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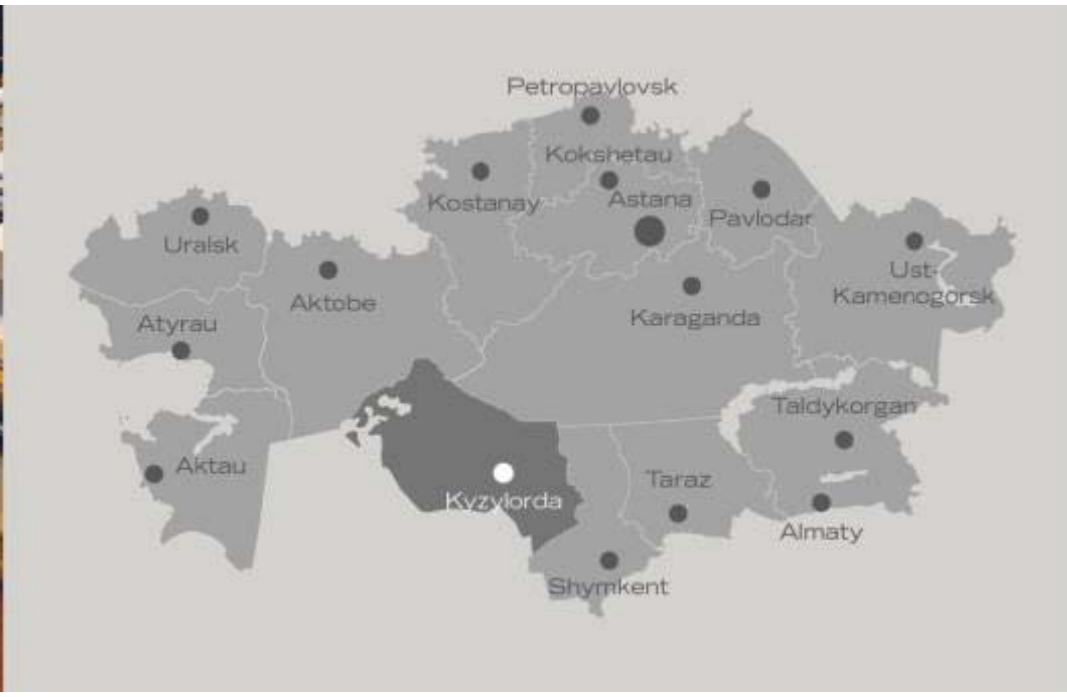


THE EUROPEAN BANK FOR RECONSTRUCION AND DEVELOPMENT

Kyzylorda Waste Management Project

Non-Technical Summary (NTS)

FCG Design and Engineering Ltd 20.5.2016

Content

List of Exhibits

ABBREVIATIONS

EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
ESAP	Environmental and Social Action Plan
E&S	Environmental and Social
H&S	Health and Safety
MBT	Mechanical and biological solid waste treatment plant
MSW	Municipal Solid Waste
OHS	Occupational Health and Safety
PPE	Personal Protection Equipment
PR	EBRD Performance Requirements
RoK	Republic of Kazakhstan
SPC	Special Purpose Company

Kyzylorda Waste Management Project

1 Project Description

1.1 General

The Kyzylorda Oblast is planning to establish a modern integrated municipal solid waste management facility in Kyzylorda and to close the existing landfill as well as to deal with the problems of the illegal dumping. In the course of the project the new waste management system will be introduced entailing a source separation of the biowaste and other waste. All municipal waste, including both household waste collected from apartments and private houses as well as commercial and budgetary consumers waste (for example, restaurants, hospitals, kindergardens, etc.), will be collected separately and transported to the waste treatment facilities for further processing, which will result in elimination of the illegal dumping.

The overall objective of the investment is to improve service, efficiency and environmental and social compliance of the municipal solid waste management system in Kyzylorda.

The new waste collection system will include:

1. new biowaste bins and containers for separate collection;
2. new waste trucks for biowaste to improve the waste collection and transportation system;
3. public awareness campaign on the new waste system entailing a separate collection of a biowaste.

Modern technologies will be used at the Facilities to maximise the efficiency of the waste processing. The establishment of such Facilities would allow Kyzylorda to move away from the current uneconomic practices that have resulted in the accumulation of environmentally hazardous and non-compliant landfills. Additionally, it will result in lower CO2 and methane emissions and will safeguard renewable and non-renewable resources.

Establishment of a modern integrated waste management facility means a construction not only of the **(1) new mechanical waste treatment plant**, **(2) biowaste treatment plant** and **(3) a combined heat and power plant (CHP) working on the biogas produced in the course of the biowaste treatment**, but also includes construction of an (4) access road, (5) office space and parking for employees, (6) fencing and lightining and other infrastructure and acquisition of the (7) machinery for the new landfill and the waste treatment plant. The new facilities area will also be landscaped with trees and bushes in accordance with local requirements to the sanitary zone.

Waste treatment plant is estimated to annually receive ca 64 000 tons of municipal solid waste. Waste will be delivered as source separated biowaste. Mixed waste will be received separately. Recycable materials will be mechanically separated from the mixed waste. Biowaste will be anaerobically digested in order to receive the biogas for energy recovery in a CHP. Additionally, the humus will be received as a byproduct of the anaerobic treatment. Humus will be used for soil improvement.

Sandy waste from street cleaning, non-recyclable waste and waste that cannot be processed due to the capacity constraints will de landfilled without pre-treatment. The new landfill will be designed and constructed in accordance with in accordance with the

international and EU environmental and sanitary standards. Due to the small fraction of the landfilled organic waste, the production of the methane gas will be reduced decreasing the risks of explosions.

1.2 Construction and maintenance / operation

Construction of the waste management plant will commence with the earth works, shaping the area, removing surface layers of the ground and levelling. Thereafter, necessary buildings will be constructed and the areas will be paved. The bottom structures of the landfill will be installed. The construction of the waste treatment plant is estimated to take about 1,5 - 2 years.

The plant will be able to start operating before commissioning of the landfill, because the existing landfill has a capacity to receive mixed waste until the new landfill is commissioned.

Waste receiving is carried out during the working time of waste trucks. It is estimated that approx. The maintaining activities are estimated to continue until 21 p.m. During the night the Facilities are supervised by the night watchmen. Indoor treatment reduces noise, odour and dust levels. Levelling, compacting and covering of waste will carried out regularly at the landfill reducing the amount of birds, vermin and flies. Facilities personnel will include both (1) administrative (book keeping, purchases, reporting etc.) and (2) production workers (waste receiving, landfill, waste treatment plant, machinists, night watchmen). The preliminary sorting and recycling of waste will require separate personnel.

1.3 Closure of the existing landfill

The Project will also involve closure of the existing landfill in appropriate manner following the best international practice and standards as well as national requirements and financed by the Government of Kazakhstan and local municipalities.

The surface area of the landfill will be reduced by moving and compacting of the landfilled waste. The slopes of the landfill area will be shaped towards the outskirts of the landfill, allowing efficient runoff of the rainwater. The earth works during the closure will be implemented with an extra precautions due to the hazardous substances contained in the ashes resulted from the uncontrolled fires at the existing landfill.

Closure of the existing landfill will take up to two years implemented in parallel with the establishment of the new landfill and will be conducted during warm periods.

2 Background

2.1 Rationale of the Project

Solid Waste Management problem presents a significant challenge to Kazakhstani government. Country has been reported having accumulated 23 billion tons of waste and continues to produce up to 700 million tons annually. Out of this amount as much as 97% are being landfilled, whereas only 3% is being recycled.[1] Majority of the landfills does not meet basic sanitary and environment protection regulations.

[1] Andrew P. Beklemishev, Kazakhstan Country Report, Global Information Society Watch, 2010: <http://www.giswatch.org/sites/default/files/gisw2010countrykazakhstan_en.pdf>

The Government of Kazakhstan have approached the problem by establishing a Programme for the modernisation of solid waste management for 2014-2050. The objective of the program is to create an effective, reliable and socially acceptable service complex on collecting, transportation, utilization and burial disposal of municipal solid waste, to increase the rate of MSW recycling, and also to provide safe burial disposal of waste.

The Kyzylorda waste management project has been initiated by the Oblast of Kyzylorda, who has requested the European Bank for Reconstruction and Development (EBRD) to finance the project. EBRD has upon request commissioned a feasibility study in 2015, which aim to establish a modern integrated waste management facility including a separation MBT facility, CHP functioning on a biogas and a new landfill complying with the EU sanitary and environment safety requirements. Also, it will include an equipment of the city with separated waste collection systems, including new containers separately for biowaste and other types of waste as well as new collection vehicles. Successful implementation of the project will require a development of an appropriate public awareness campaign informing the citizens about the benefits of the waste separation and ways it is accomplished.

Moreover, implementation of the project will require a closure of an existing landfill in an appropriate manner and in compliance with the good international practice. However, the closure of the existing landfill is not a part of the EBRD financed project, but it will be a condition of the EBRD loan and will be funded by Akimats (local municipalities)/GoK budget.

Since the project is expected to be financed by EBRD, the Environmental and Social Due Diligence is carried out as part of the Feasibility Study in accordance with Kazakh regulatory requirements, principles of the relevant directives of the European Union (inter alia EU EIA Directive, EU Landfill Directive, EU Waste Framework Directive, EU IED) and the EBRD's 2008 Environmental and Social Policy (ESP) and Performance Requirements.

The project has been categorised B under the ESP, and an initial scoping of the environmental and social issues and potential impacts did not identify any significant adverse future E&S impacts which would require a comprehensive ESIA. All potential impacts are site specific and can be readily identified or assessed through adequate mitigation measures.

The ESDD has been undertaken by the independent consultants as part of the Feasibility Study and included an independent environmental and social audit of the Company's current operations, facilities and environmental and social management capabilities, an E&S analysis of potential environmental and social issues associated with the proposed PIP and tariff affordability issues, livelihood and gender-related impacts.

The Kyzylorda waste management project is supported by the Government of Finland

2.2 Legal aspects and compliance with relevant environmental and social laws

The feasibility study and Environmental and Social Analysis for the Kyzylorda waste treatment project have been conducted in compliance with national and international legislations and waste programmes and EBRDs performance requirements (PRs). The relevant programmes and legislation considered in the project is presented in following.

Waste management programmes

- **The National waste management plan (NWMP).** The NWMP has been approved for the Republic of Kazakhstan for modernization of the system of solid waste treatment on 2014 – 2050 (On approval of the Program of modernization of the system of solid waste treatment on 2014-2050. The Decree of the Government of the Republic of Kazakhstan from June 9, 2014 no.634).

National Environmental legislation

- **Environmental Code – Includes EIA procedure and Environmental Permitting Procedure.** Adopted on 9th January 2007 in accordance with RoK Law No. 212-III; recent amendments adopted in accordance with RoK Law No. 15-V dated 27.04.12

- **Rule for sanitary-epidemiological requirements for establishing sanitary protection zone for production objects.** The order of the Minister of National Economy of the Republic of Kazakhstan from March 20, 2015 no.237. Registered in the Ministry of Justice of the Republic of Kazakhstan on May 22, 2014 no.11124.

- **Rule for forming the documents for the permits for emissions into the environment and the rules for their filling.** Order of the Ministry of Energy of RK, 20.2.2015, N 115.

- **Rules of public hearing.** Amendments to the Order of the Minister of Environmental Protection of Kazakhstan Republic dated May 7, 2007 № 135-P "On Approval of the Rules of public hearings" (registered № 8427, 10.04.2013.

- **Water Code – Includes rules for performance of works at water bodies and within water protection areas.** adopted on July 9th 2003 in accordance with RoK Law No.481-II recent amendments adopted in accordance with RoK Law No. 548-IV dated 25.01.12

National Waste legislation

- **Environmental Code of the Republic of Kazakhstan - Requirements for waste management.** Adopted on 9th January 2007 in accordance with RoK Law No. 212-III; recent amendments adopted in accordance with RoK Law No. 15-V dated 27.04.12

- **Rules for calculating the generation and accumulation of municipal waste.** Order of the Minister of Energy of the Republic of Kazakhstan dated November 25, 2014 № 145.

National Social legislation

- **Labour Code of the Republic of Kazakhstan.** Adopted on May 15th May, 2007 with RoK Law No. 251. Recent amendments adopted on 04.23.14.

- **Code of the Republic of Kazakhstan on public health and health protection system.** Adopted on September 18th 2009 in accordance with RoK Law No.193-IV. Recent amendments adopted in accordance with RoK Laws No. 34-V and No. 36- V dated 10.07.12

Local Waste legislation

- **Rules for calculating the norms of generation and accumulation of municipal waste in Kyzylorda Oblast.** Decision of Kyzylorda Oblast Akimat from

April 8th, 2015 № 911. Registered with the Department of Justice of Kyzylorda region May 6, 2015 № 4973.

- **Decision concerning differentiated rate of accumulation of domestic waste.** Approved by the decision of the Akimat, number 1033, the 21.11.1999
- **Sanitary and Epidemiological Requirements for the collection, use, application, processing, transportation, storage and disposal of waste from production and consumption.** Order of the Minister of National Economy of the Republic of Kazakhstan No.176 of February 28, 2015. Registered in the Ministry of Justice of the Republic of Kazakhstan of May 5, 2015 No.10936.
- **Governmental normative documents in the area of architectural, urban-planning and building activity, housing relations and communal household. Landfills for municipal solid waste.** Committee for issues of construction and HCS of the Ministry of regional development of the Republic of Kazakhstan. Astana, 2013, CH PK 1.04-15-2013.
- **Lists of wastes to be accepted to the landfills of different classes.** Order of Acting Minister of Environment of the Republic of Kazakhstan dated August 2, 2007 N 244-p. Registered in the Ministry of Justice of the Republic of Kazakhstan August 27, 2007 N 4897.
- **Regulation concerning preparation of a waste management plan.** The Government of the Republic of Kazakhstan, 30.3.2013, Nro 403.

Acquisition legislation

- **Land Code of the Republic of Kazakhstan.** Adopted on June 20th 2003 in accordance with RoK Law No. 442-II. Recent amendments adopted in accordance with RoK Law No.34-V dated 10.07.12
- **Law of the Republic of Kazakhstan on motor roads and Industrial conveyance and hoisting.** The RK law "On motor roads" from July 17, 2001 No.245, CNR 2.05.07-91* "Industrial conveyance and hoisting", CNR 3.03-09-2003 "Motor roads", CNR 3.01-01-2002, CN of the RK 3.03-19-2003.
- **Law on architectural, urban planning and constructional activities.** RK Law from July 16, 2001 No.242-II.

EU Environmental legislation

- **EIA Directive.** Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification). Directive 2014/52/EU of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment
- **IPPC Directive (integrated pollution prevention and control).** Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control
- **Water Framework Directive.** EU Directive 2000/60/EU: the EU Water Framework Directive (WFD).

EU Waste legislation

- **Waste Framework Directive.** Waste Framework Directive, or Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
- **Decision on establishing a list of wastes**, 2000/532/EC.
- **Regulation on shipments of waste.** Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste.
- **Decision on establishing a list of wastes**, 2000/532/EC.
- **Directive on the landfill of waste.** Council Directive 99/31/EC on the landfill of waste.
- **Decision for establishing criteria and procedures for the acceptance of waste at landfills.** 2003/33/EC: Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC
- **Regulation of animal by-products.** Regulation (EC) No 1069/2009 of the European Parliament and of The Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation)

International Conventions and Agreements

Kazakhstan has ratified the following international conventions:

- **Aarhus Convention** (Convention on Access to Information (1998) Public Participation in Decision-making and Access to Justice in Environmental Matters, ratified 11 Jan 2001.
- **Convention on Biological Diversity.** The RK ratified the IUCN Convention on Biological Diversity, on September 6, 1994.

2.3 Current environmental and social situation

In Kyzylorda City, municipal waste management is divided into (1) sanitary street cleaning, (2) waste collection and transportation and (3) waste disposal and recycling. The responsible committee for organization of waste management services in Kyzylorda City is the Housing and Community Services Committee that coordinates and carries out tariff policy for communal services. Waste management services are provided by municipal and private companies; the principal waste collection and street cleaning service company is Kyzylorda Tazalygy LLP (the Company).

Waste collection and transportation services are provided for commercial activities, budgetary consumers, apartment buildings and private houses. Waste transportation for private houses is delivered upon own expense. Typically, no waste containers are available and waste bags are thrown on the street, wherefrom service companies collect them during street cleaning. Rural areas and villages organizes waste management on their own, separately from the waste management in the city center.

Only one authorized landfill for municipal solid waste is operating in the city. The landfill is located ca 5 km east from the border of the city center, close to the M32 highway. The landfill was initially planned to hold a capacity of 20 ha, but by time it has reached ca 40 ha.

The city does not have an organized separate collection for hazardous wastes or for recyclable waste fractions. Separation of recyclable materials is carried out by a waste disposal and recycling company, Ibrayhan LLP, who has leased the landfill and is operating at a 10 ha area next to the landfill. The total amount of waste received at the landfill in 2014 was ca 64 000 tons, wherefrom ca 10 % was recycled. Nearly 90 % of the recycled waste constituted of so called biodegradable waste, such as sweeping waste, leaves, grass, food waste and paper. The remaining fraction constituted principally of plastic and cardboard. The operator of the landfill has an incinerator for the health care waste. Also oil waste is received and processed resulting in products such as furnace oil and fuel.

The villages Kyzylzharma, Aksuat, Kyzylozek, Koshynyrau, Akzharma, Alsuat Karauyltobe have their own waste dumps in the vicinity of their territories. Belkol and Tasbuget belong to the city waste management. In 2013, plots of land were allocated for the landfills for production and consumption waste. Construction has not yet started due to lack of financing.

The present waste management system in Kyzylorda is considered inadequate because:

- the waste management system does not fulfill objectives stated in the NWMP;
- source separation or treatment of hazardous waste is not in place;
- the collection of MSW as "street cleaning waste" without waste collection fees does not comply the "polluter pays" principle;
- collection of MSW as "street cleaning waste" is an inefficient and expensive way to collect MSW reducing resources from other MSW collection;
- current MSW recycling is based on private initiatives, the municipality has not organized equal possibilities to all MSW generators to recycle MSW;
- the existing landfill does not comply with modern requirements of landfill structures or landfill management practices;
- the existing landfill does not comply with the national sanitary zone requirements;
- there are several village dumps in use in the Kyzylorda City.

Based on the investigations carried out as a part of the feasibility study, no major violations have been identified in the current practice with regard to Social performance, Labor Health and Safety conditions of the two major waste management service providers, Kyzylorda Tazalygy and Ibrayhan LLP.

Waste pickers have been identified using dumped waste as recyclable resources at the existing landfill area. The number of waste-pickers on a daily basis is on average 10-20 persons during the summer season. The pickers are mainly local people living in the nearest village.

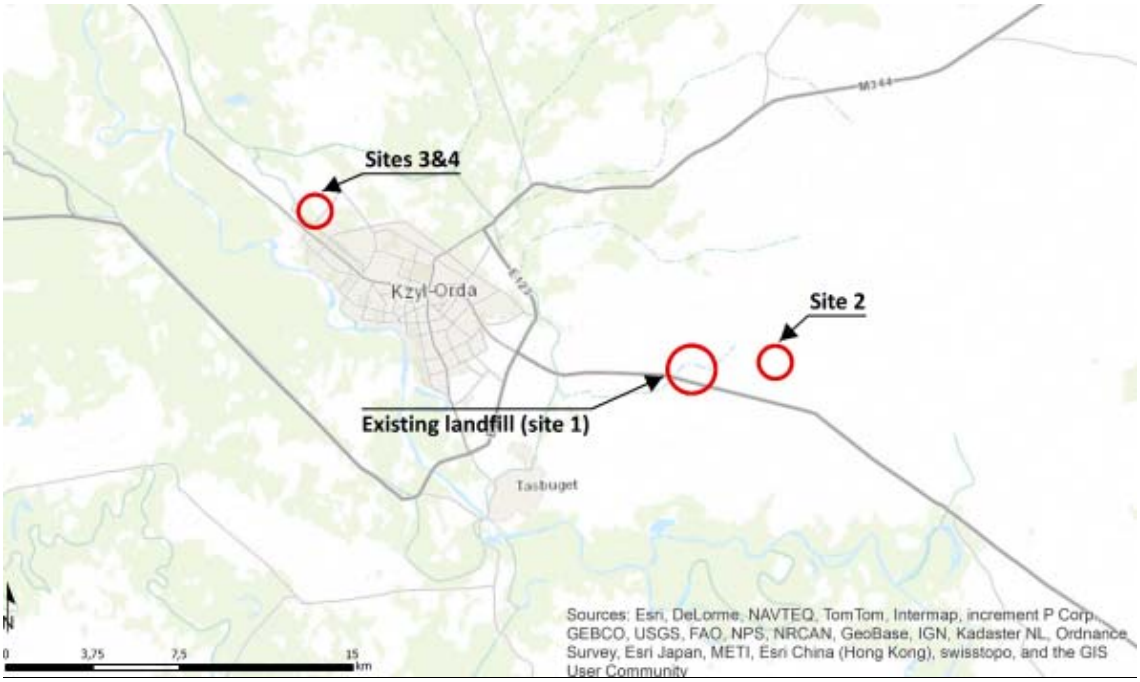
2.4 History of the Project development and planning

2.4.1 Site selection

The Facilities site has been chosen after a consideration of four alternatives (see

Exhibit 1). Site 1 would have been proposed for modernization and expansion of the existing landfill. Site 2 is located 3,7 km east from the existing landfill. Sites 3 and 4 are located close to each other on ca 15 km distance North-West from the Kyzylorda city center.

Exhibit 1 Sites identified in cooperation with Akimat of the City of Kyzylorda and the Land Committee.



Potential areas were suggested by the Akimat of the City of Kyzylorda in cooperation with the Land Committee. The detailed breakdown for the site mapping as to compatibility with the requirements is present below.

Exhibit 2 Site mapping.

		Site 1	Site 2	Site 3	Site 4
1	Size and capacity of the site	+	+	+	~
2	Infrastructure availability on the site available as today*	~	~	+	+
3	Sanitary buffer zone around landfill (1000m)	-	+	-	-
4	Sufficient distances form habitation clusters	+	+	-	-
5	Water bodies within buffer zone	+	+	-	-
6	Forest area within buffer zone	+	+	+	+
7	Protected area within buffer zone	+	+	+	+
8	Airport distance minimum 15 km	+	+	-	+
8	Ground water level	~	~	-	-
8	Wind directions	~	~	+	+

Suitable - +
Partialy suitable - ~
Unsuitable -

**Waste water, electricity, technical and drinkable water*

The national road, the Western China-Western Europe highway (M32) is located at ca 1,5 km distance south from the Site 2. On the northern side of the Site 2 runs two 220 kV power lines and on the southern side runs the highway M32 and alongside with it an existing 35 kV power line.

Thus, it was identified as most suitable for the planned waste management facilities due to the absence of the settlements in vicinity and critical conflicts with other environmental and social criteria

2.4.2 Technology selection

Two technical alternatives have been assessed in the course of the Environmental and Social Analysis. They differ as to organization of waste collection and transportation:

- **Alternative 1:** MSW is collected as a mixed waste;
- **Alternative 2:** Biowaste is collected separately from other MSW.

Besides implementation alternatives 1 and 2, a so called 0-alternative has been assessed. The 0-alternative stands for a situation, where the project is not implemented and city waste management system does not bear any changes (See *Exhibit 3*).

Exhibit 3 Technical alternatives

ALT	Concept title	Details of the Concept	Key challenges
0	No project	• No waste treatment plant • Collection and transportation of MSW without separation at source • Part of the waste is delivered to the village and illegal dumps	• Landfill is considered to be full • Landfill is close to the city area and the odour from the landfill may spread over • Management of the landfill is at low level and has to be imporoved
1	Collection of mixed waste	• Combined mechanical treatment and generation of "green energy" • Collection and transportation of MSW without a separation at source • New modern landfill • Closure of the existing landfill	• Problems caused by a lack of source separated waste in the treatment (e.g. hazardous waste or biowaste impurifies other waste fractions) • Improvements in the system lead to the increase in tariff
2	Separate	• Separate mechanical	• Public awareness campaign

ALT	Concept title	Details of the Concept	Key challenges
	collection of biowaste	treatment • Separate generation of "green energy" • Collection and transportation of MSW with a separation at source • New modern landfill • Closure of the existing landfill	needs to be launched in order to familiarize people with the benefits and reuirements of the new system • Frozen waste in winter season may require defrosting before treatment • Increase of the traffic in the City • Improvements in the system lead to the increase in tariff

3 Due diligence process

3.1 E&S Analysis

An Environmental and Social Analysis (E&S Analysis) has been carried out for the project by independent consultant team of international and local specialists in 2015. The E&S Analysis process has been carried out in compliance with the national Environmental Code of Kazaksthan and principles from EU legislation and EBRD's Performance Requirements.

It has included an initial data collection, scoping, baseline study, systematic comparison of implementation alternatives for the waste treatment facilities in terms of environmental and social impacts, assessment of the significance of impacts, designing solutions for mitigation of impacts and a plan for monitoring and actions.

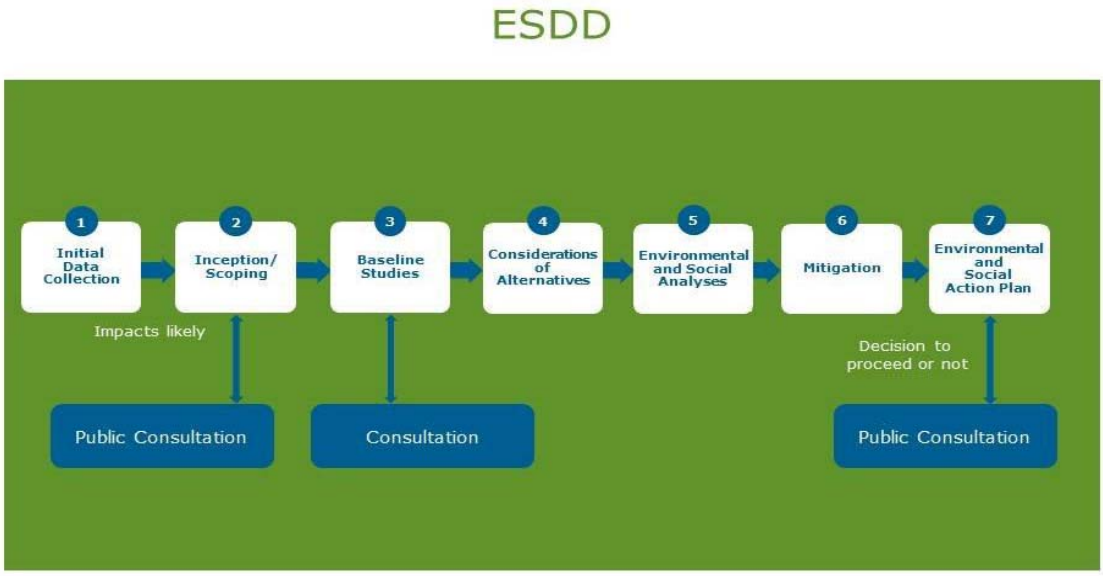


Exhibit 4 Environmental and Social Due Diligence process carried out for the Kyzylorda waste management project

3.2 Public consultations and disclosure and dealing with objections

Communication with stakeholders, local people and public consultations are an important tool for interaction between the Financer, Project Developer and Consultant for the Feasibility study. In the further planning stages of the project, it is suggested that communication with stakeholders will continue on regular basis, i.e. through public consultations, where stakeholders may attend to obtain information regarding the proceeding of the project, raise their concerns and learn about possible actions for improving operation activities.

A Disclosure Package will be prepared for the Project and will be available at the Kyzylorda City Akimat's website and EBRD website: http://www.ebrd.com, for a period of 60 days, starting from the day of the Official Announcement of the Second Public hearings (to be set by Kyzylorda City Akimat).

Public announcements on the availability of the disclosure package for review and comments will be made in the local media, including the "Kogan TV", and the local newspaper "Akmeshit Aptalygy", at the start of the disclosure period.

During operation, the Company and the Project team will continue to disclose information to the local communities and the general public on the Project's environmental and social performance, including any scheduled meetings or other activities with stakeholders, through the established project section of the Kyzylorda City Akimat's website, and via the media channels described above.

4 Summary of Environmental and Social Benefits, Potential Adverse Impacts, Mitigation and Management Measures

4.1 Environmental and Social Benefits

- ✓ **Increased efficiency in recycling of waste** due to introducing separate collection of biowaste and mechanical separation of residual waste
- ✓ **Decrease in relative landfilled waste volumes** through improved efficiency in waste recovery from 93% in 2015 to 21% in 2025 out of total landfilled waste.
- ✓ **Decrease in amount of landfilled bioactive waste** due to processing of biowaste in an anaerobic digestion plant, the separation rate of biowaste will increase from 20% in 2015 to 60% in 2015, estimated source separated biowaste amount is 8000 tn/a.
- ✓ **Decreased risks of leachate pollution** due to reduction of biodegradable waste in the MSW to be landfilled and a leachate collection system realized at the landfill
- ✓ **Decrease in odour** due to reduction of biodegradable waste in the MSW to be landfilled
- ✓ **Improved sanitary circumstances** through arrangement of a complex waste management system including efficient waste collection of mixed and biowaste, increase in waste bins in city area, systematic reception, sorting, recycling and disposal of municipal solid waste
- ✓ **Improved working conditions and safety** due to modern waste treatment practices for ca. 440 employees
- ✓ **Lower risks for fires** due to introducing best management and operation practices at the Facilities

- ✓ **Generation of green electricity and heat energy** from biogas produced through digestion of source-separated biowaste at an anaerobic digestion plant and converting of biogas into electricity at a combined heat and power plant with a capacity of 0,5 MW.
- ✓ **Nearby energy self-sufficient waste treatment plant** through using of self-produced electricity from the combined heat and power plant on-site in waste management activities
- ✓ **Reduced risks for soil, surface and ground water contamination** due to reduced content of biodegradable waste in the landfilled waste and implementation of water collection system and water proof bottom structures at the waste treatment area
- ✓ **Reduced noise impacts** due to placement of waste treatment activities indoors
- ✓ **Reduction of greenhouse gas emissions** due to greenhouse gas caption from biowaste in the amount of 157 020 t CO_2-eq./year
- ✓ **Improved monitoring system** due to introduction of continuous environmental monitoring according to the EU requirements
- ✓ **Reduction of waste thrown in the street** due to providing waste containers to the one-family house areas
- ✓ **Improved awareness of the general public on waste disposal rules** through awareness campaigns
- ✓ **New workplaces for different social groups** can be provided at the new waste treatment plant

4.2 Potential Adverse Impacts

The negative environmental and social impacts of the Project are assessed as of minor significance. The project will be implemented in accordance with high standards for technical and operational activities following the best international and EU practices and standards. The most significant negative impacts are an increase in waste tariffs and loss of income or work at the existing landfill, which however may be compensated at the new waste treatment facilities.

Noise is generated from earth works, construction of facilities and regular use of machinery in operational activities at the plant. High noise (exceeding 40dB) extends no further than max. 500 m from the source. No sensitive objects are located within the noise influence area and no threshold values will get exceeded at any occasion. Noise generation will be significantly mitigated by limiting the operation time and through the in-house operations.

The most significant **odour** generating event is composting of the digested biowaste from the anaerobic digestion plant at the landfill. However, the odour can be reduced significantly compared to conventional waste landfilling. Significant odours will extend no further than 200 meters from the Facilities. Good composting practices will reduce the odours.

Greenhouse gas emissions from landfilled waste is assessed to be ca 100 000 t CO2-eq./a. By capturing biogas from anaerobic digestion of biowaste, emissions can be significantly reduced when comparing to conventional landfilling. Additional transportation caused by source separation of biowaste and residual waste increases the amount of greenhouse gas emissions.

Dust emission will be caused by construction and operation activities. The soil in the region is typically of fine fraction and loose, hence, dusting is a common phenomenon. The soil is clean and the dusting will occur locally on-site at the plant and on the access road. In case of significant dusting, mitigation such as watering and salting of access road and working areas can be conducted. Closure of the existing landfill will cause short termed impacts mainly comprising of dusting of ashes from burned waste. Dusting at the existing landfill is dangerous due to the hazardous nature of the ashes.

Construction works will locally accelerate erosion on **soil** and pose risk of oil spills and leakages from machinery and fuel tanks. Leakages pose a threat on soil and **ground water**. No surface water bodies are located in the vicinity of the area. The amount of chemicals and fuels used and stored at site is relatively small and soil has low permeability, thus, the potential for ground water contamination is very low. The new waste management area will be implemented according to principles of EU-norms. e.g high standard bottom structures will be built and therefore risk of contamination is assessed to be negligible.

The new facilities cause irreversible loss of **nature** on a 20 ha area, but the value of the lost area is low; typical species and habitats for a steppes area have been identified in the area. Therefore impact will be of minor significance. Continuous coverage and compacting of waste will reduce the number of rodents, birds and vermin from arising on-site. Greening of the surrounding area of the plant area will be conducted which reduces erosion and dusting.

With present waste **transportation** asset, ca 100 waste transports will occur per day. Driven kilometers due to waste transportations would increase 1,3-1,5 times compared to current situation with the existing landfill due to the fact, that waste amounts are expected to increase and the proposed area for waste management facilities is located further away from the city center than the existing landfill. Driven kilometers from waste transportation in present situation are on annual basis 1,7 million kilometers. The access road that will be used to reach the landfill belongs to the high-way category and therefore, there will be constructed an additional road line ("2+1") that will ensure a safe crossing of the road. The road construction will be conducted in accordance with the Regulation № 245-II "Automobile roads" of 17.07.2001.

Implementation of the project would demand a simultaneous increase in waste management tariffs, which would result in indirect increase of housing communal services cost. The impact on **economic welfare** is dependent on the level of income of affected households.

New waste management organization, restructuring Kyzylorda Tazalygy and the closure of the existing landfill, may cause direct **consequences on personnel** of Kyzylorda Tazalygy and other waste management companies leading to unemployment of some of the workers. Also **waste pickers** at the existing landfill will be a subject to an economic displacement. A Livelihood Restoration plan has been compiled which ensures appropriate implementation of mitigation actions, for instance, through new available jobs at the new waste treatment plant.

Potential negative impacts on **occupational health and safety during** the construction, operational phase and decommissioning of waste treatment facilities may incur accidents and injuries, chemical exposure and exposure to pathogens and vectors. These impacts can be minimized by applying applicable occupational safety standards and establishing safe work practices, as well as developing and implementing an appropriate OHS plan.

No valuable objects in respect to nature, natural resources, landscapes, land use, cultural heritage, surface and ground water have been identified in the area. Closest industrial activities, bitumen and brick factories, are located on ca 1,5 km distance from the area. The area possesses paths occasionally used by people and cattle, which is typical for the region. No signs of significant grazing activities have been identified. At the moment there are not any activities at the site or inside the sanitary zone.

4.3 ESAP

The Environmental and Social Action Plan and Priority Investment Plan have been prepared in order to address the environmental and social impacts as well as to ensure that the Project is in line with the Project Performance Requirements of the EBRD, relevant EU directives and national legislation. It entails that PIU; Management of Kyzylorda Tazalygy and Akimat develop and implement actions and measures that address the identified social and environmental issues, impacts and opportunities in the ESAP. Mitigation measures and actions are identified so that all relevant stages of the project preconstruction, construction, operation and closure operate in compliance with applicable laws and regulations and the PRs. In the ESAP have been documented key environmental and social issues, the actions to be taken to address them adequately, as well as any actions to maximise environmental or social benefits. The key actions and mitigation measures covered to ensure project's compliance with EBRD PRs are listed below:

- An EIA according to the Environmental Code of Kazakhstan has to be carried out in the following planning stages of the project.
- A comprehensive Environmental, Health& Safety Management System has to be established
- Establishment of Project Implementation Unit (PIU) that will have the responsibility and authority to maintain and implement the Environmental and Social Management Systems and Plan
- Preparation of Waste Management Policy for Kyzylorda City
- Establishment of the Supply Chain Management System
- Implementation of Environmental and Social Monitoring Plan
- Implementation of the Livelihood Restoration Plan, including development and realization of the relevant training programms
- HR and Working Policy development and implementation
- Health and Safety guidelines monitoring and implementation
- Develop and introduce a comprehensive internal grievance mechanism to all employees before commissioning the facility
- Develop and introduce a comprehensive external grievance mechanism to all stakeholders
- Ensure and monitor contractors E&S compliance
- Security Personnel Requirements in place and implemented.

5 Communications

A stakeholder engagement plan (SEP) has been compiled in order to ensure that stakeholders, such as NGOs and project-affected people have opportunity to get up-to-date information regarding the project proceeding and monitoring results. In addition, people will be given opportunity to give their opinions and possible concerns, which the project owner should consider in the continuous development of the waste treatment plants management. The SEP addresses the involvement of women in the project and the consideration of equal opportunities. The SEP has been developed according to EBRDs policies and includes also a plan on how the stakeholder engagement will be implemented.

Two public meetings will be arranged during the feasibility study. The meeting is open for any person, who is interested, concerned or on whom the project may somehow affect. The public meeting will include a presentation of the project and the environmental and social analysis. Attendances of the meeting will be allowed to discuss about the project together with the consultant of the feasibility study and E&S Analysis and representatives from the Akimat of Kyzylorda.

Information regarding the project, public display of the documents and public meetings will be published in the project website and local media, such as newspapers and TV.

The SEP includes a grievance mechanism for complaints related to the project implementation.

All complaints will be monthly revised by the assigned **Grievance Manager**:

Mr. Rysbek Abzal Rysbekuly, email: abzal_0404@mail.ru, phone: 8 777 457 66 96.