ZHANATAS WIND POWER PLANT

NON-TECHNICAL SUMMARY

Includes Environmental and Social Management Plan and Grievance Redress Mechanism

November 2019

1 PROJECT DESCRIPTION

The Asian Infrastructure Investment Bank ("AIIB" or the "Bank") is considering providing a loan to China Power International Development Limited Co., Ltd (the Company) for the construction and operation of the 100MW wind power plant (WPP), located near Zhanatas town, Zhambyl Region (the Project). WPP operation will contribute to the Kazakhstan's implementation of the Green Economy concept by reducing the country input to global warming, dependency on fossil fuel and improving power supply reliability.

The Project has been assigned Category B as per AIIB ESP, as confirmed by the findings of the Environmental and Social Assessment (ESA) conducted by EcoSocio Analysts LLC between April 2019 and November 2019 since no critical environmental and social issues have been identified and impacts are judged to be site specific or short term in nature. . The ESA can be consulted in English on AIIB's Website under the Project Page www.aiib.org, on the Sponsor's website www.cpihzhanatas.kz and at the Project site.

The WPP will contain forty Envision 2.5MW turbines in two rows of 23 and 9 turbines and two clusters of 4 turbines each, connected with 35kV overhead lines along the chip rock road to the step-up transformers from where an 110kV overhead line will run to the 110/35kV national grid substation along the existing road (Figure 1). The 90m high turbine towers will hold 59.5m long blades that will rotate at the average speed of one turn per 5 seconds in the range of the winds from 3 to 20m/s and will have ice formation prevention.

A qualified contractor uses 46m long trailers to transport the oversize parts up to 60m long from Khorgos 1100km from the WPP site mainly along A2 four lane motorway (parts of which are still under construction) but also for 280km along the two way roads M36 around Almaty, the R43 and R44 from Taraz and along Zhanatas streets. The contractor surveyed the transportation route but has not prepared a detailed plan. It resolved the road constraints on the way as they occur with the help of one road police car and several traffic regulators. Although up to one hour delays of the traffic occurred on the problem sections like unfinished parts of the A2 motorway, no infrastructure was damaged.

The construction started in January, 2019 and was planned to last 16 months. By November 2019, 15 turbines have been erected with a work rate of one turbine in 4-5 windless days. There was practically no welding as tying up steel rods with wire was more reliable albeit more labour intensive. Foundations are planned to be finished by the mid of November 2019. Concrete is brought from Shymkent cement plant. The internal roads were covered with chip rock to control dust. Foundation for substation and office has been built and fencing has been almost completed. The anchor towers and poles for 110kV powerline are being erected. Turbines assembling and the roads tarmac paving is planned to be completed in March 2020.

In November190 workers were involved in construction but in peak time in summer up to 250 workers were employed. Most of the workers were local from nearby villages and Zhanatas. The others: supervisors and specialists involved in turbines assembling are placed in a container type camp close to the turbine 11. The work is conducted in the day time only and to keep up with the work schedule, more workers will be hired. Only the foundations filling with concrete was conducted throughout the clock and required 12/12 hour shifts.

The fully automatic operation is planned for 20 years without major repair. It will be carried from the control room at the substation via SCADA. Around 15 workers will be involved in the operation and maintenance. The non-skilled workers that can be employed locally will consist of 2-4 guards and a cleaner. Security lighting will be kept through the night at the fenced area, along the passages and at each turbine pad. The oil in 2 step-up transformers will not contain PCBs and will be dumped in a tank in case of fire.

Figure 1 Overview of the windfarm area. Project components are written in white, social constraints are shown in green. Green dash lines are pasturing routes. Visual impact modeling from the identified sensitive viewpoints is shown here as cameras.

The WPP will also result in a sizable reduction in air pollution (500t of SO_2 and 270t of NO_x)and the country contribution to the global warming (265 860tCO_2 avoided annually), in line with Kazakhstan's Nationally Determined Contribution[1].

2 PROJECT IMPACTS

2.1 CONSTRUCTION

Visual impact will be less than the impact during operation as not all turbines will be up at a given time and the blades will not rotate. The project and its contractors and subcontractors are expected to comply with the Kazakhstan Labor Code that is close to the principle of International Labor Organisation core labor standards.

2.1.1 Air Emission, Noise and Vibration

During construction the air quality is reduced locally with diesel combustion products, dust and volatile hydrocarbons. The total amount of emissions for construction period was calculated as 1.7t. Painting is minimal as most of the components will be galvanized or pre-painted. The turbine parts are bolted rather than welded. Considering the distance to the residential area and the expected wind turbulence for most of the construction period no discernible impact is expected on the population from air pollution. Excessive abrasive dust on plants may grind the livestock teeth but the herders are likely to avoid places of such dust deposition and return to them when the rain washes the dust off the leaves. The other animals that are expected to be present in the area are less susceptible to teeth grinding. They are also likely to move away from the disturbed areas but will return after the construction ends.

The excavator mounted pneumatic hammer that was used to crash hard rock generated 110 dB(A) and the other earth moving equipment generated noise around 90 dB(A). At the nearest farm, which is 2.2km away from the closest turbine, this noise attenuated below the background level.

2.1.2 Vegetation and Soil

Soil structure is damaged during construction of the internal roads and 35kV powerlines along them. Soil and vegetation was destroyed on 0.7-1.2ha around the foundation, crane pad, storage and assembly area (Figure 1). The total loss of top soil and vegetation will be on 67.7ha, which includes 11.7ha under the roads (26km*4.5m), 48ha under turbines (1.2ha*40), 8ha under the substation, concrete plant and storage area. This is comparable with the half of Zhanatas town area with multistory houses.

Top soil is mixed with the lower soil horizons where earthwork is conducted and blown off onto the adjacent vegetation from the areas where vegetation is damaged. But because the humus content in the soil of the turbines area is less than 1%, it has no agricultural value and its preservation is not required by law.

In the areas without earthwork, where only vegetation is damaged and soil compacted, initial vegetation can cover the bare patches in 1-2 warm seasons. However, the bulbs of ephemeral and ephemeral plants take 6-7 years to grow and flourish.

Indiscriminate driving along the shortcuts between the turbines and the main roads created significant damage to the vegetation, which would have no chance to recover during the operation because the shortcuts would likely remain in use. However, the largest impact is expected in the area where 3

[1] https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Kazakhstan/1/INDC%20Kz_eng.pdf

protected flowering ephemeral plants were found: Juno kuschakewiczii at the turbines 38-40 and crocus and tulip at the turbine 15 (see Figure 2). These flowers may also be present in lesser numbers near the other turbines where similar ecological conditions exist.

Figure 2 The Red Book protected flowers: *Juno kuschakewiczii,* crocus and *Tulipa greigii*

2.1.3 Surface and Ground Water

Zhanatas water intake is located downstream the Burkitti River 2.8km north of the turbine 24. The 35kV transmission line passes 5.5km from turbine 24 to 25, thus, avoiding cable laying under the river. The springs are 3km south from the nearest turbine. The 110kV transmission powerline passes 170m from the Kazfosfat open pit filled with groundwater. The risk of oil spills is negligible (see Section 2.3.1.).

2.1.4 Wastes

Despite inadequacies in the local waste and wastewater management, impact from the project waste is considered to be insignificant mainly because of small volume, nonhazardous nature of the disposed waste and the fact that most workers will be local whose sewage would end up in the lagoon in any way. Waste disposed to the Zhanatas town fenced and guarded landfill will not generate significant impact on soil or groundwater albeit low impact on air quality is possible as waste burning is practiced. If any, hazardous materials will be stored up until the worker camp closure and then given to a licensed waste contractor or be amalgamated with the contractor hazardous waste at its material base. Wastewater is delivered from the worker camp to the Zhanatas wastewater treatment plant with only the solids separation screen operating. Untreated sewage is piped 4km further north into a wastewater lagoon overgrown with shrubs and visited by migrating waterfowl.

2.1.5 Social Impact

2.1.5.1 Traffic

A qualified contractor uses 46m long trailers to transport the oversize parts up to 60m long from Khorgos 1100km from the WPP site mainly along A2 four lane motorway (parts of which are still under construction) but also for 280km along the two way roads M36 around Almaty, the R43 and R44 from Taraz and along Zhanatas streets. The main impact was expected on the users of the 2 lane road segments along which the oversize and heavy equipment is transported, but only one hour delay occurred on the unfinished parts of the A2 motorway. The road constraints, which were expected to be bridges and sharp turns, were resolved on the way as they occurred with the help of one road police car and several traffic regulators. No infrastructure was damaged.

The local traffic is not affected since the turn to Eurokhim mining is used to bypass Zhanatas town. The turbine parts are transferred and stored at the turbines location. The concrete trucks run through the night but mainly along the WPP own roads.

2.1.5.2 Water Use

After an attempt to find groundwater on site failed, water was sourced from the Zhanatas town potable water preparation plant where no limitation was reported.

2.1.5.3 Livestock

The WPP construction is expected to have insignificant impact on the livestock from Aktogay and Syzdykbayuly villages that grazes around the WPP construction sites. All the land will remain available for pasturing and the damaged vegetation will be away from the main grazing grounds that spread along 17 unaffected galleys. The 3m deep foundation pits will be the only hazardous for the livestock during the construction but access to the pits will be obstructed by the excavated ground. Trenching for the cable laying will be done only at the overpass where no cattle is present.

2.1.5.4 Cultural Heritage

Several mounds along the road were left unexcavated where the internal road is being built within the 50m protection zone. Without being excavated, these mounds may be damaged. Some project components may intrude into the 50m protection zone of the mounds that is drawn around the possible remains of ritual activities that occurred at the time of burial and that can give clue about the buried person belonging. Uninformed turbine foundations digging worker may also damage valuable objects that may have not been identified by the archaeologists. Being under time pressure, the worker is unlikely to stop after recovering artifacts even if this is obligatory under the legislation.

2.2 OPERATION

2.2.1 Environmental Impact

Vehicles are expected to use the internal access roads covered with chip rock that connect to the local tarmac roads. Yet, because loops would have to be made between specific turbines, shortcutting is likely to occur. Also, access to the area will be improved, which can create induced impact on three protected plants from picking. Alteration of the pollination by night insects due to insects attraction to the security lighting and the light body of the turbines is unlikely to be sufficient to significantly alter species composition or survival potential.

Reptiles and some insects are likely to use the access roads and the turbines body and shade for warming up in the mornings and cooling in the afternoons. This will however have no effect on the site ecology and will not increase reptiles' mortality as the transport movement along the roads will not be intensive. Bats are not present in the wind power plant site and do not hibernate anywhere near the site over winter.

Birds collision with the blades may occur but is not expected to constitute a significant risk. Migrating birds will pass at considerably higher altitudes than the span of the turbines blades. The known migration routes lie 54 kilometers north from the turbines and parallel to them. Although in high frontal wind, rain or snow the birds can be forced down, they are likely to look for and land to a large clear waterbody as a protection from predators and wait until the weather improves. The nearest significant waterbody used for resting is the Zhanatas wastewater lagoon 13km northwest of the nearest row of turbines. There, a congregation of 1500 birds of mainly swans and various ducks were observed in August with two protected by the Kazakhstan Red Book endangered ducks: ferruginous ducks and white headed ducks. These birds renew migration at considerable height once the weather improves.

Absence of birds in Kazfosfat quarry 5km north of the turbines is explained by human presence and absence of forage.

During autumn migration very few birds were observed. In August a flock of ban swallows crossed the site from northwest at turbines 20-21 flying below the risk window 20-120m; 30-40 wagtales and pipets were resting around the turbines 45-46. All of them fly below the risk window but 3 breeding nearby common kestrels that came to hunt on them, fly within the risk window. Observation of their flight from a vantage point suggested low risk to these birds.

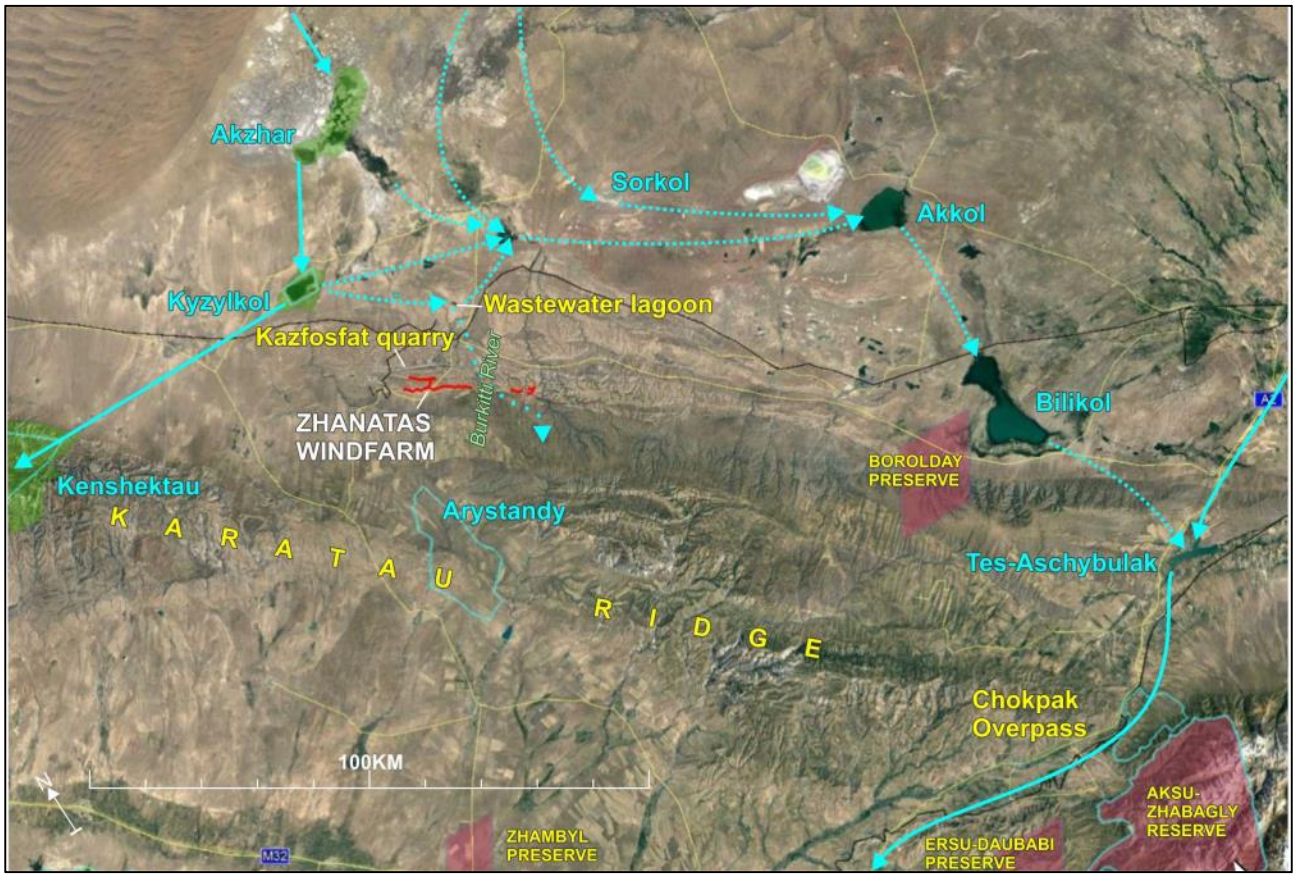

Figure 3 Showing the nearest sensitive ecological areas: Important bird areas (blue); Key biodiversity areas (green); State protected areas (pink) and the nearest to the WPP birds migration route (blue dash line) that approaches the Karatau Mountain Ridge but then follow the lakes system to join the main migratory route 115km away from WPP at Ters-Aschibulak Reservoir to go over the Ridge at the Chokpak Overpass. Noted migration along Burkitti River 2.5km from the turbines 24 and 25 was very minor and went below turbines level.

In September, 70 swallows flew in the risk window along a noted then migration route along Burkitty River 2.5 and 2.8km from the nearest turbines. Through the plant area, 10 kestrels passed near the turbines 11-13 and 50 jackdaws sat on overhead line along the road to Zhanatas where the transmission powerline will be erected. These species are given the least concern status by IUCN. The jackdaws migrate short distances within Kazakhstan.

The residing in the WPP area wheatears, larks and other passerines fly at heights below 20m i.e. under the blades. The flights of the praying on them birds may be altered forcing them to spend more time monitoring blades than hunting or to avoid the turbines areas all together. The prey birds density will be also limited by the territorial claims of stronger individuals. On the other hand, the prey birds will gain additional scanning points in the form of turbines and powerline poles and towers. Some nesting birds may be displaced from the turbine area by the blades noise but birds are known to become accustomed to repetitive sound.

The power lines sets of insulators will be long enough to prevent large birds electrocution. Cranes, which often try to establish nests on the crossbars and can create shortcut by urinating near the

insulators, were not noted in the area during two surveys or by the local hunters and shepherds. They are not attracted to area for absence of appropriate food. Large flocks of smaller birds that may shortcut the parallel wires through the flock were not noted in the area and have no basis for presence.

Birds collision with the powerlines wires is possible but unlikely due to absence of large migrating birds that have low maneuverability and are not familiar with the area.

2.2.2 Socioeconomic Impact

2.2.2.1 Land Use

The 233.5ha land was allocated for WPP components by the Zhanatas District Council from the State Reserve land and the land leased to 7 farming enterprises. One of them cancelled the lease agreement after the owner death and thus was not impacted by the project that has not started by that time. The enterprises rented as much the land as they could after disintegration of the collective farm because the rent was very low. The size and shape of land plots was decided by the district council but none of the farms pay attention to the land plots boundaries when pasturing the livestock. Interviewing six of them showed that the land has been consequently seized from their plots on several occasions with the farmers consent and sometimes the seizures were not compensated with land or otherwise. When larger parts were taken, additional land was adjoined to their plots. Seizures for the windfarm was thought to be small and no compensation in land was provided purely on the consideration of the efforts needed to rearrange the paperwork.

Practically all WPP territory will be open for livestock pasturing. Use of the WPP land in any other way (e.g. ground resources extraction, agriculture, recreational etc.) is not envisaged. The State Reserve land that surrounds the WPP is also unlikely to be used for anything more than non-intensive pasturing. Therefore impact on land use during the operation is considered to be negligible.

2.2.2.2 Noise and Electromagnetic Radiation

Noise will emanate from rotating blades and locally by the gearbox. For the given turbines 106.6 dB(A) noise is expected at the ground level at 7 m/s wind speed. Noise will increase to 107 dB(A) at 8 m/s wind and remain stable until the 13 m/s wind speed. The consultant measurements at other sites for similar turbines showed that at 100m from the turbine, noise will be close to 50 dB(A) and at 300m - less than 40 dB(A) which is below the background level made by the wind and passing vehicles. According to the World Bank EHS Guidelines for Wind Energy, preliminary modeling should be carried out if sensitive receptors are within 2km from any of the turbines. The closest receptor is the Zharasbek Farm 2.2km from the turbines.

The blades lightning protection in the form of aluminum grounded wire may interfere with the cell phone, radio and TV signal only in immediate proximity of a receiver which is not the case here.

The nearest airport with air traffic control and meteorological radars is located in Shymkent 130km away from the WPP. Thus, the radars cannot be affected by producing electromagnetic shadow, clutter effects or effects on Doppler (moving target indicator processing).

2.2.2.3 Visual impact

The 150m tall wind turbines have a potential to affect the scenery properties of the identified sensitive viewpoints (Table 1). Modelling the turbines from sensitive viewpoints and interviewing the owners of the land plots showed that the owner of Zharasbek Farm Peishbek is the most sensitive to the view change (see title page photo). Discussion of the landscape value and the collage with the turbines showed that the farm inhabitants focus is inwards, to the livestock. In the summer Peishbek sets up one or two yurts in his pasture land and for guests. Being authentic, yurts are considered to be more sensitive to visual impact. The yurts location can change from year to year but one place next to a

creek is used constantly. Although the yurt inhabitants spend most of the time outside, the northward view is valued less than the southward view.

Some inhabitants (e.g. Burkitbayev and Ushbas villages) were interested in the turbines as a local attraction, something to be proud of. Most inhabitants will not see the turbines because of trees. Only few houses at the edge of the villages will see the array of the first row turbines of the 1/3 of an electric pole size. When examined the modelling results, the interviewed inhabitants did not express any concern over the view change.

Table 1 Viewpoints around the wind turbines. At all views turbines project is onto the sky. All views are obstructed by hills in various degrees. Interviewed means that the inhabitants were questioned of the landscape value and their opinion on the view change modeling that was mailed to them.

Viewpoint	Distance, km	What is seen at the closest place	Altitude difference, m	View focus
Zharasbek Farm	2.2	First row	+120	Inwards
Zharasbek Yurt	2.8	First row 14 turbines + second row half blade 3 turbines	+100	Away
Summer camp pond	2.6	Half blade #36, #48, #49	+160	Away
Aktogay village nearest house	3.5	No turbine visibility 120m high hill obstructs view	+280	Away
Ganiez farm	3.9	1 turbine + 3 half blades	+130	Inwards
Burkitbayev village nearest house	6.2	Two rows	+100	Away
Zhanatas block of flats inhabited	7.6	Half turbine #15	+260	Away
Zhanatas block of flats derelict set for reconstruction	7.7	Half turbine #16, half blade #15	+260	Towards
Zhanatas block of flats derelict set for demolition	7.9	Half blades #17, #18	+270	Towards
Ushbas village nearest house	9.5	Two rows	+2	Away

Although being much closer to the turbines, residents of Aktogay village will not see the turbines because of 120m high hill. In Syzdykbayuly only one turbine can be seen from the backyard of one house. The owner did not assign any value to the wind turbines because he rarely stays in a village due to frequent work trips to the cities. The rest of the houses are screened with trees or hills.

The view from the house porch of Ganiez farm towards the turbines is obstructed by the barn but even behind the barn only one turbine and 3 half blades of the other turbines will be seen. With the general focus inwards and to the south along the Angarsay creek, the impact on this farm is considered to be low to negligible.

In Zhanatas only 4 families on the top floor of one block of flats can see from their balconies half of the blade among the other electrical installations. Similar view will be from the corners of the top floors of 2 empty derelict blocks of flats, one of which is set for demolition and the other is planned to be restored. The view with these blades over the hills for 3 families of the restored house that will be able to see them will be new and thus will be accepted as given.

There will be no visual impact on Zhuldyz summer camp. Only two half blades will be seen from the very edge of the camp among electric poles and a distribution unit. The children attention will also be directed inside the camp.

Drivers at southwest highway will see turbines in full height but the driver's focus will be towards road because the road is in poor condition. The mountains behind the turbines are low and not new to eyes, the power poles interline with the turbines making the turbines not the only vertical structures on the horizon. Drivers at southeast highway will focus on destination, but the turbines will be viewed as amusement and rest to the eyes that are tired of monotonous relief. Drivers at these highways are likely to rarely stop on road shoulder for viewing and taking pictures because of the multiple turbines encountered along the road that adapt eyes to the view quickly. Thus, the drivers are expected to be less sensitive to the view and the turbines are not seen as a hazardous distraction.

Shadow flicker will not affect the local population due to the distance from the turbines.

Basing on the above, visual impact on the Peishbek farm is considered to be low and on the others, as insignificant. As the viewers interviewed after seeing the collages expressed no concern over the landscape change, no mitigation or compensation measures beyond already implemented are required. Implementation of the prepared Stakeholder Engagement Plan (SEP) will allow monitoring the public perception of visual impact and managing it with available instruments.

2.3 Risk of Accidents

2.3.1 Construction

The standard length vehicles may generate high risk to the other two lane roads users if they move in a train like manner leaving insufficient gaps between for the overtaking cars. These vehicles will not be escorted by the police and thus the distance will not be regulated. The probability of head on collision or overturn from being pushed off the road is higher for more congested M36 road near Almaty, which is also in a better condition than the road from Taraz to Zhanatas, allowing higher speeds.

The oversize freight will be escorted by a police car traveling in front of 2-3 vehicles. Yet, the risk of collision here is higher than for the standard size freight because the queuing behind drivers would not expect such a long trailer and may easily misjudge their cars overtaking capacity.

Significant spills are not expected to occur because the diesel will not be stored at the site. However, 5-20L of backup of oil and diesel may be stored on the ground without secondary containment. A vehicle can rupture them when reversing. Accidental diesel spills during heavy machinery refueling may be small but fairly frequent. Considering that the equipment will be refuelled by a tank truck driver from a small local fuel supplier, small and medium spills may occur as the driver is not trained for the equipment refuelling and will not have enough preventive equipment. The remains of an accidental diesel spill of medium size will be broken by sun and digested by aerobic bacteria at the surface and in the open water before it reaches sensitive receptors like Zhanatas water intake 2.2km downstream the Burkitti River from the Tomsaly Creek mouth and the Shabakhty River.

Probability of extreme storms (above 20mm/day) during construction is negligible. Yet, the likelihood of gusting wind remains. Risk of diesel fuel ignition while fueling the equipment is negligible considering the diesel properties and safety precautions taken by the refueling track driver. The vegetation is also not fire prone.

2.3.2 Operation

A combination of high wind and break of blades angle change failure may lead to uncontrolled blade spinning and consequent rupture of the blades and gearbox. Mandatory safety standards in turbine design, manufacturing, and installation as well as more frequent maintenance have made the occurrence of blade throw a rare phenomenon. If occurs, the problem would be noted well before the consequences but once the turbine disintegrates, the fractures can be thrown to a distance of up to 500m from the turbine in the direction of the spin. The highway is 270m from the nearest turbines 10 and 11 that are likely to be turned in a way of the blades flying towards the road. The traffic would have to be stopped until the blades spin off the turbine. The alternative route to Shymkent through Sholakkorgan is 80km longer but it also leads to Eurokhim plant for which the route will increase by 170km.

Out of infrastructure, only the windfarm internal 35kV overhead line between the turbine 10 and 11 may be damaged. The line will be shut in the case of such an accident. Some power will be lost for the time

of the line repair. Only another turbine 36 is closer than 500m from a local road to a summer camp. Blockage of this road is unlikely to have any consequences.

In the event of a nacelle fire, best practice is usually to allow burnout, and for firefighting services to establish a safety zone to ensure secondary fires in the area surrounding the turbine is prevented or controlled. Due to the vegetation nature, ground fires from either natural or human induced causes are unlikely. The availability in Zhanatas of fire engines can provide the required control of the fire and water is available at the Kazfosfat quarry and Zhuldyz summer camp 4-15km away from the turbines.

Probability of the step-up transformers ignition is thought to be negligible. The most severe consequence is loss of a transformer because the power will be cut and the oil automatically discharged into the sink provided for such circumstances.

The probability of the blades throwing ice is considered to be once a year at one turbine. The consequence of such an event will be low for the distance between the turbines and the sensitive objects (270m from the closest turbine 10 to the road). The area will not be used by the cattle in winter. With the situation being considered as very unlikely and consequence being minor damage to a passing by vehicle, the impact is considered to be negligible to merit mitigation measures.

Because all the project components are located at elevated areas and all the turbines and roads are on the top of the very small water shed, the risk of spring floods does not exist. Ground fires occur rarely and do not extend far due to gaps in vegetation cover. No fires were reported by the questioned locals at the WPP area. The nearest fire occurred in 2012 three kilometers south of the turbine 4. It stretched north 700m from the source. The locals do not practice ignition for grass regeneration. Thus the risk of ground fire damaging the WPP infrastructure is considered to be negligible.

SF_6 gas is a valuable commodity and thus will not be released routinely but may be let out during circuit breaker maintenance and repair or in less likely event of a shortcut or fire. No more than 20% of gas is thought to be able to escape during repair as the safety valves will sense pressure drop and close the gas vessels. A 20% release from an 110kV breaker would correspond to 816 tons of CO_2. Taking into account the corresponding to the plant activity CO_2 emission reduction of 728 tons per day, such release would negate just over one day of the plant effort in the country greenhouse contribution reduction. Thus, no action is thought to be needed to reduce this risk.

3 IMPACT MITIGATION AND BENEFIT ENHANCEMENT MEASURES

While overall the Company has completed a rigorous project design and assessment of potential environmental and social impacts associated with the project, there are some areas that require additional measures in order to structure the project to be complaint with AIIB and IFC requirements. These measures are amalgamated in an Environmental and Social Management Plan (ESMP). After approval of this plan, the Company is committed to:

- Develop and implement a Corporate Social Responsibility Program (CSRP) for Project.
- Include into tender documentation and Contractor's contract a provision on compliance with AIIB/IFC EHS social and labour protection requirements and select contractors that demonstrate adequate capability in EHS and labour management including managing subcontractors. Ask contractors to obtain all required EHS permits and develop an EHS plan agreeable to the Company before starting any activities. Audit the contractor adherence to the EHS aspects of the contract, ensure timely correction of deviations.
- Ensure that contractor and its subcontractors have a worker representative and a human resource policy which is disclosed to workers. Provide workers with grievance mechanism, produce an annual report of its implementation. Request the contractor to monitor subcontractors working conditions and timely disbursal of wages. Check workers camps design for compliance with the national

legislation and IFC Workers' Accommodation: processes and standards 2009. Inspect worker camp accommodation regularly.

- Appoint a Community Liaison Officer who will implement the project SEP.
- Provide general public with access to information on the E&S performance as well as information on expected duration of construction and a point of contact for feedback.
  Arrange sufficient number of meetings with women in Zhanatas and nearby villages to Identify the jobs that can be performed by them and assess their interest and capability to participate in the project. Agree with the EPC contractor the % or number of women to be employed and specific training to be provided and control fulfillment of the set quota.
- Control the equipment exhaust excessive smoke.
- Include in the environmental management plan obligation to: a) check and record septic tanks level daily; b) Wash equipment and vehicles on pads with drainage collection; c) use drip trays under the tank truck couplings while refuelling heavy machinery.
- Make sure that the contractor develops waste management plan that follows uses the reuse-reduce -recycle-recover-safe disposal hierarchy and includes waste chains of custody and adheres to it. Control that waste oil drums are stored on a sheltered and bunded pad. If storage of backup oil and diesel cans is unavoidable, arrange mobile secondary containment with a lid and secure drainage tap.
- Monitor appearance of a planned engineered landfill at Zhanatas or elsewhere. Obtain permit to dispose appropriate waste there.
- Develop site specific HS plan with identification of risks and to transfer its OHS policy and system requirements to subcontractors through regular HS audits.
- For all high-risk works, add site specific risk assessments in the local permit-to-work system and enforce register of near misses with their in depth internal analysis. For operation stage, develop safety provision for an individual electrician working alone.
- Develop oversize and non-standard weight equipment transportation plan. Obtain the road police approval and request a second escort car to arrange controlled overtaking of oversize trailers.
- Develop maintenance and repair procedures to minimise risk of sulfur hexafluoride release from circuit breakers. Keep SF_6 inventory to track releases.
- Prepare site specific health and safety and emergency response plans for construction and then for operation and disclose it to relevant stakeholders. Integrate local fire brigades into the second tier response and arrange sufficient firewater replenishment. Inside nacelle consider provision of automatic fire detection systems linked to automatic shutdown and fire abatement. Develop code of behavior for workers and control workers adherence to it.
- Conduct one joint meeting with 7 farmers whose leased land has been taken for the windfarm, document results. Provide compensation for land taken either through land replacement, livelihood support or in cash.
- Commission a licensed archaeological company to conduct additional archaeological survey of the new and altered project components that were not covered by the conducted survey and excavate finds, which protection zone cannot be avoided. Mark the remaining mounds. Inform the locals about the sites and their protection status according to Stakeholder Engagement Plan. Develop and require the earthwork con-ducting subcontractors to instruct their workers to follow the chance find procedures.

4 IMPACTS MONITORING

Construction will be monitored through weekly checking adherence to the named above plans and mechanisms. During the operation, monitoring will be conducted monthly. Annual reports on environmental and social performance will reflect the plans implementation progress. The reports will

be checked against the legislative and the AIIB and IFC requirements. Monitoring is to be carried out until the loan is repaid.

This Non-Technical Summary and SEP will be published prior to the Project approval by the Bank. The SEP provides a mechanism for the consideration and response to further comments. It describes the Company approach to interacting with the stakeholders, including the general public, and the disclosure of relevant information with respect to the Company operations and the project.

The CLO will ensure that the grievance mechanism is available to all stakeholders, involves an appropriate level of management and addresses concerns promptly, using an understandable and transparent process that provides feedback to those concerned without any retribution. The CLO will register the comments or grievances and control the grievance handling process. Grievances can be left in the mailboxes located on the information boards at council and Community Service Centre or sent by mail or via e-mail to CLO. The AIIB website will also act as a platform to receive comments. This mechanism does not limit the public's rights to use the conventional routes to place grievances and the available legal system.

Further information can be obtained from the Community Liaison Officer Mr. Naurizbek Zhumagazin, Tel.: +7 747 271 14 69, E-mail: nk.zhumagazin@gmail.com, Address: Kazakhstan, Zhambyl Region, Sarysu district, Zhanatas Town, Microdisctrict #1, Building 18/4, Office 11 or the Almaty headquarters: Almaty Headquarters: Business Center Evolution, 8th floor, Office #70, Bukhar Zhyrau Boulevard, 26/1.

APPENDIX 1 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN FOR ZHANATAS WIND POWER PLANT

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
1. Environmental and Social Appraisal and Management						
1.1	Appoint designated Community Liaison Officer and ensure that the EHS manager is proficient in ISO 14001 and 45001 standards to enable him to develop the Environmental, Health and Safety and Stakeholder Management System and plans for the Project and implement them. Ensure full compliance with National legislative requirements and applicable standards.	Delays in project implementation due to noncompliance with ESAP	Good practice Regulatory Compliance	Staff time, training cost/ Top management , Site Manager	CLO appointed. Training undertaken EHS documentation reviewed by a qualified consultant and found adequate	EHS documentation, capacity building - prior to initial disbursement Compliance with national requirements- for the entire loan duration
1.2	With Zhanatas District councils develop and implement a Corporate Social Responsibility Program (CSRP) for Project and disclose it as per SEP. Use the following CSRP actions selection criteria: 1. Action cost fits the budget allocated to the CSRP and accounts for other needs; 2. Action does not overlap with the State programs; 3. Action benefit is sustainable; 4. Action benefits the local community and is not biased to a particular group or person.	Attain Community support and some community benefits from the project.	Good practice	Allocation approximately $30K at commissioning and $10K annually/Top management , CLO	Program agreed with stakeholders, disclosed as per SEP and implemented according to schedule	Develop CSRP during construction and implement after operation starts. After commissioning then on-going annual summary of CSRP related actions in annual E&S report
1.3	Include into tender documentation and Contractor's contract a provision on compliance with AIIB/IFC EHS social and labour protection requirements including full compliance with national legislation. Select contractors that demonstrate adequate capability in EHS and labour management including managing	Work delays/ Good relations with authorities	ISO 14001, 45001, Kazakh norms (SNiP, SanPiN, GOST), sectoral guidelines	EPC contractor time/ Legal and procurement dept., EHS manager	Tender documents include ESAP requirements. Criteria for assessing contractors EHS and labour management capabilities established.	During tender packages preparation and construction

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
	subcontractors. Ask contractors to develop an EHS plan agreeable to the Company before starting any activities. Audit the contractor adherence to the EHS aspects of the contract, ensure timely correction of deviations.				Contractor EHS plan approved by the Company No project related legislation violation notes	
2. Labour and working conditions						
2.1	Ensure that contractor and its subcontractors have a worker representative and a human resource policy which is disclosed to workers. Provide one grievance redress mechanism (GRM) accessible to all project related workers with the ability to complain anonymously, and include in each answer a roadmap for an unsatisfied worker to take the grievance further.	Risk of work related conflicts and damage to assets/ Better worker relations and company image among the local community	Good practice	None / EHS manager	Human resource policies of all involved in the project entities have provision for worker representation and the policies and GRM are disclosed. Provision for anonymous complaints have been made and answers contain a road-map for further complaints.	Prior to Financial Close, then on-going during construction.
2.2	Produce annual report on implementation of grievance redress mechanism, types of grievances and resolutions Request the contractor to monitor subcontractors working conditions and timely disbursal of wages by addressing related complaints through grievance handling mechanism				Annual report on grievance mechanism effectiveness in place. Complaints on working conditions and delays in disbursal of wages resolved timely.	During construction phase
2.3	Request EPC Contractor to develop Supply Chain Management and Monitoring Plan to ensure subcontractors and suppliers of core materials comply with the national legislation on labor.	/Good company image	Good practice	None/ HR Manager	Records of Implementation of Contractor and Supply Chain Management and Monitoring Plan in Annual E&S Report	Subsequent to initial disbursement.
2.4	Arrange sufficient number of meetings with women in Zhanatas and nearby villages to Identify the jobs that can be performed by them and assess their interest and capability to participate in the project. Agree with the EPC contractor the % or number of women to be employed and specific training to be provided and control fulfilment of the set quota. Submit all the meetings outcomes to the lender banks. For the operation, define women involvement quota, fulfil it and reassess once a year for the	/Good company image	Good practice	None / CLO	a. Meeting minutes show sufficient efforts in involving women. Quota is set and adhered by EPC contractor. b. Women involvement quota for operation is set, fulfilled and options for increase sought each year	a. 1 month after Financial Close b. At commissioning then in the annual E&S reports to the lender banks

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
	options to increase it.					
2.5	Check workers camps design for compliance with the national legislation and IFC Workers' Accommodation: processes and standards 2009 requirements (Appendix 2). Inspect worker camp accommodation regularly	/ workers wellbeing ensured, risk of incidents, and accidents minimal	Good practice	None/ HR Manager	Camp design and actual conditions are compliant with the requirements Grievance records do not show workers dissatisfaction with accommodation	Prior to approval of construction commencement, quarterly inspections after camp opening
3. Resource Efficiency and Pollution Prevention and Control						
3.1	Conduct regular preventive maintenance of all engines, include control of the equipment exhaust excessive smoke in the internal audit checklist	Reduce fuel combustion, Good company image	RoK legislation	None/Site Manager	Preventive maintenance and audit schedule drafted Control inserted in audit checklist	a. Before initial disbursement. b. During construction.
3.2	Request the contractor to develop waste management plan that follows the reuse-reduce-recycle-recover-safe disposal hierarchy and includes waste disposal chains of custody. Control subcontractors adherence to the plan	/ Risk of contamination removed	Good practice	EHS Manager	1. Plan uses the hierarchy and prescribes chains of custody 2. Subcontractors audits record show that the plan is followed	1. Prior to construction 2. Continuously from start of construction.
3.3	Control that oil drums are stored on a sheltered and bunded pad. If storage of backup oil and diesel cans is unavoidable, arrange mobile secondary containment with a lid and secure drainage tap Ensure that contractor controls fuel tank drivers use of trays under refuelling couplings and that places of small repairs of machinery have leakage containment and swapping material	Ground contamination, fines, cost of cleanup.	Good practice	Construction supervisor	Oil drums containment eliminates leakage risk. Refuelling tank trucks checks and vehicle parking areas checks available.	During construction
3.4	Include in the environmental management plan obligation to: a) check and record septic tanks level daily. b) Wash equipment and vehicles on pads with drainage collection. c) use drip trays under the tank truck couplings while refueling heavy machinery	Fines for soil and groundwater contamination from septic tanks wastewater.	Legislative requirements Good practice	EHS Manager	Journal of level checks in place. No fines for soil contamination with wastewater.	Continuous during construction
3.5	Monitor appearance of a planned engineered landfill and a sewage treatment work in Zhanatas or elsewhere in the	Impact from project waste minimised as much as	Good practice	EHS Manager	Report on availability of local engineered disposal sites and	Once a year in annual E&S

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
	area. Obtain permit to dispose appropriate waste there	practically possible			disposal contracts included in the report to AIIB/IFC	report to AIIB/IFC
3.6	Pave internal roads to prevent dust formation	Reduce dust emissions.	Good practice	None/Site Manager	All internal roads are paved	Before financial close.
3.7	Develop maintenance and repair procedures to minimise risk of Sulphur Hexafluoride release from circuit breakers. Keep SF6 inventory to track releases.	Material loss/ Reduction of greenhouse gas emission	Good practice		Procedures are in place and analysis is regular	Before switches replenishment starts
4. Health and Safety						
4.1	Request the contractor to develop site specific Health & Safety (HS) plan with identification of risks and to transfer its OHS policy and system requirements to subcontractors through regular HS audits	Work site specifics and risk of rare accidents with severe consequences may be overlooked	ISO 45001	EHS Manager	OHS documentation shows that subcontractors HS performance effectively controlled	Plan before construction, audit records during construction
4.2	For all high-risk works, add site specific risk assessments in the local permit-to-work system and enforce register of near misses with their in depth internal analysis For operation stage develop safety provisions for an individual electrician working alone (IWA)	Risk generated by unusual conditions could be missed by HS instructions Electrocution without quick aid may lead to death or permanent disability	Legislative requirements	EHS Manager	Permit to work has site specific risk assessment Near misses registered IWA provisions are in place	Before construction and operation starts
4.3	Develop oversize and non-standard weight equipment transportation plan. Obtain the road police approval and request a second escort car to arrange controlled overtaking of oversize trailers.	Risk of head-on collision on overtaking the project vehicles on 2 lane parts of the route, traffic congestions, damage to road surface and bridges.	Legislative requirements ISO 45001	EHS Manager	Transportation plan accounts for oversize and heavy parts transfer impacts	Prior to start of parts shipment
4.4	Develop code of conduct (Appendix 1) and control workers adherence to it.	Company image damage, complaints	Good practice	Site Manager	Code in place, no complaints from residents.	Before the construction starts
4.5	1. Prepare site specific health and safety and emergency response plans for construction and then for operation and disclose it to relevant stakeholders. Integrate local fire brigades into the second tier response and arrange sufficient firewater replenishment. 2. Ensure safety for turbine foundation construction: place excavated ground at least 1m from the pit slope; if pit	Assets loss and injuries due to inadequate fire response	Kazakhstan legislation Good practice	1-2 EHS Manager 3 Procurement Department	1. Plans in place and stakeholders aware, fire brigades are integrated and arrangement for firewater is made; 2. Earthwork instructions account for risk of foundation	1,2. Before earthwork starts 3. Before procurement finalised

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
	slope water content is high, arrange support or reduce gradient; arrange safe access and regress. 3. Inside nacelle consider provision of automatic fire detection systems linked to automatic shutdown and fire abatement.				pits walls collapse; 3. Nacelle design considers reduction of risk of nacelle level fire.	
5. Land Acquisition, Involuntary Resettlement and Economic Displacement						
5.1	Conduct one joint meeting with 7 farmers whose leased land has been taken for the windfarm, document results. Provide compensation for land taken either through land replacement, livelihood support or in cash.	Land users complaints /Project related livelihood losses minimised and compensated	Lenders requirement / good practice	None/ CLO	Proofs of consultation with tenants and fair compensation for land rearrangement in place	3 months after the construction start, but prior to initial disbursement.
6. Biodiversity Conservation and Sustainable Natural Resource Management						
6.1	Include in the construction environmental management plan the following actions: • In the area of turbines 28-40 reduce construction footprint beyond the standard approach to preserve the protected plants - develop specific parts transportation, storage, earthwork and erection methods to minimise deliberate and accidental damage, minimise the need for levelling earthwork; • Prohibit flowers picking, animals chasing and eggs collection; • Establish construction sites access routes prior to use of heavy vehicles, pave the areas that prone to dust generation with chip rock prohibit driving outside them and control adherence; • When reinstating the working sites, ensure that the damaged vegetation and soil area does not in-crease from reinstatement; • Reduce noisy works at the reproduction period March-June where it is possible; • Plan work to shorten human presence at a particular tower.	Fines for damage to protected plants. / Good housekeeping	Legislative requirements Good practice	Higher construction cost /Site Manager EHS Manager	a. Construction plan minimises risk of damage. Subcontractors contracts and performance audit checklist include these requirements. b. Construction plan and schedule accounts for reproduction period and the areas of ecological sensitivity	a. Before construction b. During construction

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
6.2	Develop a decommissioning plan and include in it: • Prohibition of towers parts and wire dragging over the ground • Discouraging public access to the area by digging trenches across the connection of the internal roads with the main roads.	/ Good housekeeping	Good practice	Higher construction cost/Site Manager	Draft decommissioning Plan	Six months after Financial Close.
6.3	Make site less attractive to bats by reducing the warm period night light pollution by placing the LED warm (wavelength 590nm) lights as low as possible, shading them from the areas that do not have to be illuminated and installing ambient light and movement detectors to minimise the time of the lights operation. Use intermittent lighting and infrared security cameras	/Good company image	Habitats Directive 92/43/EEC Good practices: Bat mitigation guidelines 2004 Bats and onshore wind turbines, 2009 Eurobats Guidelines 2008	None / Designers and Site Manager	Impact of lighting on bats considered during design.	Procurement and detailed design submission, then on commission to check adherence to design
6.4	Make and keep inaccessible to bats and birds all the gaps and interstices in the nacelles.				Nacelle supplier accounts for the need to seal gaps	
6.5	Commission an experienced ornithologist to: • Continue birds and bats monitoring to complete through the year assessment of the WPP territory usage; • Develop methodology and train the plant staff to monitor birds and bats site usage and mortality with a focus on protected species. If annual mortality exceeds the industry statistics for the given turbines: 100 bats, 20 birds and 1 pray bird per 10MWh generated or more than 1% of the population of protected species using the site, implement additional mitigation measures in liaison with AIIB/IFC			Plan preparation cost/ Site Manager	Through the year birds and bats monitoring report in place Methodology for staff is developed and staff is trained. Birds and bats usage of the site and mortality is recorded and included in Annual Report to AIIB/IFC	Ornithologist monitoring until February 2020 not less than twice a month for Autumn migration and once a month for winter. Staff monitoring for two first years of operation.
8. Cultural Heritage						
8.1	a. Commission a licensed archaeological company to conduct additional archaeological survey of the new and altered project components that were not covered by the initial survey and excavate finds, which protection zone cannot be avoided.	Fines and delays due to law violations / Good public image	Legislation	a. Minor cost b. None /EPC Contractor	a. Additional survey conducted. Project components do not intrude in the cultural heritage objects protection zones.	Before construction starts

No.	Action	EHS and Social Risks Liability/ Benefits	Legislative requirement, or lenders requirement / Good Practice	Resources/ Responsibility	Target and Evaluation Criteria for Successful Completion	Time-frame
	b. Mark the remaining mounds as per Appendix 3 c. Inform the locals about the sites and their protection status according to SEP. d. Develop and require the earthwork conducting subcontractors to instruct their workers to follow the chance find procedures (Appendix 3).				b. Design altered to avoid protection zones c. Photos of information plates and posters available e. Chance find procedures in place, transferred to subcontractors and all workers are instructed to follow them	
10. Information Disclosure and Stakeholder Engagement						
10.1	Implement the Stakeholder Engagement Plan (SEP) with the grievance redress mechanism (GRM) and update it annually.	Community issues identified and expectations managed		Top management / CLO	SEP is up to date and implemented in full. Grievance records properly maintained.	GRM in place prior to initial disbursement. Updated SEP and GRM analysis included in annual E&S reports thereafter.
10.2	Provide general public access to information on the E&S performance of the Project and the Company	Large discrepancy between actual and perceived impact / Good company image	Good practice	CLO	Information disclosed according to SEP	During construction and operation.
10.3	Report annually on project E&S issues and benefits and implementation of action plans to Lenders and other stakeholders	Ensure transparency on E&S issues		CLO	Reports provided in time and fully completed. Monitoring reports disclosed	Annually throughout Project implementation

APPENDIX 2 GRIEVANCE REDRESS MECHANISM

If someone has a complaint or grievance, this will be dealt through grievance and application register or a grievance mechanism that will be managed by the CLO (Figure 4). The objective is to resolve problems in a timely manner. The stakeholders can submit their grievance in a box, call or write a letter or an email to the CLO who will add it in the grievance database (Table 2). The database is for controlling the grievance handling process. This mechanism does not limit the public's rights to use the conventional routes to place grievances and the available legal system. Depending on the grievance form (see below), the CLO will reply accordingly, as shown in the flowchart below, ensuring that the grieved party knows their rights, the date when the reply is due and that the grievance will not be closed until the party is satisfied with the answer or choose to follow further complaint procedures given below.

Table 2 Grievance database fields

Grievance ID	Name / Address	Question /Grievance	Answer Method	Given Answer	Status	Is Response satisfying
D/m/y, No.					reply date, closed etc.	yes, no

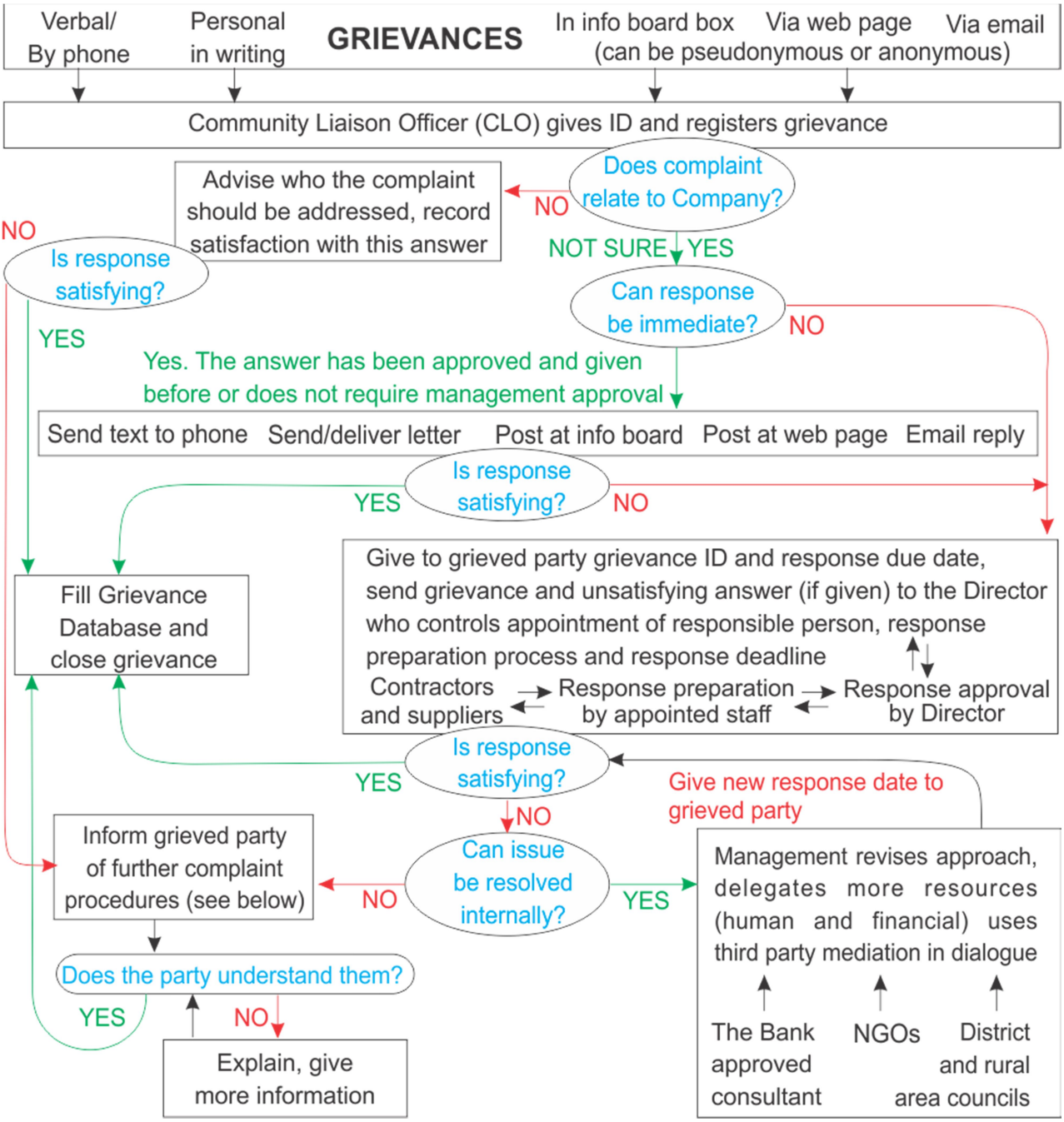

Figure 4 Grievance registering and processing mechanism

Further complaint procedures:

1. Write a formal complaint to the rural area council, request the reply date
2. Write a formal complaint to the Regional Prosecution Office
3. Appeal to the Almaty Aarhus Centre (Aimanov st. 202), or the Convention Implementation Committee by calling to +7(7232)77-57-93 or sending an email to aarhus@inbox.ru

GRIEVANCE FORM	
My first name _____ My last name _____ ☐ I wish to raise my grievance anonymously ☐ I request not to disclose my identity without my consent	How you wish to receive reply: By Post (add address): By Telephone/Text message (add #): By E-mail:
Preferred response language	☐ Russian; ☐ Kazakh

Incident or Grievance Description

What happened? When? Where? Who did it happen to? What is the result of the problem?

☐ One time incident/grievance (date _____)
☐ Happened more than once (how many times? _____)
☐ On-going (currently experiencing problem)

What would you like to see happen to resolve the problem?

Further complaint procedures if you dissatisfied with given answer

1. Write a formal complaint to the rural area council, request the reply date
2. Write a formal complaint to the Regional Prosecution Office
3. Appeal to the Almaty Aarhus Centre (Aimanov st. 202), or the Convention Implementation Commit-tee by calling to +7(7232)77-57-93 or sending an email to aarhus@inbox.ru

For Internal Use

Reference No:	Registering Date:	Response Due Date:
Given Response:		
☐ Due date given to party	☐ Response given	Party satisfied with response? Yes No

Signature (optional): Date:

Please return this form to Community Liaison Officer (CLO) Mr. Naurizbek Zhumagazin Tel.: +7 747 271 14 69, e-mail: nk.zhumagazin@gmail.com Address: Site - Kazakhstan, Zhambyl region, Sarysu district, Zhanatas town, microdisctrict #1, building 18/4, office 11 or the Headquarters: Business Center Evolution, 8th floor, office #70, Bukhar Zhyrau boulevard, 26/1, Almaty, Kazakhstan.