



OFFICIAL USE ONLY

SecM2012-0033

January 27, 2012

---

FROM: Vice President and Corporate Secretary

66572

**Republic of Kazakhstan**

**East-West Roads Western Europe - Western China International Transit Corridor  
Environmental and Social Impact Assessment (ESIA)**

1. Attached for information is the Environmental and Social Impact Assessment Executive Summary for the East-West Roads Western Europe - Western China International Transit Corridor of Republic of Kazakhstan.
2. In accordance with World Bank policies on environmental assessment (OP/BP 4.01), the project has been rated Category "A". The environmental assessment has been prepared by the borrower and the circulation of the summary does not signify evaluation or endorsement by the Bank. The environmental assessment is subject to final review and possible changes during the appraisal process. A full set of environmental assessment reports is available at the Bank's InfoShop.
3. Questions on this document may be referred to Mr. Bure (ext. 37007).

Distribution:

Executive Directors and Alternates  
President  
Bank Group Senior Management  
Vice Presidents, Bank, IFC and MIGA  
Directors and Department Heads, Bank, IFC and MIGA

East West Highway Project  
(Almaty – Khorgos,  
Kazakhstan)

**Draft Environmental and Social Impact**  
**Assessment (ESIA)**

PREPARED FOR:

COMMITTEE FOR ROADS, MINISTRY OF TRANSPORT, ASTANA,  
KAZAKHSTAN

PREPARED BY:

SNC LAVALIN, ASTANA, KAZAKHSTAN

## EXECUTIVE SUMMARY

### The Project

**The Project involves the rehabilitation, upgrading and substantial new construction of a ca. 330 km long road Section which traverses a variety of environments and landscapes.** The Project has all the physical characteristics of a large linear infrastructure project, with significant spatial extension, visible impact on landscape, biosphere and land use patterns, and significant impacts on topography, climate, natural conditions and human activity. The alignment crosses of a variety of land forms, land use types, and micro-climatic zones. The project is being structured and designed in three different Sections of roughly equal length. These Sections are described below, including features and information relevant for safeguards classification and the design of safeguards instruments.

**Section 1 (024-126 km) starts north of Almaty city and ends at the Shelek River** This Section begins at about 20 km NNE from the city centre of Almaty (the chainage refers to a reference point in Almaty). Much of the road (ca. 70-80%) will follow a new alignment. The first 10 km run through what can still be seen as suburban zone of Almaty, characterized by a dense network of infrastructure (roads, power lines, railroad) and numerous satellite settlements, with intense agricultural land use in non-built-up areas. The alignment then heads steadily in an east and east-north-easterly direction, about 2-5 km north and parallel to the existing main highway, the A351 (“KuldzhinskiyTrakt”). About 80% of the alignment runs through lands which are under intense agricultural use (with minor animal husbandry) and are mostly irrigated. The alignment crosses between 10-15 seasonal rivers, which run dry in summer, but can carry considerable water and sediment loads in spring. Many of them are use for gravel extraction About 15 km to the North, and thus downstream and at a lower elevation than the project alignment, lies the Kapchagai Reservoir, created by damming Ili River. Ili then continues to flow NW into Lake Balkash, which is the second largest lake in Kazakhstan and the receptacle for the entire surface water network in the project area. At the eastern end of Section 1 the alignment runs through more arid rangeland, which is mostly covered by brush and grass and used mainly as pastureland for animals. The boundary of the first Section is defined by river Shelek which lies just east of a major settlement of the same name. River Shelek is a perennial watercourse, albeit with large fluctuations in discharge rate. It is under intense use for gravel extraction in the project area (i.e. near the existing road). In this Section (about 100-126 km) the new alignment will use the existing right of way south of the small town of Shelek. The existing bridge over Shelek River will be reconstructed and a new bridge built to accommodate two additional traffic lanes.

**Section 2 (126-268 km) starts from Shelek River and runs eastwards until almost reaching Ili river.** This Section commences in NE direction from River Shelek, while the A351 highway turns off due east, running roughly parallel to the project alignment at a distance of about 20-30 km to the southeast. The project alignment follows a secondary road, which is a narrow asphalted road for the first 25-30 km and then turns into a gravel road for about 70-80 km which is in very poor condition. This part of the alignment was projected to be upgraded to a transit highway in the 1980s, but construction did not proceed beyond a gravel platform. Alignment adjustments and new Sections are planned in 3 segments of this Section: (i) about 5 km at the start of the Section (new alignment crossing agricultural lands), (ii) about 2-3 km at 18 km from the Section start, where the new alignment will cross an area of waterlogged land, and (iii) about 23 km stretch towards the end of the Section, where the new Section will be routed between an alluvial fan with irrigated agriculture, and a semi-desert type area. Over most of Section 2 the road alignment follows an existing infrastructure corridor with a newly constructed railway line, a gas pipeline, and electricity supply

---

lines between which the road will be located. The natural environment of the alignment is already disturbed by these various developments.

At about 63 km from the start of Section 2 the road alignment will pass at the closest point, about 2 km to the north of the Charyn National Park, the core zone of which is an ancient forest which has survived in a narrow, sheltered canyon along a 25 km stretch of Charyn River. Currently the National Park is bisected by the existing highway A351. This forest is one of the last remnants of a much larger forest which once stretched along the foothills of the Tian Shan Mountains after the last Ice Age. It is the last location in Central Asia and one of the few places in the world which still supports a large population of the endangered Sogdian Ash Tree. To the north of the alignment also in this area there lies the Altyn-Emel National Park which lies 6 km distant at the closest point. Famous for its ‘‘singing’’ sand dunes and various desert and mountain reptiles and mammals.

Following the alignment to NE directions there is a visible trend towards a more arid climate, thus much of the alignment of this Section would run through arid steppe or semi-desert type rangeland, with no perennial rivers, no wetlands (except the aforementioned) and few temporal rivers (located in the NE of the Section, at ca. 86 km from the start of Section 219-220). Agricultural lands and associated irrigation systems will be affected only along ca. 25% of the Section. Ca. 80% of Section 2 will run along existing, albeit much smaller and lower capacity roads. The Section ends about 5 km South of River Ili, where the project alignment rejoins the existing route A351.

**Section 3 (268-360 km) runs through a variety of landscapes and land use types and ends at Khorgos near the Kazakhstan/China border.** This Section starts ca. 5 km east of the existing, ca. 700 m long bridge over River Ili. Ili is the largest river of the entire project area and the main tributary to Lake Balkash. Several km before and after the crossing of Ili River the project alignment would follow the existing route A351, and a new bridge would be built immediately next to the existing one to accommodate 2 additional lanes. A few km after the river crossing the projected road would again turn off the existing route A351 to the West-North -West and run on a new alignment for the rest of the project. The bulk of the Section would traverse grazing land, some irrigated agricultural land and water courses, one of which the River Usek is a major tributary of the Ili. At about 62 km from the start of Section 3 there is a stretch of land used for irrigated agriculture which is close to a small settlement on the exiting main road which is bypassed at a distance of about 0.5 km. A section of the road approximately 70 km from the start of Section 3 runs through a large field of sand dunes with sparse vegetation. The district center, Zharkent City, lies at a distance of about 10 km north and west from the alignment.

The last 5 km cross the broad flood plain of Khorgos River to the Chinese border, where a new border-crossing is planned. This development has been started some years ago and has advanced considerably on the Chinese side of the border. The development will serve as dry port for both road and railroad and is in itself a project considerable size. The two projects are not functionally linked in Bank policy terms, as the crossing, which includes a dry port facility, was planned mainly in the context of the new railway line and is neither dependent upon the roads project nor required for the successful achievement of the objectives of the roads project. Nevertheless, a screening analysis of the environmental and social due diligence processes undertaken by the investor confirmed that the due diligence required under Kazakh legislation has been implemented, yielding environmental and social assessments carried out at various design stages (conceptual design, FS, detailed design).

### Safeguards Policies

The project was classified as category ‘‘A’’. This classification is justified by the widening and extensive new (‘‘greenfield’’) road Sections planned under the project. Also the alignment will run

through a variety of areas with safeguards implications that warrant careful investigation and analysis, including that of alternatives: (i) in zones of intense agricultural use existing irrigation systems will have to be preserved, (ii) where the road would cross rangeland under use for animal husbandry animal underpasses will have to be planned to guarantee the safety of drivers and animals, (iii) some Sections were routed to avoid fragile habitats and protected areas, (iv) routing and design was optimized to minimize disruptions and alterations of the surface water network.

Below those safeguards policies are listed and discussed that were either triggered, or, due to their thematic relevance given enhanced attention during safeguards discussion and the preparation of environmental due diligence documents.

**Environmental Assessment OP/BP 4.01 (triggered):** The main envisaged potential negative impacts during construction are the operation of borrow areas, generation of waste (construction materials, spent consumables, household waste and wastewater from camps), excessive land use, topsoil destruction and erosion. There is also a potential impact on groundwater and surface water from excessive turbidity and siltation, washing equipment in rivers (e.g. cement trucks) and accidental spills involving fuels and lubricants. During operation of the road storm drainage management, soils, ground and surface water contamination by heavy metals, soot and organic compounds (e.g. PAH), noise, dust, air pollution will be the main issues. Moreover, there is a potential risk of destruction or disruption of natural habitats and ecosystems by poor construction management.

The Borrower has already prepared one ESIA report for every alignment Section (i.e. a total of 3 reports). They were found to contain an adequate project description and collection of baseline data, all major elements of impact analysis and useful basis for the planning of mitigation measures. EMPs were elaborated to a level of detail commensurate with the design stage and integrated into bidding and contract documents to provide clear guidance and contractual obligations for environmental due diligence in further project design and implementation. However, due to some gaps identified during a review by the World Bank the Borrower financed an upgraded and improved ESIA which is the subject of this assignment.

**Natural Habitats OP/BP 4.04 (not triggered, but addressed in ESIA):** The road alignment will pass ca. 2 km to the North of the Charyn National Park, which is a 25 km stretch of protected forest along the Charyn River as well as an extensive swath in an adjacent small mountain range. The protected area will not be affected by the project, as the alignment would run at a distance of ca. 2km from the park boundary, North of Charyn town, which would “buffer” between road and national park. The current A351 highway bisects the park South of Charyn town, thus positive effects are expected by re-routing the main traffic flows away from the park. No other protected areas or national parks are sufficiently close to the project area to be at risk of negative impacts, nor were other untransformed natural areas of significant ecological value detected along the road alignment. No RAMSAR sites will be affected by the project. A “wetlands” area at the beginning of Section 2 was found to be a waterlogged area resulting from local irrigation practice and not of significant ecological value. To the north of the alignment and north of the Ili River lies the Altyn-Emel National Park which lies 6 km distant at the closest point. Potential impacts on a zone of fragile dune habitat in the very East of Section 3 will be avoided by routing the alignment around this area.

**Forests OP/BP 4.36 (not triggered, but addressed in ESIA):** Besides the national forest described under OP4.04 only small patches of mostly planted forest occur in the Western Section of the project area. No significant impacts on forests are expected and the policy thus not triggered. Trees from roadside and other cultured plantations, which need to be cut due to project activities,

---

will be replaced under the measures prescribed by the EMP (environmental management plan). This will be undertaken by a separate landscaping contract.

**Physical Cultural Resources OP/BP 4.11 (not triggered, but treated in ESIA):** Kazakhstan is a country rich in cultural heritage, especially along the historic silk road corridor. During project preparation a survey of PCR was carried out by a licensed Consultant and under the supervision of the Kazakh State Archaeological Survey, and an inventory of known PCR produced, which might be affected by the project. These PCR were mainly found in Section 1 in the form of numerous ancient burial mounds. One of these could not be circumvented by the alignment and will be physically affected, thus it is already earmarked for a salvage dig (excavation and documentation of the site and securing all detected objects of value in state archives and / or museums) before any works in this specific location may start. For the case of hitherto unanticipated discoveries of PCR a PCR management plan has been included into the EMP, as well as a chance find procedure for PCR encountered during construction, which have been agreed with Committee of Culture of the Ministry of Culture.

**OP/BP 4.37 on the Safety of Dams** was not triggered. No dam safety issues were found during the site appraisal. The only dams near the project area are low dykes for the containment of rivers and irrigation channels, as well as flood protection works on riverbanks, which pose no safety risk. The Kapchagai reservoir, which has a substantial dam structure, is located downstream and topographically below the road alignment.

**OP/BP 7.50 on Projects on International Waters** was not triggered. No international waterways will be affected by the project. The impact on the hydrological regime and flow pattern of rivers crossed by bridges will be insignificant, as their hydrological flow pattern will remain entirely unchanged. Moreover the project area lies in the basin of Lake Balkash, an endorheic (closed, without connection to the sea) river basin shared by Kazakhstan (as downstream recipient) and China (upstream), with a small (upstream) part in Kyrgyzstan. The basin drains into the lake via seven rivers, the major one being Ili River, which brings the majority of the riparian inflow. As both China and Kyrgyzstan lie upstream of the project area there are no transboundary hydrological impacts caused by the project.

### Environmental and Social Baseline Conditions

The project corridor runs parallel to the Tien Shan mountain range over its entire length at a distance ranging from 10 to 30 km. It thus will be confined to the alluvial plains of the foreland, which have a gentle morphology, a geology characterized by thick accumulations of periglacial, aeolian and fluvial sediments, and a surface water network that drains to the North with all flows draining into Lake Balkash eventually. Groundwater is relatively abundant in the project area, ranging in depth from shallow aquifers in young sediments, to deep thermal waters.

The Climate varies from moderate in the West, to arid in the East, with clear continental character, cold winters and hot, dry summers, precipitation occurring in relatively short periods in spring and fall. Natural hazards do not pose a key risk in the project area. The main hazard results from rivers traversed by the road, many of which have their catchment areas in the mountains and thus show high seasonal variability with a significant potential for flash floods during storm events. Erosion or rock falls, landslides and mudflows are not seen as significant potential risk for the road.

Most of the alignment shows existing human activity. In the West, close to Almaty, population density is highest; Section 2 is the least populated. In the Western Section 1 the existing road

network therefore is the densest and there is significant economic activity, including manufacturing, construction, aggregate extraction and intense irrigated agriculture. Settlements close to the alignment, where noise protection may be an issue, are mainly Baiserke at the beginning, and Shelek at the very end of Section 1. Zones of irrigated agriculture are found throughout the corridor, most in Section 1, least in Section 2. The entire project corridor shows anthropogenic impact in forms of animal husbandry, agriculture, settlements or infrastructure and transport corridors. There will be no significant conversion of pristine, untouched habitats under the project.

An existing national park (Charyn Canyon) will be bypassed to the North, with a distance (> 2 km) between the road and the park boundary. The corridor, especially the Western part (Section 1), is rich in physical cultural resources, mostly ancient settlements and burial mounds. To the north of the alignment and north of the Ili River there lies the Altyn-Emel National Park which lies 6 km distant at the closest point. Based on currently available information, other untransformed natural areas of significant ecological value, hitherto without significant impact by human activity, do not exist along the road alignment.

### Impacts and Their Mitigation and Management

The design of the road has taken measures for the minimization of environmental impacts into account. The routing as much as feasible avoids sensitive areas and habitats and protected areas, follows existing infrastructure corridors and thus limiting the conversion of land to non-critical land types and land use types. The design includes measures to protect the adjacent population from noise (routing, barriers), increase traffic safety by speed controls, pedestrian crossings and underpasses. The design also has taken into account requirements articulated from farmers along the alignment for safe crossings for animals and farm traffic through sufficiently dimensioned underpasses. Similar underpasses will facilitate wildlife crossings (mainly Deer and Wild Boar) especially in Section 2 in the vicinity of the National Parks. The design has included results from hydrographic and hydrological studies, installing sufficient culverts to avoid damming of permanent or seasonal watercourses and the creation of swamps or waterlogged areas, and the dimensioning of bridges is taking the seasonality of discharges, as well as the proneness to flash floods into account.

Most impacts during the construction period will be mitigated by good housekeeping measures. There will be standard procedures for the control and mitigation of emissions, such as dust, noise, exhaust fumes and liquid discharges from camps and the road platform. Surface watercourses will be protected by settling ponds and filters (e.g. straw bales). Wastewater from construction camps will be treated on site in settlement and aeration basins, where biological waste will be processed, before discharge into surface streams or rivers. Septic sludge from toilets will either be composted on site or trucked to existing water treatment plants along the alignment. Groundwater is not expected to be impacted by the project, as no deep excavations or major cuts are expected. Water for the construction activities as well as the camps will be extracted in relatively small quantities from existing wells or the public supply system. Generally water availability is unconstrained in the project area.

Noise and exhaust emissions will be minimized by the requirement for Contractors to use modern equipment and machinery complying with modern emission standards, and to maintain the equipment in good working order throughout the project. This will be prescribed in the equipment specifications in the tender documents. Nuisance to the public will moreover be minimized by limiting work hours and not allowing nighttime works. Where works are carried out in close vicinity to residential areas additional measures, such as noise

---

barriers or the installation of insulating windows will be implemented in accordance with good practice and in consultation with the community.

Borrow pits will be operated by the Contractors only at locations that have been pre-identified previous to project implementation and for which both operational and environmental permits have been obtained. No borrow pit will be operated without a site specific EMP that will contain a plan for its closure, remediation and recultivation that will be approved by the local environmental authorities (as required under Kazakh regulations) as well as the supervising engineer (who will ensure that international good practice is followed).

All environmental management measures to be carried out by the Contractors during the construction period will be integrated in the tender documents and become part of the works contracts. This will also include a manual on chance find procedures to be followed in case of unanticipated discovery of potential PCR. The salvage dig at the one site identified on the alignment will be carried out by the Kazakh State Archaeological Survey under the Ministry for Culture and will be completed before any works may start in the specific area. The Contractors will be required to have permanent staff on site with the specific responsibility of environmental and social management (including a grievance specialist), reporting to the supervision engineers and local authorities.

During operation the functionality of noise and traffic safety measures described above in the Section on design will be monitored and maintained. Any required modifications, upgrades or additions will be flagged and integrated into the road repair and maintenance plans for rectification.

### Analysis of Alternatives

- In Section 1 there were a number of minor alignment changes from the original FS to minimize impacts on existing irrigation infrastructure and the natural gas pipeline which follows a similar corridor.
- Section 2: In the vicinity of Tashkarasu and Charyn the original alignment for this Section followed the existing route of A351 which passes through the Charyn National Park. The upgrading of this original alignment was discarded at an early stage precisely because it passes through the National Park and thus is not in accordance with Kazakh environmental policy. The current alignment was proposed by the Uigur Rayon Akimat and strongly supported by local environmental NGOs (represented mainly by Almaty-based “Green Salvation”) as a means of (i) avoiding irrigated agricultural land to the south and east of the town of Tashkarasu and (ii) avoiding passing through the protected Charyn National Park south of Charyn. The selected alignment now passes through largely unused open land, in an infrastructure corridor already containing the railway line and a gas pipeline, which is neither used for agriculture or grazing, nor has significant environmental or ecological value.
- Section 3: In the area of Koktal and Zharkent the alternative alignment avoided irrigated agricultural land north and west of Zharkent. The original proposed alignment followed the present route through Kaktal and then bypassed Zharkent immediately to the south. This affected irrigated land immediately to the south of Zharkent. The selected alignment passes approximately 10 km south of Koktal and Zharkent and avoids all agricultural land and passes through unused land or low intensity grazing land, as well as a fragile sand dune habitat at the eastern end of Section 3.

### Land Acquisition and Resettlement

The proposed project entails land acquisition and associated impacts, as is to be expected in a highway project with a 304-km alignment. What is unusual, however, is that most of the land acquisition has already occurred, in advance of World Bank involvement, because the Committee for Roads initially intended to finance the works through domestic resources. As preparation of a Resettlement Action Plan to guide land acquisition is no longer possible, the

Bank and CR have agreed on the following:

- a) Principles and standards incorporated into the Resettlement Policy Framework agreed between the CR and multiple donor agencies, including the Bank, for use throughout the Western China- Western Europe Corridor program, apply to the proposed project;
- b) An ex-post Resettlement Implementation Review would be conducted, to assess the land acquisition that has already occurred against RPF principles and standards, and to propose supplemental measures as necessary to fully meet RPF requirements.
- c) Arrangements for continued monitoring and reporting on the individual cases of land acquisition that have been initiated but not yet completed by the time of project appraisal.

A draft Resettlement Implementation Review is nearing finalization. It indicates that a total of 1,044 hectares of privately owned or leased agricultural land will be required for the project, affecting an estimated 4,476 persons (on 713 affected plots). While no residential demolition is required, 14 commercial structures are affected. The Review indicates that land acquisition generally has been undertaken in a manner consistent with Kazakhstan regulations, and that compensation arrangements generally meet the World Bank's replacement cost criterion. It recommends supplemental measures to provide assistance to persons deemed significantly affected by land loss, to meet transitional expenses for commercial relocation, and to provide transitional support to vulnerable households (though none have been identified to date among the affected population).

At present, land acquisition involving 86 of the 675 privately leased or owned plots remains incomplete. These cases reflect a limited number of ongoing court disputes regarding compensation amounts, difficulties in resolving issues on plots subject to mortgage, or other issues. Some owners do not have full documentation of their ownership or leasehold rights and time is being allowed for these people to obtain all the necessary documents. As the validity period under Kazakhstan regulations for land valuation regarding these plots has expired, all of the 86 affected plots will be revalued and it is expected that this will be completed in a period of 6 months. Regular monitoring and reporting arrangements, as well as a project-specific grievance redress mechanism, will be in place to promote effective resolution of all outstanding cases.

## **CONCLUSION**

**THE PROJECT WILL HAVE A NUMBER OF IMPORTANT ENVIRONMENTAL IMPACTS DURING CONSTRUCTION AND OPERATION PERIODS. WITH APPROPRIATE MITIGATION, PARTICULARLY DURING THE CONSTRUCTION PHASE OF THE PROJECT, NONE OF THE IMPACTS REFERRED TO IN THIS REPORT WILL BE SIGNIFICANT.**

**IT SHOULD BE POINTED OUT THAT THE ROAD WILL BRING NUMEROUS SOCIAL AND ECONOMIC BENEFITS TO THE COMMUNITIES WITHIN THE AREA A FAST, SAFE AND ALL WEATHER ROAD WILL ALLOW THE EFFICIENT AND RAPID MOVEMENT OF GOODS BETWEEN CHINA, KAZAKHSTAN, RUSSIA AND BEYOND**

**IN EUROPE AND CENTRAL ASIA. AGRICULTURAL PRODUCE FROM THE AREA, WHICH IS A MAJOR EMPLOYMENT SECTOR AND A SIGNIFICANT PART OF THE LOCAL ECONOMY CAN BE TRANSPORTED RAPIDLY TO A WIDER MARKET, NOT JUST ALMATY. ON A REGIONAL BASIS THE LARGER COMMUNITIES ALONG THE ALIGNMENT, ZHARKENT, SHELEK AND ALMATY WILL BENEFIT FROM FASTER TRAVEL TIMES BETWEEN THE TOWNS AND TO OTHER URBAN CENTERS IN THE SOUTH AND SOUTH WEST OF KAZAKHSTAN.**