficient Use of Energy and Renewable Resources of the Republic of Kazakhstan for Sustainable Development till 2024, Ministry of the Environment, Government of Kazakhstan.

Project on Enabling Activities for the Preparation of Kazakhstan's Second National Communication to the United Nations Convention on Climate Change

UNDP, 2008a, Annual Progress Report, 1 January-31 December 2007.

UNDP-GEF, 2008d, Annual Performance Report/Project Implementation Review, 1 July 2007-30 June 2008.

Project on Wind Power Market Development Initiative

GoK, 2007b, Law of the Republic of Kazakhstan About Support of Use of Renewable Sources of Energy (Draft), Government of Kazakhstan , 29 June 2007.

GoK, 2008b, Law of the Republic of Kazakhstan About Support of Use of Renewable Sources of Energy (Draft), Government of Kazakhstan, 10 November 2008.

UNDP, 2007e, Standard Progress Report, April 2007.

____, 2007f, Standard Progress Report, 1-4 Quarters 2007.

____, 2007g, Mid-Term Evaluation Report (Final Version), Kazakhstan Wind Power Market Development Initiative, November 2007.

___, 2007h, Project Management Responses to Recommendations of the Mid-Term Evaluation Team for the UNDP/GEF Project 'Kazakhstan-Wind Power Market Development Initiative'.

___, 2008b, National Wind Power Development Program: Kazakhstan 2015 in Perspective Until 2030 (Draft).

UNDP-GEF, 2006, Annual Performance Report/and Project Implementation Review, 1 July 2007-30 June 2006.

___, 2007, Annual Performance Report/Project Implementation Review, 1 July 2005-30 June 2007.

___, 2008e, Annual Performance Report/Project Implementation Review, 1 July 2006-30 June 2008.

UNDP-GEF Small Grants Programme

UNDP-GEF SGP, Project Note: Processing of Agricultural Products Using Alternative Sources of Energy (Demonstration of Abilities of the Solar Energy Integrated Use for Water Heating and Drying of Fruits and Vegetables by the Example of the Children's Home in Uralsk).

___, Project Note: The Sun on Service of Countrymen.

___, Project Note: Hot Water from the Hot Sun.

___, Project Note: The Use of Wind Power in Distant Livestock Grazing.

___, Project Note: Use of Alternative Sources of Energy for Water Supply in Mountainous Areas.

___, Project Note: Demonstration of Energy-Saving Abilities through Implementation of Heat Metering, Adjustment of the Automated System of Heat Consumption to Optimal Performance and Carrying out Arrangements for Building Winterizing.

Annex III: List of Individuals Interviewed

1. Abohaichmanova, Ditnara, Association of Apartment Owners Commercial Services Cooperatives, Astana.
2. Aitzhanov, Baurzhan, Chairman, Committee on Electricity Control, Ministry of Energy and Mineral Resources, Astana.
3. Afonin, Vladimir, Director, ALD Consulting, Almaty.
4. Baigarin, Kanat, Consultant, Strategic Elaboration and Analysis Centre, The Administration of the President of the Republic of Kazakhstan.
5. Baykhanova, Rano, Programme Manager, Climate Change and Sustainable Energy, The Regional Environmental Centre for Central Asia, Almaty.
6. Beisenbekova, Sandugash, Analyst, Astana Resident Office, European Bank for Reconstruction and Development, Astana.
7. Bekniyaz, Bolat, Director/Focal Point of UNCCD, Department of Environmental Policy and Sustainable Development, Ministry of Environmental Protection, Astana.
8. Belyi, Alexandr, PR Specialist, Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply Project, UNDP, Astana.
9. Buksukbaev, Yerbulat Anarbekovich, Director, Centre of Energy Efficiency and Cleaner Production, Almaty.
10. Child, Martin, Second Secretary, Regional Energy Policy, British Embassy, Astana.
11. Dalabayev, Oleg, Chief Engineer, Agricultural Energy Projects, Kazhydromat.
12. Doroshin, Gennady, Project Manager, Kazakhstan Wind Power Market Development Initiative, UNDP, Almaty.
13. Goryunova, Irina, Programme Specialist, Climate Change and Sustainable Energy, The Regional Environmental Centre for Central Asia, Almaty.
14. Jiyenbayev, Nurlan, ND & Co., Almaty.
15. Kadyrzhanova, Inkar, Head, Environment and Energy Unit, UNDP, Almaty.
16. Kim, Stanislav, GRD/SGP National Coordinator, UNDP, Almaty.
17. Kochneva, Olga, UNDP, Astana.
18. Koishibayev, Tlepbergen M., Vice General Director, Economic Finance, Astana-Teplotranzit, Astana.
19. Kryukova, Valentina, Project Manager, Project on Enabling Activities for the Preparation of Kazakhstan's Second National Communication to the United Nations Convention on Climate Change
20. Kydyrkhanova, Gaukhar, British Embassy, Astana.

21. Lyubov, Inyutina, Project Manager, Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply Project, UNDP, Astana.
22. Nedera, Steliana, Deputy Resident Representative, UNDP, Astana.
23. Nurgaliev, Syoym, Project Coordinator, Climate Change Coordination Centre, Astana.
24. Panchenko, Natalya, Programme Analyst, Energy & Environment Unit, UNDP, Astana.
25. Sakenov, Saulet, PNA Coordinator, Climate Change Coordination Centre, Astana.
26. Shamsuddinova, Alfia, Association of Apartment Owners Commercial Services Cooperatives, Astana.
27. Shkarupa, Anatoliy, Director, Energy Regulatory Department, Anti-Monopoly Agency, Astana.
28. Urazbayev, Gany, Akimat, Almaty.
29. Vassilyev, Sergey, Energy Efficiency & Energy Saving Project Coordinator, Climate Change Coordination Centre, Astana.
30. Vuola, Saija, Programme Coordinator, Environment and Security Initiative, Central Asia, Energy & Environment Unit, UNDP, Astana.
31. Xu, Haoliang, Resident Representative, UNDP, Astana.
32. Yedilbayeva, Gulsara, Executive Director, KAPUR, Almaty.
33. Zhihtsov, Valeriy, National Consultant for UNDP-GEF on Renewable Energy and Energy Efficiency, Almaty.

**Annex IV: Progress Towards Project Objectives
Kazakhstan Wind Power Market Development Initiative**

Project Objective and Outcomes	Description of Indicator	Baseline Level	Target Level	Level at 30 June 2008
Objective: <i>Removing barriers to the grid connected wind energy production in Kazakhstan</i>	1. Facilitating the construction of the first pilot project(s)	0 MW wind capacity installed	5 MW wind capacity installed	0 MW
	2. CO2 reduction in a period of the pilot wind farm operation	0	CO2 reduction for 20 000 ton per year in a period of the pilot wind farm operation	0
	3. Financing decisions concluded for at least 2 new wind energy projects by the end of the project.	0	Financing decision for 2 new wind energy projects	0
	4. Enabling policy framework in place for on-grid renewable energy	No legal base	The Draft RES Law developed and submitted for governmental approval	The draft RES Law submitted for government approval and is scheduled to be presented to the Parliament in 2008
Outcome 1: National Wind Energy Development Program adopted by Government	5. The map and the report describing the economically feasible sites and a potential for wind energy development in Kazakhstan finalized.	none	The map and the report describing the economically feasible sites and a potential for wind energy development in Kazakhstan prepared.	The map and the report describing the economically feasible sites and a potential for wind energy development in Kazakhstan completed (PIR 2006)

	6. A report analyzing the existing legal and regulatory framework and making recommendations for the changes needed to support investments in wind energy finalized	n/a	A report analyzing the existing legal and regulatory framework and making recommendations for the changes needed to support investments in wind energy is prepared	A report analyzing the existing legal and regulatory framework and making recommendations for the changes needed to support investments in wind energy prepared (PIR 2006).
	7. A report analyzing an describing new and innovative financing mechanisms that could be introduced in Kazakhstan finalized	n/a	A report analyzing an describing new and innovative financing mechanisms that could be introduced in Kazakhstan finalized	A report analyzing and describing new and innovative financing mechanisms that could be introduced in Kazakhstan finalized (PIR 2006)
	8. The “National Wind Energy Program” building on the outputs 2.1, 2.2 and 2.3 adopted by the Government	none	The “National Wind Energy Program” building on the outputs 2.1, 2.2 and 2.3 adopted by the Government	National Wind Energy Program prepared and submitted to the Ministry of Energy and Mineral Sources for adoption.
Outcome 2: Building the local capacity to develop commercially feasible investment proposals and to structure financing for the projects.	9. A detailed wind resource assessment finalized for 6 most promising sites.	none	A detailed wind resource assessment for 6 most promising sites.	A detailed wind resource assessment was finalized for 8 promising sites

	10. Feasibility studies, business plans and investment proposals prepared for at least 4 projects at the level that reflects the requirements of international investors and banking institutions	none	Feasibility studies, business plans and investment proposals prepared for at least 4 projects at the level that reflects the requirements of international investors and banking institutions	Pre-feasibility studies were prepared for 10 wind projects.
	11. Concrete negotiations underway for financing at least 4 new wind energy projects and, as applicable, for manufacturing selected wind turbine components in Kazakhstan.	none	Concrete negotiations underway for financing at least 4 new wind energy projects and, as applicable, for manufacturing selected wind turbine components in Kazakhstan.	Negotiations for new wind projects are under way (Shelek, Astana, Djungar sites), including for 41 MW wind farm near Astana with Research Investment Development Ltd
Outcome 3: Facilitating the construction of the first pilot 5 MW wind farm in order to prepare ground and gain experience for and to reduce the risks of future investments into the wind projects.	12. Contract with the selected investor signed.	none	Contract with the selected investor signed.	Contract between the Ministry of Energy and Mineral Resources (MEMR) and selected investor signed. The letter of intent for power purchase signed between investor and power supply company. Signing PPA is conditional upon adoption of RES Law.

	13. The wind turbines operate according to their specifications	none	The wind turbines operate according to their specifications	none
Outcome 4: Using the results and lessons learnt for further development of the wind energy market in Kazakhstan and elsewhere.	14. Project midterm evaluation completed and the report adopted	none	Project midterm evaluation completed and the report adopted	Project midterm evaluation completed with satisfactory rating
	15. The results disseminated through seminar(s), publications and other outreach activities	none	The results disseminated through seminar(s), publications and other outreach activities	Project results presented at: 10 public forums, conferences, seminars and workshops. There were 29 articles and references published in media about the project during the reporting period. All information is available at project web-site (Kazakh, Russian and English).

**Annex V: Progress Towards Project Objectives
Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply**

<i>Project Objective and Outcomes</i>	<i>Description of Indicator</i>	<i>Baseline Level</i>	<i>Target Level</i>	<i>Level at 30 June 2008</i>
<i>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</i>	Status and level of enforcement of the proposed legal and regulatory changes	Non-supportive legal and regulatory framework for EE	<i>Adoption and enforcement of the proposed legal and regulatory changes by the end of the project</i>	Adoption and enforcement of the proposed legal and regulatory changes were not obtained so far but will be further developed before the 2009 PIR Comment: Draft law on “Energy Saving” is developed and is under discussion in the framework of Working Group at the Ministry of Energy and Mineral Resources (MEMR) and is expected to be presented to the Parliament for first discussion at the end of 2008.

	<p>The status of the supported institutional and financing models for EE and associated GHG reduction impact</p>	<p>Absence of sustainable institutional and financial models for EE investments</p>	<p>Successful completion and continuation of the financially sustainable operation of the pilot activities in Astana and Almaty at the end of the project with annual reduction of greenhouse gas emissions at least by 30,000 tons of CO2 per year</p>	<p>Three institutional and financial models identified and agreement reached with stakeholders to pilot by the project: a model EE Program for Astana, ESCO model for Almaty and AAOs (both for Astana and Almaty).</p> <p>Comment:</p> <p>Two buildings in Astana and ten buildings in Almaty were identified to pilot projects by testing with energy audit. Baseline scenarios of heat sector for Almaty and Astana were developed for the period of up to 2020. The potential of GHG emissions reduction up to 2010 has been estimated as 9% including for Astana as 72,000 tons of CO2, and for Almaty 180,000 tons of CO2 accordingly.</p>
	<p>Agreements on the implementation of EE investments in pilot cities and other cities districts</p>	<p>Inadequate investments in energy efficiency</p>	<p>New projects/programmes initiated and financing leveraged for them at the amount of at least USD 10 million by the end of the project</p>	<p>Preparation of agreements with other cities of Kazakhstan has been initiated (Karaganda, Almaty oblast, Kostanay)</p>

<p>Outcome 1: <u>“Legal and regulatory changes”</u>: A <i>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.</i></p>	<p>Number and status of regulatory changes and incentives for improvement of energy efficiency</p>	<p>Lack of incentives and/or prohibitive regulations for municipalities to invest/re-invest in EE; AAOs and residents to implement EE measures; government to revise DH tariffs.</p>	<p>The proposed legal and regulatory changes formally adopted and effectively enforced by the end of the project creating sufficient incentives for various stakeholders (municipalities, AAOs, residents) to implement EE measures</p>	<p>Three regulatory documents are in the focus of project activity to be changed in order to improve energy efficiency: “Law on Energy Saving”, “Rules on Heat Energy Supply” and “Law on Housing Relations”:</p> <ul style="list-style-type: none"> • The draft law “On Energy Saving” including concept on this law prepared and submitted to MEMR for consideration and approval • Draft rules on heat energy supply developed, agreed with the Association of Heat Companies and submitted to MEMR for approval. • Development of incentives to be included into new law on Housing relations initiated. • The new methodology on “Calculation of specific norms of heat flow for small heat boilers” has been developed, presented at Steering Committee meeting and got approval of several stakeholders and waits approval by the Antimonopoly Committee.
<p>Outcome 2: <i>New institutional and financing models</i> introduced for leveraging financing for EE investments and enhanced capacity of the local stakeholders to support their further implementation and replication</p>	<p>Number, type and status of new institutional and financing models for EE Leveraged financing for EE projects from public, private and individual sources GHG emission reduction from implementation of demonstration projects</p>	<p>Lack of sustainable and functioning financing and institutional models for EE investment</p>	<p>Almaty ESCO established, staff recruited and trained, capitalized (1,5 mln \$ in total) and at least 3 EPC signed</p>	<p>ESCO is not established yet and the progress will be reported in 2009 PIR:</p> <ul style="list-style-type: none"> • Establishment documents for Almaty ESCO developed, including draft MOU between UNDP and Akimat; • proposal on legal structure, business plan, Energy Performance Contract (EPC) developed and is under discussion with potential shareholders (Departments of Almaty Akimat, Government Enterprise “Energoberezhnie”, JSC “Dasy”, other Heat supply companies) • Timeframe for ESCO establishment finalized (end of 2008) and full operationalization expected by November 2009.

			<p>Astana Municipal EE Programme developed by end of 2008 and implemented by 2014, institution established/strengthened for its implementation and monitoring</p>	<p>Astana Municipal EE Program developed and submitted to Astana Akimat for approval:</p> <ul style="list-style-type: none"> • Draft Astana Municipal EE Programme including preliminary cost estimation developed and submitted to Akimat as the basis for further update. • Two schools as potential pilots in Astana selected. • Concept on Revolving fund as part of Astana EE Program developed and submitted to Akimat for approval • Draft Concept on social support of vulnerable people developed and being in discussing with stakeholders (AAOs, Ministry of Industry and Trade).
			<p>AAOs –at least 4 fully operational with trained staff, action-plans and financing</p>	<ul style="list-style-type: none"> • One AAO in Almaty is with transparent action plans and financing, but with staff not fully trained to implement energy efficiency activities • 10 AAOs in Almaty and 24 AAOs in Astana involved into training, 10 AAOs confirmed their intentions to participate in pilot projects in Almaty. • 3 houses were scanned as potential pilots in Astana.
			<p>Leveraged financing: Public – 1 mln \$ Private – 200,000\$ Tenants - 10,000\$</p>	<ul style="list-style-type: none"> • Public –\$1 mln is earmarked by Almaty Akimat, \$0,08mln. earmarked by Astana Akimat in 2008; • Private – 0; • Tenants - 0, negotiations ongoing.

			Cumulative GHG mitigation impact from demonstration projects: 30,000 tCO2/year	Cumulative GHG mitigation impact from demonstration projects for both pilot territories is not specified and will be reported in the 2009 PIR.
Outcome 3: <i>Compilation, analysis and dissemination of the project experiences and lessons learnt and initiation of their effective replication in Kazakhstan and other CIS countries/municipalities with comparable situation.</i>	<p>The number of agreements signed for the implementation of new EE investments in other cities/ city districts by building on the institutional and financing models introduced in the project:</p> <p>The amount of financing leveraged to expand and/or continue project activities by the end of the project</p>	Lack of experience, information, institutional and financing models for implementation of EE measures for heat and hot water supply	At least 2 new municipal EE programmes initiated, 4 AAOs established and 3 new EPCs with ESCO signed for implementing EE investments in other cities or city districts leveraging at the amount of at least USD 10 million	Initial consultation held with representatives of three cities to initiate new municipal EE programmes. Though the total exact value is not specified yet, but leveraging not less than USD 10 million will be provided.