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United Nations Development Programme
Country: Kazakhstan
PROJECT DOCUMENT

Project Title: Nationally Appropriate Mitigation Actions for Low-carbon Urban Development

UNDAF Outcome(s): Environmental Sustainability. By 2015, communities, national and local authorities use more effective mechanisms and partnerships that promote environmental sustainability and enable them to prepare, respond and recover from natural and man-made disasters.

UNDP Strategic Plan Primary Outcome:

Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded

Output 1.4. Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented

Expected CP Outcome(s): The Government, industries and civil society take steps to adapt to climate change and mitigate its impact through energy efficiency measures and climate change adaptation policies.

Expected CPAP Output (s): Government and energy consumers are better equipped with knowledge, policies and pilot cases on energy efficiency in sectors with high carbon dioxide emission levels.

Executing Entity/Implementing Partner: Ministry of Investments and Development of the Republic of Kazakhstan

Implementing Entity/Responsible Partners: Ministry of National Economy, Ministry of Energy, City Municipal Administrations (Akimats)

Brief Description

The Project supports the identification, design, and implementation of Nationally Appropriate Mitigation Actions (NAMAs) in the urban sector. NAMAs, consisting of investments in infrastructure supported by capacity building, awareness raising and technical assistance, will contribute to achieving the country's GHG emission reduction voluntary target while improving urban services and the quality of life of citizens in Kazakh towns and cities. The project is the first effort in Kazakhstan to adopt a comprehensive approach to reduce GHG emissions in cities.

The Project will Improve the capacity of municipalities to carry out integrated municipal planning, make targets and prioritize urban mitigation actions (Component 1), support the creation and strengthening of institutional structures that will allow public and private sector investments in identified infrastructure and technical assistance (Component 2), provide facilitation of financing of urban NAMA through creation of a dedicated fund (Component 3), piloting of an urban NAMA in the Prigorodnyi district of Astana through investments in modernization and upgrading of the urban infrastructure (Component 4).

Linking the project with the national GHG mitigation efforts, including through standards, rules and procedures for monitoring, reporting and verification (MRV), promoting better information dissemination to stakeholders, and linking the NAMA process with the domestic Emission Trading Scheme (ETS) for industrial emitters. As a result of this project direct emission reductions of 370,000 tCO_{2e}, direct post project emissions of 275,000 tCO_{2e} and indirect emission reductions of between 1 and 5 million tCO_{2e} are expected

Programme Period:	2010-2015
Atlas Award ID:	00082364
Project ID:	00091328
PIMS #:	4670
Start date:	March 2015
End Date	December 2019
Management Arrangements:	NIM
PAC Meeting Date:	6.01.2015

Total resources required:	71,319,094 USD
Total allocated resources:	71,319,094 USD
- Regular	
o GEF	5,930,000 USD
o UNDP	60,000 USD
Other:	
Donor:	
o GEF	5,930,000 USD
- In-kind contributions:	
o Other	33,435,659 USD
o UNDP	1,000,000 USD
o Government	30,893,435 USD

Agreed by (Ministry of Investments and Development of the Republic of Kazakhstan):

Vice Minister – Albert Rau _____ Date/Month/Year

Agreed by (UNDP):

Deputy Resident Representative – Munkhtuya Altangerel _____ Date/Month/Year

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ACRONYMS

AAO	Association of Apartment Owners
ACHCA	National Agency for Construction and Housing and Communal Affairs
ANMR	Agency on Regulation of Natural Monopolies
APR	Annual Project Report
BMC	Building Management Company (a type of (public)-private MMC focused on building management)
CAST	City of Almaty Sustainable Transport (project)
CEO	(GEF) Chief Executive Officer
CIS	Commonwealth of Independent States
CHP	Combined Heat and Power
CO	UNDP Country Office
CO_2	Carbon dioxide
CP	Country Programme
CPAP	Country Programme Action Plan
CTA	Chief Technical Adviser
DH	District Heating
EADB	Eurasian Development Bank
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EPC	Energy Performance Contract
ESCO	Energy Service Company
ETS	Emission trading Scheme
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
HOB	Heat Only Boiler
HQ	UNDP Headquarters
IEA	International Energy Agency
IR	Inception Report
IW	Inception Workshop
JSC	Joint Stock Company
MDG	UN Millennium Development Goals
M&E	Monitoring and Evaluation
MOG	Ministry of Oil and Gas
MINT	Ministry of Industries and New Technologies
MEMR	Ministry of Energy and Mineral Resources
MEWR	Ministry of Environment and Water Resources
MMC	Municipal Management companies
NAMA	National Appropriate Mitigation Actions
NMT	Non-motorized transport
NPFE	National Portfolio Formulation Exercise
NPM	National Program for Modernization
OFP	Operational focal point
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
PPP	public-private partnerships
PB	Project Board
QPR	Quarterly Progress Report
RCU	UNDP Regional Co-ordination Unit
RES	Renewable energy sources

SER	State Energy Register
SRF	Strategic Results Framework
TPR	Tripartite Review
TTR	Terminal Tripartite Review
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change

1 SITUATION ANALYSIS

1.1 Context of the Project

1. This UNDP Project Document for the proposed UNDP-GEF (Global Environment Facility) project #5059 (Internal UNDP ID #4670) entitled "*Nationally Appropriate Mitigation Actions for Low-carbon Urban Development*" ("the Project" hereafter) outlines the first effort in Kazakhstan to adopt a comprehensive approach to reduce urban GHG emissions and to use the framework of Nationally Appropriate Mitigation Actions (NAMAs) for this purpose.

2. NAMAs are becoming an increasingly attractive vehicle for developing countries looking to attract climate finance for low-carbon development activities. The concept of NAMAs was first mentioned in the international climate change negotiation process during COP13 in 2007 in Bali, which resulted in the adoption by the Parties of the Bali Action Plan. The Bali Action Plan states that in order to have "Enhanced national/international action on mitigation of climate change..." developing countries will take **"Nationally appropriate mitigation actions...in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner"**[1]. While an internationally accepted definition of NAMA does not exist, a broad diversity of NAMAs is expected to emerge given that each country will identify and implement nationally appropriate mitigation actions based on its specific national circumstances and capabilities.

3. However, COPs 15 to 18 have progressively clarified the new mitigation framework for developing countries, including the setting up of Green Climate Fund (GCF) as an operating entity of the Financial Mechanism of the Convention,[2] and a distinction has been made between three broad categories of NAMAs:

   i. *Supported NAMAs* – referring to actions that require support (technology, capacity building, and financing) from developed countries in order to proceed with implementation;

   ii. *Unilateral NAMAs* – actions that developing countries take without the support of developed countries; and

   iii. *Credited NAMAs* – actions achieving quantifiable emissions reductions that can be traded and funded through the international carbon market.

4. There is a strong increase in countries using NAMAs as building blocks in a broader national climate policy framework, taking climate and development strategies and action plans as the starting point for the prioritisation and selection of NAMAs.

5. In Kazakhstan, urban NAMAs appear to be an appropriate municipal institutional and financial framework to enable cities to set-up, reach and monitor their citywide

[1] UNFCCC, 2007. Decision 1/CP.13, Page 3, "Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007,Addendum, Part Two: Action taken by the Conference of the Parties at its thirteenth session", FCCC/CP/2007/6/Add.1.

[2] UNFCCC, 2010. Decision 1/CP.16, Page 2, "Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010, Addendum, Part Two: Action taken by the Conference of the Parties at its sixteenth session", FCCC/CP/2010/7/Add.1.

emission reduction targets. While the definition of NAMAs is still under discussion, an urban NAMA in the context of this project is:

- A project or programme in one or more of the urban sectors given in the table below
- Taking place in one town or city, or a group of towns or cities
- With identified investments in improved urban infrastructure
- Resulting in the mitigation of GHG emissions and bringing local sustainable development benefits
- Usually accompanied by enabling activities (policies, awareness, capacity building / training, financing mechanisms)
- To be financed by public / private sources
- With monitoring, reporting and verification requirements covering carbon reductions as well as sustainable development impacts. MRV requirements will depend on the type of NAMA funding sourced.

The sectoral scope of eligible urban NAMAs is defined in the Table below, and will exclude any installation or GHG emitters with emissions over 20,000 tCO2e/year which are already covered under domestic ETS.

Table 1 Urban sectors and interventions for urban NAMAs[3]

Urban sector and sub-sector	Potential urban mitigation measures
Energy Sector:	
- Buildings/facilities	- Thermal modernization and energy efficient retrofits of residential, commercial and public buildings; - Construction of new energy efficient buildings; - Upgrade of electric equipment/appliances (HVAC, water pumps etc.) - Upgrade of outdoor lighting systems, including smart lighting technologies;
- Energy production	- Renewable energy (electricity, heat) generation (both distributed and utility-scale); - Modernization, upgrade and construction of new heat supply systems and distribution networks; - Reducing carbon intensity of conventional energy generation (fuel switching, combustion efficiency improvements)
- Industry	- Improving the efficiency of electric motors, application of variable speed drives; - Renewable energy generation for own use;
Transport Sector	- Promotion and improvement of public transport; - Promotion of walking and cycling; - Improving the fuel efficiency and carbon intensity of urban transport; - Travel demand management, including parking regulation, road tolls, congestion charges etc.

[3] The proposed classification of urban NAMAs builds on the relevant guidance, including Global Protocol for Community Scale Greenhouse Gas Emission (ICLEI, WRI, 2012), Guidebook - How to develop sustainable energy action plan, Covenant of Mayors (EU, 2010)

Waste Sector	- Waste reduction, including prevention and minimization; - Waste collection, including segregation and transportation; - Waste treatment, including improvements in waste recycling and reuse, wastewater management and landfilling practices
Land-use Sector	- Promotion of "compact city" and eco-district developments; - Facilitation of urban agriculture, increasing green space

1.2 Rationale for the Project

1. The Government of Kazakhstan is requesting support for the definition, design, and implementation of NAMAs in the urban sector with the objective of achieving the country's voluntary GHG emission reduction target. While the Kazakh Government is negotiating Kyoto Protocol Annex B inscription, the country took the voluntary quantitative commitments to reduce GHG emissions by year 2020 by 15% over a 1992 baseline. Kazakhstan's III-VI National Communication to the UNFCCC (2013) identifies the 'urban sector' consisting of district heating, buildings, waste and transport as the third priority area for national climate change mitigation (after the power generation and industry sectors) with a potential to reduce annual GHG emissions by 25MtCO2 by year 2030. This is almost 30% of the cumulative GHG abatement potential for Kazakhstan. Urban GHG emission reductions are prioritized in this proposal because it is the sector where the reduction of GHG emissions will directly result in tangible socio-economic and local environmental benefits.

2. The Project reflects Government priorities to promote sustainable development and the commitment to mitigate GHG emissions under the UNFCCC. In 1995 Kazakhstan ratified the UNFCCC as a non-Annex I party, and in 1999 committed to join industrialized nations in their effort to limit GHG emissions and accept a binding and quantified emission limitation of 100% over a 1992 baseline. Further, in 2010 Kazakhstan announced and communicated to the Parties its additional voluntary commitments to reduce GHG emissions by 15% by 2020 below 1990 emissions and by 25% by 2050. The proposed Project is also fully aligned with the national priorities to strengthen economic and energy independence of Kazakhstan by promoting resource efficiency and climate resilient growth.

3. The Project is fully consistent with the GEF-5 Climate Change Focal Area Strategy which envisages that in large, medium-income developing countries, such as Kazakhstan, the GEF will support programs and projects that will bring *significant GHG reductions*, such as market transformation in the building, industry and transport sectors. Specifically, the Project will contribute to the achievement of the GEF CC *Objective 6 "Support Enabling Activities under the Convention"* and *Objective 4 "Promote energy efficient, low-carbon transport and urban systems"* by building human and institutional capacities, and supporting design and implementation of NAMAs in the urban sector. Kazakhstan has completed its National Portfolio Formulation Exercise (NPFE) and communicated its priorities to the

GEF Secretariat in 2011 (please refer to the letter from Kazakhstan OFP to GEF Secretariat dated June 2011). The Project was identified and included in the list of priorities under the title "Sustainable Cities Program" based on unanimous agreement of all concerned national parties and GEF Agencies consulted during the NPFE.

4. UNDP is one of the leading agencies of the GEF to implement enabling activities and capacity development activities related to climate change mitigation in Kazakhstan. For example, UNDP has supported the country in developing its First and Second National Communication to the UNFCCC and is currently supporting MEWR for the preparation of Kazakhstan's Third National Communication (for other baseline UNDP activities, see Section 1.3). The proposed Project is aligned with the following UNDAF and CPAP outcomes and outputs:

- **UNDAF Outcome for 2010-2015:** Environmental Sustainability. By 2015, communities, national and local authorities use more effective mechanisms and partnerships that promote environmental sustainability and enable them to prepare, respond and recover from natural and man-made disasters.
- **CPAP Outcome:** The Government, industries and civil society take steps to adapt to climate change and mitigate its impact through energy efficiency measures and climate change adaptation policies.
- **CPAP Output**: Government and energy consumers are better equipped with knowledge, policies and pilot cases on energy efficiency in sectors with high carbon dioxide emission levels.

1.3 Baseline scenario

GHG emissions in the urban sector

5. Kazakhstan is by far the largest GHG emitter in Central Asia with annual emissions of 284 Mt CO_{2e} in 2012 and has one of the world's highest GHG emissions per capita (16.9 tCO_2)[4]. The energy intensity of the country's economy in 2010 – 0.68 toe per 1000 dollar of GDP – was almost six times that of Western Europe (0.11), almost triple that of the US (0.24). While Kazakhstan has substantial potential for energy and other resource efficiency improvements, GHG emissions across the sectors have been steadily rising since the early 2000s, when the emissions bottomed out at around 146 Mt CO_{2e}, or 41% of the 1990 peak level of 358 Mt CO2e. The main reasons for this high level of intensity are the use of outdated technologies and lack of strong incentives for energy conservation.

6. Urban settlements have a disproportionately larger impact on the country's GHG emissions than rural populations because of their higher consumption level, and more GHG-intensive lifestyle and infrastructure. With average per-capita emissions of around 12 tCO_{2e}/year, Kazakh urban settlements are placed among the most GHG-intensive municipalities in the world: e.g. 29.8 tCO_2/capita in Rotterdam, Netherlands, 17.7 tCO_2/capita in Calgary, Canada; compared with 7 tCO_2/capita in

[4] Kazakhstan National Inventory Report to UNFCCC, 2014

Prague, Czech Republic, 4.89 tCO_2/capita in Tokyo, Japan[5]. Urban emission patterns are particularly influenced by the following key trends:

- **Rapid urbanization**: Roughly half of Kazakhstan's population is clustered in Almaty, Astana and a small number of other cities[6]. As Kazakhstanis increasingly migrate from villages and smaller towns to the largest cities in search of higher incomes, better employment prospects and modern lifestyles, it is estimated that by 2030 up to 66% of the population will be urban. Therefore, while Kazakhstan is vast – the world's largest landlocked country, with an area of 2.71 million km^2 and a sparsely distributed population of approximately 16 million – the country is becoming increasingly urbanised, with growth rates in Astana and Shymkent exceeding 35% between 2004 and 2009.

- **Infrastructural decay:** The challenges that most Kazakh cities increasingly face relate to decaying urban infrastructure and deteriorated communal housing, which are closely related to urban poverty. Over 70% of multifamily apartment buildings have very low thermal performance (especially buildings constructed in 1950 to 1980s): thermal losses account for up to 50% of heat consumption. Urban engineering systems, power, heat, water supply and sanitation are in an equally alarming state: depreciation of communal infrastructure is between 60-65% leading to high losses and inefficiencies. Technical losses are estimated to be 16% in power distribution, 20% in heat supply, and up to 60% in water supply[7].

Box 1: Feasibility study report on the municipal heat supply in Kostanay city, Kazakhstan

In December 2012, UNDP contracted Ramboll Denmark to conduct a feasibility study of a district heating system in Kostanay that consists of a stock of aging, obsolete and inefficient assets; a result of underinvestment over the last 30-40 years. The district heating utility, Kostanay Heat Energy Company (KTEK), is a state communal enterprise that manages the DH infrastructure of Kostanay city. As in other parts of Kazakhstan, heat tariffs do not fully cover the costs of the district heating services. The gap is partly covered by subsidies from the Government.

To address these challenges, Ramboll has developed a plan for the technical and economic rehabilitation of KTEK. The proposed plan aims to result in economic self-sustainability of KTEK by selected technical improvements on the supply side without increasing tariffs. In particular, an investment of around 14 billion KZT (USD 90 million) will result in around 20% reduction of the total heat production costs, which are sufficient to reach financial self-sustainability of KTEK. The proposed technical improvements include: a new combined cycle CHP plant, modern high-efficiency burners for boilers combined with flue gas analysers and modern automated systems of monitoring and remote control.

The study assumes that the need for space heating in the heating season will be reduced due to the installation of heat meters and individual control equipment in buildings, and because building owners will have more focus on improving the building envelope. As a result, the space heating demand is expected to be reduced by around 25 % by 2020.

7. In the baseline scenario, urban GHG emissions will continue growing and will account for 215 $MtCO_{2e}$ or over 43% of the country carbon footprint by 2030, while per capita urban emissions will grow to over 17 tCO_{2e}/year. This trend is best illustrated via the dynamics of GHG emissions from the municipal waste sector: it is the only sector in the national GHG inventory that did not experience the decline in emissions throughout 1990s, and has grown nearly two fold between 1992 and 2005. Further,

[5] Representative GHG Baselines for Cities and their Respective Countries, World Bank 2011

[6] 2013 Centennial Group NAC KAZ 2050 report [207]

[7] Specifically, ensuring maintenance and communal services for multifamily housing remain a key priority for all cities. Multifamily apartment blocks account for 157.2 mln m2 or 60% of the housing stock; one of three or 50 mln m2 is in need of capital renovation, while 3.8 mln m2 is in emergency state and has to be demolished.

the power and heat sector has demonstrated the largest increase in absolute terms over 2000-2012 (33MtCO_{2e}, or 158%), while the road transport the largest increase in relative terms over the same period (13MtCO_{2e}, or 311%). (see figure 1 for illustration of the above GHG trends). Urban building heating offers a notable low-hanging fruit. Heat is supplied to apartment buildings during Kazakhstan's winters through, in many cases, obsolete Soviet-era district heating systems. These lack building level substations to manage and monitor heat exchange with individual buildings and to allow for consumption-based pricing even at a building level. Upgrades of similar systems in Eastern Europe and Russia have reduced final heat demand by 25 to 40 percent, and indications from studies and practical projects implemented with UNDP-GEF support in Kazakhstan promise similar savings (see Box 1)[8].

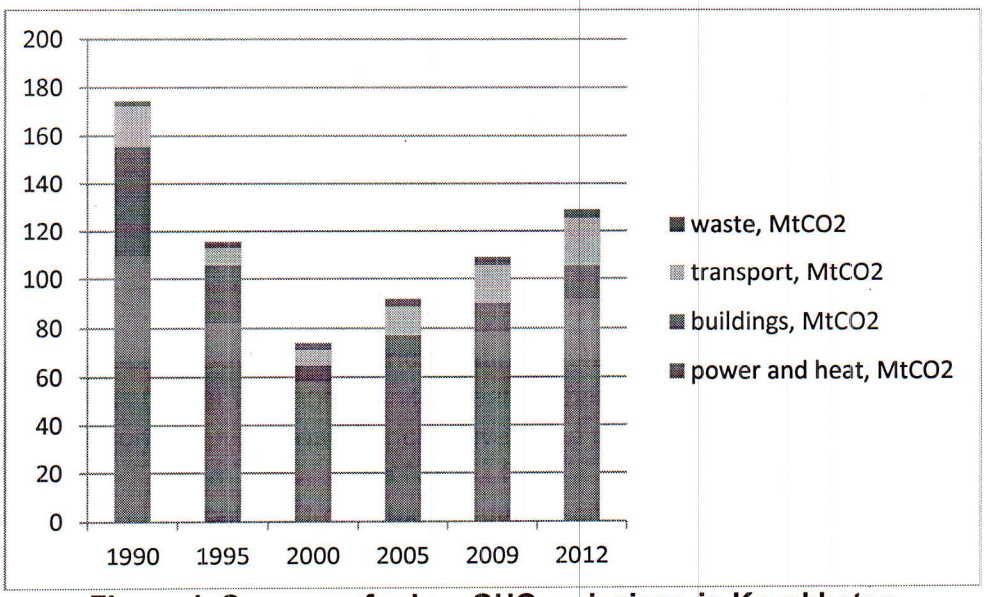

Figure 1. Sources of urban GHG emissions in Kazakhstan

Legislation on Low-Carbon Urban Development

8. In recent years, the Government of Kazakhstan has put increasing attention on energy and resources saving and climate change mitigation across all economic sectors. The most relevant national policies with a particular emphasis on urban sector are summarized below.

- The **Law on Energy Saving and Energy Efficiency**, which came into force in June **2012** includes provisions for funding energy saving measures from the state budgets of all levels and establishing the State Energy Register, mandatory energy audit of the companies consuming more than 1,500 toe per year, and the introduction of the responsibility for complying with the Law. The Law requires the adoption of at least 22 identified subordinate regulatory acts that establishes the requirements of energy efficiency for buildings, vehicles, electric motors, energy saving accreditation, energy audits, and energy efficiency expertise. The Law on Energy Saving and Energy Efficiency also includes the establishment of the State Energy Register (Article 9 of the Law) that serves as the principal mechanism for ensuring the delivery of Government ambitions through monitoring the energy use of energy consuming

[8] 2013 Centennial Group NAC KAZ 2050 report [208]

entities including government agencies, major industrial enterprises and other large consumers. The procedure for the creation and maintenance of the SER is stipulated by the Rules for creation and maintenance of the State Energy Register approved by governmental decree #143 dd 18 February 2013. The SER includes:

1. Name, address and main type of activity of an entity of SER
2. Total volume of extraction, generation, use, transportation and losses of energy resources and water and its monetary equivalent during one calendar year;
3. Energy saving and EE Plan developed by the entity of SER following the energy audit as well as any amendments to the Plan;
4. Achieved results of the Energy saving and EE Plan developed by the entity of SER following the energy audit during the reporting period;
5. Actual energy use per unit of production and/or use of energy resources for heating per unit of area of buildings/facilities;
6. A copy of energy audit;
7. A note on the coverage by automated metering devices of energy use

Combined Heat and Power systems and large boilers located in cities are also covered by the registry in addition to industrial enterprises and plants such as metallurgical, chemical, cement. Small boilers, if they are part of a larger city network that exceeds the 1,500 toe per year threshold - even if they are not connected to the city's central network – are also subject to monitoring and reporting under SER and are regarded as part of the city's heat supply network. This is true for all cities and towns. The SER covers urban level power and heat generating facilities, which partially overlaps with the project's scope. Urban transport, waste management and water sectors are not subject to SER. In addition to major industries, SER includes public entities like government buildings, schools, hospitals, etc. for the purpose of energy audits and energy saving plans. As of December 2013, the SER included 11,802 entities. Based on the data of the SER, the authorized body (the Ministry of Industry and Trade) provides an analysis and forecast of energy intensity of the Gross Domestic Product and efficiency of energy use in the Republic of Kazakhstan.

Bylaws under the Law on Energy Saving mandate municipalities to develop energy saving plans as part of city-level development plans[9], and, under this Law a Governmental Decree was adopted on 15 August 2012, which establishes the mechanism for evaluating the activities of the local authorities in the field of energy efficiency and savings. The local authorities are obliged under this law to submit an annual report for 8 determined criteria (i.e. policies in the field of energy efficiency, amount of energy meters purchased and installed, energy audits for public buildings, thermal modernisation of buildings, modernisation of street lighting, etc.).

- **Law on Renewable Energy Sources (RES Law):** Adopted in 2009, the RES Law is another important element of the national climate change mitigation policy in

[9] The Law puts a special emphasis on promoting energy efficiency in the urban environment. It mandates city authorities to incorporate energy efficiency measures in the urban development plans, as well as to undertake regular energy audits and ensure implementation of energy saving measures in all municipally-owned and operated buildings and facilities. The Law also authorizes city managers to monitor municipal energy consumption and its compliance with established norms and standards. It also mandates introduction of energy management system in enterprises and facilities with annual energy use in access of 1,500 toe, such as the district heating plants.

Kazakhstan. The Law has a number of provisions specifically aimed at promoting the use of RES in cities, and their integration in urban development plans and strategies. First, the Law requires that urban development plans take into consideration the use of RES resources for power and heat supply and specifically calls for the development of programs aimed at RES-based electrification of remote urban settlements where centralized grid supply is not economically feasible. Also, according to the Law, local authorities are responsible for approval of the construction of RES plants with overall capacity below 25MW and RES-based district heating facilities.

- Concerning transport infrastructure and management, **the Law on Transport dd 21 September 1994 № 156-XIII (with changes and amendments as of 12 January 2012)**, sets forth the legal, economic and institutional framework that covers all types of transport including urban transport. In particular, the law determines responsibilities of city and oblast akimats in regard to public transport, rules and conditions for transport service provision, responsibilities of transport companies, transport safety requirements, tariff policies, rights of passengers, state regulation and transport oversight. Also, relevant transport regulations include the Law on road traffic safety №29 (dd 15 July 1996) and the Law on automobile transport № 476-I (dd 04 July 2013 with changes and amendments as of 15 July 2011).
- Concerning solid waste management, the **Environmental Code of the Republic of Kazakhstan dd 09 Jan 2007 № 212-III (with changes and amendments as of 11 April 2014)**, sets out Institutional aspects of municipal solid waste management (Chapter 41, article 292), in particular describing responsibilities of local governments, and the responsibilities and rights of waste producers (article 283). The Code, together with the Law on Self-Governance determine umbrella competences. The Minicipalities (Akimats), for example, are empowered to enact legislation (regulations) and are obliged to monitor the companies providing waste collection services, although it has no contractual relationships with any of the waste collection companies. Municipal administrations bear the overall responsibility for organising the waste management services, under the control of regulatory institutions. The Natural Resource and Ecology Administration is the focal point for waste management, being often the owner of the public waste collection companies and the landfill sites (like in Astana where Astana Akimat is the owner of Gorkommunkhoz). Akimats are actively involved in the planning and strategic decisions concerning landfill operations and waste collection services provided by public companies.

National programs on Low-Carbon Urban Development

9. A number of relevant national programs contribute to the project baseline. These include:

- **The Energy Saving Program-2020 (Program 2020)** which aims to mobilize US$ 6,570 million for energy savings consisting of US$ 0.8 million from the Republican Budget, US$ 27 million from local budgets and US$ 6,500 million from private sources. The program aims at reducing energy intensity of the Gross Domestic Product in the Republic of Kazakhstan and increasing energy efficiency through the reduced energy use and inefficient use of fuel and energy resources. Specifically concerning sustainable urban development, the Program 2020 targets (i) large-scale

public awareness on energy efficiency issues, (ii) development and use of economic and non-economic mechanisms to motivate energy saving and energy efficiency, (iii) development of mechanisms for ESCO operation in the country; (iv) personnel training on energy saving and energy efficiency; (v) reduced energy use by the transport sector; (vi) reduced per unit costs for generation of 1 kWh, 1 Gcal of heat and heat use per 1 m2 in the housing sector. The Program-2020 aims to reduce average energy consumption per 1 m2 by 30% and losses in the district heating network by 3.6%. In construction, it plans to ensure 100% of energy efficient construction starting 2015. In the transport sector, the Program has an indicator of reduced fuel use by 30%. In the public sector, the Program sets a target of reduced energy use by 25%. Efficiency in lighting is to be achieved through (i) reduced utility costs for electricity by 60%[10] and (ii) 100% use of energy saving lamps. Also, the Program envisages the creation of 20 training centers for continuing education in energy conservation and efficiency.

A. On the **energy efficient housing and utility sector**, the Program focuses on the successful completion of thermal upgrade of residential buildings and rehabilitation of the engineering infrastructure. For this particular matter, the National Modernization Fund will be used as a financial mechanism for loans and leasing. The Fund will provide reimbursable loans and redemption leasing to utilities and the utility sector in general; attract private investments; assist with financial recovery of unprofitable enterprises and conduct a financial monitoring of investment projects.

B. On **energy efficient construction**, the Program aims at making construction standards more stringent and introducing measures on green construction. Such measures include the revision of norms for energy use for newly constructed buildings, an inventory of energy efficient construction materials, goods and equipment to be used during the design of projects for construction of buildings and engineering infrastructure, promotion of class A and B buildings.

C. Among measures in achieving **energy efficiency in the transport sector**, the Program calls for (i) including elements of energy efficient transport infrastructure development into Regional Development Programs and (ii) developing financial incentives for consumers to buy fuel-efficient cars.

D. In the **public sector**, the key focus is to create favorable conditions for ESCO creation and operations. Also, the Program lists a number of mandatory activities that should be implemented by municipalities to achieve energy efficiency in the public sector: (i) phase-in energy audits of public buildings; (ii) development and implementation of standard (off-the-shelf) energy saving measures for public organizations; (iii) development of norms for heat and electric energy use for public institutions by types of construction and use of buildings. Public institutions can access financial resources of the National Modernization Fund and use this revolving mechanism to finance energy saving measures.

E. On **efficient lighting**, the Law on Energy Saving and Energy Efficiency introduces a phase-in ban on the use of incandescent lamps. Given favourable price changes

[10] Although the logic is commonly stated the other way round (i.e. cost savings are achieved through efficiency), this is the way it is stated in the Program. It appears to be assumed that energy saving measures will reduce costs.

for LED lamps and pertaining problems related to disposal of mercury containing lamps, the Program-2020 proposes to replace incandescent lamps with LED lamps. More specific measures include the following: (i) upgrade of indoor lighting in public buildings, (ii) upgrade of street lighting in towns and settlements; (iii) proposals for energy efficient labeling for lighting products; (iv) demonstration projects on energy efficient lighting; (v) proposals for amending standards (SNiPs) for lighting; (vi) proposal for setting limits on production and sale of mercury containing lamps; (vii) upgrade of electric lighting and power supply systems in multi-apartment buildings; (viii) utilization of mercury containing lamps.

As part of the Program's implementation, the Kazakhstan association of energy audits has been created and now includes 13 organizations and 6 training centers for continuing education in energy auditing and/or assessment of realized energy saving and improved energy efficiency, and creation and operationalization of an energy management system. Related, the Committee of Technical Regulation and Metrology of the Ministry of Industries and New Technologies of RK adopted a standard ISO 50001-2012 "Energy management systems. Requirements and application guideline" and developed a methodology for energy audits in buildings.

- **The Comprehensive Energy Saving Plan for 2012-2015** was developed by the Ministry of Industry and New Technologies (MINT) as a working mechanism for implementation of the Energy Saving Program-2020. The Comprehensive Energy Saving Plan consists of 47 measures, including 25 inter-sectoral measures, 5 pilot projects, and 24 measures in the spheres of industry, electricity and heat generation, and housing and utility services. In particular, the Plan includes development of EE and thermal modernization indicators for major repair works in public buildings; design of a financing mechanism for EE projects and incentives for attracting private investments for installation of automated systems of heat supply and regulation and thermal repairs in multi-apartment buildings; creation of a position of an energy manager in Oblast Akimats and Akimats of Almaty and Astana.

  As part of the Comprehensive Energy Saving Plan, MINT developed a methodology for development of comprehensive energy saving plans and sent it out to akimats in the regions for follow up. To date, 16 regional and 5 sectoral energy saving plans have been developed and are being implemented. Also, 11 training centers have been opened and over 1,000 experts have been trained and a Kazakhstan-German energy efficiency centre is now operational.

- The **Ministry of Regional Development** currently oversees implementation of five government programmes: Affordable Housing 2020, Programme on Modernization of Housing and Utility Sector for 2011-2020, Ak Bulak Programme 2011-2020 (Drinking water program for rural settlements), Regional Development Programme till 2020, Programme of Monotowns (single-industry cities) Development 2012-2020. These programmes have been compiled into a single comprehensive programme of regional development that includes all the above as components. Economic development and self-sufficiency of regions is of primary focus for the government. In the first phase, the government will focus on development of an agglomerate of four cities - Astana, Almaty, Shymkent and Aktobe. The subsequent phases of the joint program will focus on economic development of 14 oblast centres, monotowns and small towns, and rural areas.

- To address the challenges with urban infrastructure described above, the Government of Kazakhstan has adopted a **National Program for Modernization (NPM)** for Residential and Communal Sector for 2011-2020[11]. Program goals are to (a) decrease the share of buildings in need of capital renovation from current 32% down to 22% by 2015; and (b) upgrade/refurbish 24,400 km of communal networks (heat and hot water supply, electricity, and gas) to minimize resource losses in the system. All envisaged investments in building retrofit and infrastructure upgrade under NMP will comply with energy efficiency regulations and standards as mandated by the new EE Law.

- To operationalize the National Program for Modernization of Residential and Communal Sector for 2011-2020, in 2013 the Government established a **National Fund for Urban Modernization** to act as a mediator between the government, apartment owners and service companies. The Fund is still in its infancy but is designed to operate on a revolving basis by providing long-term (up to 7 years) low interest loans to BMCs and Associations of Apartment Owners (AAOs) , utility service companies and ESCOs for implementation of priority urban infrastructure upgrade projects, jointly defined by BMCs/AAOs, residents and municipalities. Sources of financing include three types of financing: government, private sector and development institutes. The target level of capitalization is set at 75 billion tenge or US$ 415 million, of which investment projects in the utility sector are expected to comprise 62% or US$ 260 million; interest-free loans for thermal renovations of residential buildings will account for 16% or US$ 66 million and installation of automated heat points - 22% or US$ 89 million. At the moment, one person from the Ministry of Regional Development officially works as NMF staff. In 2014, the Fund received 8 billion tenge or about US$ 44 million as part of the government's contribution to the Fund to provide loans to energy providers or heat supply companies to invest in the purchase and installation of automated heat points. Though initial capitalization of the Fund is being mobilized from the Government (via NMP), the target is to secure at least 50% of fund's resources from extra-budgetary sources. The Government has requested UNDP-GEF support for designing and implementing the revolving scheme, including the strategy on funding diversification. Also, during the PIF development stage, the Eurasian Development Bank (EADB) expressed interest in joining these efforts and establishing a dedicated credit line for municipal energy efficiency and renewable energy projects with initial allocation of US$ 25 million. CCHCA of MRD (former ACHCA) has established the Center for Utilities Modernization and Development as the principal body in charge of the implementation of NMP, and the designated entity for operation and management of the National Fund for Urban Modernization. The MRD and its Center therefore plays a critical role in directing NMP funding to priority climate change mitigation actions in cities and ensuring that the public funding can serve to catalyse investment from the private sector.

- Under the NMP, the Government will support the establishment of and capacity building for Building Management Companies (BMCs) on a PPP basis, which is the

[11] The first stage of Program implementation in 2011-2016 envisages allocation of USD 1.6 billion (237 bln KZT) from the national budget and additional 43 million USD from the regional budgets. Provision of 640 mln USD has already been confirmed in the tri-annual state budget for 2011-2013 approved by the Parliament and the President.

main mechanism to bring in private actors in urban sector management. The goal is to increase private investment in the sector from the current 19% up to 50%. Via CCHCA, the Government aims to provide technical assistance to BMCs, such as for business planning, training of staff, development and signature of public service contracts with municipal authorities, preparation of bankable investment projects. BMCs will adopt an ESCO model for implementation of energy efficiency measures under Energy Performance Contracts (EPCs) with residents and/or public authorities. Such a model has been piloted in Astana, where Astana-Kyzmet (with 50% private sector participation) has implemented an energy efficiency retrofit of a nine-floor residential building based on an EPC signed with Association of building's Apartment Owners. At the moment, Astana-Kyzmet manages six (6) residential buildings and its operational budget is about US$ 2,800 per month (AK charges 14 cents/m^2 for its services) which is just enough to cover costs of a manager, an accountant, some technical services (e.g. an electrician, a plumber) . Under the NMP Program, the government established another MMC--Managing Company Karaganda-Kyzmet, Ltd.--in Karaganda but at present there is no operational activity. The plan is to have MMCs established in all key cities across Kazakhstan, i.e. 10-15 companies by 2015. Their primary objective is to implement priority urban modernization projects and thus ensure adequate management, upgrade and maintenance of municipal infrastructure and provision of quality and reliable services to urban residents (e.g. waste management, building management, heat and hot water supply, public lighting). Two construction companies in Astana—StroyInvest and Berekele-Shanyrak—created affiliated companies in the form of limited partnerships for managing several newly constructed residential buildings during the warranty period. After its expiration, management responsibilities will be shifted to condominiums or AAOs/CAOs (whichever type residents will opt for).

During 2012-2013, 935 residential buildings underwent thermal modernization, over 900 energy passports were developed, over 131 km of district heating network, 517 km of power lines, 520 km of gas pipelines and 14 boiler houses were repaired. In the public sector, 2.6% (or 580 buildings) of total public buildings were renovated with some elements of thermal modernization. Automated heat exchangers were installed in 1,214 buildings.

- The *Ministry of Environment and Water Resources (MEWR)* is the governing body and policy maker for climate change management at the national level. It oversees the preparation of **national GHG inventory**, the implementation of the **national Emission Trading Scheme (ETS)**, including the establishment and monitoring of national emission reduction targets and the implementation of the **Concept for Transition of the Republic of Kazakhstan to Green Economy.** These three responsibilities are discussed in more detail below:

a) **National GHG accounting:** the MEWR oversees regular (annual) inventories of GHG emissions to track the achievement of national emission reduction targets. While there are intentions to conduct a nation-wide assessment of the abatement potential of the urban sector as a whole, there are no plans to undertake urban inventories or GHG accounting at the individual urban settlement level, or to set-up city-wide targets.

b) **National ETS:** As part of its national efforts to meet voluntary GHG emission reduction obligations, the Government has introduced a domestic ETS for stationary sources with annual carbon dioxide emissions exceeding 20,000 t CO_2/a. The pilot phase of ETS covers approximately 45% of Kazakhstan's overall CO_2 emissions. The total amount of allocated GHG emission allowances in 2013 is 147 million tCO_{2e} among 178 stationary sources that emit over 20,000 tCO_2/year and operate in energy generation, coal mining, oil and gas production, and other industrial enterprises (cement and paper production, chemical industries, etc). The National Allocation Plan of Allowances stems from the Government's Decree No. 158810 dd 13 December 2012, and Article 94-5, sub point 1 of the amended Environmental Code of the Republic of Kazakhstan. The reserve of allowances for 2013 amounts to 20,633,635 t CO_{2e} to account for the possible expansion of existing sources and new entrants. Allowances during the pilot phase are allocated based on historical non-verified data submitted by stationary sources in 2010. However in the future an MRV scheme will be developed (with assistance from bilateral donors, German Government and potentially USAID) and introduced, which will be based on (and potentially linked to) the EU ETS. JSC Zhasyl Damu (former KazNIIEK or Kazakhstan Research Institute for Climate Change), the authorized operator of the ETS register, and JSC Caspi Exchange Trading Marketplace (ETM) signed an agreement by which the latter provides a platform for trading carbon credits. In March 2013, the Caspi ETM registered the first four transactions of carbon units trading of total volume of 32,094 t CO_{2e} at a price of USD 2.50 per tonne[12]. An assessment of the "market readiness" of the Kazakh ETS with respect to policy/political readiness suggests that the scheme is well advanced with respect to its scope and coverage. However, the urban sector is not covered by the ETS (with the exception of few large district heating plans in Astana and Almaty), and will thus neither be subject of a mandatory cap nor be able to benefit from trading and demand for emission reductions and will be excluded from assistance for setting up MRV systems.

c) MEWR is also undertaking the implementation of the Concept[13] for **Transition of the Republic of Kazakhstan to Green Economy** that lays out goals and targets and general approaches for achieving sustainable development in the country. The Concept identifies seven key areas in which to undertake sustainable-development initiatives: water resource management, sustainable agriculture, energy efficiency, power sector development, waste management, air pollution reduction, and ecosystem management. Fundamental to Transition to Green Economy is the idea that in addressing the sustainability of key sectors, there will be synergies found across a variety of cross-cutting issues, including climate change, good governance, environmental sustainability, gender equality, and human rights. The Concept was approved in May 2013, and the follow up Action Plan was approved by the Government in August 2013. Please refer to Annex D for details on the Concept.

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[12] http://tbc.kz/novosti/ao-tovarnaya-birzha-kaspiy-sostoyalis-pervye-birzhevye-torgi-kvotami-na-vybrosy-parnikovykh-gazov-so.html

[13] In Kazakhstan legislation, a 'Concept' introduces a new policy to the government and public, followed by the development of an action plan. 'Strategy' constitutes a policy plan which will be legislated and accepted as the government vision for a specific number of years. The 'Concept' is essentially a blueprint for a strategy, which becomes viable only if there is a follow-up action plan reflected in and accounted for by the national budget

d) MEWR just recently approved a National Program for Solid Waste Management for 2014 – 2050 dd 09 June 2014 № 634. It is an important strategic document that sets a national policy framework for regulating solid waste management issues. The Program aims to improve effectiveness and reliability, environmental and social acceptability of solid waste management services including collection, transport, recycling and disposal. In particular, the program targets the following aspects of SWM: (i) introduction and expansion of SW recycling; (ii) modernization of collection and transport of SW; (iii) introduction of country-wide separate waste collection; (iv) widespread introduction of separate collection of domestic hazardous waste and improvement of waste handling system for this type of waste; (v) improvement of a waste handling system for other types of domestic waste;(vi) improvement of a system for recycling car tires. The program mandates development of the National Action Plan and 16 regional action plans to start implementation of the Program. This work on the action plans provides a basis for the integrated city level municipal plans to be developed under this project.

e) The Government with UNDP is implementing a **pilot urban modernization project** in one of Astana's sub-urban district ("Prigorodnoye"). This is part of the urban plan for Astana (*Strategy for Sustainable Urban Development of the Capital City of Astana till 2030*), which is Kazakhstan's first urban development plan that fully embraces the concept of "sustainability"[14]. The objective of this pilot is to demonstrate a comprehensive approach to modernization and management of urban areas, and provision of sustainable and reliable public services to the city's residents. The district is home to 2,200 people with an area of 2 km^2 consisting of 6 multi-apartment buildings, a school and a kindergarten and is connected to national power grid and central heat and hot water supply system. District infrastructure (heat and hot water supply network, sanitation, public and residential buildings) dates back 35 to 40 years ago and needs urgent renovation and upgrade. UNDP has developed the modernization program's technical design, and is currently working out the appropriate institutional framework (involving MMC and Association of Apartment Owners) and structuring financing for program implementation with the Akimat requesting UNDP to produce detailed design documentation (including costs) for (i) renovation including thermal upgrade of a residential building and (ii) renovation of a heating network in Prigorodnoye. The design documentation will be available in October 2014. Based on cost estimates, the Akimat will then decide on sources of financing and how many buildings and km of network can actually be renovated. A financing scheme (proportion of grant, public, credit financing) will also be discussed once cost estimates are available. The Government and UNDP have committed US$ 11 million for program design and the implementation[15].

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[14] It has a major focus on energy and resource saving and contains a number of sustainability targets that Astana aspires to reach by 2030, such as the reduction of waste volumes by 80%, water consumption by 50%, and increased energy efficiency and use of renewable energy for heat supply to reduce energy-related GHG emissions by 1.2 MtCO2/yr.

[15] Specifically, the modernization of Prigorodnoye district might feature (the exact list of technical measures will be identified based on feasibility study): Establishment of new/co-generation-based district-level heat and hot water supply system; Modernize the district heating system by switching from group sub-stations to building-level sub-stations; Installation of advance heat control system (or cascade heating system); Extend the technological innovations in the city's water pumping system by replacing old material and introducing state-of-the art systems and sub-systems; LED-based public lighting systems; Energy efficient retrofit of public and residential buildings; New waste collection and recycling facility; District-level energy management and dispatch center for heat and

10. In addition to government and multilaterial activities, there are some relevant companies active in urban energy efficiency. Notably Grundfos Central Asia has expressed its interested to partner with the project and will contribute with pump audits and follow-up investment activities of total budget up to US$ 4 million. Grundfos is also potentially working on NAMA related activities in the future with funding from the Government of Denmark.

Table 2 Summary of the Project's baseline activities and financing, presented by Project Component

Source by Component	Relevant Activity	Amount (USD)*
Component 1 – Integrated municipal planning, targets and prioritization for urban mitigation actions		
Ministry of Environment and Water Resources	Development of Action Plans of the National Solid Waste Management Program	2,179,243[16]
UNDP	Assessment of potential for GHG emission reduction in urban sector (nation-wide)	60,000
Grundfos	Pump audits and follow-up investments in pilot cities	855,000
Component 2 – Institutional framework for urban NAMAs		
MRD	Establishment and capacity building of MMCs	1,500,000
IFC	Advisory services	600,000[17]
Component 3 – Financing for urban NAMAs		
MRD	Establishment and initial capitalization of National Fund for Urban Modernization	1,300,000 +15,000,000[18]
EADB	Loan program for energy efficiency and renewable energy in urban sector	30,000,000
"EnKom-Sit" Limited Liability Company	Automation and metering of heat consumption	1,000,000-1,500,000
Ergonomica, Ltd, First private municipal ESCO in Kazakhstan	Development and implementation of investment projects for district heating, capacity building of stakeholders, capacity building of ESCOs	860,659[19]
Component 4 – Implementation of pilot urban NAMAs		
MRD	Implementation of prioritized urban mitigation actions in pilot district "Prigorodnoye"	10,000,000
UNDP	Technical design of and institutional capacity building for pilot project implementation	1,000,000
Component 5 – Monitoring, verification and knowledge management		
MEWR	Establishment and implementation of ETS, Implementation of the Kyoto Protocol	914,192[20]
Ergonomica, Ltd, First private municipal ESCO in Kazakhstan	Codification and sharing of lessons learned from pilot projects	120,000

** Exchange rate used in all conversions is the official UN rate from 1 August 2014: USD 1 = 183.55 KZT*

power; Greening public areas.

[16] This includes a portion (KZT 400 million) of the co-financing for these action plans counted as baseline co-financing (out of a total programme of KZT 725 million stated in the MEWR co-financing letter).

[17] IFC advisory services will support work on institution building and structuring. Up to USD 300 million in additional gearing from IFC as a result of these activities may be invested in component 3, as stated in the co-financing letter.

[18] This and other MRD co-financing under component 4 represent a portion of the entire state programme for urban modernization.

[19] KZT 180 million in cofinancing consisting of KZT 157,974,000 in component 3 and the rest in component 5.

[20] KZT 167,800,000

1.4 Barriers to NAMAs in the urban sector

11. The past years have seen encouraging progress in the creation of government programmes to improve infrastructure and services in cities and reduce the carbon intensity of urban areas. Despite this progress, a number of significant barriers exist. This section presents the key systemic, regulatory, financial and capacity barriers addressed by the Project.

1.4.1 Systemic barriers

12. As has been discussed in the baseline section above, significant progress has been made in the past decade with respect to overall policy and legislation. Systemic barriers however exist at the local, regional and national levels that hamper the development of integrated sustainable urban modernization. The systemic barriers to be addressed by this project are:

13. At the level of cities and municipalities long-term planning does not routinely take place, with the planning horizon usually extending only to 3 years. This is true for all sectors of the urban environment (like waste management, public transport and urban infrastructure). Three-year planning provides little guidance on long-term investment priorities of the city. These barriers have been illustrated with the UNDP-GEF project "City Almaty Sustainable Transport" that developed a long-term Almaty Sustainable Transport Strategy for 2013-2030. For the first time planning took an integrated long-term approach by looking at the road network, public & alternative transport and pedestrian/green zones development linked to target indicators of air quality and GHG emissions. The strategy also indicated a strong need for creation of an adequate institutional framework to implement the strategy and monitor its progress to feed in the subsequent rounds of planning. The long-term sustainable transport strategy for Almaty couldn't be endorsed by the city administration because municipal planning "could only be for 3 years" and no single authority within the Akimat oversees all the issues on sustainable transport. As such, some sections of the strategy are only being partially implemented by relevant departments. *The project will address this barrier by working with cities, regional government and national bodies to pilot integrated long-term planning (component 1).*

14. As a rule there is no planning department within city akimats that can take a comprehensive approach to city planning by compiling inputs from various akimat departments. A coordination mechanism that can work between different levels of government bodies (national, regional and local) when it comes to urban modernization is missing. In general departments in city and oblast akimats and in Ministries operate and act within their specific areas. In Almaty, example, akimat departments in charge of roads, passenger transport, economy and budget planning, environment protection and law enforcement, architecture, etc., each separately produces a set of targets, identifies major development pathways and prioritizes investments related to urban transport policies. In particular, while the road department set a 3-year action plan for the road network development, the passenger transport department separately released strategic actions plans for 5 years, with no coordination exercised during planning and envisaged for implementation of these related policies. Also, when it comes to planning, transport

network development at the city level fails to consider building construction plans (commercial buildings in particular) and vice versa. Absence of coordination further complicates things on the ground, resulting in road jams, limited parking places and poor connectivity to public transport. *The project will address this barrier by scaling up experiences of other UNDP-GEF projects, such as that cited above, working in an integrated way with city administrations to develop plans and targets (component 1), and providing support to institutional frameworks that can facilitate ongoing planning and management (component 2).*

1.4.2 Legislative barriers

15. In Kazakhstan an important consideration in the setting of tariffs for services such as electricity, heat, hot water, waste, water and waste water is the *social impact and ability to pay*. Tariffs are regulated through the Agency for Regulation of Natural Monopolies (ARNM), which provides general supervision and administration of tariff policy for all natural monopolies. While there has been good progress through the work of the ARNM in their tariff determining policy, including the introduction of differentiated tariffs, and simplification of the rules and approaches, in many cases tariffs remain below the economic costs, and do not provide sufficient financial motivation for utility companies to invest in resource efficiency and to encourage the shift to consumption-based billing. Tariffs vary widely throughout the country (see Annex C) reflecting a complex mix of factors around costs and ability to pay. Usually, ARNM sets a ceiling for tariffs since this is a social issue. While it is acknowledged that this is a complex and sensitive political issue, for adequate management and maintenance of urban service infrastructure social support should shift away from tariffs (that have been shown to benefit wealthy people more than poor ones), towards social support for vulnerable groups. Interestingly, increased tariffs only harm vulnerable (low-income) groups as government surveys show. This means that with a well-designed and easy-to-use social support scheme the government can address this issue and tariffs can eventually reflect costs better. The government already has a number of social support schemes to compensate vulnerable groups but they are clearly not sufficiently effective. *To address this barrier the project will work with the government on devising/revising policies that target vulnerable groups and pilot them where possible (Components 2 and 3). For example, UNDP/GEF Project on Municipal Heat and Hot Water Supply worked with the Ministry of Regional Development on developing provisions and a support scheme in the NMP related to reimbursement of some portion of capital renovation costs to low-income/vulnerable groups. This experience will be replicated in this project. Project technical support will also address ARNM and service providers on devising additional criteria for tariff selection and train them on how to use such criteria.*

16. Kazakhstan has made good progress in the development of a national ETS as outlined in the baseline section above. Apart from the largest heating networks the urban sector is not covered by the ETS, and does not have a mandatory cap, and does not benefit from trading and demand for emission reductions. At the same time NAMAs appear to be an appropriate mechanism to reduce urban emissions. Since there are no guidelines and methodologies for MRV of urban NAMAs in Kazakhstan, and no rules and procedures for certification of emission reduction credits from NAMAs that might facilitate import into domestic ETS developed, a potential source

of local funding is not currently available. *To address this barrier the project will work with the government to link the NAMAs with national GHG mitigation efforts (Component 5a).*

1.4.3 Financial barriers

17. As discussed above ARNM is responsible for the setting of tariffs and aims to ensure that tariffs cover operation and maintenance costs, with a provision for depreciation of assets. However, tariffs are low, as are, in some cases collection rates (see for instance Annex E on waste management in Kazakhstan) and this brings service companies under severe pressure and contributes to the on-going process of technical and economic deterioration: At present 49% of utility companies (all sectors) are non-profitable. Utility companies are thus often not credit-worthy, as in general they have a weak financial status. This is a result of (a) institutional arrangements (ownership, structure), and (b) conditions of the public service contract (tariffs).[21] While special tariff arrangements have been agreed to enable investments by international financial institutions, such as for EBRD's investments in Water Treatment in Shymkent and Public Transport in Almaty, akimats outside of the major cities lack the financial insights, knowledge and experience to be able to develop and present a convincing case to address this issue. There are many examples of Almaty and Astana akimats borrowing from international development banks (like EBRD, ADB, WB) and in these cases special tariffs have been part of the agreement. *The project will address this barrier by working with akimats to structure appropriate public service contracts, and support them in negotiations with sources of finance and with ARNM (component 2)*

18. Concerning capital investments in the housing and utility sector (including power, heat, hot water, ventilation, building maintenance, waste collection use and recycling), the vast majority, based on an analysis of all investment proposals, comes from government financing (88%), with private financing (5%) and tariffs (7%) making up a minor part. This highlights heavy dependence of the utility sector on government financing. There is a clear lack of knowledge in the government about how best to structure financing for municipalities and apartment owners related to urban modernization that facilitates private sector finance. This is illustrated by the difficulties in structuring and operationalizing the planned loan funding for the National Urban Modernization Fund (NMF). The fund is still in its infancy, and as of the time of writing, no set structure exists. One person from the Ministry of Regional Development officially works as NMF staff. In 2014, the fund received 8 billion tenge or about US$ 44 million to provide loans to energy providers or heat supply companies to invest in the purchase and installation of automated heat points. The

[21] It should be noted that companies with over 50% government ownership are not allowed to borrow money. Also, only oblast Akimats and Akimats of Almaty and Astana (as cities of republican importance) can borrow money using their respective budgets as guarantees. If a city/town in a region needs commercial credit, it can only go through an oblast Akimat. In some notable cases this has meant that investments have fallen through since city Akimats do not necessarily have the same priorities as oblast Akimats. A rather crucial detail that can delay and even halt the whole process. Same applies to municipal companies with 50% and more of the state share. This is not the case for the National Modernization Program. For this, local authorities should compile a list of residential buildings that are in need for repair, residents of selected buildings should select a set of measures and agree to its financing through the Program, detailed feasibility studies should be prepared for each building, approved by regional authorities and then sent to MRD for approval via the NMP program. The loans are given to the apartment owners

initial idea was to start with the housing and utility sector and then gradually expand financing to other sectors of the urban environment. It was expected that the Fund would initially have public finances for the start-up and pilot activities but then private and other financial sources will be also be attracted. It was planned that *NMF would cover only 5% of the total market and 95% should be financed by secondary banks.* Also, the NMF was expected to have territorial (regional) offices (limited partnerships) to work with regional (city-level) authorities on funds disbursement and to guarantee repayment of loans, or, potentially it would be to work through the Kazakhstan Center for Housing and Utilities (KazCenter ZhKKh) that has regional offices (the Center currently focuses on EE trainings and awareness raising activities). This has not been realized. The Ministry of Regional Development, at this point, has no clear vision on how the fund would actually operate and be structured and needs support to develop the operational and functional strategy. *This barrier is addressed in project component 3 which focuses on working with the government to address operationalization of the National Urban Modernization Fund. Attention will be given to ensuring participation of the private sector and banks (initially international banks, and in the future local financial institutions).*

1.4.4 Capacity and awareness barriers

19. Planning capacity within existing departments is low at the city level. Akimats do not have dedicated expertise in urban planning. Outside major cities municipal staff do not have experience with project development and the structuring of financing for municipal infrastructure. *The project will address this barrier through components 1 and 2. In component 1 technical training and methodological support will be provided to 15 city municipalities, as well as assistance with data collection, processing and analysis. Component 2 supports capacity building in the financial structuring of infrastructure projects, including in negotiations with international development banks and the ARNM.*

20. As a new instrument there is a natural lack of knowledge about how to structure and implement NAMA projects. *The project will address this need through all project components, providing a learning-by-doing opportunity to learn about how NAMAs could work. Component 5b specifically aims to disseminate lessons learnt to cities not covered by the initial 15 focus cities under the project.*

2 PROJECT DESIGN

21. This proposed UNDP-GEF Project "*Nationally Appropriate Mitigation Actions for Low-carbon Urban Development*" seeks to access funds from the GEF Trust Fund. As the financial mechanism for the UNFCCC, the GEF has specific rules concerning eligibility for funding from the GEF Trust Fund and provides funds to cover the costs that are associated with transforming a project with national benefits into one with global environmental benefits (this is termed 'incrementality'). The proposed Project meets the country eligibility criteria while delivering incremental activities resulting in the global environment benefits as described in detail below.

22. This section describes the Project's design, including objective and strategic approach; and the project's structure presented in five Components. Explanations of anticipated global environmental and socio-economic benefits are also provided.

2.1 Objective and strategic approach

23. The objective of the UNDP-GEF Project is to support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction target, as committed during COP-17 (Durban 2011). The Project supports the Government of Kazakhstan to improve the sustainability of towns and cities in Kazakhstan by enabling investments in high efficiency municipal infrastructure.

24. With this Project, the Government of Kazakhstan requests GEF support to help identify, develop and lever financing for NAMAs in its urban sector. Urban infrastructure of relevance for urban NAMAs is listed in Table 1 на стр. 7 выше.

25. The Project strategy is to use a combination of investment finance and technical assistance to address the range of barriers currently facing the development of NAMAs in Kazakhstan (as outlined in Section 0). The Project will support the articulation of climate-related priorities for 15 cities in Component 1, including baseline GHG inventories and abatement cost curves, and will facilitate financing and implementation as follows: technical assistance to develop 15 investments including their documentation under Component 2; urban NAMAs financed under Component 3; one urban NAMA piloted in Astana under Component 4; and support to the development of methodologies related to MRV for NAMAs.

26. As a result of the Project, local authorities will be able to articulate their climate-related priorities and goals, estimate financial resources required to meet them, as well as to identify and prioritize investment projects where GHG emissions can be achieved most cost-effectively and where opportunities therefore exist to leverage private capital and financing, including via the domestic ETS. Assessments of the required financing needs will allow policy-makers to match their priorities with available resources, as well as to plan how to deploy those resources most effectively.

2.2 Project structure

27. The Project takes place over five Components, outlined individually in Sections 2.2.1 to 2.2.5, which stand in a reinforcing relationship and are instrumental in supporting

the realization of the Project objective. Components 1, 2 and 5 will make use exclusively of technical assistance funds; Component 3 blends technical support with investment finance to provide financing for urban NAMAs; and Component 4 provides investment finance for implementation of a pilot urban NAMA.

28. The five components each work towards one key Outcome, which are formulated based on the strategic approach (outlined in Section 2.1) in the following manner:

Component 1 - **Outcome 1** will enable participating municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs);

Component 2 - **Outcome 2** will put in place the enabling institutional framework to facilitate the implementation of urban mitigation actions;

Component 3 - **Outcome 3** will establish new and additional financing for urban NAMAs;

Component 4 - **Outcome 4** will identify and finance a pilot urban mitigation action to demonstrate the feasibility of urban emission reduction for future replication; and

Component 5 - **Outcome 5** will establish a monitoring, reporting and verification (MRV) system to allow for the systematic monitoring, verification and reporting of the GHG emission reductions of implemented urban NAMAs; and will increase the awareness of, and access to, information and guidance on urban NAMAs in Kazakhstan.

29. **Figure 2** illustrates the Project's structure, showing key relationships between the Components. **Figure 3** shows the Project's structure throughout the Project's lifetime.

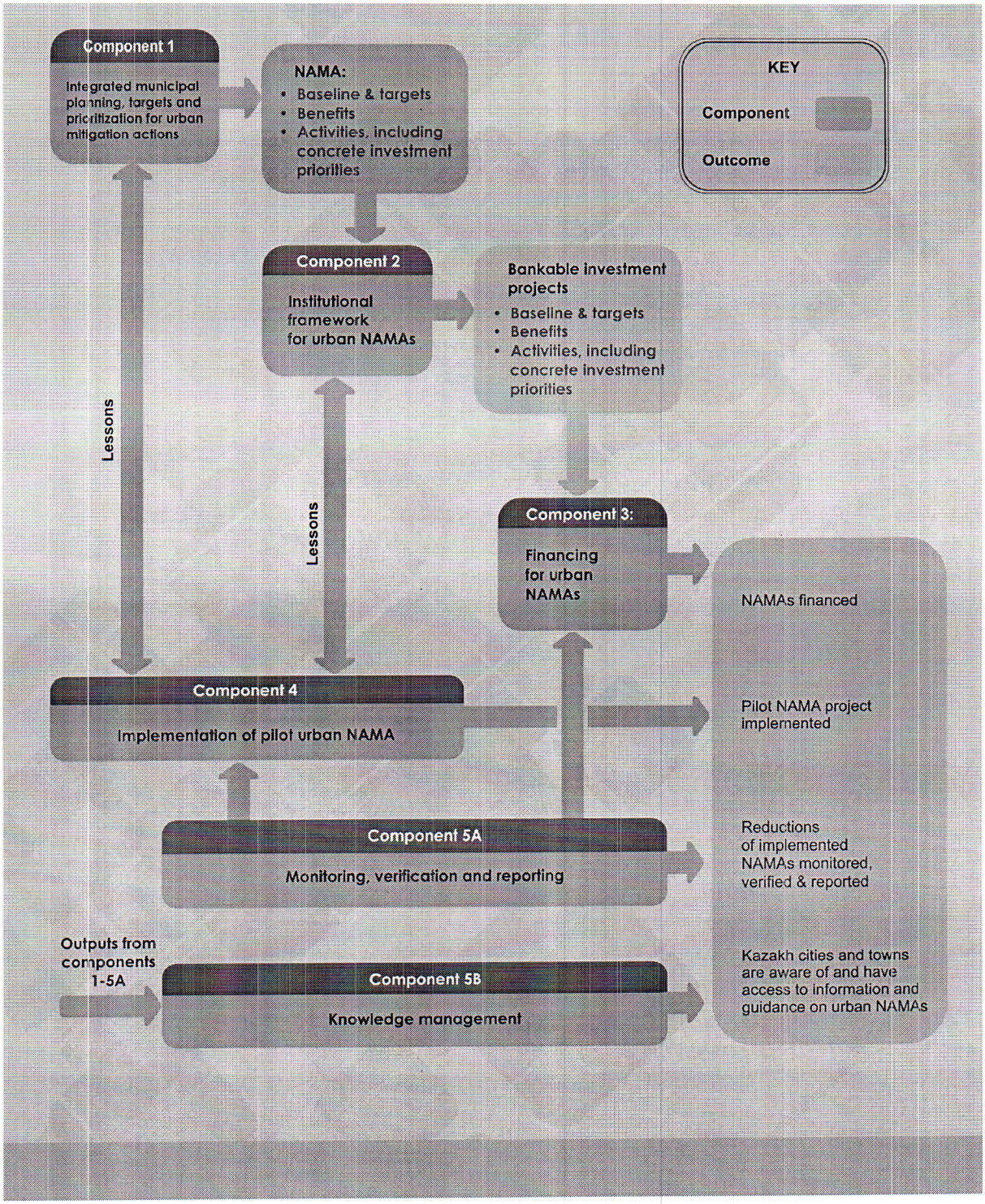


Figure 2. Project structure showing key relationship between components

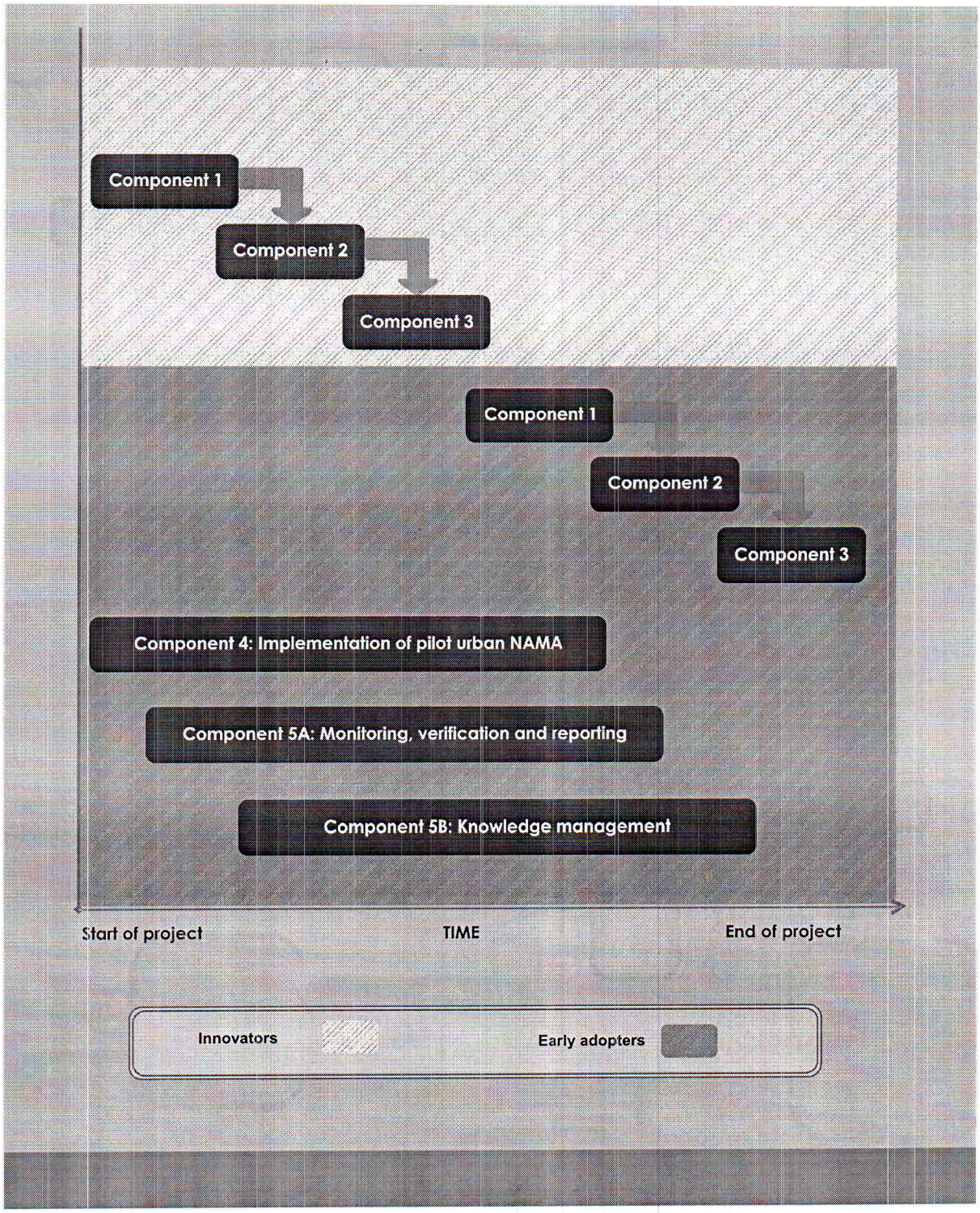


Figure 3. Project structure according to time

2.2.1 *Component 1: Integrated municipal planning, targets and prioritization for urban mitigation actions*

30. Component 1 addresses the first "readiness" phase of the Project, which supports the preparation of urban GHG inventories and baseline scenarios, assessment of abatement potential and costs, prioritization of NAMAs and adoption of urban GHG reduction targets. In terms of the three-phase vision of the NAMA process as described by the UN, Component 1 deals with the "Concept Phase" from when the urban NAMA idea is first identified to the comprehensive concept paper or note[22].

31. Under this Component, technical training and methodological support will be provided to 15 city municipalities, as well as assistance with data collection, processing and analysis. Working through a phased approach of first engaging with a few initial "innovator" akimats and subsequently with additional "early adopter" Akimats who are influenced through the initial project successes, the desired Outcome of Component 1 to have 15 municipalities articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs) will be achieved. The two key decision making tools that the project will adopt are a) urban GHG inventories and sectoral baselines, and b) abatement cost-curves for the cities and for their main GHG emitting sectors (energy supply, transport, buildings and waste).

32. Given the centralized planning process in Kazakhstan, while the focus of support will be on city municipalities it is also necessary to engage with regional (oblast) level authorities. City-wide GHG emission targets and abatement cost curves will be proposed and adopted by municipal authorities in consultation with Oblast akimats, so that, while keeping a focus on cities, the project will establish a clear link with regional planning. This is necessary since Oblast akimats routinely have to sign off on most documents produced by city akimats, and in particular on investments in modernization. Also, the engagement of the regional authorities is critical for wider replication of project results. Oblast akimats will use pilots to showcase to other cities/towns in the region what can be done in sustainable urban planning and how it can be done. For Astana and Almaty, which are cities of regional importance and have a system of governmental planning akin to oblast centers, the project will work with just Astana and Almaty akimats. For Kzylorda and Karaganda, which are both Oblast centers, the project will work with both city-level and oblast level akimats. The experience in these two cities will allow the project to explore the linkages between the two levels of authorities and better understand the planning process as a whole to replicate this experience in other cities, e.g. in small towns or monotowns.

33. As a result of this component, local authorities will be able to articulate their climate-related priorities and goals, estimate financial resources required to meet them, as well as to identify and prioritize investment projects where GHG emissions can be achieved most cost-effectively and where opportunities therefore exist to leverage private capital and financing, including via domestic ETS and other financing sources. Assessments of the required financing needs will allow policy-makers to

[22] 2013 UN Guidance for NAMA Design.

match their priorities with available resources, as well as to plan how to deploy those resources most effectively.

34. As discussed in Section 1.3, baseline activities only cover national-level inventory, and national and sectoral target setting. There are no plans under BAU to conduct urban assessments and adopt urban GHG reduction targets. Therefore the proposed set of activities under Component 1 is fully additional.

35. Technical assistance undertaken under Component 1 will generate four Outputs that are described in turn below:

Output 1.1 Urban GHG Inventories and baseline developed in fifteen (15) cities

Output 1.2 Abatement potential and cost curves for 15 cities developed (including for pilot district in Astana implemented under Component 4)

Outputs 1.3 Priority urban NAMAs identified, fact-sheets prepared and discussed with main stakeholders

Output 1.4 Urban GHG reduction targets established and officially adopted by Akimats.

Output 1.1 Urban GHG Inventories and baseline developed in fifteen (15) cities

36. As noted in the discussion of barriers (see Section 1.4.1), while there is currently knowledge, interest and action at the Akimat level on energy efficiency and sustainable energy, there is a lack of focus on reducing GHG emissions generally and little understanding of the NAMA mechanism including how it could be used in Kazakhstan to promote potential GHG reductions and transform development towards low-emission pathways. Component 1's strategy, therefore, is to use municipal planning as an entry point to addressing the institutional and knowledge barriers to NAMA development at the Akimat level.

37. Based on recommendations from stakeholder consultations, the Project will focus on cities based both on their willingness to work with the Project and their bankability. The intent is to focus initial Project efforts on those cities that are most proactive and receptive, for example where there is substantial mayoral support for the Project. The work done by these 'early movers', in particular the identification of priority investments (including the required work on inventories and abatement cost curves), will serve as models of experience for subsequent participants. Therefore, a phased approach will be adopted, working first with a small number of akimats that demonstrate both 'willingness' and 'bankability' based on the following considerations for selection:

- Where relevant TA or development projects have been undertaken and there is a good working relationship with municipalities and various municipal companies already established. Pre-feasibility studies may have already been conducted and pilot project undertaken.
- Where there are ongoing or planned programmes of intervention, including those related not specifically to EE but to other initiatives such as on local governance;
- Where IFIs are working (e.g. where IFC, EBRD or EADB have been, or plan to, implement projects); and
- Where there is participation in voluntary emission reduction activities that demonstrates a willingness to be involved in low-emission initiatives. Involvement in

activities such as the Covenant of Mayors Initiative, which is a movement where European regional and local authorities commit voluntarily to increasing EE and RES use, would be considered. Signatories commit to meeting and exceeding a 20% reduction in CO2 emissions by 2020. To date, six signatories from Kazakhstan are: Aksu, Astana, Lisakovsk, Petropavlovsk, Stapaev and Taraz.

38. Consideration will also be given to ensuring a balance between cities in the various climatic zones of the country. The suggested list of criteria is not exhaustive and will be updated in consultation with all relevant stakeholders during the project's inception phase.

39. To date, the cities tentatively meeting the above criteria that have been identified include the following:

- Almaty (South),
- Astana,
- Karanganda (oblast centre),
- Kzyl Orda (oblast centre),
- Aktau (East, Caspian region),
- Semei (West, UN Joint Semei Programme), and
- Pavlodar (North).

40. Preliminary GHG inventories completed for the above pilot cities during the PPG phase on the basis of the available statistical data have yielded the following sectoral GHG profiles:

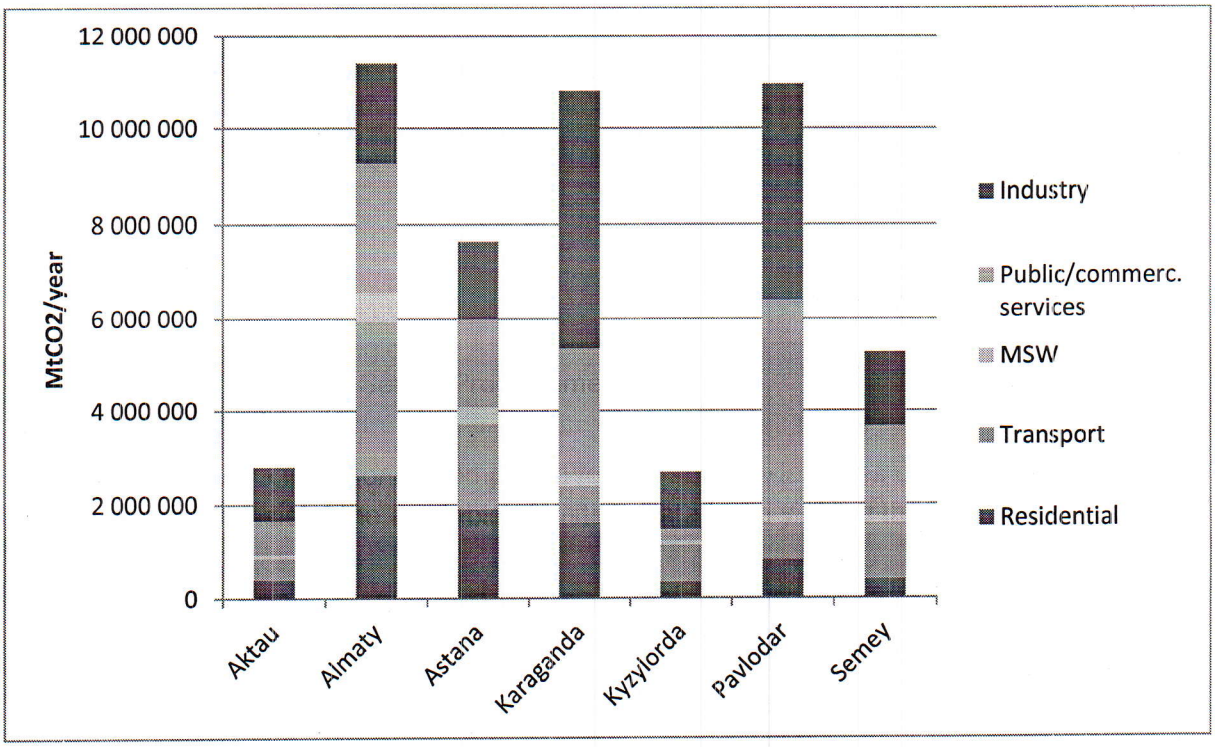


Figure 4. Sectoral GHG profiles of the pilot cities

41. The delivery of this Output will include the following specific activities.

Activity 1.1.1 Develop methodology / standardized approach for undertaking urban inventories and baselines in line with international best practices and realities

on the ground (in coordination with activity 1.2.1). This methodology will be tested and refined in subsequent activities, and later adopted by the government for official use across Kazakhstan (Component 5B). The methodologies will make use of and build upon existing protocols as outlined in Annex H

Activity 1.1.2 Assess the shortlisted akimats based on the above-mentioned criteria of willingness and bankability for inclusion as "innovators" in the first phase of the NAMA development process. Up to four (4) akimats will be chosen as the "innovators" (see **Figure 3**) in that they will be the first akimats involved in the urban NAMA development process under the Project.

Activity 1.1.3 Establish a Working/Coordinating Group for each city. This working group will include a broad range of stakeholders including a representative of the Oblast akimat. Consultations will then take place with each "innovator" akimat to ensure full understanding of the Project and NAMAs including the fit with local priorities. akimat

Activity 1.1.4 Support the "innovator" akimats with addressing urban planning-related barriers, including any knowledge and/or institutional issues related to their full participation in the Project. Based on a survey of capacity, consultants will provide information packages and/or initial training initiatives to support the akimats. All training and information will be used with the subsequent akimats involved under this Output and as inputs to Component 5 and (Output 5.5 Knowledge resources).

Activity 1.1.5 Provide intensive technical (consultant) support for each of the "innovator" akimats to establish their baseline scenario, including their clearly-defined urban NAMA boundaries (e.g. entities within the urban area), scope, current financial flows, technology base and value chain as appropriate. The appropriate protocols for determining these baseline emissions and emissions reductions will be recommended through the Project. To ensure that the Project is efficient and is geared for scale-up, the Project will work with both international consultants and local experts, with the long-term goal of building capacity of local experts to establish the NAMA baseline scenario and urban GHG inventories in other akimats.

Activity 1.1.6 Establish a core NAMA working group comprised of champions from the "innovator" akimats and national level members for training, discussion, and review examples of potential projects relevant for NAMAs. This group will also be tasked with identifying key lessons as input to Component 5 (Output 5.5 lessons learned).

Activity 1.1.7 Identify the second round of up to eleven (11) akimats and engage as above (activities 1.1.1 and 1.1.2) for the "early adopters". This group of akimats will benefit from the project's experience with the "innovator" akimats, in particular awareness of the pilot experiences under the project.

Activity 1.1.8 Provide technical (consultant) support for each of the "early adopter" akimats to establish their baseline scenario, including their clearly-defined urban NAMA boundaries (e.g. entities within the urban area), scope, current financial flows, technology base and value chain as appropriate.

Activity 1.1.9 To support this learning "twinning arrangements" will be facilitated, first between innovators and more advanced cities from the West and then between early adopters and innovators.

Output 1.2 Abatement potential and cost curves for 15 cities developed (including for pilot district in Astana implemented under Component 4)

42. The akimats noted under Output 1.1 – both the "innovators" and the "early adopters" – will also be technically supported in conducting initial cost estimates, including the development of abatement potential and cost curves associated with their potential NAMAs. The intent is to ensure that the akimats are able to access and use appropriate decision-making support tools for the prioritisation processes, and care will be taken to determine which technique is most suitable.

43. Delivery of this Output will include the following specific activities.

Activity 1.2.1: Develop methodology / standardized approach for preparing abatement cost curves in line with international best practices and on the ground realities (with activity 1.1.1).

Activity 1.2.2 Conduct abatement potential studies through provision of expert (consultant) support to the "innovator" akimats. Similar to Output 1.1, to ensure that the Project is efficient and is geared for scale-up, the Project will work with both international consultants and local experts, with the long-term goal of building capacity of local experts to provide support for abatement potential and cost curve analysis in the other akimats.

Activity 1.2.3 Engage with the second round of up to eleven (11) akimats as above (activity 1.2.1) for the "early adopters". This group of akimats will benefit from the project's experience with the "innovator" akimats, in particular awareness of the pilot experiences under the project.

Output 1.3 Priority urban NAMAs identified, fact-sheets prepared and discussed with main stakeholders

44. Based on the result of abatement potential study and consistent with established GHG targets, priority emission reduction projects ("investment-grade") will be identified, their cost established, discussed and proposed for implementation. A series of stakeholder consultations will be organized to solicit inputs from civil society and cities' residents and align prioritized investment with local socio-economic development priorities.

45. Delivery of this Output will include the following specific activities.

Activity 1.3.1 Identify priority emission reduction projects ("investment-grade") based on the results of the abatement potential studies, initial cost estimates, established GHG targets, etc. Similar to Outputs 1.1 and 1.2, this will be done in a phased manner, working first with the "innovators" and then with the "early adopters". This may involve convening and working with a national or sub-national NAMA planning or coordination group or committee. At present no such committee exists.

Activity 1.3.2 Develop fact-sheets/ draft concept notes / initial proposals for each priority emissions reduction project, including the following information:

- Summary of project/activities/actions;
- Cost estimates, budgets and funding needs;

- Possible policy instruments or measures required, and already-exisitng actions with similar goals;
- National contribution (including financial);
- Estimated emissions reductions;
- Implementation modalities;
- Probable stakeholders;
- NAMA's prime benefits and substantial co-benefits;
- Details of MRV system.

Activity 1.3.3 Develop a stakeholder engagement strategy for each akimat/project, ensuring that there is identification and engagement planned with all major stakeholders - both supportive and potentially non-supportive – thereby ensuring that it is an inclusive process. This consultation will include broader public consultations about priority projects, potentially via TV debates to enhance transparency, ownership and local buy-in.

Activity 1.3.4 Implement the stakeholder engagement strategy for each akimat/project, documenting the engagement process to demonstrate that it is well administered.

Output 1.4 Urban GHG reduction targets established and officially adopted by Akimats

46. A necessary condition of a successful NAMA is government involvement and commitment. Based on the analysis and finding of sectoral baselines and abatement potential, city-wide GHG emission targets will be proposed and adopted by the city and regional authorities. The project will seek to integrate the targets into other strategic planning documents of municipalities and regional authorities, which may include the 5-year strategic plans of natural resources and environmental management administrations (offices) of the Oblast akimats (plus Astana and Almaty) (current plans are for 2011-2015) and also into 3-year energy saving plans developed recently by all Oblasts regions (plus Astana and Almaty). GHG targets can also be part of energy saving plans of housing and municipal utility departments of local akimats, and should also be integrated into strategic plans of oblast-level offices of natural resources and environmental management. While Ministries have no direct leverage with akimats (regional or local) to monitor implementation of government programs, and in the context of the Green Economy Concept, the Ministry of Environment and Water Resources is currently developing a concept of a 'green rating' for akims to be officially used for assessing their effectiveness in implementing the strategy. This work is only at initial stages, but there is interest in MEWR to expand coverage to other criteria including climate change. Among other things, the rating will include energy efficiency indicators and the project may help to develop some other appropriate indicators. In this case, some targets can also be part of the akim's green rating. City-wide targets will be consistent with national target and sector target, as defined in the Concept for Transition to Green Economy.

47. Delivery of this Output will include the following specific activities.

Activity 1.4.1 Support the development of resolutions for the adoption of targets and the integration of targets and investment plans into relevant strategic planning documents at the utility, municipal and regional authority levels.

2.2.2 Component 2: Institutional framework for urban NAMAs

48. Component 2 consists of facilitating investment in urban infrastructure covered by the proposed NAMAs. As such, this Component deals largely with the "Development Phase" where the urban NAMA concepts defined under Component 1 (Output 1.3) are taken into practice by addressing the institutional, technical, legal and social aspects of the urban NAMAs [23]. Work will involve building capacity of Akimats to tender and negotiate with the NMF, private investors and international financial institutions, and providing technical / legal support to form and/or strengthen PPPs or other appropriate legal structures.

49. The desired Outcome of Component 2 is the establishment of public-private partnerships or other appropriate institutional structures (concessions, public and private) for the implementation of urban NAMAs (Outcome 2). As discussed in Section 1.3, baseline activities may involve the establishment and capacity building in general management and operational effectiveness. There are no plans under BAU, for example, to specifically develop MMCs' capacity to identify and implement low-carbon projects or the preparation bankable emission reduction projects. The proposed set of activities under Component 2 is considered to be fully additional.

50. Technical assistance undertaken under Component 2 will generate three Outputs that are described in turn below:

Output 2.1. Institutional structures developed to facilitate fifteen (15) investments

Output 2.2. Bankable project documentation for the emission reduction projects prepared based on urban NAMAs

Output 2.3. Public service contracts signed/tariffs agreed

Output 2.1. Institutional structures developed to facilitate fifteen (15) investments

51. The activities under this output deal directly with barriers concerning the lack of institutional capacity to support the formulation of "bankable" project proposals. As noted in Section 0, there is significant need for support to address the lack of experience and capacity in structuring financing for municipal energy efficiency investments. Further, there is a lack of experience with establishing transparent and competitive tendering for infrastructure development and management.

52. This Output will involve working closely with the four (4) "innovator" akimats that have developed urban NAMA concepts under Component 1. Practically, to identify appropriate structures for each project that are acceptable to funders, initial dialogue with potential investors will take place using the factsheets developed in output 1.3. Based on these discussions the most bankable projects will be identified, and institution-building needs for each project explored. Following agreements with akimats and regional authorities tailored technical support will be provided to address the needs.

53. Delivery of this Output will include the following specific activities.

Activity 2.1.1 Discuss project factsheets with potential investors and with them identify institutional-building and project structuring needs and opportunities.

[23] 2013 UN Guidance for NAMA Design.

Activity 2.1.2 Assess the institutional needs of the projects akimat through dialogue with city and regional authorities, agree actions and cost sharing, and prepare ToR for technical assistance activities.

Activity 2.1.3 Provide targeted support as needed to address needs. This will involve a range of training and technical assistance on, for example, establishing institutional structures for investment including creating and managing new institutional and financing mechanisms such as ESCOs, Performance Contracts, concession agreements, public service contracts, and private-public partnerships; preparation of budgets, progress reports and proposals; negotiations with private investors; and technical issues concerning the development of their proposed urban NAMAs (see Annex B for an overview on the status of ESCOs in Kazakhstan).

Output 2.2. Bankable project documentation for the emission reduction projects prepared based on urban NAMAs

54. This output speaks directly to the significant barrier faced by the akimats of lacking local capacity and manpower to formulate "bankable" energy efficiency project proposals. Rather than developing and adopting business plans, the focus of the Development Phase of the NAMAs is documenting the urban NAMAs as priority investments.

55. Delivery of this Output will be closely aligned with the work conducted for each investment under Output 2.1, and will include the following specific activities.

Activity 2.2.1 Assess the capacity needs of the akimats to concerning their ability to develop bankable emission reduction projects from their proposed urban NAMA investment.

Activity 2.2.2 Support the akimats to strengthen their capacity to develop financial documentation related to their proposed urban NAMAs, by providing a range of training and technical assistance on, for example, working with technical experts to carry out analysis of options and preparation of investments; prepare investment documentation for municipal projects; understand related international climate financing mechanisms to address urban infrastructure, including incremental or donor funding, or mechanisms to facilitate funding of urban infrastructure from the domestic ETS and other relevant national and international sources.

Output 2.3. Public service contracts signed/tariffs agreed

56. This output responds to the capacity and awareness barrier faced by the akimats concerning structuring public service contracts conducive to EE, including the possibility of negotiated tariffs with the Agency for the Regulation of Natural Monopolies (ARNM). Support will be provided as needed to akimats, private investors and ARNM agree tariffs that facilitates bankable projects while providing safeguards to vulnerable people, proposing and piloting alternative schemes.

57. Delivery of this Output will be closely aligned with the work conducted for each investment under Output 2.1 and 2.2, and will include the following specific activities.

Activity 2.3.1 Assess / analyse the institutional and capacity needs of the akimats surrounding the establishment of public service contracts given to public private

partnerships for services. Analysis of institutional structures will be based on an understanding of investment potential, redrafting potential of public service contracts, negotiations with central government on tariffs, etc. The incentive structures surrounding planning and legislation may also be examined. Local legal firms will be engaged for this analysis.

Activity 2.3.2 Support the strengthening of the institutional and capacity needs of the akimats based on the analysis (carried out under 2.3.1). Again, local legal firms will be engaged to provide targeted support to ultimately agree public service contracts and tariffs. This work will, where necessary, include support to Akimats, private investors and the ARNM

2.2.3 Component 3: Financing for urban NAMAs

58. The desired Outcome of Component 3 is the levering of new and additional financing for urban NAMAs (Outcome 3) from banks, government and donors. Component 3 will provide finance for emission reduction investments for urban NAMAs identified through Components 1 and 2; establish a 'pilot NAMA fund' initially using GEF and Government funds; facilitate financing for pilot NAMA projects (blending funds from GEF, the government, other donors, concessional funding, private sector and bank finance as possible); develop a diversification strategy and associated mechanisms to lever additional financing from a range of sources, and develop a proposal for national level fund to facilitate the National Fund for Modernization (NFM). This would be additional to the baseline as there are no plans under BAU to create such a fund focused on low carbon urban infrastructure projects (see Section 1.3).

59. In addition to GEF funding, EADB, and the NFM will provide additional financing for PPP window of over USD 30 million. The catalytic impact of additional GEF support will be that it will fund low-carbon urban investment projects implemented by PPPs and thus unlock substantial private sector investment in the sector. In the medium term, following the completion of the GEF-funded project, while the need to grant funding will be reduced given the first-mover demonstration effect of the project, some incremental costs representing global environmental benefits will remain. The aim it to replace GEF funding for these costs with other funding from national sources (carbon finance from the domestic ETS, other government funding for sustainable urban modernization), and international funding (via NAMA funding). This diversification / "exit" strategy is addressed through output 3.4.

60. Component 3 includes GEF funding for both Investment (output 3.1) and Technical Assistance (output 3.2, 3.3 and 3.4). The Technical Assistance activities of Outputs 3.2 and 3.3 directly support the practical implementation of the Investments under Output 3.1.

61. To promote Outcome 3, technical assistance and investment finance will be provided to deliver five Outputs:

Output 3.1 Performance based financing mechanism for urban NAMAs (Investment)
Output 3.2 Pilot NAMA fund established, managed and evaluated (TA to support 3.1)
Output 3.3 Financing for pilot NAMA project facilitated (TA to support 3.1)

Output 3.4 Funding diversification strategy and mechanisms to leverage additional financing from public, private and international sources of funding developed including a proposal for how the NFM can be structured efficiently.

Output 3.1 Performance based financing mechanism for urban NAMAs

62. The urban NAMAs identified through Component 1 and 2 will be financed in part through this output. Investment funds from the GEF will be provided to urban NAMA projects on favourable terms, taking the form of performance based concessional grants or other suitable incentive, to facilitate investment by IFIs, other banks, and, where possible other donors. This investment component will be operationalized through the TA activities of Outputs 3.2, 3.3 and 3.4.

63. Various options will be considered for the Pilot NAMA fund, with the preferred option being a separate credit line within the NMF for NAMA-related projects/financing[24]. UNDP has experience in Kazakhstan with negotiating and then implementing a separate credit line of this kind within the Fund for Financial Support of Agriculture (FFSA). In that case UNDP used the institutional arrangements, disbursement and collection system that already existed at FFSA for a biodiversity-related micro-credit program within the UNDP-GEF biodiversity conservation project. In the case of the NMF, the scale and scope of financing is bigger, and the UNDP/GEF project would also need to assist the Ministry of Regional Development in making this Fund operational. The present GEF project would assist the Ministry and NMF with practical strategies, including development of selection criteria, which at present are non-existent in the NPM-2020. This mode of cooperation would also be used for the construction activities under Component 4.

64. GEF-funded investment resources of USD 3.0 million will contribute to the Pilot NAMA fund providing some form of performance based grant, with the purpose of unlocking investment funds. Performance based grants are required to address first-mover risks for urban NAMA projects along with incremental costs related to the global mitigation benefits. Together, these two factors mean that urban NAMA projects, and in particular the pilot projects developed within the scope of this GEF project may require grant funding if they are to be realized.

65. The performance based grant would be designed to take into account the following important factors and considerations:

- The multitude of project types – there is a significant variety of potential urban projects, which could be financed. This makes it difficult to come up with uniform technical parameters of the projects on the basis of which to calculate and justify the amount of grants to be provided. Hence, it makes good sense to evaluate these projects not in terms of their design parameters, but rather – in terms of their estimated emission reduction performance.
- The need to define a simple to understand and easy to implement mechanism that does not distort the market.

[24] At the moment, there's only a concept that identifies financing needs (about 30 mln US$ as start-up financing), participating institutions (government, National Welfare Fund Samruk-Kazyna, WB, ADB, EBRD), types of activities and target groups (entities in the SER; medium and small businesses),

- The linking of grant amounts to the size of the avoided externality (measured in terms of GHG emission reductions), along with a floor / ceiling to avoid extremes.

The provision of incentive payments will be done only for projects that meet eligibility criteria to be defined in the Technical Assistance activities of output 3.2. These eligibility criteria will be defined by project type to take into account the different economics of the projects and their relevant technical parameters.

66. Delivery of this Output will include the following specific activities.

Activity 3.1.1 Provide concessional finance (e.g. performance-based grants) to urban NAMAs according to the criteria of the established Fund.

Output 3.2 Pilot NAMA fund established, managed and evaluated

67. This output describes the technical assistance needed to establish, manage and evaluate the fund described under output 3.1 above.

68. Delivery of this Output will include the following specific activities.

Activity 3.2.1 Review and evaluate options for establishing a performance based funding mechanisms credit line for the pilot NAMAs identified within the NMF, examining existing practices in Kazakhstan and international best practice. Working closely with the NFM stakeholders, develop an approach for funding emission reduction projects prioritized in urban NAMAs and facilitating private investment in improved urban infrastructure.

Activity 3.2.2 Establish, operate and manage the Pilot NAMA funding mechanism / credit line / fund. This will include:

(i) conclusion of an agreement with NMF to create a legal and institutional framework and management structure for the functioning of the credit line;

(ii) endorsement of a list of eligible technologies, eligibility requirements, size of grants (if required) based on project mitigation performance;

(iii) preparation and dissemination of the information packages on the credit line to potential borrowers (e.g. via meetings, information leaflets and posters, workshops & seminars), principally the investment projects from Component 1 and 2;

(iv) consultations with prospective borrowers on alignment of their project with list of eligible activities;

(v) screening and approval of applications;

(vi) conclusion of an agreement with NMF on continuation of this credit line after the end of the project

Activity 3.2.3 Evaluate the performance of the Pilot NAMA funding mechanism.

Output 3.3 Financing for pilot NAMA projects facilitated

69. This activity will facilitate financing for the urban NAMAs by providing a brokerage type support to financers, investors and the NAMAs to facilitate the investments. This

addresses the gaps between the financiers who have available (concessional) investments, and the projects that are looking for funding. The activities will provide inputs to, and build on the concepts and proposals developed under output 2.2.

70. Delivery of this Output will include the following specific activities.

Activity 3.3.1 Introductory services for banks to connect them with municipalities and project developers. This will include field trips to municipalities.

Output 3.4 Funding diversification strategy and mechanisms to leverage additional financing from public, private and international sources of funding developed

71. While GEF funds will be used under Output 3.1 to seed the pilot fund, for future scale-up of the approach and much wider adoption of the NAMA mechanism in low carbon urban development additional financing will be needed. As such, it is necessary to establish a funding diversification strategy and propose mechanisms to allow for leveraging of addition contributions to the NAMA fund from a broad range of sources. This output will address this need.

72. Delivery of this Output will include the following specific activities.

Activity 3.4.1 Review and analyze the existing funding sources available from public, private and international sources within Kazakhstan.

Activity 3.4.2 Review international practices for funding urban NAMAs to identify models suitable for adoption by Kazakhstan.

Activity 3.4.3 Conduct a multi-stakeholder consultation process to review options, and gather insight on discuss the options and other sources for NAMAs

Activity 3.4.4 Develop a diversification strategy and associated leveraging mechanisms.

2.2.4 Component 4: Implementation of pilot urban NAMA

73. The desired Outcome of Component 4 is that a "Pilot project demonstrates feasibility of urban emission reduction for future replication" (Outcome 4). The intention is to progress rapidly with a pilot NAMA that tests some of the key characteristic of a NAMA project in a generally easier and more controlled way than would be the case for the other NAMAs developed under components 1 to 3. In particular the pilot NAMA does not require loan finance, and baseline financing has already been identified. In addition there is a strong political will to implement the project which may not be present initially in other cities. If possible, the financing mechanisms within the NMF created above will be tested within this component. This component will benefit from Investment funding from the GEF, and result in one Output:

Output 4.1 Prigorodnoye urban NAMA project implemented, which pilots the concept of urban NAMA in the district of Prigorodnoye in the capital city of Astana.

74. Prigorodnoye is situated close to Astana international airport, and is a small residential area of 2 km^2 with a compactly living population of 2,200 inhabitants. Prigorodnoye is divided into two main parts: the old part (35-40 years old), which consists of 6 multi-apartment buildings (636 apartments in total) and a kindergarten and a school, and the currently expanding new part, which is seeing the construction of a residential community consisting of more than 80 individual houses (established

by NSC RK) and the Yuzhnyi residential complex. The outdated equipment of the existing boiler house, which provides 9,500 Gcal/y heat (but not hot water) to the old part of Prigorodnoye, is inefficient and GHG-intensive. The addition of the new part of Prigorodnoye is causing additional heating demands that exceed the existing boiler house, which consists of 6 boilers (gross capacity of 3.9 Gcal/h) that were installed in 1965. As a result of depreciation and district growth, apartments (especially the insulation of the building envelope and heating units) and energy supply infrastructure require renovation, rehabilitation and expansion.

75. As mentioned in Section 1.3, the baseline activities in Prigorodnoye relate to the Government of Kazakhstan's ambition to demonstrate a comprehensive approach to modernization, in particular the management of urban areas and provision of sustainable and reliable public services to city's residents. For this, the Government and UNDP have committed USD 11 million for program design and initial stage of implementation in 2013-2014 of a number of measures including baseline activities to improve energy efficiency to technical norms in Kazakhstan. UNDP has developed the technical design for the modernization program and worked out the appropriate institutional framework (involving MMC and Association of Apartment Owners), and structure financing for program implementation.

76. The potential for demonstration impact from the low carbon modernization of Prigorodnoye derives from the similarity of the district to other settlements in Kazakhstan. For instance, in Astana alone there are 5 settlements with a similar structure to Prigorodnoye, i.e. which have residential multi-apartment buildings and administrative buildings connected to a coal-fired heat source. Such settlements, large cities with closely situated small towns that suffer from chronic underinvestment, resulting in a stock of ageing, obsolete and inefficient assets are typical for many oblasts in Kazakhstan. Testing the concept of urban NAMA in Prigorodnoye for making possible low carbon modernization will therefore set an invaluable precedent for replication across Kazakhstan. Prigorodnoye's demonstration effect will be further amplified by the fact that Astana will host Global Expo 2017 under the theme "Energy for the Future". The district is ideally located (in the vicinity of Astana International Airport and exhibition center for EXPO) to serve as a demonstration platform for sustainable and low-carbon urban solutions in Kazakhstan and globally.

77. The GEF funds will be used to invest in additional emission reduction measures, which go beyond the baseline requirement of national modernization program (NMP). The exact list of additional measures will be defined based on abatement cost curve for Prigorodnoye to be developed under Component 1 as part of urban NAMA design. For example, under NMP, it is mandatory to equip all residential buildings with heat meters and automated heat substations, however full thermal modernization is not required and is yet not commercially viable investment for tenants or BMCs to invest on their own. Similarly, installation of decentralized renewable energy systems (such as solar rooftops or solar water heating) is not mandated under NMP, but can significant reduce district's carbon footprint for its primary energy source is the coal-based boiler house. The set of measures preliminarily identified at the PPG stage, which include a complete renovation of the district heating system from the boiler (pipelines, variable speed drives) to the end-

users (in-building substations with heat metering, integrated hot-water heat exchangers, radiator replacement),full thermal modernization of buildings and solar hot water generation to replace up to 10% of the district heating, are projected to yield 4,750 tCO2/year in direct annual or 95,000 tCO2 in direct lifetime GHG emission reductions, which represents savings of 63% against the baseline[25]. The Government is fully committed to provide additional funding (above baseline) for demo-project to make sure the ambitious target is met. Further details on the expected GHG emission reductions are provided in Annex F.

78. Under Component 1 urban GHG inventories and baseline, and abatement potential and cost curves will be developed for Prigorodnoye, and project documentation (including this case tender documentation) will be developed under Component 2 for those investments with additional emission reduction measures that go beyond the baseline.

79. The GEF contribution of USD 700,000 in investment will be used for the following activity:

Activity 4.1.1 Design and build the identified measures through a competitive tender.

Activity 4.1.2 Design, establish and implement MRV system for the Prigorodnoye project

2.2.5 Component 5: Monitoring, verification and knowledge management

80. Component 5 will serve the purpose of linking the project into national GHG mitigation efforts, including through promoting better information dissemination to stakeholders and linking the NAMA process with the domestic Emission Trading Scheme (ETS) for industrial emitters. While this has not been designed with NAMAs specifically in mind, the Ministry of Environment has indicated their intention to facilitate this link. As described in Section 1.3, the Kazakh ETS will cover over 128,000 enterprises with annual emissions above 20,000 tCO_2 and will include a national MRV and registry system with assistance from bilateral donors including the German Government and USAID.

81. Component 5 has two desired Outcomes, namely:

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

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

82. These Outcomes, including their specific outputs and activities, are described in turn below.

[25] Baseline and project emission reductions were estimated following bottom-up approach based on the results of energy audits of one residential building and one kindergarten and a prefeasibility study for the district upgrade.

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

Output 5.1. National MRV guidelines and standard methodologies for urban NAMAs developed

83. An MRV framework is necessary for ensuring credibility and accountability of a project's estimated GHG emission reductions. In addition, having a good MRV framework in place is likely to facilitate national planning, learning regarding good practices, promote coordination and communication amongst emitting sectors and increase the likelihood of gaining international support for a NAMA.

84. The Project will support developing a framework consisting of guidelines and methodologies for Monitoring, Reporting and Verification (MRV) of NAMAs in Kazakhstan.

85. Under the framework of NAMA, the identity of responsible institutions is not prescribed, except that submission of NAMAs to the UNFCCC Registry must be undertaken by a national government entity. The limited experience with NAMAs to date suggests that in the early stages of NAMA identification and prioritisation top-down structures may be very efficient (e.g. often NAMAs have their foundations in national policies and regulations and are developed by ministries and agencies) and in subsequent phases stakeholder involvement should be broad-based and inclusive. In particular, for the purpose of MRV and the certification of emission reductions it is important that the roles, responsibilities and process of interaction of the stakeholders involved in all aspects and at all phases of the NAMA should be clearly defined, including the following aspects[26]:

- Alignment with national long-term development planning and domestic policy implementation;
- Governing structure, the entities involved and their respective roles and responsibilities;
- Financing structure; and
- Key institutions and entities responsible for administering and enforcing any included regulatory initiatives.

86. Delivery of this Output will include the following specific activities.

Activity 5.1.1 Review of international experience and analysis of their applicability to Kazakh urban sector, including recommendations based on this review:

- e.g. independence of verifiers (i.e. third party) to ensure confidentiality of industry data and credibility;
- Domestic capacity for verification services are often weak, need to draw on int'l auditors or build capacity;
- What to verify must be made clear: Verifiers should only be responsible for data that is easily verifiable (e.g. data on fuel use, compliance with

[26] 2013 UN Guidance for NAMA Design

procedures) and not for assessing politically influenced elements, such as baselines.

Given the urban focus of this Project, it is anticipated that there will be different roles and requirements between national and sub-national/urban levels. Whereas the national level will lead on framework design, the urban level will lead on the MRV implementation including gathering and reporting on relevant data. To ensure appropriate coordination of the MRV at the urban level, and also between the urban and national levels, a joint, multi-agency committee will be established to facilitate information sharing and communication.

Activity 5.1.2 Analyze compatibility with EU ETS, UNFCCC guidelines and domestic ETS;

Activity 5.1.3 Assess the existing institutional structures if the country needs a designated organisational set-up to facilitate NAMA development and implementation;

Activity 5.1.4 Identify key data and parameters in consultation with relevant stakeholders;

Activity 5.1.5 Develop MRV framework that distinguishes clearly between these three activities as distinct and carried out by different entities (what to do, how to do it, who should do it, and when it should be done);

Activity 5.1.6 Develop tracking tools with indicators and baselines;

Activity 5.1.7 Identify capacity gaps for MRV.

Output 5.2. Rules and procedures for certification of emission reduction credits from NAMAs and import into domestic ETS developed

87. In order to allow for emission reduction credits from NAMAs to be imported into the domestic ETS, efforts will be required to develop national rules and procedures for certified NAMAs, building on the work of Output 5.1. Activities to produce this output will include:

Activity 5.2.1 Review of international experience and analysis of their applicability to Kazakh NAMAs and ETS, and develop recommendations based on this review

Activity 5.2.2 Propose a certification procedure, and hold stakeholder consultations to build consensus and support.

Activity 5.2.3 Develop agreed rules and procedures, and work to facilitate adoption.

Output 5.3. Emission reduction purchase agreement signed between domestic entities under ETS and municipality

88. Output 5.3 aims to pilot the use of the rules and procedures developed under Output 5.2 by working to develop a signed purchase agreement between one or more domestic entity under the ETS and a certified NAMA that will result from the work of Components 1-3. Activities to produce this output will include:

Activity 5.3.1 Facilitate discussions between emitters under the ETS and NAMAs under development to identify opportunities.

Activity 5.3.2 Support negotiations between the parties to ensure equitable agreements between potential parties to the agreement. Given the lack of experience in Akimats with such negotiations it is expected that the project will need to support them in the discussions through training, hands on guidance, and information.

Activity 5.3.3 Transaction facilitation for registration and transfer of certificates from urban NAMAs in the national registry.

Output 5.4. National database for urban inventories and registry for NAMAs operational at MEWR

89. Output 5.4 constitutes the development of a database for urban inventories and the creation of an operations registry for NAMAs within the MEWR. The database must clearly meet the requirements of the UNFCCC as well as the domestic ETS.

90. Activities to produce this output will include:

Activity 5.2.1 Scoping of database requirements based on international experience and domestic requirements. This activity will include stakeholder consultation to ensure buy-in. Compatibility with international databases will be taken into account including the UNEP Risø NAMAs Information Note (NINO) template (http://namapipeline.org) and Ecofys NAMA concept note and proposal templates (http://namadatabase.org/index.php/Downloads)

Activity 5.2.2 Development of specifications for the database and tender documentation, tendering.

Activity 5.2.3 Piloting of the database using NAMAs to be developed under components 1-3.

Activity 5.2.4 Database hosting and management assigned to maintain the database, and training provided as needed.

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

91. Given the project's ambition to promote NAMAs in the urban sector in Kazakhstan, communicate effectively with cities that are engaging with the project under components 1-3, disseminate information about the pilot NAMA, and to scale up the approach beyond the 15 NAMAs within this project it is critically important to develop an effective communication and dissemination strategy. Under Outcome 5b efforts will be made to address this need through targeted dissemination activities.

Output 5.5. Knowledge resources and lessons learned from the pilot urban NAMAs disseminated

92. This Output will involve developing the appropriate formats for reaching the relevant stakeholders (i.e. the general public, and specifically stakeholders in Kazakh cities and towns) to support them at different stages of the NAMA process (e.g. concept, development and implementation phases). Knowledge resource production and dissemination will

    i) target the general public through a nationwide media campaign on low-carbon / sustainable cities where innovative projects / cities will be featured. This will aim to mobilize broader political support at national and local level and support competition between cities.

    ii) target Mayors, Deputies, advisors and technical staff who are at the municipal level in charge of the allocation of resources in areas of urban planning and development, infrastructure services (energy, water and waste), as well as municipal procurement. Activities will focus in particular on raising awareness levels of climate change and

the NAMA concept and process, supporting capacity building to implement local NAMAs and develop proactive attitudes at the municipal level.

93. A key initiative under Output 5.5 will be the establishment of an online platform (through the project's website) that will act as an inter-municipal portal on climate change for Kazakh municipalities, as a port of call for local government practitioners. This will foster inter-municipal communication and therefore enhance cooperation and learning through the exchange of knowledge and skills and strengthening municipal representation on climate change issues. The portal would collect resources relating to NAMAs and local government activities, and make it possible to join groups of colleagues in different municipalities in Kazakhstan working in similar areas and to keep up to date with developments. A regular newsletter would be sent out (either electronic or via existing print publications), updating on activities, best practices and latest thinking in municipal energy efficiency and climate change management; including the feeding back of different municipal voices to national policy audiences (e.g. through tasked representatives).

94. The portal should leverage existing inter-municipal structures and should explore alignment with other initiatives such as the EU's Covenant of Mayors East Initiative, ICCLEI and World Bank / IFC activities on urban modernization. In particular, the portal would facilitate the coordination of activities between different stakeholders, and the sharing of experience regarding the strengthening local capacity (including for financing energy efficiency measures), analysis of legislation and reform, multi-stakeholder cooperation across sectors, leadership in climate action; and best practice dissemination and multimedia campaigns.

95. In addition, designation of local focal points within each municipality should be encouraged (e.g. in municipal planning departments), who would deal with NAMA and climate change related issues, including communication and knowledge dissemination activities, coordination across the different departments within the administration as well as with other municipalities. This will be linked with Component 1 outputs.

96. The respective merits and effectiveness of several formats will be considered (see below) and, if considered effective, several types of formats may be 'bundled' into a single Municipal NAMA Information Platform. Merits of different formats will be assessed based on their likely effectiveness for raising awareness, facilitating information access and providing actionable guidance and support to Kazakh cities and towns. In particular, the following formats are strong contenders for addressing gaps in the availability of information and best practice in NAMA development and implementation (but should be validated by project manager, the project board, executing agency/ies and other key stakeholder during project inception meetings):

    - *Targeted seminars* - as part of efforts to promote the NAMA concept and the sharing and transferring of experience and expertise developed during the pilot project, seminars and training courses may take place across Kazakhstan and in particular in those locations that are identified as promising NAMA investments in Components 1 and 2. One themed national workshop could take place focusing on best practice in urban and municipal planning that brings together the practitioners that are members of the inter-

municipal portal on climate change on an annual or biennial basis, in rotating locations in the Republic and around new themes in climate change related planning issues.

- *Website* - information about the Project, the NAMA concept (in Russian), activities and outputs will be made available online and linked to other NAMA efforts elsewhere (e.g. GEF projects). The website will be updated regularly to reflect content created and developments and content generated during project implementation, including training materials, and case studies, will be added to the website accordingly.
- *Study tours* - the concept of a study tour, especially city-to-city exchange schemes, is appropriate to promote exchanges of experiences with NAMA and other municipal mitigation. Study tours are particularly relevant for bringing together groups of urban professionals around demonstration sites (e.g. in Prigorodnoye) in order to engage over the practicalities of implementing an urban NAMA project. Presentations would be given by relevant project promoters to provide a powerful example of how these investments were achieved, and open up discussion concerning the implications of replicating NAMA projects elsewhere.
- *City twinning* – As mentioned under component 1, to support learning "twinning arrangements" will be facilitated, first between innovators and more advanced cities from the West and then between early adopters and innovators.
- *Promotional materials* such as case studies, brochures, briefings, training courses and possibly a handbook on municipal NAMAs will target municipal stakeholders and other potential project promoters and professional groups. The handbook could contain a collection of experiences from across Kazakhstan, best practice and key challenges.

97. The content of the activities will be based on international best practices, including the emerging literature and experiences on NAMAs and global networks such as the NAMA Partnership (www.namapartnership.org), the International Partnership on Mitigation and MRV (http://www.mitigationpartnership.net), the Partnership for Market Readiness (PMR) (http://www.thepmr.org) and the European Union's Covenant of Mayors - East Initiative, including the Sustainable Energy Action Plan (SEAPs) development process. The novelty of the NAMA concept and development, implementation and operation process for cities and towns in Kazakhstan makes this a particularly critical and potentially challenging process, which should be guided by a carefully designed roll-out plan. This plan should be detailed at project inception, according to local context and the experience of project managers and other contributors, and should include at least the following activities:

Activity 5.2.1 Set up an inter-municipal portal for the city-to-city exchange;

Activity 5.2.2 Develop a communication and dissemination strategy (based on scoping, consultation with local stakeholders, understanding the baseline of awareness and the types of information needs (informed by work under Component 1 and possibly 2);

Activity 5.2.3 Establish awareness index for cities and measure (via survey) baseline, mid-term, and end of project values

Activity 5.2.4 Harvesting lessons learnt, e.g. through after-action reviews across Components 1-4;

Activity 5.2.5 Liaison with global NAMA processes between UNDP project managers.

2.3 Innovativeness, sustainability and potential for scaling up

98. The innovativeness of this Project in Kazakhstan is due to it being the first attempts globally to pilot-test the concept of urban NAMAs and leverage carbon finance for urban emission reduction projects through the NAMA mechanism.

99. The strategy to ensure sustainability of the Project results and, in particular, the national level fund, is based on the following:

100. The Government of Kazakhstan is fully committed to support Fund's capitalization till 2020 (the end of National Modernization Program) at which point the Fund is expected to generate sufficient reflows for its continued operations

101. The project will support the development of Fund's diversification strategy and mechanisms to leverage additional financing from public, private and international sources of funding, such as Green Climate Fund or carbon markets.

102. The Project has considerable potential for scaling-up not only in Kazakhstan, but also in other countries and regions with similar urbanization and GHG emission patterns. If successful, the urban NAMA can become a powerful tool for citywide GHG emission reduction. In Kazakhstan alone, there are over 100 cities and towns where the approach can be scaled-up.

2.4 Global environment benefits

103. The Project activities on implementation of a pilot urban NAMA, establishment of a NAMA Fund and ensuing replications are expected to generate a range of GHG emission reductions which are summarized in the table below. A more detailed analysis of the GHG impact is presented in Annex F.

Table 3. Projected GHG impacts

GHG emission reductions	Project Component	tCO2 (cumulative)	Comments and assumptions
Direct	Component 4: Implementation of pilot urban NAMA Component 3: Financing for urban NAMAs	370,000	Calculations are based on estimated direct GHG impacts of two project components: Component 4: Implementation of pilot urban NAMA, and Component 3: Financing for urban NAMAs. Implementation of a pilot NAMA in Prigorodnoye district, that includes a set of measures to upgrade the district heating and in-building systems and introduce renewable energy heat generation, is expected to generate 95,000 tCO2 in lifetime direct GHG emission reductions. Out of the total NAMA Fund capitalization of $44 million, 60% (or $26.4 million) is

			expected to be used for investment, with the balance going toward technical assistance. 50% of the investment share is going to be invested during the project lifetime and the balance after end-of-project. Thus, investment of $13.2 million into subsequent NAMAs from the project-supported NAMA funding mechanisms during *project lifetime* with an average threshold of 220 GJ in annual energy savings per $1,000 invested (based on the analysis of Prigorodnoye pilot) is expected to generate a further 275,000 tCO2 in lifetime direct GHG emission reductions.
Direct post-project	Component 3: Financing for urban NAMAs	275,000	Post-project investment of $13.2 million into further NAMAs from the project-supported NAMA funding mechanisms with an average threshold of 220 GJ in energy savings per $1,000 invested (based on the analysis of Prigorodnoye pilot) is expected to generate a further 275,000 tCO2 in lifetime direct post-project GHG emission reductions.
Indirect	Components 1,2 and 5: Integrated municipal planning, Institutional framework for urban NAMAs, MRV	1,025,000 – bottom-up 5,000,000 – top-down	*Bottom-up estimate:* Replication of the pilot NAMA in Prigorodnoye to at least 5 other similar districts across Kazakhstan is going to generate 475,000 tCO2 in indirect savings. Additional capitalization of the NAMA Fund at least to the original investment level of $26.4 million is going to bring about an additional 550,000 tCO2 in indirect savings, for a total bottom-up estimate of 1.025 million tCO2. *Top-down estimate:* The total market potential for GHG emission reductions in the urban sector is estimated at around 50 million tCO2 (Kazakhstan 3rd National Communication). With a conservative GEF causality factor of 10%, this translates into indirect top-down emission reductions of 5 million tCO2.

3 PROJECT RESULTS FRAMEWORK

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

	Indicator[27]	Baseline	Mid-term targets	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective[28] Support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction targets	Number of Urban NAMAs under development	0	4	14	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Value of Urban NAMAs under development (USD) = cumulative cofinancing realized	0	20 million	70 million	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Number of Urban NAMAs under implementation	0	1	4	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Value of Urban NAMAs under implementation (USD)	0	3 million	3 million	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Expected direct lifetime GHG emission reductions from pilot	0	74,000 t CO_2	370,000 t CO_2	Design and commissioning documentation, MRV system reports, APR/PIR	

[27] Consistent with UNDP's mandate to promote gender equality, reflected in the UNDP gender equality strategy 2014-2017, and the 3rd Millennium Development Goal (to end poverty by promoting gender equality), indicators will be collected gender-disaggregated and will aim to advance gender mainstreaming and social equity.

[28] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

	NAMA implementation and NAMA Fund investments					
	Number of people benefiting from the improved transport and urban systems	0	2,200	180,000	Inception, Mid-term and Final report, APR/PIR, NAMA proposals	
	Establishment of financial facilities for NAMAs	1	2	5	Inception, Mid-term and Final report, APR/PIR, NAMA proposals (0: not an objective/component, 1: no facility in place, 2: facilities discussed and proposed, 3: facilities proposed but not operationalized/funded, 4: facilities operationalized/funded but have no demand, 5: facilities operationalized/funded and have sufficient demand)	
Outcome 1[29] **Enable participating municipalities to articulate their climate-related priorities, and identified and prioritized urban mitigation actions (urban NAMAs)**	Number of urban GHG Inventories, Abatement costs curves and NAMA factsheets prepared and discussed with stakeholders	0	5	15	Inception, Mid-term and Final report, APR/PIR, inventories, ACCs, and NAMA factsheets	
	Number of urban GHG reduction targets established and officially adopted by Akimats	0	5	15	Official resolutions from Akimats	
Outcome 2 **Put in place the enabling institutional framework to facilitate the implementation of urban mitigation**	Technical assistance delivered according to ToR agreed with each akimat (signoff between UNDP and akimat)	0	5	15	Inception, Mid-term and Final report, APR/PIR	Project opportunities are identified Akimats choose to access project support
	Bankable project documents prepared	0	5	15	Inception, Mid-term and Final report, APR/PIR	
	Public service contracts signed / tariffs agreed	None	Up to 5, depending on needs	Up to 15, depending on needs	Inception, Mid-term and Final report, APR/PIR	

[29] *All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.*

Outcome 3 **New and additional financing for urban NAMAs levered**	Capitalization of funding mechanisms for urban NAMAs	0	10 million	44 million	Fund reports, Inception, Mid-term and Final report, APR/PIR	Bankable projects are identified and banks invest
	Financing provided to urban NAMA projects from Pilot NAMA fund (USD)	0	2 million	8 million	Fund reports, Inception, Mid-term and Final report, APR/PIR	
	Diversification strategy developed	None	None	Strategy developed	Agreed strategy, Inception, Mid-term and Final report, APR/PIR	
	Direct lifetime GHG emission reductions from NAMA fund	0	55,000 t CO_2	275,000 t CO_2	Design and commissioning documentation, MRV system, Inception, Mid-term and Final report, APR/PIR	
Outcome 4 **Identify and finance a pilot urban mitigation action to demonstrate the feasibility of urban emission reduction for future replication**	Direct annual GHG emission reductions from pilot urban mitigation action	0	950 t CO_2	4,750 t CO_2	Design and commissioning documentation, MRV system, Inception, Mid-term and Final report, APR/PIR	
	Expected direct lifetime GHG emission reductions from pilot urban mitigation action	0	19,000 t CO_2	95,000 t CO_2	Design and commissioning documentation, MRV system, Inception, Mid-term and Final report, APR/PIR	
Outcome 5a **GHG emission reductions of implemented urban NAMAs are systematically monitored, verified and reported**	NAMA MRV process allows certified emission reduction credits to be imported into the domestic Emission Trading Scheme	None	None	1 emission reduction purchase agreement signed	Resolutions / agreements, Inception, Mid-term and Final report, APR/PIR	The domestic ETS continues to function Political will exists to establish mechanisms to import credits into domestic ETS
	MRV system for urban emissions set up and operational in cities	0	1	4	MRV reports	
Outcome 5b **Kazakh cities and towns are aware of, and have access to, information and guidance on urban NAMAs**	Awareness index to be defined in inception workshop incorporating knowledge and 'use of knowledge' factors at city/town level	Awareness index, & baseline established through survey of cities & towns	Awareness index increased by 50%	Awareness index doubled	Survey results, Inception, Mid-term and Final report, APR/PIR	

4 TOTAL BUDGET AND WORKPLAN

Award ID:	*00082364*	Project ID:	*00091328*
Award Title:	PIMS 4670 CC FSP: Kazakhstan Sustainable Cities		
Business Unit:	*KAZ10*		
Project Title:	Nationally Appropriate Mitigation Actions for Low-carbon Urban Development		
PIMS no. 4670	*4670*		
Implementing Partner (Executing Agency)	Government of Kazakhstan: Ministry of Regional Development		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description/ Input	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Amount (USD) Year 4	Amount (USD) Year 5	Total (USD)	Budget notes
OUTCOME 1: Integrated municipal planning, targets and prioritization for urban mitigation actions	MRD	62000	GEF	71400	Project manager	18,090	12,060	18,090	6,030	6,030	60,300	1
				71200	International Consultants	26,250	17,500	26,250	8,750	8,750	87,500	2
				71300	Local Consultants	41,760	27,840	41,760	13,920	13,920	139,200	3
				72100	Contractual Services – Companies	3,600	2,400	3,600	1,200	1,200	12,000	4
				71600	Travel	26,844	17,896	26,844	8,948	8,948	89,480	5
				72400	Communications & Publications	600	400	600	200	200	2,000	
				75700	Training, Workshops and Conferences	2,856	1,904	2,856	952	952	9,520	
					TOTAL Outcome 1	**120,000**	**80,000**	**120,000**	**40,000**	**40,000**	**400,000**	
OUTCOME 2: Institutional framework for urban NAMAs	MRD	62000	GEF	71400	Project manager	15,390	10,260	15,390	5,130	5,130	51,300	1
				71200	International Consultants	37,800	25,200	37,800	12,600	12,600	126,000	2
				71300	Local Consultants	53,610	35,740	53,610	17,870	17,870	178,700	3
				72100	Contractual Services - Companies	66,300	44,200	66,300	22,100	22,100	221,000	4
				71600	Travel	32,562	21,708	32,562	10,854	10,854	108,540	5
				72400	Communications & Publications	750	500	750	250	250	2,500	
				75700	Training, Workshops and Conferences	3,588	2,392	3,588	1,196	1,196	11,960	
					TOTAL Outcome 2	**210,000**	**140,000**	**210,000**	**70,000**	**70,000**	**700,000**	
OUTCOME 3: Financing for urban	MRD	62000	GEF	71400	Project manager	7,200	7,200	10,800	7,200	3,600	36,000	1
				71200	International Consultants	11,200	11,200	16,800	11,200	5,600	56,000	2

NAMAs				71300	Local Consultants	22,250	22,250	33,375	22,250	11,125	111,250	3
				72100	Contractual Services – Companies	4,800	4,800	7,200	4,800	2,400	24,000	4
				71600	Travel	12,408	12,408	18,612	12,408	6,204	62,040	5
				72400	Communications & Publications	300	300	450	300	150	1,500	
				72600	Grants	0	1,500,000	1,500,000	0	0	3,000,000	6
				75700	Training, Workshops and Conferences	1,842	1,842	2,763	1,842	921	9,210	
					TOTAL Outcome 3	**60,000**	**1,560,000**	**1,590,000**	**60,000**	**30,000**	**3,300,000**	
OUTCOME 4: Implementation of pilot urban NAMA	MRD	62000	GEF	72100	Contractual Services - Companies	0	0	140,000	0	0	140,000	4
				72600	Grants	0	0	560,000	0	0	560,000	7
					TOTAL Outcome 4	**0**	**0**	**700,000**	**0**	**0**	**700,000**	
OUTCOME 5: Monitoring, verification and knowledge management	MRD	62000	GEF	71400	Project manager	10,260	10,260	15,390	10,260	5,130	51,300	1
				71200	International Consultants	20,300	20,300	30,450	20,300	10,150	101,500	2
				71300	Local Consultants	36,020	36,020	54,030	36,020	18,010	180,100	3
				72100	Contractual Services - Companies	15,000	15,000	22,500	15,000	7,500	75,000	4
				71600	Travel	19,768	19,768	29,652	19,768	9,884	98,840	5
				72400	Communications & Publications	1,600	1,600	2,400	1,600	800	8,000	
				75700	Training, Workshops and Conferences	7,052	7,052	10,578	7,052	3,526	35,260	
					TOTAL Outcome 5	**110,000**	**110,000**	**165,000**	**110,000**	**55,000**	**550,000**	
Project Management	MRD	62000	GEF	71400	Project manager	7,020	7,020	7,020	7,020	7,020	**35,100**	1
				71400	Project assistant	22,880	22,880	22,880	22,880	22,880	**114,400**	8
				72100	Contractual Services	4,000	4,000	4,000	4,000	4,000	**20,000**	4
				72200	Equipment and Furniture	600	600	600	600	600	**3,000**	9
				71600	Travel	500	500	500	500	500	**2,500**	10
				72400	Communication & Audio Visual Equip	500	500	500	500	500	**2,500**	11
				74500	Miscellaneous Expenses	500	500	500	500	500	**2,500**	12
				74599	Miscellaneous Expenses (Project Direct Costs)	20,000	20,000	20,000	20,000	20,000	**100,000**	13
					GEF PM total	**56,000**	**56,000**	**56,000**	**56,000**	**56,000**	**280,000**	
		04000	UNDP	71400	Project manager	1,000	1,000	1,000	1,000	1,000	**5,000**	
				71400	Project assistant	3,120	3,120	3,120	3,120	3,120	**15,600**	

				72100	Contractual Services	4,000	4,000	4,000	4,000	4,000	**20,000**	
				72200	Equipment and Furniture	1,600	1,600	1,600	1,600	0	**6,400**	
				71600	Travel	1,000	1,000	1,000	1,000	1,000	**5,000**	
				72400	Communication & Audio Visual Equip	0	0	0	0	0	**0**	
				74500	Miscellaneous Expenses	1,600	1,600	1,600	1,600	1,600	**8,000**	
					UNDP PM total	**12,320**	**12,320**	**12,320**	**12,320**	**10,720**	**60,000**	
					TOTAL Project Management	**68,340**	**68,340**	**68,340**	**68,340**	**66,740**	**340,100**	
					UNDP TOTAL	**12,320**	**12,320**	**12,320**	**12,320**	**10,720**	**60,000**	
					GEF TOTAL	**556,000**	**1,946,000**	**2,841,000**	**336,000**	**251,000**	**5,930,000**	
					PROJECT TOTAL	**568,320**	**1,958,320**	**2,853,320**	**348,320**	**261,720**	**5,990,000**	

Summary of funds

	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total (USD)
GEF	556,000	1,946,000	2,841,000	336,000	251,000	**5,930,000**
UNDP (Cash)	12,320	12,320	12,320	12,320	10,720	**60,000**
UNDP (In-kind)	333,333	333,333	333,334	0	0	**1,000,000**
MEWR (Cash)	740,579	740,579	740,579	435,849	435,849	**3,093,435**
MRD (Cash)	5,560,000	5,560,000	5,560,000	5,560,000	5,560,000	**27,800,000**
Eurasian Development Bank (Soft Loan)	0	7,500,000	7,500,000	7,500,000	7,500,000	**30,000,000**
International Finance Corporation (IFC) (In-kind)	120,000	120,000	120,000	120,000	120,000	**600,000**
EnKom-St (In-kind)	200,000	200,000	200,000	200,000	200,000	**1,000,000**
Ergonomica, Ltd (In-kind)	196,132	196,132	196,132	196,132	196,131	**980,659**
Grundfos (In-kind)	171,000	171,000	171,000	171,000	171,000	**855,000**
GRAND TOTAL (GEF+co-financing)	**7,889,364**	**16,779,364**	**17,674,365**	**14,531,300**	**14,444,700**	**71,319,094**

BUDGET NOTES:

1. The project manager position has been estimated at 52 weeks per year at an average rate of $900 per week. As the project manager's duties include both technical work in each component as well as management and administrative work across all components the position is divided between the components (approximately 85% of time), and project management.
2. International consultant rates are estimated at average of $3,500 per week.
3. National short-term consultants rates are an average of $1000 per week, and long-term local expert rates range between $550 and $750 depending on seniority.
4. Contracted services include: Outcome 1 – Communication services to support a stakeholder engagement strategy and Legal services supporting work on adoption of strategies by akimats; Outcome 2 – Legal services related to institutional structures and development of public service contracts and engineering design services for investment proposals; Outcome 3 – Communications services related to marketing the fund, and Legal services for fund structuring; Outcome 4 – engineering design services; Outcome 5 – Legal services related to ETS procedures and Communications services related to marketing and dissemination; Project Management – annual project audit.
5. Travel for international consultants is estimated at $3000 per return flight, and DSA (per diem) of $310 per night. 34 international flights over the 5 year project have been budgeted. Travel for project staff and national experts within Kazakhstan is estimated at $200 per return journey and $100 per diem. Since work will be spread throughout the country in at least 15 cities and many experts a large amount of local travel has been budgeted – 481 trips across all components (this is an average 6.4 expert visits per city per year).
6. $3m is allocated to the NAMA fund under outcome 3 - to be implemented fully in line with UNDP's Guidance on Micro-Capital Grants (https://intranet.undp.org/global/documents/frm/Guidance-on-Micro-capital-Grants.doc)
7. This budget line includes incremental costs of $560,000 allocated to the investments in Prigorodnoye.
8. A project assistant has been budgeted for 52 weeks per year at an average rate of $450 per week.
9. This item includes workstations for the Project Manager and Project Assistant plus shared printer and networking equipment.
10. The budget for travel for Project Management includes costs of travel by members of the Project Board, as well as some travel by the Project Manager and Project Assistant. This line-item is quite modest. Most travel by Project Board members will be covered by co-financing. Most travel by project staff will be covered under technical-assistance components.
11. This item includes phone, fax, and Internet services.
12. This item includes direct costs of project Steering Committee meetings, not including travel or paid staff or consultant time, as well as office supplies.
13. See Annex G for details and estimation of Project Direct Costs

5 MANAGEMENT ARRANGEMENTS

5.1 Project structure

104. The project will be nationally executed (NEX[30]) by the Ministry of Regional Development (MRD) that will act both as the Implementing Partner and the Beneficiary of the project. Implementation support will be provided by the UNDP Country Office (see Project Governance Arrangements below). In its capacity of Executing Entity, MRD will be responsible for overall project management. Besides, MRD will be responsible for the facilitation of all project activities such as international consultant missions, training for respective staff, ensuring appropriate access to project sites, relevant data, records, agencies and authorities. UNDP will provide support services including procurement and contracting, human resources management, and financial services in accordance with the relevant UNDP Rules and Procedures and Results-Based Management guidelines.

105. **Project governance** structure will be aligned with UNDP's new rules for Results Based Management and will be composed of: (i) Project Executive Group – Project Board; (ii) Project Management; (iii) Project Assurance; and (iv) Project Support. The governance structure is described below:

106. Project Executive Group: The Project Board (PB) will be the executive decision making body for the project, providing guidance based upon project progress assessments and related recommendations from the Project Manager (PM). The Project Board will be set up to provide strategic oversight of the Project, and ensure coordination with key baseline initiatives and national investment programs, as well are related activities. The Board will be co-chaired by UNDP and Ministry of Regional Development and will consist of nominees from key partners and stakeholders such as MEWR, Chamber for Housing and Communal Affairs, participating IFIs, Akimats (the list to be confirmed).

The PB will review and approve annual project reviews and work plans, technical documents, budgets and financial reports. The PB will provide general strategic and implementation guidance to the PM. It will meet annually, and make decisions by consensus. The specific rules and procedures of the PB will be decided upon at the project inception meeting. The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by assuring

[30] In line with standing GEF and UNDP policies, the project will be nationally executed by the Government (referred to as 'national implementation' in UNDP terminology). The Government has key control functions related to all aspects of project leadership, management and implementation (e.g. provides the National Project Director, heads and manages the Steering Committee/Project Board, considers and approves key milestones within its jurisdiction – such as annual work plans, budgets, management responses to mid-term and final evaluations, participates in monitoring, etc., as further described in the Management Arrangements). At the same time, under the National Implementation Modality, UNDP can render direct project services on request of Governments. The Government of Kazakhstan has requested such services from UNDP since the national legislation does not allow for direct project execution of international technical assistance by Government entities.

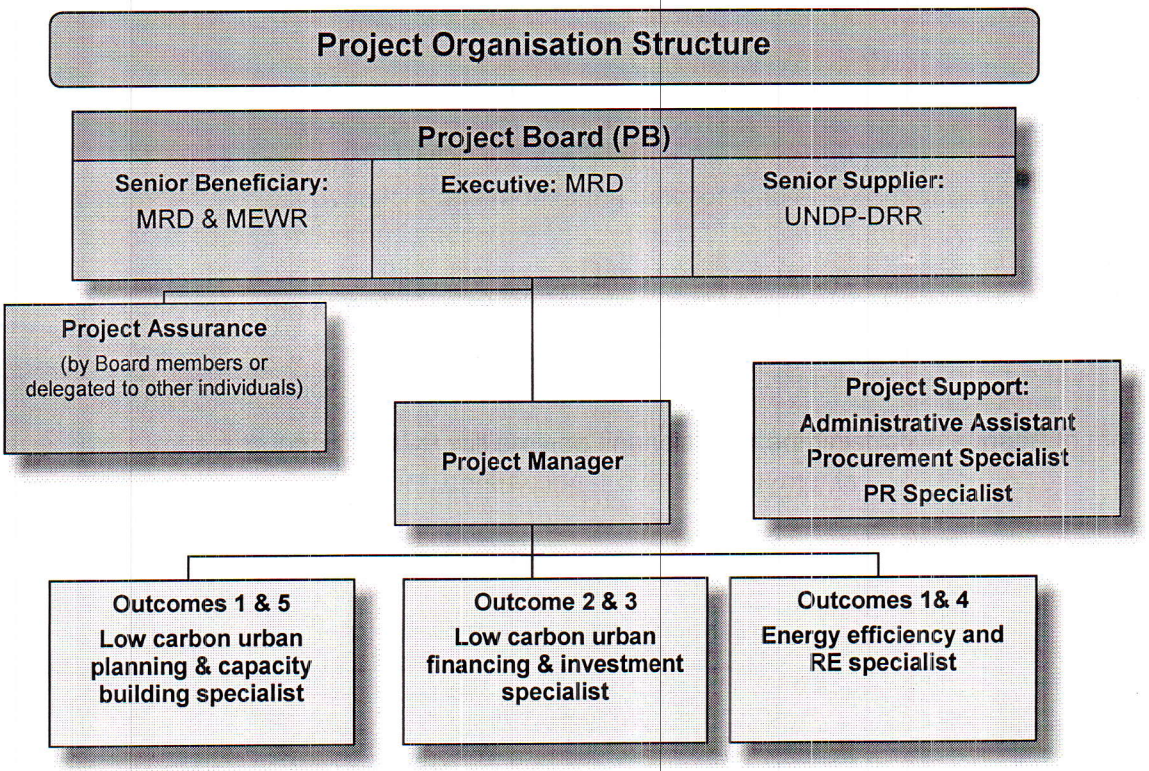
the quality of these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance with standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager. The success of the project implementation is dependent upon strong project guidance, coordination and advocacy from the Project Board. The Project Management Unit (PMU) will be responsible for arranging PB meetings, providing materials to members prior to the meeting, and delineating a clear set of meeting objectives and sub-objectives to be met.

Functions of the Project Board	Representation
Executive: individual representing the project ownership to chair the group.	MRD, Vice-Minister will convene the Project Board's meetings.
Senior Supplier: individual or group representing the interests of the parties concerned, which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.	UNDP DRR, or a designated UNDP Development Advisor
Senior Beneficiary: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.	MRD
Project Assurance: supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. The Project Manager and Project Assurance roles should never be held by the same individual for the same project.	UNDP Staff member

107. Project Management. The National Project Manager will be tasked with the day-to-day management of project activities, as well as with financial and administrative reporting. The Project Manager will be responsible for project implementation and will be guided by Annual Work Plans and follow the RBM standards. The Project Manager will prepare Annual Work plans in advance of each successive year and submit them to the Project Executive Group for approval. The National Project Manager will be supported by the Admin/Finance Assistant and by one rayon field director, one at the pilot rayon level. The National Project Manager will have the authority to run the project on a daily basis on behalf of the Implementing Partner within the constraints laid down by the Group. PM's prime responsibility is to ensure that the project produces the planned outputs and achieves the planned indicators by undertaking necessary activities specified in the project document to the required standard of quality and within the specified constraints of time and cost. This will require linking the indicators to the work plan to ensure RBM.

108. Project Assurance: UNDP will designate a Development Advisor to provide independent project oversight and monitoring functions, to ensure that project activities are managed and milestones accomplished. The UNDP Development Advisor will be responsible for reviewing Risk, Issues and Lessons Learned logs, and ensuring compliance with the Monitoring and Communications Plan. The UNDP-GEF Regional Technical Advisor will also play an important project assurance role by supporting the annual APR/PIR process.

109. Project Support: UNDP will provide financial and administrative support to the project including procurement, contracting, travel and payments.



5.2 Key stakeholders and coordination

Public sector

110. Ministry of Regional Development (MRD) with its Committee for Construction and Housing & Communal Affairs (CCHCA) is the central executive authority in the field of architecture, urban planning and construction, housing relations, municipal services. In line with its mandate, MRD will be the leading executing agency for this project. It also

oversees municipal waste management, water supply and sanitation, power distribution (0,4 kV), municipal gas and heat supply (except for thermal power station with capacity 100 Gcal/hour and more). The Center for Utilities Modernization and Development under MRD has been established as the principal body in charge of the implementation of National Modernization Program (NMP) and the designated entity for operation and management of the National Fund for Urban Modernization. The Ministry and its Center will therefore play critical role in directing NMP funding to priority climate change mitigation actions in cities and to ensuring that the public funding can serve to catalyze investment from the private sector.

111. Ministry of Environment and Water Resources (MEWR) is the governing body and policy maker for climate change management at the national level. It oversees the preparation of national GHG inventory and is responsible for introduction of ETS, elaboration of nationally appropriate mitigation actions, the establishment and monitoring of national emission reduction targets. It also provides methodological guidelines for GHG emission accounting by private and public sector. MEWR will have a key role in the establishment of criteria for the definition of urban mitigation actions, the development of the national registry and MRV methodologies, and ensuring quality of city inventories, MRV and NAMAs. MEWR will be the main governmental agency responsible for implementation of Components 1 and 5.

112. Local authorities (akimats) will be key partners in project implementation, they will be directly involved in all project activities, i.e. identification, development, implementation, and monitoring of urban mitigation actions in partnership with relevant national authorities, private sector and civil society.

Private sector

113. The private sector is an important partner and beneficiary of the project. To leverage maximum private sector participation, the project will partner with the National Chamber for Communal Affairs and Housing, the entity which represents over 200 urban enterprises, such as heat and water supply companies, ESCOs, management companies, etc. Grundfos Central Asia has expressed its interested to partner with the project and will contribute with pump audits and follow-up investment activities of total budget up to US$ 4 million. Grundfos is also potentially working on NAMA related activities in the future with funding from the Government of Denmark. The project will also engage the Karaganda ESCO (Ergonomika company) and Vodnye Resursy Marketing, Ltd -- the water utility company in Shymkent—in integrated municipal-level planning, including targets setting and investment prioritization. The private ESCO in Karaganda that was created by the private company "Ergonomika" LLC, with support of UNDP and GEF along with others (see Annex B). Experience and lessons learned of these companies will be shared at project workshops and training, and exchange visits serves to demonstrate ways of private sector participation in municipal services. A number of engineering consulting companies focusing mainly on energy efficiency in the industrial sector exist, and the project will work with these where possible and appropriate. The project will also directly engage with largest industrial entities covered

under ETS to understand the scope of their demand for and facilitate the supply of cost-effective emission reduction from urban NAMAs.

NGOs and community-based organizations

114. Climate Change Coordination Center (C4) is the main Kazakhstani NGO which is involved in a number of advocacy, capacity buildings and analytical projects, such as national GHG inventory, provision of training on climate mitigation for public and private entities, and has been instrumental in developing and promoting important legal and regulatory changes on climate change, energy efficiency and renewable energy. The project will leverage Center's expertise for local capacity building, abatement cost assessment and other technical training activities at local level.

115. Central Asian Regional Environmental Center (CAREC) is the prominent regional NGOs actively engaged in climate change awareness and advocacy across Central Asia. CAREC's role in the project will be to support PR and communication about urban mitigation actions among urban residents and nation-wide.

116. Associations of apartment owners, women groups and other local NGOs will be closely involved in and consulted during identification and design of urban NAMAs. They will also benefit from the training and knowledge management activities supported by the project.

Financial sector

117. The project involves an innovative partnership with the Eurasian Development Bank (EADB). EADB will contribute substantial (US$ 30 mln) financial contribution for NAMA financial framework and contribute its expertise with assessing and structuring financing for energy and infrastructure projects. EADB's strategy from 2010 lists municipal infrastructure and energy efficiency projects among its key priorities in the region and Kazakhstan specifically. The proposed partnership is mutually beneficial for the Government, UNDP-GEF and the Bank as it builds on each partner's strong comparative advantages in political, technical and financial areas, such combination is critical for the catalytic impact of the project to be achieved.

118. Other key international institutions financing Municipal Infrastructure include the European Bank for Reconstruction and Development (EBRD), with whom UNDP are working on the Almaty Sustainable Transport project, and the International Finance Corporation (IFC). EBRD the largest non-oil and gas investor and the largest foreign investor in Kazakhstan and is working closely with the Government to improve environmental and municipal infrustracture through investment and technical assistance. The IFC also promotes the development of the private sector through investments and advisory services to support the diversification and competitiveness of the economy. IFC's strategy in Kazakhstan includes improving access to infrastructure. In addition to direct investments, IFC is providing advisory services to improve corporate governance and help the government structure PPPs. EBRD and IFC strongly support the project and have expressed their interest to finance suitable projects that are developed as a result of the project activities.

119. As described above, one of the functions of the Project Board will be ensure appropriate coordination between project partners and their on-going initiatives. These include UNDP's ongoing GEF-supported sectoral projects in building, transport and lighting sectors including:

a) *UNDP-GEF Enabling Activity:* This project has been approved recently and will support the preparation of the national GHG inventory and 4th National Communication to UNFCCC. The project implemented by KAZNIEK will be an important source of baseline data, analysis, as well as technical skills and knowledge for development of urban inventories, NAMAs and MRVs.

b) *UNDP-GEF "Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply":* The project has been completed, and its results and lessons learned are essential for the success of the proposed project. First, it facilitated the development and adoption of the revised Law on Energy Saving, including specific provisions to stimulate energy efficiency in municipal heating sector, such as differentiated heat tariff, ESCO modality and EE requirements for district-heating systems. It also supported the establishment of the first ESCO in Kazakhstan, which is now acting as the main implementing partner and the source of private co-financing for the publicly funded NMP. The project also successfully piloted tripartite partnership agreements between the municipalities, private sector and association of apartment owners for financing and implementing EE retrofit projects in residential sector.

c) *UNDP-GEF "Energy-Efficient Design and Construction of Residential Buildings":* This on-going project supports the introduction and enforcement of EE building codes, and works with publicly funded construction programs to integrate energy efficiency consideration in the design of new residential buildings. Bearing in mind that improvement of energy efficiency in building stock offers large and cost-effective GHG emission reduction opportunities in urban sector, this UNDP-GEF project will provide essential analytical data and hands-on experience for the design of prospective NAMAs in urban building sector.

d) UNDP-GEF "*City of Almaty Sustainable Transport (CAST)*" project focuses on promoting sustainable urban transport in Kazakhstan's largest city - Almaty. Project experience with GHG accounting and monitoring systems for urban transport, as well as with the design and implementation of pilot sustainable urban transport solutions and their respective MRVs, will be essential for developing urban NAMAs in transport sector in Almaty and other Kazakhstani cities.

e) *UNDP-GEF "Promoting of Energy Efficient Lighting"*: This on-going project works with the Ministry of Industry and Energy to set up a comprehensive policy framework for phasing-out inefficient lighting in Kazakhstan, and to develop and implement advanced EE solutions for public lighting, such as LED, in cooperation with the municipality of Almaty. As in the case of CAST, this project will provide important baseline data, GHG accounting tools and methodologies, as well as technical knowledge from pilot projects for the design, costing and implementation of urban NAMAs in lighting sector.

120. Another relevant ongoing initiative in the urban sector is led by the EBRD, which has approved the use of financing from the Clean Technology Fund, combined with a loan, to upgrade district heating in the city of Almaty[31].

[31] 2013 Centennial Group NAC KAZ 2050 report [208]

6 MONITORING FRAMEWORK AND EVALUATION

The Project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

Project start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Managment Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

  The APR/PIR includes, but is not limited to, reporting on the following:
  - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
  - Project outputs delivered per project outcome (annual).
  - Lesson learned/good practice.
  - AWP and other expenditure reports
  - Risk and adaptive management
  - ATLAS QPR
  - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at

impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at http://intra.undp.org/coa/branding.shtml, and specific guidelines on UNDP logo use can be accessed at: http://intra.undp.org/branding/useOfLogo.html. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at http://intra.undp.org/coa/branding.shtml.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results – 3 reports reflecting beginning, mid-term and final status of results.	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 20,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 20,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	None	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 65,000	

7 LEGAL CONTEXT

Standard text has been inserted in the template. It should be noted that although there is no specific statement on the responsibility for the safety and security of the executing agency in the SBAA and the supplemental provisions, the second paragraph of the inserted text should read in line with the statement as specified in SBAA and the supplemental provision, i.e. "the Parties may agree that an Executing Agency shall assume primary responsibility for execution of a project."

If the country has signed the *Standard Basic Assistance Agreement (SBAA)*, the following standard text must be quoted:

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

If the country has not signed the SBAA, the following standard text must be quoted:

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together the instrument envisaged in the Supplemental Provisions to the Project Document, attached hereto.

Consistent with the above Supplemental Provisions, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

The following standard text for a global/ multi country and regional projects should be included:

This project forms part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this Project to the associated country level activities, this document shall be the "Project Document" instrument referred to in: (i) the respective signed SBAAs for the specific countries; or (ii) in the Supplemental Provisions attached to the Project Document in cases where the recipient country has not signed an SBAA with UNDP, attached hereto and forming an integral part hereof.

This project will be implemented by the agency (name of agency) ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

The responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. The Implementing Partner shall: (a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried; (b) assume all risks and liabilities related to the Implementing Partner's security, and the full implementation of the security plan. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

8 ANNEXES

8.1 Risk Analysis

Use the standard UNDP Atlas Risk Log template. For UNDP GEF projects in particular, please outline the risk management measures including improving resilience to climate change that the project proposes to undertake.

Potential risks associated with the project, along with proposed mitigation measures, are summarized in a table below:

Risks	Rating	Mitigation measures
Political risk of Kazakhstan withdrawing its commitment under UNFCCC	Low	Kazakhstan has consistently demonstrated its high-level political commitment to climate change mitigation starting from its voluntary decision to join Annex I in 1999, accepting binding emission stabilization targets and later on in 2010 by taking additional voluntary commitment to reduce GHG emission by 15% below 1992 baseline. The project will build on this and will generate additional political support and commitments to reduce emissions among the Kazakhstani cities. A high level political involvement from regional and cities' authorities will be ensured throughout the implementation of the project to secure their continuous involvement and buy-in.
Lack of bankable projects in pilot cities Lack of private sector interest and motivation to invest in urban mitigation actions	High	The risk is indeed high, but so is also the interest and motivation of the Government to remove barriers to private sector participation and investment in climate mitigation, as demonstrated by its decision to introduce ETS. To mitigate this risk the project will: - Engage with domestic entities covered under ETS to understand their potential demand for emission reduction and the cost-effectiveness threshold, as well as facilitate design of mechanisms to link NAMAs with ETS (Component 5) - Conduct rigorous economic assessment of urban mitigation measures to identify and demonstrate their profitability and cost-effectiveness, as well as engage private sector representatives early on in consultation about potential mitigation actions in cities and solicit their views and perspectives regarding their feasibility (Component 1) - Support establishment and capacity building of PPPs (Component 2)
Low capacity of city authorities to implement required regulatory changes	Moderate	This is a moderate risk, which can be effectively mitigated by adopting the following approach to capacity building activities: Instead of organizing stand-alone training and workshop, the project will support learning-by-doing activities for the municipal staff, such as preparation of GHG inventories, identification and formulation of urban mitigation actions, designing pilot public-private partnership schemes;

Risks	Rating	Mitigation measures
		Supporting cross-cities collaboration, exchanges and networking so that municipal staff can learn from each other and be inspired by successful examples in Kazakhstan.
Lack of coordination between administration at regional and city levels Highly centralized decision-making	Moderate	The project will work in an open and transparent manner and through consultations envisioned as part of Components 1, 2 and 3 will strive to ensure alignment between strategies and action plans such that decisions made at all levels have support
Frequent changes in akimats, institutional memory is lacking	Moderates	To address changes during the project it will be necessary to train new staff and renegotiate/explain again what was already agreed to, which is time and resource intensive. In the longer term, the concrete deliverables will provide examples, and Component 5b will focus on making enduring materials available to facilitate learning after the project.
Lack of building / service maintenance standards Legislation not incentivizing improvements (for example in waste or building management)	Moderate	The project has been designed to be implementable under current legislation, and based on strong support from the national government. In the medium term these barriers will be addressed through other UNDP initiatives, along with efforts of others.
Climate Change impacts	Moderate	Climate change is predicted to have adverse impacts on Kazakhstan with most severe consequences for the cities coming from intensified water shortages and raising summer temperature. These risks pose additional challenges to low-carbon urban development because of the increased energy needs for water supply/cooling in cities. The project will work closely with adaptation teams and experts in the Ministry of Environmental Protection and KAZNIEK to help city authorities identify such risks and integrate appropriate response measures in the proposed mitigation actions.
Combination of two innovative approaches and instruments, such as PPPs and carbon finance, in one project makes project design more complex and its implementation inherently risky	Moderate	Realizing complexity of the issues the project will deal with, it puts only marginal importance on carbon finance and its role in financing urban NAMAs, i.e. only one out of fifteen envisaged NAMA will aim at piloting carbon crediting approach. Only a small portion of GEF resources under Component 5 will be used to facilitate this transaction, thus limiting GEF's exposure and risks. On the other side, if successful, credited urban NAMA, can become a viable instrument for financing mitigation activities in urban sector and has therefore large potential for replication in Kazakhstan and other urbanized developing and emerging economies. Finally, both national partners, MENR and ACHCHA have expressed strong support and demand for such scheme: their political commitment is also an important factor in mitigating implementation risks.

8.2 Agreements

Any additional agreements, such as cost sharing agreements, project cooperation agreements signed with NGOs[32] (where the NGO is designated as the "executing entity", letters of financial commitments, GEF OFP letter, GEF PIFs and other templates for all project types) should be attached.

8.3 Terms of Reference

Regular Project Staff

National Project Manager (NPM)

The National Project Manager (NPM) will be a locally recruited national selected based on an open competitive process. The NPM will be tasked with the day-to-day management of project activities, as well as with financial and administrative reporting. The NPM's prime responsibility is to ensure that the project produces the planned outputs and achieves the planned indicators and indicator targets by undertaking necessary activities specified in the project document to the required standard of quality and within the specified constraints of time and cost. This will require linking the indicators to the work plan to ensure Results-Based Management.

Duties and Responsibilities: The incumbent will be responsible for implementation of the project, including mobilization of all project inputs, supervision of project staff, consultants and oversight of sub-contractors. The PM will be the leader of the Project Team and shall liaise with the government, UNDP, and all stakeholders involved in the project. S/he will be specifically responsible for (a) overall management of the project, (b) work closely with project stakeholders and ensure the project deliveries as per project document and work plan, (c) ensure technical coordination of the project and the work related to legal and institutional aspects, (d) mobilize all project inputs in accordance with UNDP procedures and GEF principles, (e) finalize the ToR for the consultants and subcontractors and coordinate with Procurement Unit for recruitment, procurement and contracting, (f) supervise and coordinate the work of all project staff, consultants and sub-contractors, (g) ensure proper management of funds consistent with UNDP requirements, and budget planning and control, (h) prepare and ensure timely submission of monthly reports, quarterly consolidated financial reports, quarterly consolidated progress reports, annual, mid-term and terminal reports, and other reports as may be required by UNDP; (i) submit the progress reports and key issue report to the Project Board, (j) prepare quarterly and annual work plan, (k) provide regular input to UNDP corporate system ATLAS for financial and programme management on project progress, financial status and various logs, (l) arrange for audit of all project accounts for each fiscal year (m) undertake field visit to ensure quality of work, and (n) undertake any activities that may be assigned by UNDP and Project Board.

Qualifications and Experience: The incumbent should have a minimum Bachelor degree with MBA/Master degree or Masters in energy/environment or other relevant academic discipline and profession qualifications with at least ten (10) years professional experience at senior level. S/he should have extensive experience and technical ability to manage a large project and a good technical knowledge in the fields related to municipal and low carbon development, climate change, energy efficiency and institutional development, regulatory and financial

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[32] *For GEF projects, the agreement with any NGO pre-selected to be the main contractor should include the rationale for having pre-selected that NGO.*

aspects. S/he must have effective interpersonal and negotiation skills proven through successful interactions with all levels of project stakeholder groups, including senior government officials, financial sectors, private entrepreneurs, technical groups and communities. S/he should have ability to effectively coordinate a complex, multi-stakeholder project and to lead, manage and motivate teams of international and local consultants to achieve results. Good capacities for strategic thinking, planning and management and excellent communication skills both in English and Russian are essential. Knowledge of Kazakh will be an asset. Knowledge of UNDP project implementation procedures, including procurement, disbursements, and reporting and monitoring will be an added advantage.

Administrative/Finance Assistant

The Administrative and Finance Assistant (AFA), will be a locally recruited national selected based on an open competitive process. He/She will report to National Project Manager (NPM) and assist the NPM in the coordination of the UNDP-GEF project. He/She will have two roles: as an Administrative Assistant and as an Accountant.

Duties and Responsibilities: The incumbent will be responsible to provide overall administration and financial services of the project such as processing payments, raising requisition, purchase order, projects logs etc. using UNDP corporate software ATLAS. S/he will be responsible to provide information to UNDP Project web, RRMC reporting and administrative trouble shooting. S/he will also perform (a) word processing, drafting routine letters/messages/reports, mailing (b) arrange travel, itinerary preparation for project related travels, (c) assist to arrange workshops/seminar/training programmes and mailing, (d) work at reception desk and make appointments and schedule meeting, (e) assist in work-plan and budgeting, (f) photocopying, binding and filing, (g) maintenance of all office equipment and keeping inventory/records of supplies and their usage and any other duties assigned by Project Manager or concerned officials.

Qualifications and Experience: The incumbent should have at least a Bachelor degree in any discipline from a recognized university. S/he should have at least 3 years relevant working experience with foreign aided projects or international development or organizations. Computer proficiency in MS Office (Word, Excel and PowerPoint) and other common software is a prerequisite. Diploma in computer/secretarial science is desirable but not essential. Basic knowledge in procurement, petty cash handling, logistics supports, and filling systems is a basic requirement. Knowledge of UNDP project implementation procedures, including procurement, disbursements, and reporting and monitoring is preferable. Appropriate Kazakh, Russian and English language skills, both spoken and written.

Key National Experts

Low carbon urban planning & capacity building specialist

The individual recruited as the Low carbon urban planning & capacity building specialist will work under the overall guidance of the Project Manager and will coordinate implementation of Outcomes 1 and 5. In particular, he/she will provide technical training and methodological support to 15 city municipalities, as well as assistance with data collection, processing and analysis, for preparation of urban GHG inventories and baseline scenarios, assessment of abatement potential and costs, prioritization of investment projects where GHG emissions can be achieved most cost-effectively and where opportunities exist to leverage private capital and financing. This expert will closely coordinate the work with national urban financing & investment

and energy efficiency & RE experts and other national and international specialists. In addition, the expert will consult with relevant institutions and government officers on reforming institutional arrangements for comprehensive low-carbon urban planning and will recommend institutional streamlining actions at national, regional and local levels that have the consensus with relevant government agencies and institutions that have the mandate to effectively develop urban policies and projects. This expert will oversee and contribute to the set up of a monitoring, verification and reporting system of GHG emission reductions of urban NAMA projects in 15 municipalities linking the NAMA process into national GHG mitigation efforts, including through promoting better information dissemination to stakeholders. Finally, the expert will work with other national short-term experts to consolidate generated results and lessons learned from the NAMA process in Kazakhstan by developing the appropriate formats for reaching the relevant stakeholders, i.e. the general public, regional and local authorities, central government, private sector, industries, etc.

Low carbon urban financing & investment specialist

The individual recruited as the Low carbon urban financing & investment specialist will work under the overall guidance of the Project Manager and will coordinate implementation of Outcomes 2 and 3. In particular, this expert will support pilot akimats in assessing their needs and priorities for NAMA related urban actions and formulating "bankable" project proposals. He/she will provide targeted training and technical support to akimats and local, regional and national stakeholders including, for example, creation and management of new institutional and financing mechanisms such as ESCOs, Performance Contracts, concession agreements, public service contracts, and private-public partnerships; preparation of budgets, progress reports and proposals; negotiations with private investors; and technical issues concerning the development of their proposed urban NAMAs. The specialist will coordinate the work on establishment and operationalization of a pilot NAMA fund through either setting up a Pilot NAMA credit line within the NMF, or a separate fund such as the Energy Saving Fund that is being considered by the government. Finally, this expert will coordinate a multi-stakeholder consultation process to develop a funding diversification strategy and propose mechanisms to allow for leveraging of addition contributions to the NAMA fund from a broad range of sources.

Energy efficiency & RE specialist

The individual recruited as the Energy efficiency & RE specialist will work under the overall guidance of the Project Manager and will coordinate implementation of Outcomes 1 and 4. In particular, the expert will oversee implementation of pilot urban NAMA project in the district of Prigorodnoye in the capital city of Astana as specified in Outcome 4. He/she will work with the district akimat to conduct GHG inventory, identify GHG emissions reduction measures and design abatement cost curve for Prigorodnoye to be developed under Outcome 1 as part of urban NAMA design. The expert will work closely with the Urban financing & investment specialist to formulate 'bankable' proposals for the pilot NAMA fund and other sources of financing. The expert will also contribute to the design of training materials on cost-effective and energy-efficient measures for urban infrastructure and will serve as a resource person and facilitator for relevant trainings.

8.4 Capacity Assessment

Results of capacity assessments of Implementing Partner (including HACT Micro Assessment)

A capacity assessment of the NMF, including HACT Micro Assessment will be carried out at project inception, and / or, prior to any funding allocation.

8.5 Special Clauses

In case of government cost-sharing through the project which is not within the CPAP, the following 10 clauses should be included:

1. The schedule of payments and UNDP bank account details.
2. The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether any further financing could be provided by the Government. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.
3. The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.
4. UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.
5. All financial accounts and statements shall be expressed in United States dollars.
6. If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.
7. If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph ( ) above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.
8. Any interest income attributable to the contribution shall be credited to UNDP Account and shall be utilized in accordance with established UNDP procedures.

In accordance with the decisions and directives of UNDP's Executive Board:

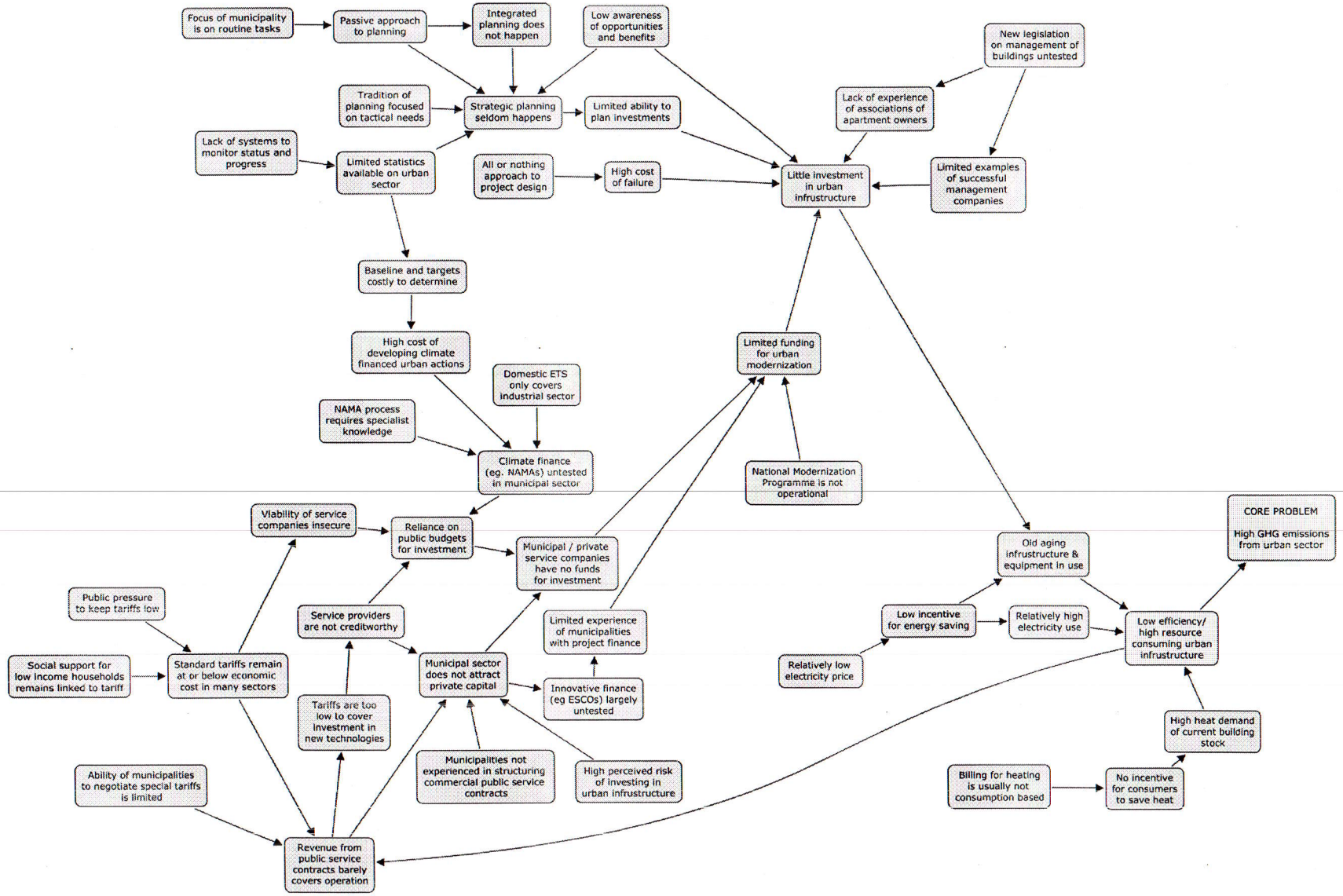
The contribution shall be charged:

(a) [...%]cost recovery for the provision of general management support (GMS) by UNDP headquarters and country offices

(b) Direct cost for implementation support services (ISS) provided by UNDP and/or an executing entity/implementing partner.

9. Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.
10. The contribution shall be subject exclusively to the internal and external auditing procedures provided for in the financial regulations, rules and directives of UNDP.

ANNEX A: URBAN MODERNIZATION IN KAZAKHSTAN PROBLEM TREE



ANNEX B: ESCOS

The only operating ESCO in Kazakhstan is a private ESCO in Karaganda that was created by a private company "Ergonomika" LLC. A number of engineering consulting companies focusing mainly on energy efficiency in the industrial sector also exist but they do not operate at present with performance contracting.

The city of Karaganda suffers from a large heat deficit, which is over 250 Gcal per hour. This certainly undermines the reliability of the city's heat supply system. In this context, in 2009, a private company "Ergonomika" LLC established a subsidiary energy service company to target energy efficiency in residential buildings in the city of Karaganda. Being the first of its kind, Ergonomika LLC received extensive support from local authorities as well as financial and technical support of the UNDP/GEF project on "Removing barriers to energy efficiency in municipal heat and hot water supply". During the first two years, ESCO-Karaganda performed several pilot projects on energy saving, including energy audits of residential buildings, installation of metering devices and automatic heat consumption control systems. In five pilot residential buildings, in particular, ESCO-Karaganda upgraded heat points and installed balancing valves on heat supply pipes. While the design and implementation of such technical measures went flawlessly, ESCO-Karaganda faced a number of institutional issues in implementing this new institutional setup for energy efficiency.

It took time to agree on a type of agreement for energy service delivery with Karaganda akimat, the Agency on Regulation of Natural Monopolies, the heat supply company and cooperatives of apartment owners (CAOs). The initially proposed agreement where the heat supply company would pay ESCO-Karaganda directly for provided energy saving services was rejected because of a possible risk that the heat supply company could refuse to transfer realized savings to the ESCO's account. Another business model was implemented that required ESCO-Karaganda to conclude an agreement with the CAO. In this case, the CAO should get approval from all residents in the building before signing the agreement, which increases transaction costs for ESCO.

A major bulk of work for ESCO, however, happened after all technical components had been complemented. Residents of pilot buildings started expressing complains either about lower temperatures or higher bills, and ESCO had no grievance redress mechanism established at the moment to properly address such grievances. The situation also affected Ergonomika's motivation since the company overlooked the fact that it would need to deal with multiple end-users and underestimated the level of work and expertise need to respond to all incoming grievances.

Also, ESCO-Karaganda faced difficulties when marketing its services to residential buildings. This relates to the fact that apartment owners have no incentives for installation of heat metering devices and implementation of energy saving measures in residential buildings. The existing rules allow the use of heat without a meter by paying heat consumption according to consumption norms.

The first private ESCO surely generated important lessons learned for ESCO creation and operation in the Kazakhstani context but changes in the legal framework,

institutional setup, tariff policies need to be undertaken by the government before this sector becomes attractive to private companies.

ANNEX C: AVERAGE PRICES AND TARIFFS FOR HOUSING AND UTILITY SERVICES IN KAZAKHSTAN

Cities	Average prices & tariffs for housing and utility services in Kazakhstan in 2012 (in US$*)						
	Building maintenance, per m^2	Central heating, per 1 Gcal	Hot water, per 1 m^3	Cold water, per 1 m^3	Electricity, per 100kWh	Sewage, per 1 m^3	Waste collection, per person
Kazakhstan	0.09	18.30	1.15	0.23	6.45	0.15	0.81
Astana	0.17	14.48	0.85	0.23	6.96	0.16	0.95
Almaty	0.15	31.73	2.33	0.16	9.56	0.08	2.05
Aktau	0.21	13.43	1.04	1.71	3.13	0.33	0.57
Aktobe	0.086	12.08	0.79	0.2	6.33	0.21	0.70
Atyrau	0.15	26.61	1.19	0.19	3.81	0.18	0.80
Zhezkazgan	0.08	11.85	0.44	0.18	7.09	0.07	0.53
Kokshetau	0.086	21.10	158	0.43	8.58	0.39	0.91
Karaganda	0.073	18.66	1.05	0.39	4.75	0.32	0.95
Kostanai	0.19	23.13	1.55	0.32	8.61	0.25	1.12
Kzyl Orda	0.06	18.46	-	0.19	8.93	0.17	0.57
Uralsk	0.10	18.63	0.98	0.15	4.87	0.15	0.71
Ust-Kamenogorsk	0.12	16.25	1.14	0.14	5.45	0.12	0.47
Pavlodar	0.086	12.53	0.75	0.15	6.05	0.11	0.80
Petropavlosk	0.08	18.06	0.77	0.27	6.30	0.28	0.98
Semipalatinsk	0.10	19.49	1.17	0.12	5.45	0.12	0.87
Taldy Korgan	0.05	18.11	1.17	0.24	8.64	0.15	0.48
Taraz	0.05	18.88	1.13	0.13	8.59	0.04	0.50
Shymkent	0.04	29.49	1.15	0.27	8.07	0.10	0.67

Source: Agency of Statistics of RK, Housing and utility sector, Statistics for 2008-2012, 2013.

*US$ to KZT exchange rate: 1US$ = 150 KZT

ANNEX D: KAZAKHSTAN'S GREEN ECONOMY CONCEPT

In Kazakhstan's legislation, a 'Concept' introduces a new policy to the government and public, and afterwards an action plan is developed. A 'Strategy' is the follow-up policy plan to a 'Concept' that can be legislated and accepted in the national budget for a specified number of years. In December 2012, the Government outlined its decision to transition to a green economy in the Kazakhstan 2050 Strategy. The following spring on 30 May 2013, the President approved the Green Economy Concept. The corresponding action plan was approved in August 2013.

Kazakhstan's Transition to Green Economy Concept and Action Plan are landmark steps by the Government to change the course of the country's development to integrate environmental and social considerations into the planning and development process along with the already dominant economic ones. The overarching objective of this initiative is to transition the country from its existing resource dependent growth model to an environmentally sustainable development model that significantly reduces environmental risks and ecological scarcities. The government plans to achieve this while maintaining economic growth and competitiveness, creating high-value jobs and improving overall human well-being.

The Concept identifies four priority goals for Kazakhstan's transition to Green Economy:

i. Increased resource productivity, including water, land, biological resources, and resource management efficiency;
ii. Modernization of existing and development of new infrastructure;
iii. Increased population well-being and quality of the environment, achieved though profitable measures reducing environmental footprint; and
iv. Increased national security, including water supply.

To achieve these goals the Concept identifies seven key areas in which to undertake sustainable-development initiatives: water resource management, sustainable agriculture, energy efficiency, power sector development, waste management, air pollution reduction, and ecosystem management. Fundamental to Transition to Green Economy is the idea that in addressing the sustainability of key sectors, there will be synergies found across a variety of cross-cutting issues, including climate change, good governance, environmental sustainability, gender equality, and human rights.

In addition to outlining key areas for intervention, the Concept also calls for human resource development with regard to the population's "ecological culture". The Concept proposes a range of actions from the introduction of green topics into elementary and preschool curricula to training for technical and management personnel on environmental protection and resource productivity. Part of the strategy will be broad communication and education programmes to raise awareness of the country's environmental issues. The overall goal here is to integrate environmental considerations into the fabric of society and foster a culture of environmental stewardship.

In order to facilitate the implementation of the Concept and Action Plan, the Office of the President has created a Council for Transition to Green Economy. This group is designed to ensure the cross-sector implementation of the strategy and to follow up on

implementation progress. The Council is tasked with presenting a "National Report on transition towards Green Economy" every three years.

The Government understands that a transformation of this magnitude requires time, and for this reason it has identified three different stages of implementation for the Green Economy Concept:

2013-2020 - During this period, the main priority of the state will be to optimize resource use and increase the efficiency of the environment protection activities, as well as to establish green infrastructure;

2020-2030 – Based on the established green infrastructure, transformation of the national economy will start, oriented at rational water use, motivation and stimulation of development and broad implementation of renewable energy technologies, as well as construction of facilities based on high energy efficiency standards; and

2030-2050 – Transition of the national economy to principles of Third Industrial Revolution, which require the use of natural resources on the condition of renewability and sustainability.

The Ministry of Environment and Water Resources and the Ministry of Economy and Budget Planning are charged with the implementation of the Concept for transition to green economy and have been taking steps to develop the Concept into a Strategy. For example, MEWR is currently working with the Global Green Growth Institute (GGGI) and the European Bank for Reconstruction and Development to develop the Strategy for Kazakhstan's Green Economy. MEWR has also collaborated with World Bank and the European Bank to propose amendments to the Environmental Code as part of the Green Economy Law.

ANNEX E: WASTE MANAGEMENT IN KAZAKHSTAN

(based on EBRD report on waste management categorization and legal implementation in Kazakhstan prepared by Fichtner Consulting Company in 2013 and National Program on Municipal Solid Waste Management for 2013-2050)

Context

Total volume of accumulated municipal solid waste in Kazakhstan is about 100 million tons (including hazard waste), and the annual generation rate of municipal solid waste in urban areas is in the range of 80 to 400 kg/inhabitant per year[33]. Table XX below presents figures on waste collected in 2012 and norms for waste generation per person across 16 largest cities/towns in the country.

Table XX.

City	Population by end of 2012*	Municipal solid waste collected in landfills in 2012**	Norm of water generation per person***
		in tons	m^3/person per year
Astana	778,198	326,400	2.16
Almaty	1,475,429	549,120	2.55
Aktau	180,885	109,700	2
Aktobe	420,567	360,600	0.47
Atyrau	272,071	44,070	0.56
Karaganda	478,952	132,850	1.87
Kostanai	219,224	152,730	1.17
Uralsk	271,361	108,500	2.3
Shymkent	662,100	64,550	1.7
Pavlodar	342,435	94,470	1.30
Kokshetau	152,006	57,700	1.16
Ust-Kamenogorsk	309,500	45,600	1.57
Taldy Korgan	156,162	17,000	2.77
Taraz	343,275	34,960	0.54
Kzyl Orda	253,960	36,100	1.7
Petropavlovsk	206,043	62,000	2.07

Source: National Program on Municipal Solid Waste Management for 2013-2050

* According to the Agency of Statistics www.stat.gov.kz

**According to regional (oblast) environmental departments

[33] Such huge discrepancy in data is indicative of flaws in the system of collection of and reporting on waste data

***According to city authorities

The morphology of municipal solid waste shows a high percentage of light materials, such as plastics, textiles, paper and cardboard (around 45%) and organic waste with 37% on average. Recycling was less than 5 % in 2012.

Collection is done by 443 companies, from which are 207 public and 236 private (of which small companies (1-50 employees) account for the majority – 72%). Private companies are all local companies and they work under very restrictive conditions. No international companies currently operate in Kazakhstan that can bring in know-how on integrated waste management.

There is only one landfill that meets EU technical standards, which is located in Astana. All other landfills must be classified as dump sites without weighbridges and vital technical measures for emissions reduction.

At present, waste collection companies are responsible for collecting the SWM tariffs. The collection rate of tariffs from households is reported by the regions to average 65%. This is due to related collection costs as well as lack of enforcement mechanisms.

Legal Framework and Institutional Setup

The waste sector is largely regulated in the Environmental Code. There are no other waste management regulations at national level. The regulations in the Environmental Code are insufficiently detailed to enforce environmentally safe modern waste management. It lacks sub-normative regulations. This is not necessarily a disadvantage, but a dedicated law on waste would allow comprehensive regulation of the sector, with technical annexes incorporating standards and classifications. As it stands, competences, definitions and penalty provisions are spread over voluminous legislation.

Recognizing the need for a modern and sustainable approach to municipal waste management, the government developed and now implements a National Program for Modern Municipal Solid Waste Management for 2013-2015. As a follow-up step, 16 oblast authorities are now required to develop regional municipal solid waste management plans that will set out in detail the requirements of the law for the regions and the municipalities.

The Kazakhstani system has ample empowerments for control and monitoring, with a workable hierarchical structure of the Regional Akimats and the District and City Akimats as subordinate institutions. National environmental policy is implemented via MEWR's regional environmental department. According to the Environmental Code, waste-related matters are in the hands of Environmental Protection Agencies at the regional/oblast and local level.

There are other institutions with relevant monitoring and controlling rights. In Astana, for example, they are the regional Department of State Sanitary-Epidemiological Supervision and the Esilsky Ecological Department.

The Environmental Code and the Law on Self-Governance determine umbrella competences for these institutions. The Akimats, for example, are empowered to enact legislation (regulations) and are obliged to monitor the companies providing waste collection services.

Although the Akimat bears overall responsibility for waste management services at the local level, it has no contractual relationships with any of the waste collection companies. The contractual framework between Akimat and landfill operator is limited to the land lease contract covering the landfill site. Formally, the Akimat is not in a position to conduct appropriate performance management. The complex property relationships between landfill operator, collection companies and Akimat also lack a clear formal framework.

While there are overlapping competences where control is concerned, there are gaps and lack of competences (or powers to act) in other areas, such as (legal or illegal) landfills. The Ministry of Environment and Water Resources, however, does have some important regulatory functions and the District Akimats are competent to monitor the efficiency of companies providing waste collection services. This can be used as a legal basis for the establishment of performance indicators.

In case of recycling, there is an obvious legal collision. According to Clause 44 of the Decree of the Ministry of Health of the Republic of Kazakhstan № 137 dated 24/05/05 "Regarding approval of sanitary and epidemiologic requirements for maintenance of populated areas", the selection and removal of recyclables from containers and specialized transport is prohibited. Despite this fact, some local authorities (in Almaty and Astana, for example) are running pilot recycling projects to investigate separate collection options. Although the results of these projects have not been summarized, separate collection for further recycling is considered a key approach for future development of the waste management system.

Dispersed responsibilities for waste management

An initial analysis of the existing institutional framework (public part) at the working level shows that responsibilities are divided in such a way that waste management is not necessarily treated as a homogeneous activity. This is applicable to all institutional levels. The division of responsibilities between MEWR, Ministry of Industry and Ministry of Regional Development at the ministerial level is continued at the local level. In Astana, for example, responsibilities are divided between the Environmental Department in Astana and the Department for Communal and Housing services in the Ministry of Regional Development.

There exist a number of functions and tasks where potential conflicts of interest between different actors may occur. For example, several organisations (Akimat, District Akimats,

the waste collection companies and the landfill operator) are simultaneously responsible for investment planning. Similar situation applies to monitoring the contractor performance. The waste collection companies and the landfill operator are controlled by several institutions. Regardless of the several overlaps in responsibility, there are obvious tendencies for categorizing the institutions into one of four functional categories: regulator, planner, client, and operator.

Control and Monitoring on Regional and Local level

As a rule, the municipal waste management system is controlled by two regional authorities:

- Department of State-Epidemological Supervision of the Ministry of Health; and
- Regional Ecology Department of the Committee for Environmental Regulation and Control of the Ministry of the Environment and Water Resources.

With regard to municipal waste management, the SES Department carries out various functions, partly overlapping with the responsibilities of the local administration. This is due to the ongoing public sector reform. Today the Sanitary-Epidemiological Department is not included into the organizational structure of the local administration. However, Akimat continues directing orders to the Department. Hence, the Department takes care also for monitoring the performance of the waste management companies and the landfill operator.

As a rule, the Regional Ecology Department is not involved in any coordination and monitoring activities or the municipal waste management on the operational level.

Both institutions control and supervise actors involved in each of the steps of the waste management process: from waste production to waste disposal and recovery. Further, these institutions issue permits for business activities planned and leading to production of wastes. In particular, the Regional State Sanitary Service controls compliance of the local waste management system with the state health-care legislation, whereas the Regional Ecology Department controls compliance with the state environmental legislation.

Municipal administrations bear the overall responsibility for organising the waste management services, under the control of the above mentioned regulatory institutions. The Natural Resource and Ecology Administration is the focal point for waste management, being often the owner of the public waste collection companies and the landfill sites (like in Astana where Astana Akimat is the owner of Gorkommunkhoz). For this the Akimats are actively involved in the planning and all strategic decisions concerning landfill operations and waste collection services provided by public companies.

In Astana, Akimat is also responsible for purchase of containers for waste collection and further transfer of these to the collection companies (including the private collector Techservice). The collection companies have to apply for new containers to Akimat; new containers are paid from the municipal budget. As there is no agreement or contract

between Akimat and the collection companies, there are no clear and formal procedures for procurement requests by the collection companies. This is a major risk factor for both the performance of the waste collector and for payments by users.

Similar setup is applied to financing of construction works at the landfill site. Akimat is expected to cover the investment costs for the landfill gas collection system and construction of a new landfill cell. Operation company preliminary evaluates the investment demand and submits its recommendations and requests to Akimat. Akimat is further responsible for financing technical feasibility studies, preparation of procurement documents, tender process and contracting selected construction companies or equipment suppliers.

Private sector

Various discussions show that private companies are struggling with certain aspects, such as under financing of the sector and excessively low tariffs as well handling of a huge number of contracts with private households where payment is not always ensured. This may stop (especially) international companies from entering the Kazakhstan market.

The following major drawbacks should be considered with regard to private-sector involvement:

- Contracts with municipalities are usually of very short duration (up to five years for street cleaning, five years for landfill) and are therefore not suitable for long-term planning. Often, such short-term contracts are accompanied by high costs and poor services.

- Collection companies must collect their own fees from waste generators, while landfill operators must collect fees from those who deliver waste. This situation is very unfavorable for the private sector, which must bear the full risk of late or non-payment.

- Private waste management companies do not have means of enforcement for tackling those waste generators who are unwilling to pay. Their only recourse is to go to court, which is time-consuming and expensive. This will not attract international companies to provide waste management services.

- There is no reliable regional or municipal planning based on at least medium-term planning. No solid waste management plans are available (according to the evaluated documents).

- The collected fees are not sufficient to cover all waste management costs. The present tariffs in Kazakhstan are in the range from 80 KZT per ton (Kyzylorda region) to over 500 KZT per ton (Astana) and 239 KZT per person and month (Almaty city, which equals about 8,000 KZT per ton) for household waste and up to 1,416 KZT per ton for commercial waste. There are direct and indirect

subsidies by municipalities covering investments in containers, paying landfill costs, etc. The approach differs from municipality to municipality. Also, obsolete collection and landfill equipment is used in the majority of cases. This shows that the sector is operating at a very low level and still requires subsidy.

- As shown above, responsibilities in the waste management sector are not clearly allocated. There is still a debate about changes. On the other side of the partnership, the private sector is interested in having clear responsibilities as well as clear medium- and long-term contracts with reliable partners. As long as the responsibilities are not clear, this will continue to represent a significant obstacle to private-sector involvement.

Waste management reporting system

It has been observed that there is no reporting system in place to provide frequent information on the sector and also to present deficiencies and proposals for further development at national level. The only reporting system in place at all levels is implemented by the Agency of Statistics. Authorities have access to these data on request.

Solid waste management (SWM) related legal acts and regulations

On the regional and/or local level, major SWM related regulations include:

- Action Plans for implementation of the Territorial Development Strategy till 2015
- Oblast Environmental Programs
- Other local regulations

The following major legal acts and regulations are relevant on the national level:

- The Environmental Code of the Republic of Kazakhstan dd 09 Jan 2007 № 212-III (with changes and amendments as of 11 April 2014)
- The Code on public health and health system in the Republic of Kazakhstan dated September 18, 2009 № 139-IV, as of 11 April 2014
- National Program for Solid Waster Management for 2014 – 2050 dd 09 June 2014 № 634
- Housing and public utilities modernization program until 2020 dd 30 April 2011 № 473
- Sanitary Rules and Norms 2.1.7.1038-01 "Hygienic requirements for establishment and maintenance of MSW landfills"
- Sanitary norms of the KZ 1.04-15-2002 "MSW landfills"
- The Sanitary and Epidemiologic Rules and Norms "Sanitary and Epidemiologic Requirements for maintenance of populated areas"
- Methodology for calculation of emissions from MSW landfills. The Order of the Minister of Environmental Protection of the Republic of Kazakhstan dated April 18, 2008 No 10-p. Annex 17
- Methodology for the development of draft standards for industrial and consumption waste placement Annex 16 to the Order of the Minister of

- Environmental Protection of the Republic of Kazakhstan dated April 18, 2008 No 100-p
- The list of waste to be placed in landfills of various types. Order of the acting Minister of Environmental Protection of the Republic of Kazakhstan dated August 2, 1997 No 244-p

Housing and communal services related regulations include:

- Law on architecture, urban planning and construction activities in the Republic of Kazakhstan of July 16, 2001 №242-II

Legislation on punishment and responsibility in case of the violations in the field of the SWM include:

- Code of the Republic of Kazakhstan on administrative violations dated January 30, 2001
- Criminal Code of the Republic of Kazakhstan dd 16 July 1997 №167-I
- Civil Code of the Republic of Kazakhstan (general part) dd 27 December 1994

SWM related fees and payments regulations include:

- Code of the Republic of Kazakhstan "On Taxes and other budget fees" (Tax Code) dd 10 December 2008 № 99-IV

Overview of key laws and regulations on SWM relevant to the project's scope:

№	Chapter, article	Short description	Notes
1.	Environmental Code of the Republic of Kazakhstan dd 09 Jan 2007 № 212-III (with changes and amendments as of 11 April 2014)	Institutional aspects of municipal solid waste management are presented in Chapter 41, article 292: Environmental Requirements Applicable upon Handling Municipal Waste. The article in particular describes responsibilities of local governments. Responsibilities and rights of waste producers are listed in article 283.	
1.1	Article 15. Powers of local self-government authorities in relation to environmental protection and nature use	The powers of local self- government authorities in relation to environmental protection and nature use shall include: 3) maintenance of industrial and municipal waste disposal and burial sites;	Main provisions of the Environmental Code, listed in this section, include institutional aspects of solid waste (municipal solid waste) management, both at the national and local levels. This is explicitly stated in the competences of state bodies, and implied within the scope of state regulation of MSW management via EIA, introduction of standards, issuing waste disposal permits, environmental assessment of MSW related projects and programs, public and industrial control over compliance with environmental requirements for handling, disposal and burial of MSW.
1.2	Article 16. Competence of the Government of the Republic of Kazakhstan	For the purpose of environmental protection and nature use, the Government of the Republic of Kazakhstan shall: 1) determine principal directions of state policy on matters of environmental protection, natural resource use, and waste management, and strategic measures for the implementation thereof; 3) approve various models of nature use; 5) approve environmental protection programmes at the national level and those regarding specially protected natural areas; 6) for every type of national resources, determine the procedure for keeping	

		state accounting records, state inventory, and for exercising the state monitoring; 7) approve: • technical regulations in the area of environmental protection; • lists of best available technologies; • a list of pollutants and types of waste, for which emission standards are established and charges for emissions are imposed; • a procedure for the formation of abandonment funds for waste landfills; • a procedure for import, export, and transit of waste.	
1.3	Article 17. Competence of the Environmental Protection Authority	The environmental protection authority shall: 1) pursue a uniform national environmental policy and organize the implementation of environmental protection programmes; 2) within its competence, coordinate the activities of central and local executive agencies in relation to environmental protection; 5) within its competence, approve or consent to environmental standards and environmental requirements with regard to business and other activities; 6) develop programmes for achieving environmental quality goals; 7) consent to regional programmes and action plans related to environmental protection; 9) exercise the state environmental control; 17) organize and maintain the State Registry of Industrial and Consumption Waste; 24) develop lists of best available technologies and organize maintenance of a register thereof; 24-1) maintain the register of technologies, machines and equipment hazardous for the environment; 25) determine lists of waste to be	Local executive bodies, the environmental protection authority and the state sanitary and epidemiological authority monitor compliance with environmental requirements for handling MSW.

		placed in landfills of various types; 26) develop technical regulations on environmental protection; 27) develop and approve forms of documents related to the organization and implementation of the government environmental control; 28) develop and approve instructional and procedural documents regarding the conduct of the environmental impact assessment and state environmental review, including a procedure for conducting the state environmental review; 33) cooperate internationally in the area of environmental protection; 34) enter into agreements and memoranda in relation to environmental protection;	
1.4	Article 19. Competence of Local Representative Bodies of oblasts (of the City of National Significance, and of the capital) for Environmental Protection	Local representative bodies of oblasts (of the city of national significance, and of the capital) (hereinafter, the "local representative bodies") for environmental protection shall: 1) approve programmes for environmental protection and nature use to be implemented within their respective territories, and also budgets for the protection and improvement of the environment; 2) within their respective competencies, approve waste management programmes; 3) within their respective competencies, approve environmental quality goals; 4) hear reports of heads of local executive agencies and legal entities on the status of environmental protection и nature use; 5) within their respective competencies, adopt rules of nature use, violation of which may involve administrative liability	
1.5	Article 20. Competence of Local Executive	Local executive agencies of oblasts (of the city of national significance, and	

	Agencies of oblasts (of the City of National Significance, and of the capital) for Environmental Protection	of the capital) (hereinafter, the "local executive agencies") for environmental protection shall: 1) organise the preparation of programmes and other documents on environmental protection and nature use measures, and ensure the implementation of such programmes and documents, which shall be subject to approval by the environment protection authority, within their respective territories; 2) based on opinions of the state environmental review and state sanitary and epidemiological review and, to the extent it comes within their respective competencies, permit or prohibit construction or upgrade of enterprises, structures, and other facilities; 3) organise and, to the extent it comes within their respective competencies, carry out the state environmental review of facilities; 3-1) within their respective competences issue permits for emissions; 4) organise public consultations in connection with the state environmental review; 5) make proposals as to the preparation of documents related to environmental protection, and submit drafts of such documents for consideration of the environment protection authority; 8) organise the development, and ensure the implementation, of waste management programmes; 9) allocate land plots for construction of industrial and consumption waste placement facilities; 10) ensure construction of facilities for waste disposal and placement; 11) ensure the compliance with environmental requirements in relation	

		to municipal waste management; 12) control waste generation volumes and work out measures and economic incentives aimed at reduction of waste generation, increased level of waste recycling or alternative use, and reduction of waste to be buried;	
1.6	Article 25. Emission standards	1. Emission standards shall include: 3) standards for industrial and consumption waste placement	
1.7	Chapter 6. Environmental Impact Assessment	3. Long-term operation of projected and existing facilities shall be subjected to an environmental impact assessment in accordance with the requirements set forth in this Code.	
1.8	Chapter 7. Environmental review Article 47. Objects of State Environmental Review	5) drafts laws and regulations of the Republic of Kazakhstan, technical regulatory and instructional documents, the implementation of which is likely to result in negative environmental impact; 6) feasibility studies (calculations) and projects of placement, construction, reconstruction, development, upgrade, conversion, and liquidation of plants, facilities and complexes;	
1.9	Article 98. Planning of Budget-funded Environmental Protection Measures	4. Prior to approval, regional environmental programmes, plans and programmes, plans of social and economical development of certain areas shall be agreed with the environment protection authority. 5. The local executive agencies of oblasts (of the city of national significance, and of the capital) shall develop and submit to the environment protection authority environmental investment projects (programmes), in accordance with the budget laws of the Republic of Kazakhstan.	
2.	The Code on Public Health and Health System in the Republic of Kazakhstan (dated September 18, 2009 № 139-IV, as of 11 April 2014)	This Code deals with MSW related issues in terms of sanitary and hygienic requirements for waste disposal sites and waste handling activities.	
2.1	Article 21. State	2. Individuals, legal persons, buildings,	

	sanitary and epidemiological surveillance	and facilities are objects of state sanitary and epidemiological surveillance	
2.2	Chapter 24. Sanitary and epidemiological welfare of the population Article 144. State sanitary and epidemiological norms Article 145. Sanitary and epidemiological requirements	Sanitary rules and hygienic standards set sanitary and epidemiological requirements for: 1) maintenance and operation of industrial, public, residential and other facilities, buildings, equipment and vehicles; 2) choice of land for construction; 3) design, construction, reconstruction, repair, commissioning and maintenance of facilities; 13) collection, utilization, use, processing, transportation, disposal and burial of industrial and municipal waste;	
3.	Housing and public utilities modernization program until 2020 dd 30 April 2011 № 473 (executed by the Ministry of Regional Development)	Introduction of modern management methods in the housing and utility sector and improvement of utility services	There are no specific actions planned for MSW management, however the sited item apparently implies the development of this sector.
4.	National Program for Solid Waster Management for 2014 – 2050 dd 09 June 2014 № 634 (executed by the Ministry of Environment and Water Resources)	Improve effectiveness and reliability, environmental and social acceptability of solid waste management services including collection, transport, recycling and disposal. In particular, the program targets the following aspects of SWM: (i) Introduction and expansion of SW recycling; (ii) Modernization of collection and transport of SW; (iii) Introduction of country-wide separate collection; (iv) Widespread introduction of separate collection of domestic hazardous waste and improvement of waste handling system for this type of waste; (v) Improvement of waste handling system for other types of domestic waste; (vi) Improvement of a system for	The recently approved program mandates development of the National Action Plan and 16 regional action plans to start implementation of the Program.

		recycling car tyres	
5.	The list of waste to be placed in landfills of various types. Order of the acting Minister of Environmental Protection of the Republic of Kazakhstan dated August 2, 2007 # 244-p	Defines the wastes to be placed in landfills of various types.	

ANNEX F: GHG EMISSION ANALSYS

1. Estimation of the GHG impact of the proposed UNDP/GEF project has been done using the latest available Excel model available as part of the revised GHG manual for energy efficiency projects[34]. The narrative below provides necessary explanations on the input values used and the resultant GHG figures.

DIRECT EMISSION REDUCTIONS

2. Direct GHG emission reductions are expected to be generated by two project components: Component 4: Implementation of pilot urban NAMA, and Component 3: Financing for urban NAMAs. This follows the revised guidelines whereby impacts of investments funded through financial mechanisms put in place during project lifetime are counted toward direct emission reductions, while investments from the financial mechanism taking place after project completion count toward direct post-project impacts.

3. Under Component 4 the project will demonstrate feasibility of urban emission reduction through a pilot urban NAMA to be implemented in the Prigorodnoye district of Astana. A range of potential GHG mitigation measures have been identified for the Prigorodnoye pilot as part of the prefeasibility study which comprehensively address mitigation measures throughout the district.

4. The current profile of the Prigorodnoye district is summarized below:

Feature	Value
Total heat consumption by buildings, MWh/y	10,330
Total fuel input in district heating system, GJ/y	59.5
Fuel (coal) emission factor, kgCO2/GJ	94.6
District heating related GHG emissions, tCO2/y	5,625
Total electricity consumption, MWh/y	3,357
Grid emission factor, tCO2/MWh	1.002
Electricity related GHG emissions, tCO2/y	3,364
Current annual GHG emissions, tCO2/y	8,988

5. As part of the baseline activities, the district is likely see some limited improvements through government efforts, including a new efficient coal-fired boiler and limited thermal renovation of residential buildings (roof, entrance halls repair, hallway windows replacement).These measures are expected to reduce primary energy inputs, and associated GHG emissions, by around 27%. However, these actions are not going to change the electricity use profile, as residents will continue to use individual electric boilers for hot water. Thus, the annual GHG emissions for the district under baseline are estimated at 7,443 tCO2/year.

6. As part of the project, the Prigorodnoye district will undergo a comprehensive rehabilitation that will include its heat distribution system, in-building heat delivery systems, building envelope and renewable heat generation. These measures, as elaborated during a PPG pre-feasibility study, are detailed below:

[34] Calculating GHG benefits of GEF energy efficiency projects, STAP 2013

Measures	Investment cost, $	Lifetime GHG savings, tCO2
Improvement of district heat distribution system		
- Variable speed drive at main pumps - Water treatment plant - SCADA system - New pre-insulated pipes	650,000	11,741
Upgrade of the in-house heat delivery system:		
- Modern building heat substations with HTW - Radiator system modernization w/meters - Integration of HTW into the DH System	990,000	36,427 + 20,104 (from reduced electricity use)
Building envelope improvements		
Full thermal renovation of residential and public buildings	3,200,000	23,575
Renewable energy generation		
Rooftop solar water heaters (covering up to 10% of heat load)	1,600,000	2,927
Total	**6,440,000**	**95,000 (rounded)**

7. The annual primary energy from the above measures combined have been estimated at 39,163 GJ in coal and 1,041 MWh in electricity. Using a default IPCC emission factor for coal of 94.6 tCO2/TJ and Kazakh grid emission factor of 1.002 tCO2/MWh[35], the above energy savings are translated into (39.163*94.6+1,041*1.002) **4,748 tCO2** in annual GHG emission savings. When totalled over 20 years of investment lifetime, the resultant direct GHG emissions reductions attributable to Outcome 4 are estimated at **95,000 tCO2** (rounded from 94,956 tCO2).

8. A NAMA funding mechanism to be set up as part of Component 3 is expected to be capitalized with $3 million in GEF funding and $41 million in contributions from government, multilateral and private sources. It is expected that up to 60% (or $26.4 million) of the initial capitalization will be used for actual investments into NAMAs across Kazakhstan. Considering the complexity of the envisaged arrangement and the time requirement to legalize and institutionalize the fund structure, it is assumed that only 50% of the investment fund (i.e. $13.2 million) is going to be disbursed before the end of the project, thereby contributing toward direct GHG emission reductions[36].

9. Based on the analysis of the Prigorodnoye pilot measures, the investment threshold has been estimated at around 220 GJ in lifetime energy (coal-based heat) savings per $1,000 invested, thus generating (13.2*220*94.6) around **275,000 tCO2** (rounded from 274,718 tCO2) in lifetime direct GHG emission reductions from Component 3.

[35] Development of the electricity emission factors in Kazakhstan, EBRD 2012

[36] This follows the guidance of the 2013 revised methodology for GHG impact assessment of GEF EE projects.

10. Thus, total direct lifetime GHG emissions attributable to the project are estimated at 95,000 + 275,000 = **370,000 tCO2**.

DIRECT POST-PROJECT EMISSION REDUCTIONS

11. With post-project investment in further NAMAs of the balance $13.2 million of the initial investment share (based on the assumptions elaborated in the previous sub-section, i.e.), the NAMA fund is projected to generate an additional **275,000 tCO2** in direct post-project GHG emission reductions over the 20-year lifetime of those investments.

INDIRECT EMISSION REDUCTIONS

BOTTOM-UP ESTIMATE

12. The GEF *bottom–up* approach implies the replication of the project investments beyond the demonstration area within 10 years after the project closure, and is calculated based on following formula:

CO_2 *indirect BU* = CO_2 *direct* * *RF*, where

- CO_2 direct – direct emission reductions calculated at the previous step
- RF – replication factor

13. Since the direct emission reductions are composed of impacts from two project components, these are analyzed separately here. The direct emission reductions attributable to implementation of the pilot NAMA in Prigorodnoye (Component 4) have been estimated 95,000 tCO_2eq. Provided that at least 5 districts similar to Prigorodnoye manage to renovate their district heating systems, enhance their residential building stock and utilize renewable energy in a similar fashion, the bottom-up indirect emission reductions attributable to Component 4 have been estimated at 95,000 * 5 = **475,000** tCO2 calculated over the 20-year lifetime of investments.

14. Similarly, with the direct emission reductions attributable to the NAMA Fund implementation (Component 3) having been estimated at 275,000 tCO2 and assuming that the NAMA Fund is capitalized with at least an additional $26.4 million (i.e. or double the investment funds disbursed during the project lifetime) within 10 years after the project closure, resultant bottom-up indirect emission reductions attributable to Component 3 have been estimated at 275,000 * 2 = **550,000 tCO2.**

15. Thus, the total bottom-up estimate of indirect GHG emission reductions stands at 475,000 + 550,000 = **1,025,000 tCO2**.

TOP-DOWN ESTIMATE

16. The GEF *top-down* assesses indirect GHG impacts by estimating the combined market potential for the proposed approach or technology within 10 years after the project closure and is calculated per following formula:

CO_2 *indirect TD = P10 * CF, where*

- P10 = technical and economic potential for GHG savings with the respective application within 10 years of GEF project influence period;

- CF = GEF causality factor.

17. The technical and economic potential for GHG savings in the urban sector has been estimated on the basis of GHG forecasts made for different scenarios as part of the 3rd National Communication of Kazakhstan under UNFCCC. It is estimated that a total of 115 $MtCO_2$ in GHG savings could be realized under a "with additional measures" scenario, as compared to the "with current measures" scenario by 2030. With urban emissions projected to account for 43% of the total emissions by 2030, the potential for GHG savings in this sector could be estimated at some **50 $MtCO_2$**.

18. Considering the broad spectrum of potential mitigation measures in the urban sector, as well as vast financial resources required in order to unlock its mitigation potential (particularly in view of the dire state of the obsolete building stock and district heating systems constructed during the Soviet times), the share of GHG emission reductions potentially attributable to the GEF intervention has been conservatively estimated at **10%**, thus yielding the *top-down* estimate of indirect emission reductions of **5 $MtCO_2$**.

ANNEX G. STANDARD LETTER OF AGREEMENT BETWEEN UNDP AND THE GOVERNMENT OF KAZAKHSTAN FOR THE PROVISION OF SUPPORT SERVICES

Excellency,

1. Reference is made to consultations between officials of the Ministry of Regional Development of the Republic of Kazakhstan (hereinafter referred to as "the Ministry") and officials of UNDP Kazakhstan with respect to the provision of support services by the UNDP Kazakhstan country office for nationally managed project "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development". UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.

2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.

3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:

(a) Identification and/or recruitment of project and programme personnel;

(b) Identification and facilitation of training activities;

(a) Procurement of goods and services;

4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project, the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.

5. The relevant provisions of the Standard Basic Assistance Agreement (SBAA) between the Authorities of the Government of Kazakhstan and the United Nations Development Programme (UNDP), signed by the Parties on October 4, 1993 (the "SBAA") including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the project document.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.

7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the project document.

8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.

9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

For the Government	*Signed on behalf of UNDP*
Name	Name
Position	UNDP Resident Representative in Kazakhstan
Date:.....	Date:.....

Attachment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to consultations between the Ministry of Regional Development of the Republic of Kazakhstan, the institution designated by the Government of Kazakhstan and officials of UNDP with respect to the provision of support services by the UNDP country office for the nationally managed project "Nationally Appropriate Mitigation Actions for Low-carbon Urban Development"

2. In accordance with the provisions of the letter of agreement signed and the project document, the UNDP country office shall provide support services for the Project as described below.

3. Support services to be provided, including:

Support services	**Schedule for the provision of the support services**	**Cost to UNDP of providing such support services (where appropriate)**	**Amount and method of reimbursement of UNDP (where appropriate)**
Payment Process	Ongoing throughout implementation when applicable	As per the UPL- US$ 31.44 for each	UNDP will directly charge the project upon provision of services, on a quarterly basis.
Vendor profile entry in ATLAS	Ongoing throughout implementation when applicable	As per the UPL- US$ 16.78 for each	As above
Project personnel selection and/or recruitment process * Project Manager * Project Assistant	Start of project	As per the UPL- US$ 522.74	As above
Staff HR & Benefits Administration & Management (one time per staff including medical insurance enrolment, payroll setup and separation process)	Ongoing throughout implementation when applicable	As per the UPL- US$ 175.76 for each	As above
Recurrent personnel management services: Staff Payroll & Banking Administration & Management (per staff per calendar year)	Ongoing throughout implementation when applicable	As per the UPL- US$ 385.29 for each	As above
Consultant recruitment	Ongoing throughout implementation when applicable	As per the UPL- US$ 203.49 for each	As above
Procurement of goods and services involving local CAP	October – December 2013	As per the UPL- US$ 469.34 for each purchasing process	As above
Procurement of goods and services not involving local CAP	October – December 2013	As per the UPL- US$ 186.61 for each purchasing process	As above

Issue/Renew IDs (UN LP, UN ID, etc.)	Ongoing throughout implementation when applicable	As per the UPL- US$ 32.47 for each	As above
F10 settlement	Ongoing throughout implementation when applicable	As per the UPL- US$ 26.81 for each	As above
Visa request	Ongoing throughout implementation when applicable	US$ 55.46 for each	As above
Hotel reservation	Ongoing throughout implementation when applicable	US$ 18.49 for each	As above
Travel Ticket processing	Ongoing throughout implementation when applicable	US$ 36.97 for each	As above
Total amount		**USD 100,000.-**	

ANNEX H OVERVIEW OF EXISTING PROTOCOLS AND METHODOLOGIES FOR URBAN GHG INVENTORIES

World cities are generally acknowledged to be a major source of global GHG emissions, accounting for an estimated 70% of global carbon dioxide emissions from energy consumptions. Currently there is no single universally accepted methodology for estimation of municipal GHG footprints. Cities in different jurisdictions participating in different climate programs utilize different methodologies and protocols to estimate their current GHG impacts, set emission abatement targets (both compliance and voluntary) and monitor their achievement. Approaches applied in the various protocols differ in terms of scope and sources of emissions inventoried, types of gases included, reporting frameworks etc.

The most relevant urban GHG accounting protocols include:

1. *Global Protocol for Community-Scale Greenhouse Gas Emissions* (GPC) draft version 2.0 (WRI, ICLEI, C40, 2014)
2. *Covenant of Mayors*, How to Develop Sustainable Energy Action Plan, Guidebook for *Baseline Emissions Inventory* (BEI) (EU, 2010)
3. US Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI, 2012)
4. International Local Government GHG Emissions Analysis Protocol (IEAP) (ICLEI, 2009) –to be superseded by the GPC
5. International Standard for Determining Greenhouse Gas Emissions for Cities (ISGHGC) (UNEP, UN-Habitat, WB, 2010) – to be superseded by the GPC

The GPC is the latest in the range of similar protocols development and is expected to provide a single *global* framework for accounting and reporting city-scale GHG emissions The GPC seeks to help cities develop a comprehensive and robust GHG inventory; ensure consistent and transparent measurement and reporting of GHG emissions between cities; enable city inventories to be aggregated at subnational and national levels; and facilitate insight through benchmarking – and aggregation – of comparable data. Upon publication of the final version at the end of 2014, the GPC will effectively supersede IEAP and ISGHGSC, thus becoming the sole accounting framework used by carbon*n* Cities Climate Registry (cCCR) (currently utilizing IEAP), the world's leading reporting platform on local climate action that has 429 cities reporting through it as of 2014, including 118 signatories of the Global Cities Covenant on Climate (Mexico City Pact).

The Covenant of Mayors is a European initiative by which towns, cities and regions voluntarily commit to reducing their CO_2 emissions beyond the EU target of 20% below 1990 levels by 2020. This formal commitment is to be achieved through the implementation of Sustainable Energy Action Plans (SEAP). A Baseline Emission Inventory (BEI), a prerequisite to SEAP elaboration, quantifies the amount of CO_2 emitted due to energy consumption in the territory of the local authority in the baseline year. So far, BEI guidelines have been used by over 3,700 cities to compile their city-scale GHG inventories and identify mitigation actions. Emission inventories compiled in the later years to monitor the progress towards target are called Monitoring Emission Inventory (MEI) and they follow the same guidelines as BEI.

As such, the two protocols prove to be the most relevant and will be further analyzed below.

GHG inventory boundary setting

The approaches to calculating urban GHG emissions used in all of the above protocols are essentially adaptations or simplifications of the Intergovernmental Panel on Climate Change (IPCC) 2006 Guidelines for National Greenhouse Gas Inventories which is the international standard for national reporting under the UNFCCC. IPCC Guidelines provide detailed guidance on emission and removal categories, calculation formulae, data collection methods, default emission factors, and uncertainty management for compiling a *national* GHG inventory.

The key difference – and challenge – in drawing up a *city-level* GHG inventory, as compared to a national inventory, is deciding how and which GHG emissions (those occurring inside and outside of the city's boundary) should be attributed to the particular urban area. Broadly speaking, three approaches can be identified: (a) a geographic approach that limits inventory to the emissions occurring within the spatial extent of the city only; (b) a production/consumption-based approach that allocates emissions from the production of goods or services to the locality where the production takes place (production approach) or where the consumption takes place (consumption approach); (c) a hybrid approach that combines the two, accounting for GHG emissions occurring within the geographic boundary of an urban areas and including a few most relevant cross-boundary energy flows critical for the city.

Both BEI/MEI and GPC essentially utilize a *hybrid geographic consumption-based* approach to GHG emission accounting, covering both *direct emissions* from the sources located within the city's geographic boundaries, as well as *indirect emissions* from consumption of grid electricity and district heating/cooling in the city. The most noticeable difference between the two protocols lies in the treatment of non-energy emissions (e.g. methane emissions from solid waste landfilling) and other indirect emissions (e.g. transboundary transportation), which are excluded (or optional) from the BEI/MEI accounting, while being mandated under the GPC framework.

GHG emission scopes

The GPC explicitly applies the concept of "scopes" in order to differentiate between GHG emissions resulting from activities in the city which occur inside the city boundary, as well as outside the city boundary[37]. The scopes framework also gives some indication of the level of control cities are likely to have over GHG emission sources. Thus, based on the geographic boundary established GHG emissions are categorized as follows:

- Scope 1 - All GHG emissions from sources located within the boundary of the city (*direct* emissions)
- Scope 2 - All GHG emissions occurring as a consequence of the use of grid-supplied electricity, heating and/or cooling within the city boundary (*indirect* emissions)
- Scope 3 - All other GHG emissions that occur outside the city boundary as a result of activities within the city's boundary (*indirect* emissions)

[37] First introduced in the WRI *GHG Protocol Corporate Standard,* the scopes framework has been subsequently adopted by other GHG accounting protocols

Unlike the GPC, the BEI/MEI does not utilize the scopes framework per se, but in a way assumes a similar approach by quantifying the following emissions that occur due to energy consumption in the territory of the city:

- Direct emissions due to fuel combustion in the territory in the buildings, equipment/facilities and transportation sectors (equal to scope 1)
- (Indirect) emissions related to production of electricity, heat, or cold that are consumed in the territory (equal to scope 2)
- Other direct emissions that occur in the territory, depending on the choice of BEI sectors (equal to scope 1)

The scopes framework proves a useful concept in the urban context by differentiating between the different categories of GHG emission over which municipalities have varying degrees of influence and by helping avoid double counting of emissions (particularly those stemming from electricity and/or heat generation within the city boundaries).

GHG emission sectors

Since the two protocol serve different purposes, their sectoral frameworks also differ in terms of the overall sectroral coverage and sub-sectoral distribution.

The GPC covers the following sectors:

Sectors and subsectors	**Scope 1**	**Scope 2**	**Scope 3**
STATIONARY ENERGY			
Residential buildings	x	x	x
Commercial buildings	x	x	x
Institutional buildings	x	x	x
Manufacturing industries and construction	x	x	x
Energy industries	x	x	x
Agriculture, forestry, and fishing activities	x	x	x
Non-specified sources	x	x	x
Fugitive emissions from mining, processing, storage, and transportation of coal	x		
Fugitive emissions from oil and natural gas systems	x		
TRANSPORTATION			
On-road (further subdivded into taxi, bus, private car, hybrid/electric car, truck, motorcycle)	x	x	x
Railways (further subdivided into tram, urban train/subway, regional trail, national rail, internatioal rail)	x	x	x
Waterborne navigation	x	x	x
Aviation	x	x	x
Off-road	x	x	

Sectors and subsectors	Scope 1	Scope 2	Scope 3
WASTE			
Solid waste disposal	x		x
Biological treatment of waste	x		x
Incineration and open burning	x		x
Wastewater treatment and discharge	x		x
INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)			
Industrial processes	x		
Product use	x		
AGRICULTURE, FORESTRY, AND LAND USE (AFOLU)			
Livestock	x		
Land	x		
Other agriculture	x		
OTHER INDIRECT EMISSIONS			x

The BEI/MEI sectoral framework is presented below:

Sectors and subsectors	Notes
buildings, equipment/facilities and industries	
Municipal buildings, equipment/facilities	
Tertiary (non-municipal) buildings, equipment/facilities	
Residential buildings	
Municipal public lighting	
Industries not involved in EU ETS	Included, if addressed in SEAP
TRANSPORT	
Urban road transportation: municipal fleet	
Urban road transportation: public transportation	
Urban road transportation: private and commercial transportation	
Other road transportation	Included, if addressed in SEAP
Urban rail transportation	
Other rail transportation	Included, if addressed in SEAP
Local ferries	Included, if addressed in SEAP
Off-road transport	Included, if addressed in SEAP
Other (non-energy) sectors	
Wastewater treatment	Included, if addressed in SEAP
Solid waste treatment	Included, if addressed in SEAP

Sectors and subsectors	Notes
Energy production	
Fuel consumption for electricity production	Included, if addressed in SEAP
Fuel consumption for heat/cold production	Included if heat/cold is sold as a commodity

The GPC framework appears more comprehensive and better aligned with the IPCC emission sources and sectors, enabling smoother integration of urban GHG inventories into the national GHG inventory and providing a means of bottom-up validation for the national emissions. Further, IPCC categories of emission sources is a good practice for cities to follow for their inventories due to three main reasons: (a) the IPCC offers full coverage of all emissions/removals across all aspects of people's social and economic activities; (b) it clearly defines and divides those emission sources which could easily cause confusion (e.g., energy combustion in cement production and emissions from the producing process itself shall be categorized under Energy and IPPU respectively); (c) consistency with national inventories is conducive for cities to conduct longitudinal comparison and analysis.

The sectoral framework of the BEI/MEI is guided by its purpose as an instrument for measuring Covenant of Mayors' signatories' achievement of their mitigation goals: the bulk of GHG savings in the signatory cities are expected to be generated through demand-side energy measures over which the respective municipal authorities have higher degree of control. Hence, sectors such as the residential, tertiary, municipal buildings and equipment/facilities and transport are considered to be the key sectors in the Covenant of Mayors initiative; while AFOLU, industrial process emissions, fugitive emissions, etc are either excluded altogether or included as an option. Further, transmission and distribution losses from the use of grid-supplied electricity or heat are not explicitly covered by the BEI/MEI, while they are included as scope 3 emissions under the GPC.

On the other hand, the BEI/MEI, by segregating emissions from municipal buildings and facilities, municipal public lighting and municipal transport, enables the municipal government to compile a so-called local government operations (LGO) GHG inventory (which actually forms a subset of the city-scale GHG inventory) that highlights the GHG emission sources over which city leadership has direct control and where mitigation measures could be implemented as part of a SEAP.

GHG coverage, emission factors

The GPC is more thoroughly aligned with the IPCC guidelines in that it requires cities to account for emissions of all the key GHGs mandated under national GHG inventory reporting: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen triflouride (NF_3).

The BEI/MEI only requires mandatory quantification of CO_2 emissions due to final energy consumption in the cities. The local authority may include also CH_4 and N_2O emissions in the BEI/MEI depending on whether measures to reduce these GHGs are planned in the SEAP.

Another difference between the GPC and the BEI/MEI lies in the use of the emission factors: both protocols apply the standard IPCC emission factors for the various fossil fuels consumed in

cities to meet their energy needs. Additionally, however, the BEI/MEI allows a notable deviation from the IPCC guidelines by using Life Cycle Assessment (LCA) emission factors which take into consideration the overall life cycle of the energy carrier (not only the emissions of the final combustion, but also all emissions of the supply chain).

Reporting requirements

Compared to the BEI/MEI, the GPC allows a greater degree of flexibility in reporting so as to reflect the range of data availability, capacity and inventory purposes. The GPC sets out two levels of reporting requirements that a city can choose for its inventory: BASIC and BASIC+[38]. These levels indicate the emission sources that need to be aggregated together.

- BASIC reporting:

This level requires the reporting of all scope 1 sources (except those listed below), all scope 2 sources and waste sector scope 3 sources. Scope 1 emissions not required under BASIC are:

  - Emissions from in-boundary energy generation
  - Emissions from in-boundary disposal and treatment of imported waste
  - Emissions from IPPU
  - Emissions from AFOLU

- BASIC+ reporting:

This level covers all sources required for BASIC, plus scope 1 emissions from AFOLU and IPPU, and scope 3 emissions from transportation and stationary units.

Further, the GPC requires that cities report GHG emissions by sector, and where data is available, by sub-sector and sub-category.

Once the GPC is finalized and fully substitutes IEAP, its reporting framework is likely to be adopted by the cCCR as a global platform for reporting on cities' GHG inventories, emission reduction targets and mitigation actions.

Under the BEI/MEI, cities report through a standardized framework that includes all the mandatory elements and lets cities choose optional items (e.g. LCA emission factors, industry emissions, AFOLU etc). Unlike the GPC, emissions can only be aggregated across sectors and sub-sectors (but not across scopes); and the BEI/MEI allows some flexibility in reporting higher-level energy and GHG data (i.e. sector) in case sub-sectoral disaggregated data are not available or not reliable.

Final observations

As indicated earlier, both GPC and BEI/MEI are predominantly based on the IPCC approaches and concepts for national GHG inventories. Nevertheless, the two protocols are not identical in their methodological frameworks and the largest differences occur in the selection of scopes and sectors, especially in relation to inclusion of local energy production. Despite these

[38] A third – *expanded* – level of reporting is going to be added to future versions of the GPC.

differences, the bulk of urban GHG emissions (originating from energy use in buildings and transport) estimated under both protocols should be comparable.

Since a number of the UNDP/GEF pilot cities have already signed up to the Covenant of Mayors, and other may follow suit in the course of the project, it would seem logical to utilize the BEI/MEI accounting framework for compiling GHG inventories for these cities. Since the BEI/MEI guidelines explicitly allow the use of any other methodologies or tools that the local authority considers suitable, possible enhancements to the BEI/MEI approaches could be explored on the basis of the final version of the GPC (e.g. with a view to alight city inventories with national GHG inventory etc).