Initial Environmental Examination

May 2017

AZE: Road Network Development Investment Program, Project 4

Prepared by Azeravtoyol Open-Joint Stock Company for the Republic of Azerbaijan and the Asian Development Bank.

REPUBLIC OF AZERBAIJAN

"AZERAVTOYOL" OJSC

Tranche 4, Road Network Development Investment Program,
Multi-tranche Financing Facility (MFF1)

Project: Rehabilitation of Local Roads in Ganja-Gazakh Region

APPENDIX A

INITIAL ENVIRONMENTAL EXAMINATION

of Particular Conditions of the Contract of
NCB No. 1 and NCB No. 2

April, 2017

Prepared by: "IRD Engineering" LLC

IRD ENGINEERING

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List of Abbreviations

AAY	Azeravtoyol
GoA	Government of Azerbaijan
IEE	Initial Environmental Examination
ADB	Asian Development Bank
IEA	Initial Ecological Assessment
EA&MF	Environmental Assessment and Management Framework
EIA	Environmental Impact Assessment
EP	Environmental Protection
ESS	Ecology and Safety Sector
ESIA	Environmental and Social Impact Assessment
GM	Grievance Mechanism
HIV/Aids	Human Immunod eficiency Virus/Acquired Immunod eficiency Syndrome
HR	Human Resource
IFI	International Financing Institution
LAD	Land Acquisition Department
M	Metre
MENR	Ministry of Environment and Natural Ressources
MoH	Ministry of Health
NGO	Non Governmental Organisation
RoW	Right of Way
PAI	Project Area of Influence
PAP	Project Affected Persons
PIU	Project Implementation Unit
PR	Performance Requirement
RAP	Resettlement Action Plan
SCENRU	State Committee for Ecology and Natural Resources Utilization
SEE	State Ecological Expertise
STD	Sexually Transmitted Diseases
WHO	World Health Organization
ToR	Terms of Reference

A. EXECUTIVE SUMMARY

1. Substantial work has been done in the development of primary road network and improved and developed road network has an essential impact on the development of the country. It is essential that local roads which provide the access to the main road network shall be in a good condition to ensure connectivity with settlements in region. It was considered to implement the rehabilitation of five (05) local roads, two (02) of them in Gazakh, three (03) in Agstafa. The rehabilitation of these local roads, the total length of 40.7 km is intended to be implemented under 2 bidding packages.

a) NCB No. 1 – Vurgun-Kohne Gishlag rural road, Agstafa Region

This road provides transport connectivity between Kohne Gishlag village and Vurgun settlement. The total length is 16.6 km.

b) NCB No. 2 – Agstafa-Ashagi Kesemen-Zelimkhan rural road (9.6 km), Soyug Bulag-Tinglik rural road (9.3 km) in Agstafa region, Gazakh-Duzgishlag (Huseynbeyli section) rural road (2.6 km) and Kommuna rural road (2.6 km) in Gazakh region. The total length is 24.1 km.

2. These local roads provide accesses to R24 road and M2, a main motorway of Azerbaijan Republic. This report is the Initial Environmental Examination (IEE) for the selected local roads in Gazakh-Agstafa region. Its objective is to facilitate implementation and to ensure that these road rehabilitation works will comply with Azerbaijan's environmental legislation, procedures and policies, international conventions and procedures as defined in Appendices I of ADB`s Safeguard Policy (2009). In addition, the IEE Report addresses the environmental impacts, mitigation measures and management issues associated with the proposed road rehabilitation. These projects were designed in accordance with the parameters of Road Category IV.

3. This report includes background information on Republic of Azerbaijan, relevant legislation and the project area. It includes a detailed description of the proposed project and describes the current condition of the environment in the project area. Different environmentally sensitive receptors were identified and the impacts of the project have been analyzed from the perspective of the receptors. Suitable mitigation measures have been identified to reduce the anticipated impacts to the technically possible minimum and an Environmental Management Plan (EMP) has been prepared accordingly.

4. Impacts from the project are expected to be limited in magnitude and spatially. As most of the impacts are confined to the construction stage of the Project certain impacts also occur in the operational stage. These impacts are due to increased traffic volume and vehicle speed

and refer to elevated levels of gaseous and noise emissions and potentially increased pedestrian vs. vehicle accidents. In addition there is an increased risk of accidents with possible spills of harmful substances. The identified impacts include

(i) noise impacts, emission of pollutants to air and vibration, which is especially of high significance within the settlements alongside the Project road and where sensitive receptors are located such as schools, hospitals
(ii) impacts on water courses and rivers
(iii) impacts from aggregate sourcing at borrow sites;
(iv) impacts on soil and vegetation, inclusive tree plantations alongside the Project road due to site clearance activities;
(v) impacts from bridge and drainage facilities rehabilitation;
(vi) impacts from asphalt plant and aggregate crushers and
(vii) impacts from contractor's working camps.

5. Impacts have been divided in to design phase, construction phase, and operation phase impacts.

6. Mitigation measures for each of the impacts have been developed and incorporated into the Environmental Management Plan (EMP).

B. INTRODUCTION

1. BACKGROUND

7. Azerbaijan is geographically located in the centre of the East-West (between the Black Sea and the Caspian Sea) and the North-South (between Russia, Iran and Turkey) transit routines. This report has been prepared under rehabilitation of Local Roads in Ganja-Gazakh Region, Loan 3116, Tranche 4, Road Network Development Investment Program, Multi-tranche Financing Facility (MFF1). The Project is to be implemented by the Azeravtoyol (AAY).

8. The implementation of the selected Project is expected to provide the convenient transport connectivity between villages of Gazakh and Agstafa regions and the access to the main road. The majority of the rehabilitation works will be carried out within existing Right of Way (ROW). Thus, the magnitude of the impacts that may arise during the construction phase will be a very small and temporary. The temporary impacts will be attended by proposed mitigation measures and will be regulate in accordance with the management plan. According to the project document, the lane width of local roads to be the rehabilitated will be 3.00 m and rehabilitate as two-lane road as well as the width of shoulders on both sides within the existing ROW be 2.00m of which 0.50m will be paved, 1.50 m be fortify by gravel. In order to avoid the land acquisition and other impacts in populated areas, embankment will be adjusted as per site conditions keeping carriageway parameters same.

9. In addition to the existing road`s rehabilitation, under **NCB No. 1** of project, the bridge`s life span on channel which is located on about 1 + 947 km of Vurgun-Kohne Gishlag route is completed and considered to replace it with new bridge because of its poor condition and also to repair the bridge which is located about KM 12+500 on Hesensu river. Scope of works also includes repair/replacement of culvers of different diameter as per joint survey conducted by the Engineer's representative. The main objective of IEE Report is to assess and attend environmental impact and management regarding the rehabilitation of proposed roads.

2. Methodology and Scope of the Study

10. This IEE Report for the local roads is prepared based on the field data collected including topographic, demographic, technical and economic details for the scope of the roads, consultation with AAY OJSC, Ministry of Ecology and Natural Resources and stakeholders.

11. This IEE Report is prepared in accordance with the existing environmental legislation of Azerbaijan Republic and ADB`s strategy, the policy on environmental, identification of current environmental condition, environmental impacts for road rehabilitation, recommended mitigation measures and environmental monitoring program. In addition to the pertinent official and legal documents that are described in the legal chapter Project specific documents and studies (reports) were used as a data source. Key issues regarding the environmental appraisal refer to the project's area of influence (PAO) and the categorization of the Project.

12. Considering the nature of works which will be rehabilitation only, it can be concluded that the resulting impacts are site specific and not wide reaching. In addition, the impacts are by the most restricted to the construction stage of the Project and therefore for limited period only. Minor impacts to be arisen in the construction phrase can be avoided by recommended mitigation measures.

13. It can therefore be confirmed that the Project is to be ranked as environmentally category B.

3. The Study Area

14. The Safeguard Specialist conducted field survey and assessment along the local roads in Ganja-Gazakh region with the participation of representatives of local executive and municipality, and team observed deformations along the road such as settlements, cracks and damages and determined that the road completed its economic lifetime and finally concluded that these roads shall be rehabilitated to ensure the functioning of road, connectivity with main roads and provide access to local markets. At present the convenient traffic flow at those roads has become difficult.

15. This report is prepared based on collected topographic, demographic, technical and economic data for the scope of proposed roads. Under this project, total length of proposed local roads for rehabilitation is 40.7 Km and 5 (five) local roads included there and the width of the existing local roads is 10-12 m. The rehabilitation of these local roads shall be carried out under 2 (two) independent packages and roads shall be rehabilitated to category IV. In order to avoid the land acquisition and other impacts in populated areas, embankment will be adjusted as per site conditions keeping carriageway parameters same.

16. NCB No. 1 **-** The length of the Vurgun-Kohne Gishlag rural road proposed to be rehabilitated in Agstafa region is 16.6 km with connecting to Goyjeli (from left/ east), Tatli (from left/north-east) and Yaradullu (from right/ south-west) rural roads.

NCB No. 1 - Agstafa region

Vurgun-Kohne Gishlag rural road -16.6 km

Figure 1: Project road

17. The alignment starts from the entrance of Vurgun settlement and before the railway line and continues with existing road while crossing the railway line at the same level and passes through crop-fields of Goyjeli, Tatli and Yaradullu villages towards the East and reach to Kohne Gishlag village. This existing road in length of 15 km was designed and constructed in 1980-1985 years, it has completed its economic lifespan and deformations appeared such as settlements, cracks and damages in many parts of the road

18. This road serves for several public areas and education centers (5 school buildings, 3 post-offices, 1 hospital, 5 libraries, 4 municipality buildings, 2 kinder-gardens, 5 village study-groups). Totally, 8217 residents are the local permanent users of this road.

19. NCB No. 2 – the total length of this project road is 24.1 km and 18.9 km of this project road passes through Agstafa region, 5.2 km through Gazakh region.

Agstafa region: Agstafa-Ashagi Kesemen-Zelimkhan rural road -9.6 km

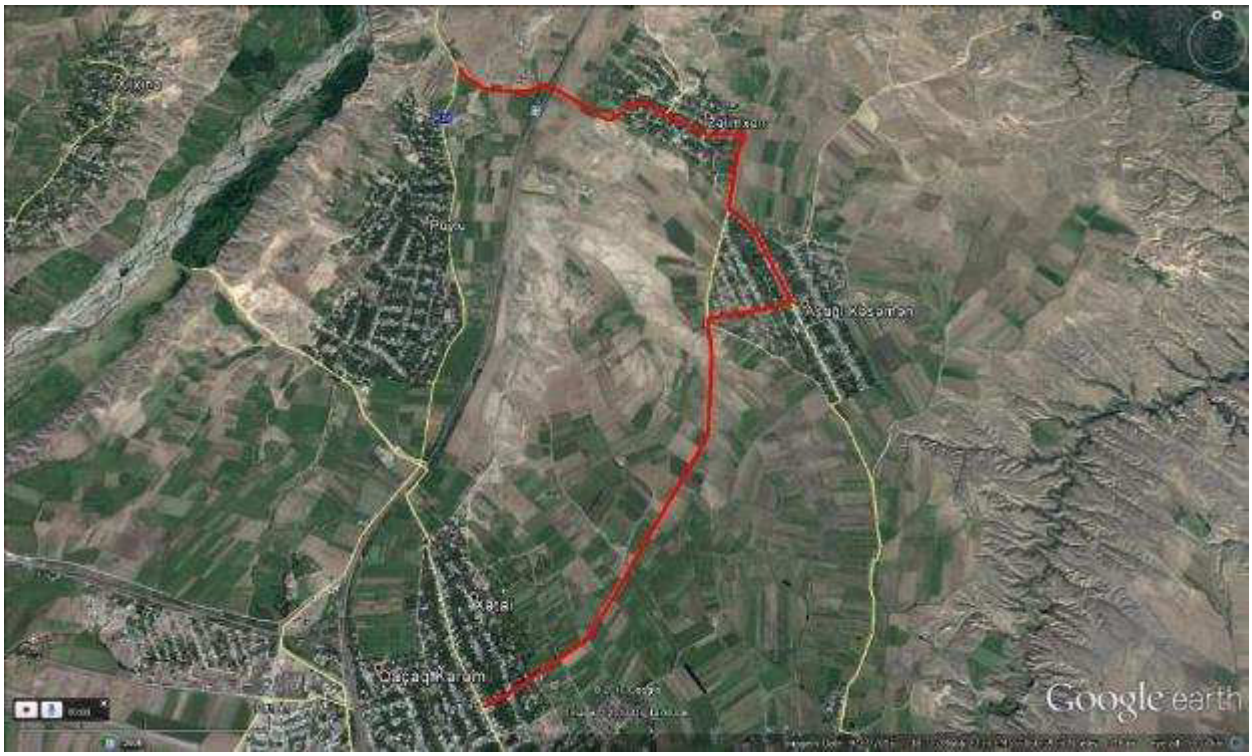

Figure 2: Project road

20. Agstafa- Ashagi Kesemen-Zelimkhan road provides the transport connectivity between Zalimkhan, Ashagi Kesemen, Khatai, Yenigun and Gachag Kerem villages of Agstafa region as well as access to R24 road surrounding to Poylu village. There are several deformations on the existing road such as settlement, cracks and damages. This road serves for several public areas and education centers (4 school buildings, 2 post-offices, 2 hospitals, 2 libraries, 3 municipality buildings, 2 kinder-gardens, 3 village study-groups). Totally, 9980 residents shall use this road for day to day transportation needs.

Soyug Bulag-Tinglik rural road -9.3 km

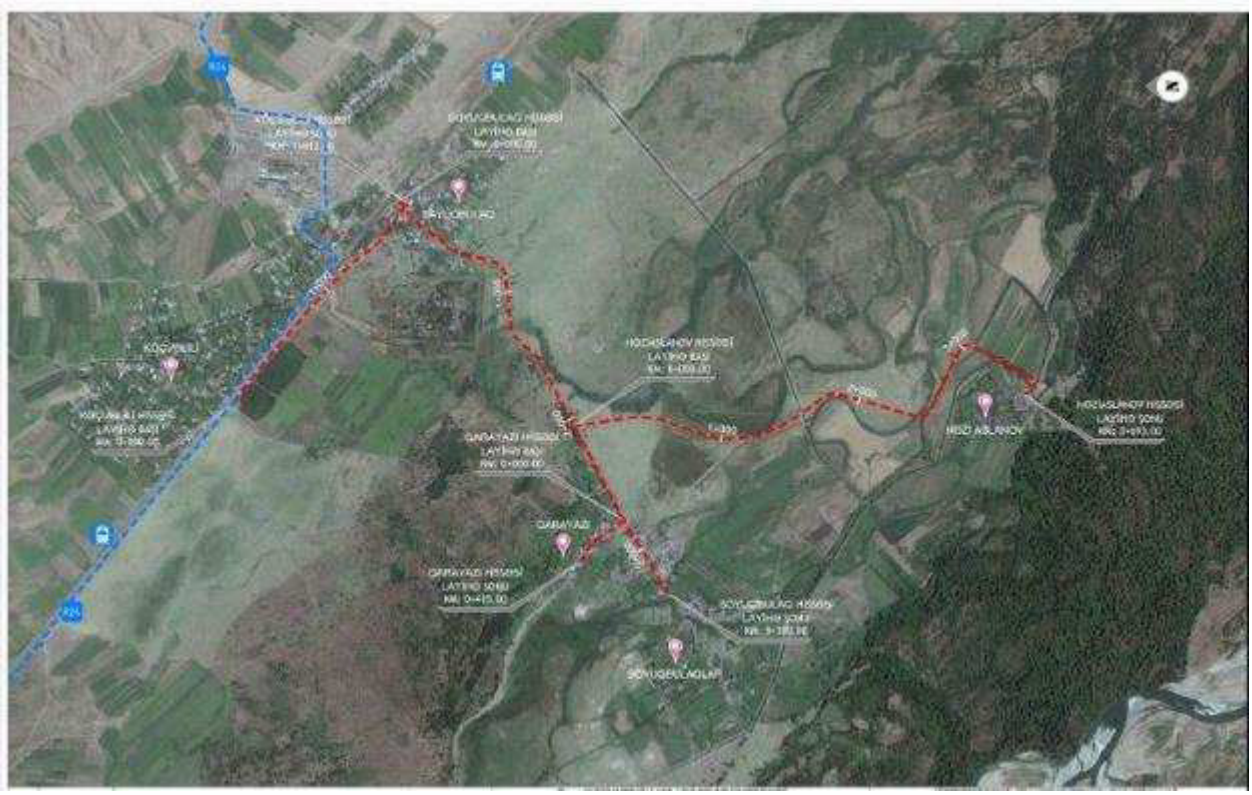

Figure 3: Project road

21. Soyug Bulag-Tinglik rural road provides main transport connectivity between Kochvelili, Hezi Aslanov, Soyug Bulaglar villages and Garayazi settlement. The total length of this road with the associated access roads is 9.3 km:

    - Kochvelili-Soyug Bulag section (length -1812 m)
    - Soyugbulag-Soyugbulaglar section (length 3380 m);
    - Soyugbulag-Hezi Aslanov section road (length 3693 m);
    - Soyugbulag- Garayazi section (length 415 m);

22. Total, 1,917 residents shall use these roads. The proposed road with access roads will serve for several public areas and education centers (4 school buildings, 1 post-office, 4 hospitals, 3 libraries, 2 municipality buildings, 1 kinder-garden, 2 village study-groups. It will also provide the access to R24.

Gazakh region: Kommuna rural road - 2.6 km

Figure 4: Project road

23. Kommuna rural road (length-2.6 km) connects Chayli and Kommuna villages of Gazakh region and provides important transport connectivity. This road also provides the connecting Gazakh-Eskipara road which is the main important for region and the access to M2 Motorway through that road. Totally, 7874 residents are local permanent users of this road.

Huseynbeyli section of Gazakh-Duzgishlag road -2.6 km

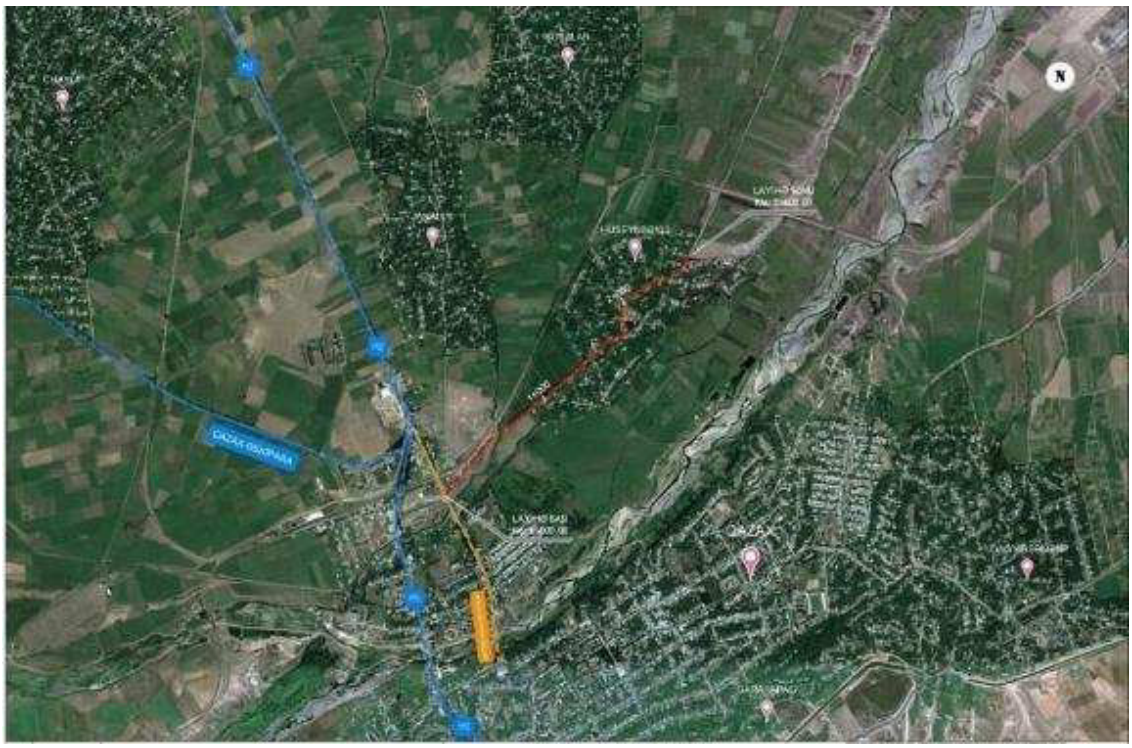

Figure 5: Project road

24. The project alignment of Huseynbeyli section of Gazakh-Duzgishlag road splits from Baku-Gazakh - Georgia (M2) motorway in the North-West part of Gazakh city to the right side (North-East) and stretches towards Huseynbeyli village. The project alignment provides the main transport connectivity between Gazakh city, center of the region and Huseynbeyli village. The length of the project alignment is 2.60 kilometers.

25. During assessment, it is observed that agricultural land plots, crops as well as elm (*Ulmus foliacea*), plane, willow (*Salix australior*), acacia (Acacia spec) poplar (*Poplus sp.*), white mulberry (*Morus alba*), loeasters (*Elaeagnus angustifolia*), ash-tree (*Fraxinus excelsior)* and various shrubs are spread along the project corridor. The majority of the rehabilitation works will be carried out within existing ROW.

26. Thus, the magnitude of the impacts that may arise during the construction phase will be a very small and temporary. The impacts will be removed by proposed mitigation measures and will be regulate in accordance with the management plan. According to examination and assessment the following impacts can be determined:

    • Existing trees and bushes along the proposed road alignment;

- Residential buildings and other sensitive facilities throughout the villages which are located in proposed road alignment;
- Part of the road passing on channel and river;
- Irrigation pipes under the proposed road;
- Roadside agricultural lands, planted the different types of crops;

4. Impacts to trees, bushes and plantings

27. There is no variation in the existing road alignment for proposed local roads. At some locations trees and bushes lie very close to the carriageway of existing road and tree cutting may not be avoidable for technical reasons because of raised embankments, change of culverts as well as reconstruction of outlet and inlet of all culverts. Totally, 19 trees were determined to be cut and removed for Project NCB No. 1 & NCB No. 2.

28. The Project road rehabilitation will be conducted within the existing RoW and consequently the core impact area will be confined to the construction corridor only. In addition the impacted area comprises related facilities. These are borrow areas, asphalt plant sites, concrete plant sites, aggregate crushers and the construction camps, disposal sites for excavation spoils and solid wastes.

29. At locations where the road traverses alongside environmental receptors that are sensitive to noise emissions or emission of pollutants , settlements are influenced by the project.

30. Other impacts refer to negative interferences which do not cause the loss of structures but nevertheless cause the reduction of environmental quality. Examples are the negative effects of noise emissions, the effects of emissions of pollutants or the occurrence of increased erosion due to malfunctioning of culverts or lack of retention basins. A detailed description of the impacts is given in the chapter on impacts and mitigation measures.

5. Report Structure

31. This IEE Report for the selected local roads in Gazakh-Agstafa regions is prepared based on environmental legislation of Azerbaijan Republic and the procedures and policies, international conventions and procedures as defined in Appendix I of ADB`s Safeguard Policy Statement (SPS) (2009). ADB is committed to ensuring the environmental sustainability by protecting the

environment and people from potential adverse impacts of projects which it supports, as outlined in SPS.

32. The objectives of ADB's safeguards are to:

(i) avoid adverse impacts of projects on the environment and affected people, where possible;
(ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and
(iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

C. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

1. ADB Safeguards

33. As noted previously Consultants have classified the selected local roads in Gazakh-Agstafa regions as category "B" for Environmental Assessment. The categorization was carried out based on ADB's Safeguard Policy Statement (2009), and ADB Methodological Guidelines on Environmental Assessment (2003). Because the Project is environmentally categorized as B, an IEE is required. An initial step in determining a project's environment category is to prepare a Rapid Environmental Assessment (REA) screening checklist, taking into account the type, size, and location of the proposed project. A project is classified as one of the following four environmental categories:

- *Category A*: Projects with potential for significant adverse environmental impacts. An environmental impact assessment and a summary EIA (SEIA) are required to address significant impacts.
- *Category B*: Projects judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for category A projects. An initial environmental examination and a summary IEE are required to determine whether or not significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- *Category C*: Projects unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are still reviewed.
- *Category FI*: Projects are classified as category FI if they involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all subprojects will result in insignificant impacts.

2. National Environmental and Social Assessment Legislation, Guidelines and Approval Procedure

34. The fundamental piece of legislation that is governing the implementation of environmental policies in Azerbaijan is the Law on Environmental Protection of 1999. This law lays down the basis for the legal, economic and social aspects of environmental protection. As stipulated in the said law its objective is to protect the environmental balance thus ensuring environmental safety and prevent hazardous impact of projects and industry on natural ecological systems.

The law aims on the preservation of biological diversity and the proper use of natural resources.

35. Itemized below are the additional relevant national laws and regulations on environmental protection and road rehabilitation.

Table 1: Relevant Laws and Regulations on Environmental Protection and Road Rehabilitation

Reference	**Description**
The Law of the Republic of Azerbaijan on Environment Protection, 9 February 1999	The general framework for all national objectives in the area of environmental protection.
"Law on Ecological Safety" (04.08.1999)	This law defines legal bases of ecological safety as component safety of the state, society and population, the purpose of which is the establishment of legal bases for protection of life and health of the person, society, its material and moral values, environment, including atmospheric air, space, water objects, resources of the ground, natural landscape, plants and animals from danger, arising as a result influence natural and anthropogenic action.
Article 50: State Ecological Expertise	Requires identification of the impact on the environment caused by any activities, examines the results of such impacts and predicts possible impacts in accordance with the environmental requirements and the qualitative parameters of the environment.
Article 54: Objects of the State Ecological Expertise	Defines the types of project which require compulsory "State Ecological Expertise (SEE)', i.e. to undergo the systematic EIA process.

Reference	**Description**
Articles 35, 36, 37, and 38: Ecological Demands during Project Design and Implementation.	During the feasibility study, it should be confirmed that the project will comply with: • he maximum permitted discharges and emissions of pollutants in the natural environment • he maximum permitted noise and vibration levels, and other harmful physical influences as well as health norms and standards of hygiene
EIA Handbook for Azerbaijan (UNDP), 1996	Regulations on EA in Azerbaijan which define the type of projects requiring EA, the contents of an EA document, the roles and responsibilities of the developer and the competent national authorities, the procedures for public participation and the appeal process.
Azeri Law on Automobile Roads: Section 39: Protection of Environment, March 10, 2000.	Spells out that any construction or reconstruction of roads requires the official approval of the Azerbaijan State Ecological Expertise, must introduce state of the art technology, and chemicals used must be environmentally benign. The unit of the Ministry responsible for road environment must approve the environmental, health and safety norms of the construction.
Guidelines for Road Construction, Management and Design, February 7, 2000	Addresses environmental issues in road design, construction, and maintenance.
Part I: Planning of Automobile Roads	Requires minimizing the impacts on the ecological, geological, hydrogeological, and other natural conditions, by implementing adequate protection measures.
Part II: Construction and Reconstruction of Automobile Roads	Requires consideration of appropriate protection measures, which shall contribute to the maintenance of stable ecological and geological conditions as well as natural balance.
Section III: Protection of the Environment	General overview on the protection of environment.

Reference	**Description**
Reg. 514-1Q-98: Regulation on Industrial and Municipal Waste	Requirements for industry and enterprises for implementation of standards and norms of environmental protection for waste when designing, constructing, or reconstructing.
SNIP III-4-80: Norms of Construction Safety	Detailed regulations on construction worker's health and safety. Chapters 2 and 5 provide the organizational procedure of construction and work sites and transport sites. Annex 9 contains standards on maximum concentrations of toxic substances in the air of working zones; Annex 11 specifically requires that workers need to be informed and trained about sanitation and health care issues and the specific hazards of their work.
SNIP 2.05.02-85 Building Code & Regulations for Automobile Roads Ch. 3: Environmental Protection	Indicates the general need to minimize adverse environmental impacts in road design and provides, for instructions on the removal and re-use of top soil (no. 3.4); the need to provide buffer between the road and populated areas and to carry out noise reduction measures to assure compliance with the relevant sanitary norms (no. 3.9); on the dumping of excess materials (no. 3.12);
Safety Regulations for Construction, Rehabilitation, and Maintenance of Roads, 1978	Compilation of safety rules related to technical safety requirements of road construction equipment, rehabilitation of bridge, operation and maintenance of asphalt plants, working with toxic substances, working in borrow sites etc.
The Law of the Republic of Azerbaijan on Sanitary and Epidemiological Safety, 1993 Section III: Responsibilities of State Bodies, Agencies, Companies on the Provision of Sanitary and Epidemiological Safety	General framework provisions on the requirement to provide healthy and safe conditions at workplaces and work camps (and many others) in compliance with the relevant sanitary hygiene, construction regulations, and norms (particularly items 14, 15 and 16).

Reference	Description
VSN 8-89 Regulations on Environmental Protection in Construction, Rehabilitation and Maintenance of Roads	Comprehensive provisions on environmental protection measures in road construction such as use of soils, protection of surface and groundwater resources, protection of flora and fauna, use, preparation and storage of road construction machinery and materials, servicing of construction machinery; temporary structures, temporary roads, fire protection, borrow pits and material transport, avoidance of dust, protection of soils from pollution, prevention of soil erosion etc. The appendices to this document also give standards for maximum permitted concentrations of toxic substances; noise control measures; soil pollution through losses of oil and fuel from construction equipment; quality of surface water.
Sanitary Norms CH 2.2.4/2.1.8.562-96; 1997	Ambient noise quality standards for residential, commercial and industrial areas, hospitals and schools (day/night standards);
Decree of Cabinet of Ministers of Azerbaijan Republic Decree No. 173 dated September 19, 2005 -"Regulations on Use, Protection and Preservation of Trees and Bushes not included in the forest foundation"	Its objective of this Decree is to strengthen the protection of trees and bushes not included in the forest foundation. It is included the planted trees in strips separating the railways and highways, canals and other water bodies.

3. Administrative Framework

36. In matters of legal framework, the constitution of the Republic of Azerbaijan embodies precepts and principles for environmental protection, ownership of natural resources and preservation of cultural heritage. Article 14 of Chapter III (Basic rights and liberties of a person and citizen) entails the state ownership of natural resources in Azerbaijan, without prejudice to rights and interests of any physical persons and legal entities. Article 39 constitutes the rights of everyone to live in a healthy environment, to gain information about true ecological situation and to get compensation for damage done to his/her health and property because of violation of ecological requirements. Article 40 states the rights to practice and participate in culture and

protection of historical, cultural, and spiritual inheritance and memorials. In Chapter IV (Main responsibilities of citizens), Article 77 states the responsible for protection of historical and cultural memorials; while Article 78 stipulates the citizen's responsibility for protection of environment.

37. In addition the legislative framework relating to the environment generally consists of the following:

- Parliamentary legislation that defines and establishes the State regulation of protected natural areas, and the protection and use of the environment and biodiversity
- Presidential Decrees and Orders and Resolutions of Cabinet of Ministers
- By-laws of the executive authorities (Ministries and Committees)
- International Agreements and Conventions to which Azerbaijan is a signatory

38. Regarding road rehabilitation Projects the following government agencies are involved in the management and monitoring of environmental aspects:

39. AAY OJSC is responsible for planning, constructing, operating, and maintenance of national roads in Azerbaijan. The Project Implementation Unit (PIU) of the AAY OJSC will be in charge of project management, among others, to ensure that appropriate budget will be provided for the implementation of mitigation measures and monitoring the programme, and that the contract provisions are properly implemented. For projects requiring an EIA on the national level the Ecology and Safety Sector (ESS) of the AAY shall coordinate the EA study, carry out required public consultations, ensures implementation of the EMP and public disclosure of the EA study. The ESS shall also liaise with relevant government offices for securing environmental approvals.

40. The Regional Monitoring Department of the MENR shall undertake routine and random monitoring of the project to determine compliance with environmental regulations and standards.

41. The Sanitary and Epidemiology Department of the Ministry of Health (MoH) will undertake routine monitoring of the living conditions and sanitary provisions at the contractor's work camp and worksites. MoH's Regional Sanitary and Epidemiology Unit shall be involved in approving the contractor's work camp installations and facilities and their compliance with the relevant sanitary and health norms and guidelines.

42. During the operational phase of the Project, AAY will undertake routine monitoring of road safety, proper functioning of culverts, condition of tree plantations etc.

4. International Environmental Agreements

43. Constitution of Azerbaijan Republic - Article 151: Legal status of international treaties: When conflicts arise between normative-legal acts which form part of the legal system of the Republic of Azerbaijan (with the exception of the Constitution of the Republic of Azerbaijan and the acts passed by way of referendum) and international treaties to which the Republic of Azerbaijan is a party, the international treaties shall apply.

44. This principle is embodied in Articles 81 and 82, Chapter 14 (International Cooperation on Environment Protection Issues) of the Law on Environmental Protection. After Republic of Azerbaijan declared its independence Azerbaijan is signatory to most international agreements and conventions relating to the environment, as shown in below.

- UNESCO Convention on Protection of World Cultural and Natural Heritage 1993
- UN Framework Convention on Climate Change,1995 (Republic of Azerbaijan ratified the United Nations Framework Convention on Climate Change on 1995 and ratified the Kyoto Protocol on 2000)
- Convention of the World Meteorological Organization, 1993
- Meteorological Service for International Air Navigation (Annex 3 to the Convention on International Civil Aviation, 1992)

- "Convention on International Trade in Endangered Species of Wild Fauna and Flora,1998
- European Convention on Environmental Impact Assessment in the Trans-boundary Context , 1999
- European Convention on the Conservation of European Wildlife and Natural Habitats, 1999
- UN Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) , 1999
- Montreal Protocol on Substances that Deplete the Ozone Layer, 2000
- Convention on Biological Diversity, 2000
- International Convention on Plant Protection, 2000

- UN Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes, 2000 (Republic of Azerbaijan ratified this Convention in 2000 &also in 2002 the Protocol on Water and Health dated June 17, 1999 of that convention)
- UNESCO Convention on Wetlands of International Importance especially as Waterfowl Habitat , 2000
- UN Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 2001
- Convention on Long-Range Trans-Boundary Air Pollution, 2002
- Stockholm Convention on Persistent Organic Pollutants, 2003
- Convention on the Transboundary Effects of Industrial Accidents, 2004
- Framework Convention for the Protection of the Marine Environment of the Caspian Sea, 2006
- European Landscape Convention, 2011

45. Such Environmental Agreements may apply when large-scale land acquisitions are required in the road projects.

46. The Project road rehabilitation will be conducted within the existing RoW. Therefore, in order to avoid the environmental impacts essentially the quarries and borrow pits which are under operating for a long time will be used and the borrow pits and quarries to be used have the access roads. Thus no any interference source will be created.

D. PROJECT DESCRIPTION

47. Generally, the design documents provide a detailed overview of the current road conditions and describe the planned road design and construction in all its technical aspects. For better understanding of the initial environmental assessment, a general description of the Project is in addition given in the following chapters.

1. Road Location and Existing Conditions

48. **NCB No. 1 (16.6 km):** NCB No. 1 – The length of the Vurgun-Kohne Gishlag road is 16.6 km and located in north-east part of Agstafa region. This road connects Kohne Gishlag, Goyjeli, Tatli and Yaradullu villages with Vurgun settlement which is considered the starting point of project and provides main transport connectivity to regional centre of that villages and access to M2 Baku-Gazakh motorway.

49. The below figure provides an impression of the current road conditions.

Figure 6: Existing condition of Vurgun-Kohne Gishlag rural road

50. In addition to the rehabilitation of existing road, the bridge`s lifespan on channel which is located on about 1 + 947 km of Vurgun-Kohne Gishlag route is ended and considered to replace it with new bridge because of its poor condition. Also, to repair the bridge which is located at Km 12+500 on Hesensu River under this project.

Bridge to be intended the construction of new one instead of this bridge

Figure 7: Existing bridge over the main channel (Km: 01+947)

The bridge to be intended the rehabilitation under this project

Figure 8: Existing Bridge over Hesensu River (Km: 12+500)

51. **NCB No. 2:** It was designed the rehabilitation of 4 (four) local roads for NCB No. 2. 2 of them are in Gazakh region, 2 in Agstafa region.

52. **In Agstafa region:**The length of the Agstafa- Ashagi Kesemen-Zelimkhan road is 9.6 km and located in north-east of Agstafa region. It provides transport connectivity between Zelimkhan, Ashagi Kesemen, Khatai, Yenigun and Gachag Kerem villages of Agstafa region and as well as access to R24 road surrounding to Poylu village and regional centre and access to M2 Baku-Gazakh motorway. The below photo provides an impression of the current road conditions.

Figure 9: Railway crossing. The existing condition of Zelimkhan village road (km 01+030)

53. The total length of this road with the following access roads is 9.3 km.

- Kochvelili-Soyug Bulag section (length -1812 m)
- Soyugbulag-Soyugbulaglar section (length 3380 m);
- Soyugbulag-Hezi Aslanov section road (length 3693 m);
- Soyugbulag-Garayazi section (length 415 m);

54. The proposed alignment starts from the northern section of Kochvelili village and stretches to Hazi Aslanov village towards the east-north- east in parallel with railway lane and R 24 road. There is no alternative of this road to be provided the access to R 24 and the railway lane. Along the project corridor, there is no protected area or an important ornithological territory. The below figure provides an impression of the current road conditions.

Figure 10: The existing condition of road in the starting point of the project

55. In Gazakh region: The Kommuna road connects Chayli and Kommuna villages of Gazakh region and provides important transport connectivity. This road provide the connecting Gazak Eskipara road which is linking the villages located in west part of Gazakh region with Gazakh city and the access to M2 Motorway through that road. Length of the designed alignment of Kommuna rural road is approximately 2.6 km. The below figure provides an impression of the current road conditions.

Figure 11: The existing condition of Kommuna rural road (inside of the village)

56. As seen in the figure the existing road is wide enough in order to rehabilitate at inside road of the village.

57. The project alignment of Huseynbeyli section of Gazakh-Duzgishlag road splits from Baku-Gazakh-Georgia (M2) motorway in the North-West part of Gazakh city (Aliaga Shikhlinski street) to the right side (North-East) and stretches towards Huseynbeyli village. The project alignment provides the main transport connectivity between Gazakh city, center of the region and Huseynbeyli village. The length of the project alignment is 2.60 kilometers.

Figure 12: The linking part of Gazakh-Duzgishlag road to Gazakh city

58. It was determined in examining of the local roads to be rehabilitated that deformations appeared such as settlements, cracks and damages in many parts of the road**.** Therefore, transport connectivity in the above mentioned roads is difficult.

59. The project is categorized as Category "B" for Initial Environmental Examination (there are only few environmentally sensitive areas along the sections and the impacts of the project are expected to be of low significance, highly local, and originating mainly from the construction activities). Therefore an IEE was prepared for the project road.

2. Need for Project

60. This road provides the most important transport connectivity between regions in Azerbaijan. Traffic, especially heavy traffic will further increase. Considering the already described deficiencies of the Project road, especially with regard to traffic safety and by also considering that sections of the road show severe rutting and frequent undulations which are signs of insufficient bearing capacity for the actual traffic load, the rehabilitation Project is urgently needed.

3. Size or Magnitude of Operation

61. The Project involves rehabilitation of 40.7 km road length . The construction works will be implemented within the RoW of the existing road, thus keeping environmental impacts to a minimum. The Project will involve a number of associated activities such as utilization of borrow areas, operation of asphalt plants and aggregate crusher, establishment of contractor's worker camps and storage sites, etc.

4. Traffic Volume

62. Traffic growth forecasts have been developed with regard to the existing traffic volumes on the project road, as revealed by the traffic surveys, and anticipated national and regional economic development.

5. Proposed Schedule for Implementation

63. The schedule for the construction activities has not been decided at the time of preparation of this report.

6. Proposed rehabilitation measures

64. The design characteristics of the cross section are as follows:

- Embankment width: 10.0 m
- Number of lanes: 2
- Lane width: 3 m
- Carriageway width: 6 m (2 x 3.m)
- Width of shoulder: 2m (2x2m; of which 0.50m will be paved)
- Carriageway gradient: 2%
- Shoulder inclination: 2%
- Embankment slope ratio (v & h):
- 1:3 up to 2.5m height of embankment slope;
- 1:2 > 2.5m to 4.0m height of embankment slope;
- 1;1.5 > 4.0 m height of embankment.

Typical Road cross-section

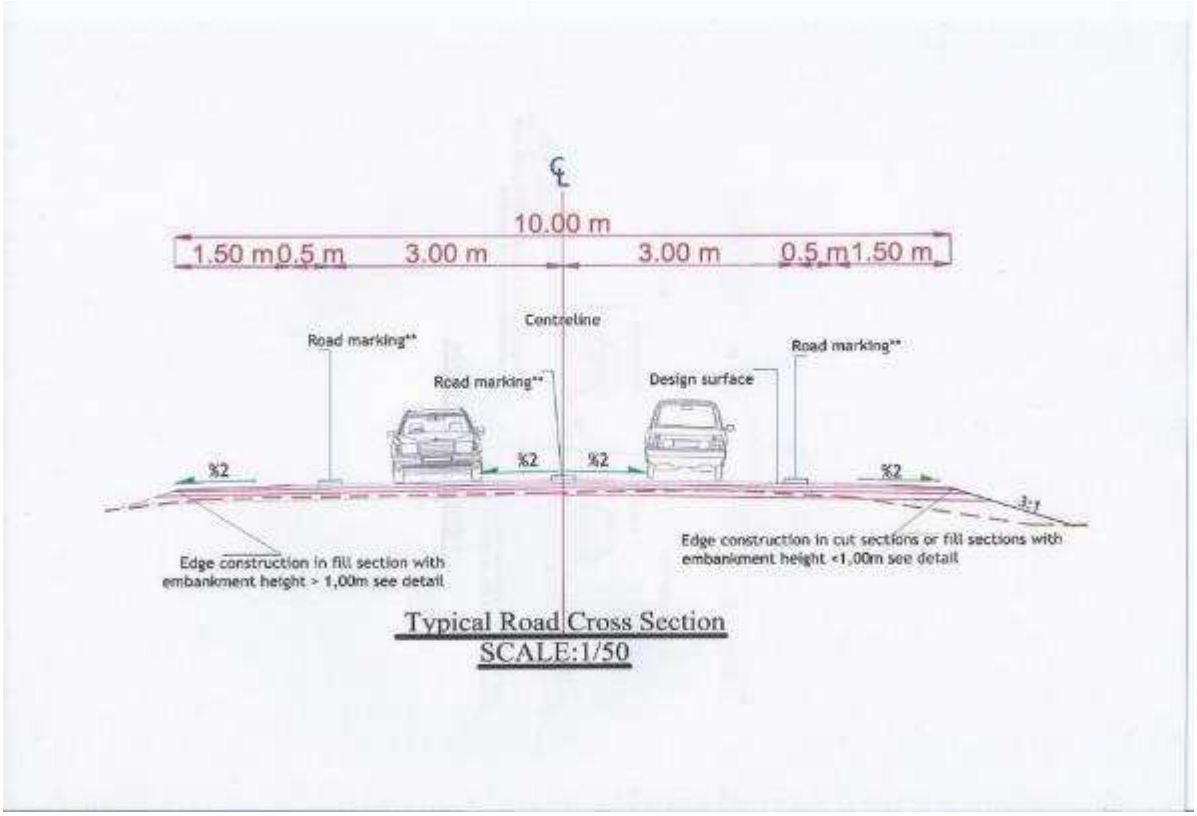

Figure 13. Typical Road cross-section

65. Rehabilitation measures contain the rehabilitation/reconstruction of the road sections in respect of the above described parameters.

66. It is important to note that no additional driving lanes will be constructed within the scope of work of this project and that rehabilitation works are restricted to the RoW of the already existing road. Therefore environmental impacts are kept to a technically possible minimum.

67. In addition to rehabilitation of existing road the bridge`s lifespan on channel which is located on about 1 + 947 km of Vurgun-Kohne Gishlag route for **NCB No. 1** is ended and considered to replace it with new bridge and to repair the bridge which is located about 12 + 500 km on Hesensu river.

68. Culverts crossing with road in different diameters exist in the different part of project alignment. Accordingly, existing culverts will be mainly replaced with new ones or remain as it is. However, all culverts will be rebuilt.

7. Road Construction Materials and Quarries

69. Construction materials required for the implementation of the project will include:

- sand/silt/gravel for embankment construction;
- gravel, rock and stone for base / sub-base;
- bitumen for wearing course;
- concrete for bridges / culverts; and
- topsoil for covering of embankments / landscaping.

70. According to information obtained from geological maps and available reports existing quarries in Gazakh and Agstafa regions will be used. In order to avoid the environmental impacts essentially the quarries and borrow pits which are under operating for a long time will be used and the borrow pits and quarries to be used have the access roads . During the field investigation for the road existing borrow areas have been identified which are near or in reasonable distance to this road section at following locations:

- Agstafacay 1 – Soyuqbulag Agstafa borrow pit,
- Agstafacay 2 –Gazakh borrow pit,
- Garahasanli – Gazakh borrow pit,
- Cogazcay – Qazakh borrow pit ,
- Khanlıqlar – Qazakh borrow pit and so on.

Figure 14: Cogazcay, existing screening and crushing plant

E. ALTERNATIVES

71. No alternatives need to be investigated for these projects. Because the rehabilitation will be confined to the existing alignment of local village roads.

F. DESCRIPTION OF ENVIROMENT

72. Gazakh and Agstafa regions are mainly plain. Northern-western and northern-eastern parts have low mountains. Wormwood-saline-grass semi-desert and wild plants are surrounded. The Project areas are plain. The lands in existing road alignment are agricultural land, some of them are used for the cultivation of agricultural crops, some are pastures. The physical, biological and social-economic situations are described at following:

1. Phsycal Environment

73. The following chapters describe the non-biotic environmental components consisting of Geology, Soils, Climate, Air Quality, Noise and Hydrology.

1.1 Geology and Soils

74. The Republic of Azerbaijan is situated in the Alps-Himalayan mountain belt. The three mountain ranges are the Greater and Lesser Caucasus and the Tallish Mountains together covering approximately 40 % of the country. The highest point in the country is the Mount Bazarduzu (4,485 m above sea level) situated in the Greater Caucasus. Lowlands and plains make up the other 60 % of the country. 18 % of the country is below sea level. The lowest point is the Caspian Sea (- 28 m under sea level). Azerbaijan is located in an active seismic zone.

75. The Agstafa region is located in the northwestern part of the country, between the foot of Greater Caucasus, Gabirri Plateau and Lesser Caucasus mountain range, and Ganja-Gazakh lowlands and Ceyrancol highlands. The surface is basically plain (Ganja-Gazakh and Garayazi plains), the south-west and north-east parts (Yaylaciq mountain range, Coban dag mountain range) is low hilly. Gazakh region is located in Ganja-Gazakh plain. The surface is basically plain (Ganja-Gazakh plain). The north part of area is bordered by Kur river. South and southern-western part of region is low hilly.

76. All soils react vigorously with dilute hydrochloric acid, which classifies them as calcareous. The soils observed are predominantly clayey and dense; in many areas they are also saline. The main soil types of the study corridor are chestnut soils, meadow soils and sierozem soils (meadow gray soils). In proposed road corridor main ground is chestnut soils (gray and brown) and spread between altitudes of 400-800 m. Moisture is 2.5-3.5%. The light chestnut soils prevail in the Ganja-Gazakh plains.

77. Chestnut soils occur between altitudes of 300 to 500 mml with average precipitations of 300-450 mm. This type of soil is plain dry steppe, which has loamy structure, low coefficient of erodibility and low bio-climate potential. Chestnut soils are mostly suitable for winter pastures and long living plants such as vines.

78. Sierozem soils (meadow gray soils) are typical for altitudes of up to 150 m and mainly dry climate with a maximum precipitation of 200 mm. Generally, this soil is semi-dry, dry steppe, light loamy type. Meadow gray soils have agricultural potential for winter pastures and arable land for cultivation of cereals and cotton. Such soils are mainly located in the near small rivers.

79. Chestnut soils have agricultural potential, but lack of the soil humidity hampers to obtain higher yields. Therefore, before the foundation of agriculture was laid the irrigation has paid an important attention. Wheat, barley, millet, corn and sunflower products are grown in chestnut soils in case of irrigation. These soils can be used as pasture or hayfield.

1.2 Climate

80. The Project areas are located between 200 m and 600 m height from sea level . The climate is mild winter and hot summer and dry subtropic on plains. Winter is arid. According to the information obtained from metrological stations on climate parameters for Gazakh and Agstafa regions, the average temperature is 0 - 5 C in January, 18-25 C in July. The average annual rainfall varies between 350-700 m. This difference in rainfall can only be explained by the influence of local topography whereas the general rainfall gradient is increasing from east to west along the project road.

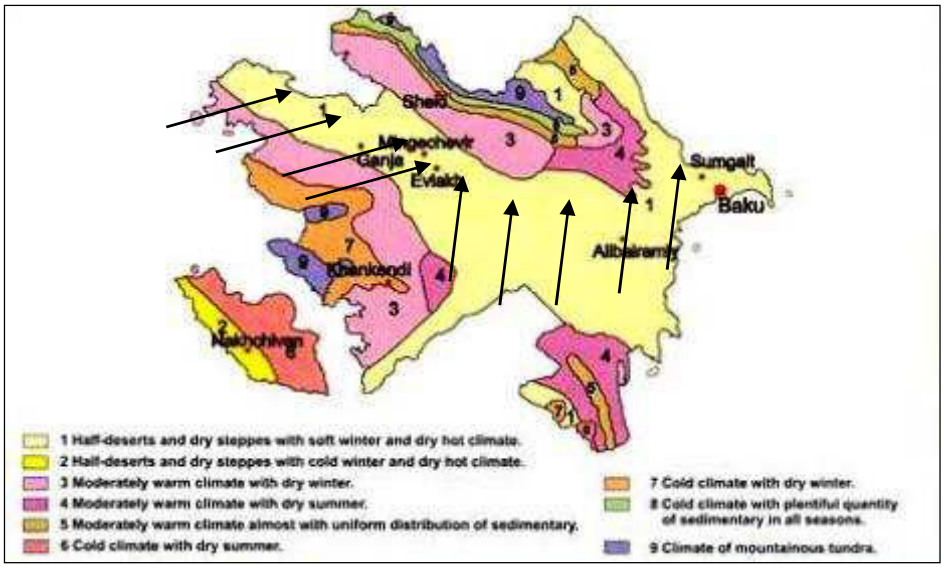

Figure 15: Azerbaijan climate zone

1.3 Air Quality and Noise

81. Due to high levels of agriculture and low levels of industry, air quality in the project area is generally very good. However, temporary impacts to air quality may arise during the construction phase. Therefore, These impacts will be short term and localized and associated with the construction process.

82. Traffic figures still are relatively low on the road corridor under study. Thus, the road to be rehabilitated will serve even more improvement of air quality in operational stage.

83. Heavy traffic will be used of the rehabilitation of the project road, most noise and vibration is likely to result from the trucks along the road. Traffic noise and vibration are unpreventable anxiety in working places.

1.4 Hydrology

84. All rivers of Azerbaijan drain into the Caspian Sea in the east of the country, through three main river basins-the Caspian basin, the Kura basin (in western and central Azerbaijan) and the Araz basin. The coastline of Azerbaijan is approximately 800 km. Occasionally, droughts were experienced in the Kura basin. Approximate 15,000 km^2 of land are irrigated to allow agricultural use.

85. The project area is only crossed by irrigation channel at km 1+947 of Vurgun-Kohne Gishlaq rural road and by Hesensu river at km 12+500 . Mentioned irrigation channel streams out of reservoir on Agstafacay in Gazakh region and provide the irrigation of thousands of hectares agricultural land plots in Gazakh, Agstafa and Tovuz regions.

86. The other bridge is on the Hesensu river and this river steaming from southern towards northern drain into the Kura river. Besides, there is no other irrigation channel and river crossing in proposed local roads. While the impacts are arisen in repairing and construction of mentioned bridges the mitigation measures, stated in Table 7shall be provided.

2. Biological Environment

87. The following chapters 8.1 and 8. 2 describe the biological components of the project area.

2.1 Flora

88. According to the landscape of the Project's area of influence the lands are mainly being used for agricultural purposes. The climate of area is mild –hot and dry subtropic. From this point of view, the main part of landscape is the same type. Typical and common natural flora are tumbleweed (Salsola spec.), glassworts (Salicornia europaea) and various species of wormwood (Artemisia spec.). In the Agstafa and Gazakh regions of project road section nearly all adjacent land is agriculturally used for different crops, vineyards or as pasture. Roadside trees and shrubs are most common throughout this section. In Project road main tree species are poplars (Populus spec.) ash-tree (*Fraxinus excelsior)*, acacias, (Acacia spec.), elm trees (Ulmus spec.), mulberries (Morus spec.), cypresses (Cypressus spec.) and black currant bushes (Ribes nigrum).

89. The distance from the tree and bushes stands to the planned road edge shall be sufficient to prevent cutting along project corridor. However at some stretches it is technically not possible to prevent cutting and removal of trees because the respective tree stem area is subject to embankment filling. In total 19 trees are determined to be impact.

2.1 Fauna

90. The following information on the fauna of the region are mainly based on field surveys, literature, Red Data Book of Azerbaijan, IUCN Red Data List, publications of BirdLife International

and other related materials. According to these sources, the common mammals of the area are the Jackal (Canis aureus) and the Wolf (Canis lupus) which follow the sheep flocks to the winter pastures in the lowlands and the Red Fox (Vulpes vulpes) which is a resident species of this area. Further characteristic mammals are the bat Western Barbastelle (Barbastella barbastellab), the hare (Lepus europaeus), the Redtailed Sanderling (Meriones lybicus) and the Social Vole (Microtus socialis).

91. The avifauna is characterized by Common Kestrel (Falco tinnunculus), Chukar (Alectoris chukar), Rock Dove (Columba livia), Crested Lark (Galerida cristata) and Isabelline Wheatear (Oenan the isabellina). Characteristic amphibian species are Spade-footed Toad (Pelobates syriacusa), Common Toad (Bufo bufo), Green Toad (Bufo viridis) and the Common Frog (Rana ridibunda).

92. They are typical faunal elements in the vicinity of Hesensu river (12+500 km) which is located on about km 1 + 947 of Vurgun-Kohne Gishlag route for NCB No. 1 are observed by slow water flow and in the vicinity of ponds. The reptile fauna of the area is made up of the Caucasian Agama (Agama caucasica), and the Caspian Turtle (Mauremys caspica).

93. Fish species that potentially occur in the river Kura and Agstafa river are the lamprey Caspiomyzon wagneri, the salmon Salmo caspius, the Kura nase Chondrostoma cyri, carps (Varicorhinus capoeta, Chalcalburmus chalcoides and Cyprinus carpio), barbs (Barbus lacerta and Barbus mursa), stone loach (Nemachilus brandti), the zander like Lucioperca lucioperca, the bream Abramis brama, the asp Aspius aspius and the catfish Silurus glanis. Characteristic and rare insects that may be encountered are the beetles-Carabus scabrosus and Calosoma sycophantaa; and the butterflies Apollo (Parnassius apolloc), Colias aurorinaa and Manduca atroposa.

3. Scioeconomic Environment

94. Brief review of the Country Profile: According to the State Statistics, the total population of the Republic of Azerbaijan (by January 1, 2016) is 9,477,100, of which 5,045,500 (53.2%) resides in urban areas, and 4,431,700 (46.8%) lives in rural areas.

95. In 2016, Gross Domestic Production (GDP) reached 53.7 milliard AZN. 42.6% of value added produced in the fields of industry, 12.6% in construction complex, 5.1% in agriculture, 4.9% in

transport, and 10.0% in trade and in the fields of paid services, 1.8% in information and communication, and 15.8% in other fields. Production (GDP) increased by 6.5% in the non-oil sector, and production decreased by 3.4% in the oil sector.

96. The majority of the rural population is mostly seeking job opportunities with regular salaries. The rural population widely relies on agricultural activity but their contribution to the country GDP is rather modest (7.5 %). Therefore, road construction is rather important to rural population for better, easier and faster access to infrastructure, social facilities, markets and jobs etc.

97. Literacy rate is high at 99.98% of people in the age bracket 15 and over. (http://www.indexmundi.com/azerbaijan/literacy.html, 2012). According to the WB study, (http://data.worldbank.org/country/azerbaijan) Poverty headcount ratio at national poverty lines keeps decreasing, and in 2013 was 5.3% of the population. The number of persons receiving official unemployment status from the employment service authorities across the country was 36,200 at the beginning of January 2014.

3.1 Demography

98. The population of Gazakh region is 94.710 (census -2016, January). The average population density in the city equals to 135 persons per square km. Approximately 21.410 of the population lives in Gazakh city, 73.300 live in the villages. 49% of the population - men, 51% are women. The population of Agstafa region is 82.702. Approximately 20.435 of the population lives in Agstafa city, 62.267 live in the villages. 49% of the population - men, 51% are women.

99. The following schedule was reflected the number of population within project impact area.

100. Demographic data for resettlements in project road:

NCB No. 1

Table 2: Vurgun-Kohne-Gishlag road project-9.6 km

Region	Village	Population
Agstafa region	Vurgun resettlement	2700
	Goyjeli	2487
	Tatlı	2004

	Yaradullu	432
	Kohne Gishlag	594
Total:		8217

NCB No. 2

Table 3: Agstafa - Ashagi Kesemen-Zelimkhan road project-9.6 km.

Region	**Village**	**Population**
Agstafa region	Zalimkhan	1325
	Ashagi Kesemen	2754
	Yenigun	2017
	Khatai	1887
	Gachag Kerem	1997
Total:		9980

Table 4: Soyuqbulag-Tinglik road project- 9.3 km

Region	**Village**	**Population**
Agstafa region	Soyuqbulag	992
	Garayazı	520
	Soyuqbulaqlar	196
	Hezi Aslanov	206
Total:		1914

Table 5: Kommuna road project- 2.6 km.

Region	Village	Population
Gazakh region	Kommuna	1002
	Chaylı	6878
Total:		7880

Table 6: Gazakh-Duzgishlag (Huseynbeyli Section) 2.6 km.

Region	Village	Population
Gazakh region	Gazakh city	35102
	Huseynbeyli	1468
Total:		36570

Source: Local Statistical Unit, 2017

101. Local population is aware of the road rehabilitation project and looks forward to its commencement, as they believe that improved road and travel conditions will benefit to all road users and most importantly children, youth and women. Vehicle owners think they will save on routine maintenance costs they face due to the current poor condition of the road.

102. Besides, the expectation of possible job opportunities during construction works, reduced travel time and easy access to markets, social facilities and jobs, creates positive attitude among the local population.

G. IMPACTS AND MITIGATION MEASURES

103. In the following the environmental impacts that are associated with the rehabilitation of the local roads are described together with the required mitigation measures. Relevant environmental issues will mainly relate to the construction period. Rehabilitation activities will be undertaken within the existing ROW and shall not impact on any critical areas such as wetlands, forests, protected areas and the like.

104. In the following, environmental impacts are described for 3 different Project stages, i.e. the planning and design phase, the construction phase and the operation phase of the project. Environmental protection and mitigation measures referring to the different impacts are described in detail in the Environmental Management Plan (EMP). Ultimately, all proposed measures for impact avoidance or mitigation that relate to construction will be incorporated into the bidding or contract documents thereby becoming binding elements of the construction and construction supervision contracts.

1. Impacts and Mitigation Measures referring to the Planning and Design Phase of the Project.

105. The project road rehabilitation is restricted to the existing alignment and the arising environmental and social impacts are therefore kept to a minimum. Based on the conducted survey the following sensitive receptors and environmentally significant issues have been identified along the proposed local roads which need to be considered in the design stage of the Project.

- Residential buildings and other sensitive receptors of human environment
- Cemetery close to road
- Crossing section of road on channel and river - (Figures 7 & 8)
- Trees and bushes alongside the Project road
- Passing of irrigation culverts under road

106. The road rehabilitation will be confined to the already existing alignment. Therefore possible impacts will be restricted to the construction phase .Therefore no land acquisition and structure impacts in the any phrase of the rehabilitation are not expected. The design will avoid tree losses as far as technically feasible. Also because the rehabilitation will be implemented on the existing road tree losses are expected to be minimal. At some locations however tree cuts

may not be avoidable for technical reasons or because of raised embankments. Where embankments are raised the decision of whether the respective tree needs to be cut or not shall be made by the Engineer.

1.1 Tree Losses and Tree Plantings

107. At some locations trees lying very close to the carriageway of existing road cut may not be avoidable for technical reasons because of raised embankments, change of culverts as well as reconstruct of outlet and inlet of all pipes and so on.

108. Totally, 19 trees will be affected by project road.

109. NCB No. 1 - Agstafa region: Vurgun- Kohne Gishlag of Agstafa region (16.6 km)- one elm (*Ulmus foliacea*) (km 2+445), one acacia (Acacia spec.)(km 2+595) , two willow (*Salix australior*) (km 12+390 - 12+524) one ash-tree (*Fraxinus excelsior)* (km 12+600), one mulberry (*Morus alba*) (13+780)

110. NCB No. 2 - Agstafa region: Agstafa - Ashagi Kesemen-Zelimkhan road project (9.6 km) four acacia (Acacia spec.) - (km 9+540), one loeaster (*Elaeagnus angustifolia*) (km 3+320) ;

111. Soyuqbulag- Tinglik road project (9.3 km) - one Poplar (*Poplus sp.*) (km 3+370).

112. Gazakh region: Kommuna road project (2.6 km) –one acacia (Acacia spec.) (km 00+480), one mulberry (*Morus alba*) (km 2+354);

113. Gazakh-Duzgishlag (Huseynbeyli Section) (2.6 km)- five acacia (Acacia spec.), (km 1+820 - 1+848)

114. Unavoidable tree cuts will be compensated by indigenous new tree plantings at the respective locations alongside the Project road. Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October).

1.2 Community safety

115. A Community Protection Plan (CPP) shall be prepared by the Contractor, as part of the SSEMP, to manage community safety.

116. The traffic safety issues shall be accounted for during the design phase of the Project, they including incorporation of:

- Safety barriers
- Traffic signs
- Road Crossings
- Speed Bumps
- Speed limits

2. Impacts and Mitigation Measures Referring to the Construction Phase

117. During construction, direct and indirect adverse environmental impacts may arise from a series of sources and affect various receptors of both the human and the natural environment

2.1 Borrow Areas

118. The impacts related to establishment of borrow pits are largely dependent on the need for opening new pits. From the environmental viewpoint it is to be preferred to use existing borrow sites which are already in operation because environmental impacts concerning potential disfigurement of the landscape, vegetation losses and damage to access roads are then kept to a minimum.

119. As it is described in the above chapter on road construction materials and quarries it is proposed to use the borrow area at the following:

- Agstafacay 1- Soyuqbulag Agstafa borrow pit,
- Agstafacay 2 - Gazakh borrow pit,
- Garahasanli - Gazakh borrow pit,
- Cogazcay- Qazakh borrow pit ,
- Khanlıqlar - Qazakh borrow pit and so on

120. The proposed borrow sites are already under operation and extraction activities are ongoing. The likely impact from obtaining materials from these sites is much less than from opening up new borrow pits therefore it is unlikely that the contractor will be given a license to do so.

121. While the contractor will be sourcing the borrow materials the following measures to minimize impacts associated with the operation of borrow areas shall be implemented

- Dust management plan which shall include schedule for spraying on access road and details of the equipment to be used;

- Undertake regular dust suppression on all unpaved access roads during the construction period, particularly in sections where critical receptors, such as settlements, are located;;
- Locate stockpiles away from watercourses to avoid obstruction of flow and siltation;
- Provide the soaking of aggregates and cover on haul trucks to minimize dust emission and material spillage;
- Undertake repair of access roads to their original condition.

2. 2 Contractors' Work Camp

122. The establishment of contractor's work camps may cause adverse impacts if various aspects, such as liquid and solid waste management, equipment maintenance, materials storage, and provision of safe drinking water are not addressed properly. The site for the work yard will be selected by the contractor but must be approved by the Engineer. To ensure that minimal impacts will arise from the choice of the location and the operation of such areas, the contractor shall strictly implement the following mitigation measures:.

- Layout plan of the work camp including a description of all precautionary measures proposed to avoid potential adverse impacts on the local environment (surface and ground water, soils, ambient air, human settlement);
- Sewage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of water-courses or groundwater (river, channel);
- Waste management plan covering the provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with applicable national regulations; and
- Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bunded and provided with impermeable lining to leakage into the soil and water contamination.

123. These plans will be approved by the Engineer prior to beginning of construction. Prior to establishment of the work camp(s) the contractor shall conduct consultations with local authorities to identify sources of construction water and potable water for the workforce that will not

compete with the needs of the local population. Potable water for the workforce shall comply with the national quality standards.

2.3 Air and Noise Pollution

124. Impacts on air quality are expected to occur as a result of exhaust emissions from the operation of construction machinery; fugitive emissions from aggregates, concrete, and asphalt plants; and dust generated from road construction/ rehabilitation works, along haul roads, exposed soils, and material stock piles. The following mitigation measures will be implemented to by the contractor to reduce emission levels:

- maintenance of construction equipment to good standard and avoidance, as much as possible, idling of engines.
- site the Contractor's yard, especially batching plant and material stockpiles, away from existing settlements, paying attention to the prevailing wind direction;
- establishment of asphalt, and concrete plants as far away as possible (minimum 500 m) from human settlements.
- use tarpaulins to cover loose material when transported by truck.

125. During construction, the operation of heavy machinery can generate high noise levels. A number of mitigating measures to minimize impacts of excessive noise and vibration can be done by the contractor during the conduct of his work as follows:

- Work will be restricted to between 06:00 to 21:00 hours within 500m of the settlements.
- A limit of 70 dBA will be set in the vicinity of the construction site and strictly followed;
- Machinery to be used for the construction should be equipped with mufflers to minimize the generation of noise;
- Whenever possible the local population should be advised of occurrence of elevated noise levels to enable them to take the necessary preparatory measures
- With the rehabilitation of the local roads the vehicular traffic is expected to increase. Because of this, vehicular emissions and noise levels are anticipated to heighten. Attenuation measures against exhaust emissions and noise pollution should be implemented in areas with sensitive receptors such as residential areas, particularly schools, health centers, and hospitals

- In the future should the noise reach intolerable levels, some structural noise barriers can be constructed along the edge of the road to deflect traffic noise and minimize nuisance to the surrounding communities. Areas where structural measures may be needed, subject to the design specifications, shall be in the vicinity of the sensitive receptors like schools, hospitals, etc.
- Calculation of the expected levels of vehicle emissions during project operationwas not undertaken. Regarding air pollution / ambient air quality the Project willhave both positive and negative effects. Benefits will generally result from improvedtraffic flow, which entails improved fuel efficiency and better engine performance,thereby reducing volume of vehicle emissions which otherwise resultfrom bad road conditions
- However in the medium to longer term, however, increasing traffic volumes will bring about higher noise levels and higher volumes of aerosol emissions, includinglead and other solid particles, and also increased emissions of gaseous pollutantslike NOx and CO^2;Along sections of the road with sensitive receptors such as settlements andschools ambient air quality shall be monitored by the ESS of the AZR. In addition speed control signs and speed limits along sensitive areas, especially along schools will keep noise and air emissions to a minimum.

2.4 Impact on Fauna and Flora

126. Impacts to vegetation and wildlife along the project road is not expected to be significant since the rehabilitation will be undertaken with the existing ROW. Further, there are no protected and densely vegetated areas within the influence area of the project as well as in the proposed borrow areas. At some locations however tree cuts may not be avoidable for technical reasons .

127. Unavoidable tree cuts will be compensated by new tree plantings at the respective locations alongside the Project road. Plantations shall be executed after technical works have been completed. Plantations shall be restricted to spring (March - April) and/or autumn (September-October). The later widening of road has to be taken into consideration by planting the new trees. Therefore planting locations shall be on the opposite side of the road widening, to prevent that the trees have to be cut again.

2.5 Health and Safety

128. If not properly managed work camps and construction sites pose health and safety risks. Transmission of diseases may also occur under conditions with inadequate health and safety facilities and practices. The contractor shall provide or ensure the following:

- adequate health care facilities (including first aid facilities) within construction sites;
- training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their workplace;
- personal protection gear for workers, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection in accordance with pertinent national regulations;
- clean drinking water to all workers;
- adequate protection of the general public, including safety barriers and marking of hazardous areas in accordance with Safety Regulations for Construction, Rehabilitation and Maintenance,
- safe access across the construction site to people whose access to houses or fields are temporarily severed by road construction;
- adequate drainage throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form; and
- sanitary latrines and garbage bins in construction site, which will be periodically cleared by the contractors to prevent outbreak of diseases.

129. The proposed project will result in better road condition, increased speed of vehicles, and the increase of traffic volumes along the project road. This will lead to such impacts as elevated emissions and noise levels, and increased risk of accidents with possible result in spilled pollutants.

2.6 Road safety

130. Contractor will be required to develop Traffic Management Plan (TMP). It has to be approved by CSC and shared with local traffic authorities. Traffic MP has to include more specific information regarding the details but following points have to be considered in TMP.

131. It is important that truck drivers and equipment operators understand the importance of maintaining road safety especially at road junction points. Village access likewise should be

accorded due focus for the safety of the general population, especially children. Proper coordination with the village municipalities and traffic controllers should be done to effect road safety. Checking of safety aspects should be done continuously with safety reminder meetings and done regularly. Safety traffic signs and warning lights should be installed at appropriate locations; and flagmen should be assigned at critical spots. Monitoring of this aspect can be conducted jointly by the Contractors' management and the Construction Supervision personnel.

132. Road closures, existing bridge closure, diversions and blocking of access routes are another important aspects that have to be carefully considered to ensure safety of local population and to avoid any disturbance. Contractor should be responsible for provision of all road diversion signs and ensure that diversion roads do not impact negatively upon private lands.

133. The Contractor shall be responsible for ensuring that all access routes are kept open during Project works for at least 50% of the day during construction works and 100% of the time after construction works are completed for the day. Any temporary existing bridge closure should be communicated to affected people ahead of time.

134. During construction, access should be maintained by providing temporary detour, by-pass or diversion paths for vehicles and people in the area. This should be with proper

135. To ensure that all health and safety issues are properly considered during construction the contractor need to hire a health and safety expert to provide training to the staff according to the requirements of the individual work place.

3. Impacts during Operation Stage

136. After completion, the proposed local roads are expected to have positive impacts on human health and safety through decreased number of accidents, reduced air pollution resulting from more constant rates of travel speeds on rehabilitated road sections, cleaning up of solid waste from roadside drains, and reduced water pollution resulting from rehabilitated drainage systems. Residents in the area of influence of the road will benefit from: (i) a reduction in travel times and in transport costs, (ii) improvements in the quality of road passenger and cargo transport; and (iii) employment generation.

137. However during the operational phase, environmental impacts may arise from a variety of sources. These are described in the following.

3.1 Potential Surface Water Pollution

138. During the operational stage of the Project, accidents in the vicinity of a water-course will have the potential of affecting water quality if this involves vehicles transporting hazardous substances. Replacement of unsafe bridges, and provision of pedestrian facilities in the Project design will improve road safety and is expected to contribute to the reduction in the frequency of accidents along the road. In the vicinity of water courses, rivers, channels, spills etc., speed for vehicles carrying hazardous goods should be limited and regularly monitored by traffic police.

3.2 Air Pollution and Noise

139. Regarding air pollution / ambient air quality the Project will have positive effects. Benefits will generally result from improved traffic flow, which improves fuel efficiency and better engine performance, thereby reducing the volume of vehicle emissions which otherwise result from bad road conditions.

140. No mitigation measures concerning noise protection during operational stage are envisaged for the rehabilitation of local roads.

141. Along sections of the road with sensitive receptors such as settlements and schools ambient air quality shall be monitored. In addition, speed control signs and speed limits along sensitive areas, especially along schools will keep noise and air emissions to a minimum

3.3 Road Safety

142. Increased traffic volumes and speed raise the issue of road safety and the need to maintain speed limits and post appropriate signalization. In the case that accident hot spots with large mammals are identified, appropriate protective measures shall be elaborated (e.g. reflectors / local fencing, warning signs, speed reductions etc.)

H. GRIEVANCE REDRESS MECHANISM (GRM)

1. ADB requirments

143. ADB Safeguard Policy Statement (SPS, 2009) requires the establishment of a responsive, readily accessible and culturally appropriate grievances redress mechanism capable of receiving and facilitating the resolution of affected persons' (AP) concerns and grievances about the physical, social and economic impacts of the projects.

144. The GRM aims to: (i) reduce conflict, risk of undue delay and complication in project implementation; (ii) improve quality of project activities and outputs; (iii) ensure that the rights of affected parties are respected; (iv) identify and respond to unintended impacts of projects on individuals; and, (v) maximize participation, support and benefit to local communities.

145. The fundamental objectives of the Grievance Redress Mechanism are:

- To reach mutually agreed solutions satisfactory to both, the Project and the APs, and to resolve any project-related grievance locally, in consultation with the aggrieved party;
- To facilitate the smooth implementation of the Environmental Management Plan and prevent delay in project implementation;
- To democratize the development process at the local level, while maintaining transparency as well as to establish accountability to the affected people.

2. Chart view of project GRM

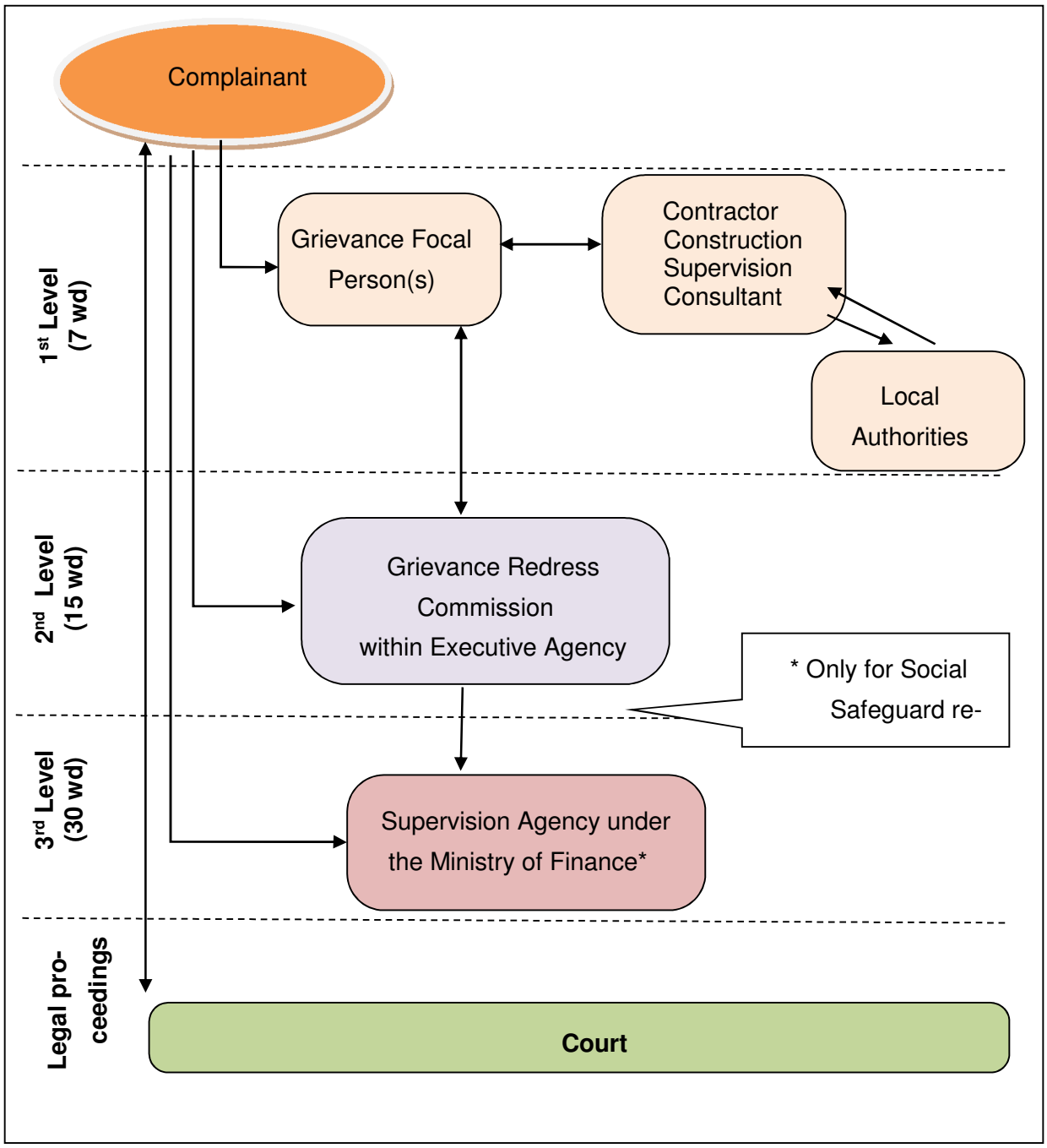

Table 7: GRM description

Stage number	Name of stage	Description	Time frame
1	Project level	One Grievance Focal Person will be assigned by each of the Contractor and the Construction Supervision Consultant (CSC) in order to receive and handle grievances. Contractor's GFP should receive the complaint and provide acknowledgement letter to the complainer within 3 days after receipt of the complaint. Contractor's GFP should maintain databes of Grievance Logbook and submit/update all necessary data related to the registered grievances to CSC's GFP. If the grievance cannot be solved within 7 working days, then CSC's GFP should submit information to the next level (EA level) and provide information to the complainant regarding to the grievance.	7 working days
2	Grievance Redress Comission within the EA/IA	The EA/IA should review and resolve the grievance within 15 working days. If the case is complex and requires investigation (experts' opinion), expertise or confirmations from the state bodies, the resolution period can be extended up to 30 calendar days. If the grievance cannot be resolved still, or the complaining party is not agree with the offered solution, then: **In case of social safeguard issues**: it is forwarded to the Level 3 for resolution at the Supervision Agency under the Ministry of Finance. **In case of environmental issues**: the 3rd stage should be omitted and the case can be forwarded to the respective court (stage 4).	15 working days
3	Control Agency (Ministry of Finance)	The Supervision Agency under the Ministry of Finance will review the grievance and resolve it within 30 calendar days.	30 working days

		If the grievance is found invalid, a written response should be given to the complaining party, explaining reasons for the rejection	
4	Court	If the AP is still not satisfied with the Control Agency`s decision, the AP can submit his/her complaint to the appropriate court of law for resolution	Dependes on nature of the complaint

3. Receiving grievances

146. All the received grievances should be registered by GFP of Contractor. Submitting grievances and registration should be a straightforward process, and the APs should be able to submit their grievances and questions directly or through a third party. This process requires availability of a) responsible person to receive and register the complaints (GFP), b) multiple points for receiving grievance, c) procedure for acknowledging the receipt and informing the complaining party about the expected timeframe for the review and resolution, and; d) logbook about the complaints and their status.

147. The complaining party should be able to submit grievance in person, by phone call, email, letter or fax, to the GFP and contact persons assigned by the EA/IA and PIU. Receipt of grievance lodged in person or via phone should be acknowledged immediately by a paper issued by the GFP or other persons received the grievance.

148. All the grievances not depending from its nature should be recorded in a logbook in details.

149. Upon receipt of grievances, the GFP should sort them into the following categories to define if the complaint is eligible for the project established GRM. The procedure should establish clear parameters for qualifying grievance as eligible or ineligible for the project established GRM.

150. The following types of grievances are not eligible for resolution by the project established GRM:

- Grievances that are not related to the project, or should be reviewed by a separate, more appropriate procedures (e.g. issues of fraud and corruption),
- Nature of the issue is beyond the scope of the GRM,
- The grievance has no standing.

4. Feedback provision

151. After receiving grievance, the GFP (or other responsible person) should:

- Provide acknowledgement of the grievance receipt, with response/recommendations to complainant through preferred mode of communication mentioned in grievance registration form,
- Provide the complainant with information about the status of grievance resolution in each of the grievance resolution levels,
- If the resolution is not reached or seem to be unreachable in this level, the grievance should be passed on to the EA/IA (Level 2) and the complainant should be informed accordingly. Information to the complainant shall include the date when the case was passed on to the EA/IA and the date by which the resolution is expected,
- The resolution proposed by the EA/IA in this level should be informed to the complainant,
- If resolution (related to land acquisition and resettlement issues) is not reached, the EA/IA forwards it to the Supervision Agency under the Ministry of Finance (Level 3). After the review and resolution in this level, the complaining party is informed accordingly, and
- If resolution is not reached or the complaining party is not agree with it, the Supervision Agency along with its decision, provide the complaining part appropriate information about why the case was not resolved, and the AP can seek resolution through the court of Azerbaijan. This level includes both environmental and social grievances.

152. In all these levels, the parties involved in resolution for grievance should closely discuss the issue and resolution alternatives with the complainant in order to come to the resolution that is reasonable and acceptable for all parties.

5. Reporting

153. The EA/IA is responsible to monitoring implementation of the project established GRM and reflect the outcomes in the monitoring reports.

- The GFP of Contractor should document and monitor the grievance status in grievance log book. He/she should update GFP of CSC on a regular bases (at least every 15 days).

- GFP of CSC should report to responsible person in EA (PIU) on GRM on monthly monthly bases.
- Responsible person in EA (PIU) will record grievances in a tracking table (provided by ADB) and report to bank on a quarterly bases. Besides, all grievances and their status should be reflected in the monitoring reports, especially in semi-annual reports.

I. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

154. The EMP describes the various measures proposed under this Project, which were designed to avoid, mitigate, or compensate the adverse environmental impacts that may result from the Project. As such the EMP considers all phases of the Project cycle, namely the detailed design, construction and operational phases of the Project.

155. To ensure that the proposed mitigation measures will be carried out by the contractors during the construction stage, the design consultant will clearly set out in the tender and contract documents the contractor's obligation to undertake the respective environmental mitigation measures.

Table 8: Environmental Management Plan

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION			
Activity	**Potential Impact**	**Mitigation measures**	**Institutional Responsibility**
DESIGN PHASE			
Road alignment in areas of tree plantations. The distance from the tree stands to the planned road edge shall normally be sufficient to ensure preservation of the tree rows. However in some stretches it may technically not feasible to prevent the loss of individual trees.	Tree losses that cannot be prevented. Main species are willows (*Salix alba*), (mainly alongside arable plots,) poplars (*Populus nigra*) and acacia (see Section D and as well as Chapter: Tree losses and tree plantings for more details).	All impacted trees must be well documented and necessary permits should be obtained from relevant authorities (if required) Any tree losses are compensated by new plantations. Plantations shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March) and/or autumn (September till October). Locations for tree plantings are within the existing Right of Way (ROW) at the locations where tree losses occur. Trees to be planted shall have the following parameters: 1,5 – 2 m height, age 5 – 6 years. Species: Willows and Poplars (*Salix alba and Populusnigra*) along road corridor in space areas and mulberry (*Morus alba*) Tree cutting must be monitored regularly as described in Environmental Monitoring Plan.	Contractor implement mitigation measures under supervision of CSC. Construction supervision (CS) should monitor and report to PIU
Project road crosses the existing culverts. All existing culverts will be replaced with new ones or remained as it is. Outlet and inlet of all culverts will be reconstructed	Potential damage to irrigation system when new culverts are constructed or existing culverts are rehabilitated as well as reconstructed of outlet and inlet of all pipes	According to the Engineering instructions In the course of the road rehabilitation all existing culverts will be replaced with new ones or remained as it is. Outlet and inlet of all culverts will be reconstructed.	Construction supervision (CS)

Design of Bridges to be affected the erosion	Potential erosion at bridge and river beds (**NCB No. 1**: reconstruction of bridge where is located on channel at km 1+947, and repairing of bridge where is located on Hesensu River at km 12+500 Vurgun-Kohne-Gishlag road)	In order to protect the bridge abutments against flood and erosion abutment slope protection with concrete-filled will be provided.	Design Consultant Construction supervision (CS)
CONSTRUCTION PHASE			
Top soil preservation	Loss of top soil.	Removing of top soil occurring within clearing corridor. Topsoil shall be removed and stored for reuse. Long-term stockpiles of topsoil will be immediately protected to prevent erosion or loss of fertility. For erosion protection it will be sown with a fast growing vegetation, e. g. grass	Contractor to implement mitigation Engineer to routinely monitor Contractors activities. Contractor to provide clear action plan for top soil preservation
Road alignment in areas of tree plantations. Embankment filling of the tree stem area.	Tree losses due to embankment fill.	A maximum fill up of the tree stem area of 30 cm can be accepted. Fill up material in the tree stem area has to be coarse water permeable substrate (e. g. coarse sand with gravel content) Filling up of the tree stem area by more than 30 cm or a fill up with fine impermeable substrate (e.g. loam or silt) will damage the tree. In this case cutting cannot be prevented and new trees, which are appropriate to local climate is to be planted as a compensation measure at the respective location within the existing RoW. Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (October).The new trees to be planted shall be the appropriate to local climate condition.	Contractor to implement mitigation Construction supervision (CSS) to monitor

Bottom of embankment of designed road lying very close to tree rows	Potential damaging of trees during construction activities	Implementation of a temporary vegetation protection fence during construction activities.	Contractor to implement mitigation Construction supervision (CSS) to regularly monitor
Operation of borrow areas and quarries	Potential disfigurement of landscape, vegetation losses and damage to access roads Increased dust emission Siltation of surface waters	The proposed borrow sites are already in operation. Therefore environmental impacts concerning potential disfigurement of landscape, vegetation losses and damage to access roads are kept to a minimum. Wet aggregates and/or provide cover on haul trucks to minimize dust emission and material spillage. Locate aggregate stockpiles away from surface waters. Prior to start operating the borrow site the required approval and permit will have to be obtained from the appropriate agency, i.e. MENR, and compliance to the conditions for minimization and mitigation of adverse impacts will be duly monitored.	Conttractor to submit all the permission and approval CSC to review and approve all the permissions Contractor to provide necessary plans and implement necessary mitigation measures Construction supervision (CSS) to regularly monitor activities
Operation of asphalt plant	Odor emission and safety risks	Asphalt plants shall be 500 m downwind from settlements. Provide spill and fire protection equipment and submit an emergency response plan (in case of spills, accidents, fires and the like) to the authority in responsibility prior to operation of the plant. Secure official approval for installation and operation of asphalt plants from the MoE.	Contractor tp provide all required approvals Construction supervision (CSS) to check approvals Contractor to provide necessary plans and implement necessary mitigation measures Construction supervision (CSS) to regularly monitor activities
	Water pollution due to spilled bitumen	Bitumen will not be allowed to enter either running or dry streambeds nor shall it be disposed of in ditches or small waste disposal sites prepared by the contractor. Bitumen storage and mixing areas must be protected against spills and all contaminated soil must be properly handled according to legal environmental requirements. Such storage areas must be contained so that any spills can be immediately contained and cleaned up.	Contractor implement mitigation Construction supervision (CSS) regularly monitor activities

Operation of Concrete Plant	Emission of dust and noise	In order to prevent these impacts site selection for the concrete plant shall be approved by the construction supervision engineer. The selected location shall have a minimum distance of 500 m to the next settlement and to orchards` plantations.	Contractor tp provide all required approvals Construction supervision (CSS) to check approvals Contractor to provide necessary plans and implement necessary mitigation measures Construction supervision (CSS) to regularly monitor activities
Site selection, site preparation and operation of contractor's yard	Potential soil and water pollution	The contractor shall submit documents for approval (short statement and site plan in appropriate scale) which indicate: • Site location, surface area required and layout of the work camp. The layout plan shall also contain details of the proposed measures to address adverse environmental impacts resulting from its installation. • Sewage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses; • Waste management plan covering provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tyres, etc.) consistent with appropriate regulations; • Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination Prior to the commencement of works the site installations shall be inspected for approval.	Contractor to provide necessary approvals Contractor to provie Camp site MP; Construction supervision (CSS), to check all approvals and permissions; CSC to approve Camp site MP; CSC to regularly monitor activities
	Competition for water resources	Prior to establishment of the work camps, conduct consultations with local authorities to identify sources of water that will not compete with the local population.	Contractor CSC, PIU

Site selection, site preparation and operation of contractor's yard (continuation)	Health and safety risks to workers and adjacent communities	For health and safety protection of workers and adjacent communities the following shall be provided: • adequate health care facilities (including first aid facilities) within construction sites; • training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work; • personal protection equipment for workers, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection in accordance with legal legislation; • clean drinking water to all workers; • adequate protection to the general public, including safety barriers and marking of hazardous areas; • safe access across the construction site to people whose settlements and access are temporarily severed by road construction; • adequate drainage throughout the camps so that stagnant water bodies and puddles do not form; • sanitary latrines and garbage bins in construction site, which will be periodically cleared by the contractors to prevent outbreak of diseases. Where feasible the contractor will arrange the temporary integration of waste collection from work sites into existing waste collection systems and disposal facilities of nearby communities;	Site selection, site preparation and operation of contractor's yard (continuation) Health and safety risks to workers and adjacent communities
Work site operation / Operation of equipment maintenance and fuel storage areas	Worker's health and soil /water pollution	The contractor shall hire a qualified health and safety expert who will provide safety training to the staff according to the requirements of the individual work place. Prior to the commencement of works, the work site personnel shall be instructed about safety rules for the handling and storage of hazardous substances (fuel, oil, lubricants, bitumen, paint etc.) and also the cleaning of the equipment. In preparation of this the contractor shall establish a short list of materials to be used (by quality and quantity) and provide a rough concept explaining the training / briefing that shall be provided for the construction personnel. Locate storage facilities for fuels and chemicals away from watercourses. Such facilities will be bunded and provided with impermeable lining to contain spillage and prevent soil and water contamination.	Contractor to implement mitigation Engineer to routinely monitor Contractors activities.

		Store and dispose waste/used oil consistent with environmental legal requirements. Work site restoration: After completion of construction works the contractor shall execute all works necessary to restore the sites to their original state (removal and proper disposal of all materials, wastes, installations, surface modeling if necessary, spreading and leveling of stored top soil).	
Construction and Domestic Waste	Waste in Construction Camps and other ancillary facilities	The Contractor will be required to coordinate all construction camp activities with neighbouring land uses. The Contractor shall also be responsible to maintain and clean-up campsites and respect the rights of local landowners. If located outside the RoW, written agreements with local landowners for temporary use of the property will be required and sites must be restored to a level acceptable to the owner within predetermined time period	Contractor to submit Waste MP; CSC to approve Waste MP; Contractor to obtain all necessary approvals and permissions from relevant authorities for disposal; CSC to check all required approvals; Contrcator to implement mitigation measures; CSC to monitor mitigation activities;
	Spoilt soil and asphalt	Contractor must not dump excess materials on private lands without permission of the owner and approval from the Engineer. In addition, excess spoil shall not be dumped or pushed into rivers at any location.	Contractor to submit Waste MP; CSC to approve Waste MP; Contractor to obtain all necessary approvals and permissions from relevant authorities for disposal; CSC to check all required approvals; Contrcator to implement mitigation measures; CSC to monitor mitigation activities;
	Inert Solid & Liquid waste	The contractor shall be responsible for the following: • Provide refuse containers at each worksite;	Contractor to submit Waste MP; CSC to approve Waste MP;

		• Maintain all construction sites in a cleaner, tidy and safe conditionand provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal; • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process, and • Collect and transport non-hazardous wastes to all approved disposal sites. The sites for waste disposal shall be agreed with the local municipal authorities and Concerned Agencies. A specialized company may be contracted, if available to ensure collection of domestic and general waste from camps and temporary storage areas and transportation to landfills approved and licensed by the Concerned Agencies	Contractor to obtain all necessary approvals and permissions from relevant authorities for disposal; CSC to check all required approvals; Contrcator to implement mitigation measures; CSC to monitor mitigation activities;
	Asphalt	Waste from the operation of asphalt should be managed properly. Reinstatement of the site will be necessary after the project	Contractor to submit Waste MP; CSC to approve Waste MP; Contractor to obtain all necessary approvals and permissions from relevant authorities for disposal; CSC to check all required approvals; Contrcator to implement mitigation measures; CSC to monitor mitigation activities;
	Hazardous Waste	Management, handling & storage protocols for hazardous waste will be outlined in the Contractors Waste Management Plan. Disposal locations of hazardous wastes should be agreed with the Concerned Agencies. The Contractor shall collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at the temporary storage sites and further at the locations approved by Concerned Agencies or pass it to the licensed operator having environmental permit on operation of the hazardous wastes.	Contractor to submit Waste MP; CSC to approve Waste MP; Contractor to obtain all necessary approvals and permissions from relevant authorities for disposal; CSC to check all required approvals;

			Contrcator to implement mitigation measures; CSC to monitor mitigation activities;
Operation of construction camp	Road construction projects bear a high potential risk to affect local communities and the health and well-being of those that live in or near to the temporary work camps by supporting the spread of STD and HIV/AIDS. In addition, the transport sector itself actually helps the epidemic, as infrastructure and associated transport services give people and infections mobility.	Providing information to workers, encouraging changes in individual's personal behavior and encouraging the use of preventive measures. The goal of the information is to reduce the risk of HIV / STD transmission among the beneficiaries (construction workers and camp support staff)	Contractor to implement mitigation Construction supervision (CSC) to monitor activities
Earthworks and various construction activities	Loss of topsoil	Topsoil shall be stripped and reused to cover areas where excess materials will be dumped and on road embankments. In addition a soil management plan shall be provided detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles, measures to minimize loss of fertility of top soil, timeframes, haul routes and disposal sites.	Contractor Construction supervision (CSC)
Earthworks and various construction activities (continuation)	Siltation of surface waters and/or impact on soils due to improper disposal of excess materials	Mostly all excavated material will be reused. In addition the reclaimed asphalt pavement will be recycled for the construction of new pavement. Thus potential impacts due to the need for disposal of excess material will be kept to a minimum.	Contractor to implement mitigation Construction supervision (CSC) to monitor
	Competition for water resources	Conduct consultation with local authorities to identify sources of water (for spraying and other construction requirements) that will not compete with the local population.	Contractor Construction supervision (CSC)

	Air pollution due to exhaust emission from the operation of construction machinery	The contractor will maintain construction equipment to good standard and avoid, as much as possible, idling of engines. Banning of the use of machinery or equipment that cause excessive pollution (e.g., visible smoke).	Contractor Construction supervision (CSC)
	Disturbance of adjacent settlements due to elevated noise levels	Restrict work between 06-00 to 21-00 hours within 500m of the settlements. In addition, a limit of 70 dBA will be set in the vicinity of the construction site and strictly followed.	Contractor Construction supervision (CSC)
	Soil compaction due to operation of heavy equipment	Confine operation of heavy equipment within the corridor that is absolutely necessary for the road construction to avoid soil compaction and damage to pasture land.	Contractor Construction supervision (CSC)
Earthworks and various construction activities (continuation)	Traffic impairment	Submit a traffic management plan to local traffic authorities prior to mobilization. Provide information to the public about the scope and schedule of construction activities and expected disruptions and access restrictions Allow for adequate traffic flow around construction areas. Provide adequate signalization, appropriate lighting, well designed traffic safety signs, barriers and flag persons for traffic control.	Contractor to prepare and submit plan Construction supervision (CSC) to approve plans Regional Office of AAY to coordinate with local traffic authorities CSC to regularly monitor implementation
Rehabilitation works within villages and along sensitive receptors such as schools, mosques and hospitals	Noise exceeding applicable noise standards. Vibrations may result in damage to local infrastructure, including private property and local (haulage) roads	For sensitive receptors such as schools, mosques and hospitals applicable noise standards shall be complied with. For potential damage to local infrastructure, including private property and local (haulage) roads compensation procedures will have to be established prior to the beginning of construction and approved by the engineer. In addition grievance redress procedures shall be put in place to facilitate communication between the contractor and potentially affected people. In addition haul routes and construction site access roads should be discussed and jointly approved between the contractor and local officials to minimize the risk of conflicts.	Contractor Construction supervision (CSC),

Bridge construction in Lot 1. Replacement of bridge which is located on channel at km 1+947.	Impairment of water quality, potential erosion of river embankment. In addition the water level at channel will be decreased during bridge construction.	The drying of irrigation channel shall be prevented. Artificial channel is not high ecological value. This channel which is started from reservoir on Agstafa River on southern-western of Gazakh city is used for irrigation of 100 hectares of arable lands. Avoid "dropping the bridge" into rivers/streams. This will be done by "sawing" appropriate sections of the bridge and using cranes to lift these sections or alternatively construct a platform onto which the bridge could be dropped. Discharge of sediment-laden construction water (e.g., from areas containing dredged spoil) directly into surface watercourses will be forbidden. Monitoring of water quality will be conducted according to the relevant section in Environmental Monitoring Plan.	Contractor to implement mitigation Construction supervision (CSC) to monitor activities
Lot 1. Repair of bridge, located on Hesensu river at km 12+500	Impairment of water quality	Plan for the execution of bridge construction works including measures that will be undertaken to address adverse environmental impacts such as erosion of river embankment and siltation of watercourses that may result from such activities. During repairing of bridge discharge of sediment-laden construction water (e.g., from areas containing dredged spoil) directly into surface watercourses will be forbidden. Sediment laden construction water will be discharged into settling lagoons or tanks prior to final discharge by contractor. Monitoring of water quality will be conducted according to the relevant section in Environmental Monitoring Plan.	Contractor to implement mitigation Construction supervision (CSC) to monitor activities
OPERATION PHASE			
Increased traffic volumes and higher vehicle speeds	Increased pedestrian vs. vehicle accidents due to traffic volume and higher speed as a result of improved road design	Integrate in the engineering design the safety features such as speed control signs, proper road markings, street lightening, pedestrian and cattle crossings and other visual means in entrance and exit of settlements, especially near schools.	Design Consultant Construction Supervision (CS),

156. Prior to construction works, the following method statements/plans shall be submitted by the Contractor for approval by the Engineer:

- Dust management which shall include schedule for spraying on hauling and access roads to construction site and details of the equipment to be used;
- Layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation;
- Sewage management including provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses;
- Waste management covering provision of garbage bins, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tyres, etc.) consistent with appropriate regulations;
- Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bound and provided with impermeable lining to contain spillage and prevent soil and water contamination;
- Soil Management Plan detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles of topsoil and excess materials, measures to minimize loss of fertility of top soil, timeframes, haul routes and disposal sites for excess materials;
- Emergency response plan (in case of spills, accidents, fires and the like) prior to operation of the asphalt plant;

157. The Method Statements shall be submitted by the contractor for approval to the Construction Supervision Consultant.

J. ENVIRONMENTAL MONITORING

158. Environmental monitoring is an immportant aspect of environmental management during construction and operation stages of the project to safeguard the protection of environment. During construction, environmental monitoring will ensure the protection of embankment from potential soil erosion, borrow pits restoration, quarry activities, location of work sites, material storages, asphalt plants, community relations, and safety provisions. During operation, air, noise, and surface water quality monitoring will be important parameter of the monitoring program.

159. Before the commencement of construction works Contractor will be required to conduct baseline monitoring of level of noise, dust, air quality, vibration and water quality under the supervision of CSC and EU of PIU. These data will be used for future analyzes of similar monitoring data during the construction activities in order assess the impacts to sensitive recources and receptors.

Table 9: Environmental Monitoring Plan

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
CONSTRUCTION PHASE					
Top soil preservation	Stockpiling and means of protection	Job site	Inspections; observation	Upon preparation of the construction site, after stockpiling and after completion of works on shoulders	Construction Supervision (CS)
Equipment servicing and fueling	Prevention of spilling of oil and fuel	Contractor's yard	Inspections; observations	Unannounced inspections during construction	Construction Supervision (CS)
Worker's safety and health	Official approval for worker's camp; Availability of appropriate personal protective equipment; Organization of traffic on the construction site Provision of safety training to the staff according to the requirements of the individual work place	Job site and worker's camp	Inspection; interviews; comparisons with the Contractor's method statement	Daily site visits by the Contractor ES Unannounced inspections during construction and upon complaint.	Contractor Construction Supervision (CS),
Worker's education on AIDS and STD	Has relevant education been provided?	To be determined by assigned Construction Supervision	To be determined by assigned Construction Supervision	After beginning of works and at appropriate intervals throughout construction	Construction Supervision (CS), hired health and safety expert, MoH
Material supply Asphalt plant	Possession of official approval or valid operation license	Asphalt plant	Inspection	Before work begins	Construction Supervision (CS)

Borrow areas	Possession of official approval or valid operation license	Sand and gravel borrow pit and / or quarry	Inspection	Before work begins	Construction Supervision (CS)
Material transport Asphalt	Are the truck loads covered or wetted?; Compliance with the Contractor's method statement (restricted working hours; haul routes)	Job site / haul routes	Supervision	Unannounced inspections during work	Construction Supervision (CS)
Stone		Job site / haul routes	Supervision spot checks	Unannounced inspections during work	Construction Supervision (CS)
Sand and gravel		Job site / haul routes	Supervision	Unannounced inspections during work	Construction Supervision (CS)
Water quality in surface waters (rivers and canals along the project site).	Total Suspended Solids (TSS) Biological Oxygen Demand (BOD) Dissolved oxygen (DO) Fecal coliform Oil and grease or Total Petroleum Hydrocarbon (TPH)	Sampling stations will be identified sensitive points before any physical works. In addition 50 m up and downstream where bridge construction over rivers and canals will be done.	Measurement either directly in river water with a suitable measurement device or sample taking and measurement in a certified laboratory. The measured parameters need to be checked against the Azerbaijan National Standards (Table 11).	Baseline measurements before construction activities commence. Than measurements on a monthly basis during construction stage.	Contractor - conduct baseline and monthly monitoring Construction Supervision (CS) – check and approve sampling points; check monitoring results on a regular bases
Air quality	SO2, NOx, CO, dust	Sampling points will be identified close to sensitive points (schools, clinics and others) and close to potential pollution sources before any physical works.	By means of suitable portable measurement device. The measured parameters need to be checked against the Ambient air quality standards (Table 9)	Prior to construction and during construction activities. Establishment of baseline conditions before construction start. Than monitoring measurements on a monthly basis during construction period. Visual inspection of dust	Contractor - conduct baseline and monthly monitoring Construction Supervision (CS) – check and approve sampling points; check monitoring results on a regular bases

Noise and vibration	Measurement of noise and vibration	Locations will be selected by CSC (close to sensitive receptors: schools, clinics and others)	By means of portable measurement device. The measured values need to be checked against the Noise Standards (Table 10).	Prior to construction and during construction activities. Establishment of baseline conditions before construction start. Than monitoring measurements on a monthly basis during construction stage.	Contractor - conduct baseline and monthly monitoring Construction Supervision (CS) – check and approve locations; check monitoring results on a regular bases
Planting of new road side trees	Regular monitoring and control of successful growth of new planted trees	At locations of new planted trees	Replanting of trees that have died	Monitoring to be conducted in autumn so as to allow for replacement of failures	Contractor 1st Year / Regional department of AAY subsequent Year(s)
Operational Stage					
Increased road kills of animals due to higher traffic loads and vehicle speeds	Road kills of animals	Along the new road	Keep records of accidents. In the case that accident hot spots with large mammals are identified, appropriate protective measures shall be elaborated (e.g. reflectors / local fencing, warning signs, speed reductions etc.)	Throughout the Year	Regional Departments AAY
Increased traffic volumes may increase possible spills of harmful substances	Accidents that cause spills of harmful substances	Along the new road	Counting of accidents	Throughout the Year	Regional Departments of AAY
Damaged drainage or uncontrolled erosion	Leakages in drainage system and damages due to erosion	Culverts and drainage facilities	Documentation	Throughout the Year	Regional Department of AAY

K. INSTITUTIONAL ARRANGEMENT AND REPORTING

1. Institutional Framework

160. Environmental and Social issues are to be duly monitored during the whole construction period as stipulated in the Environmental and Social Management Plans and Monitoring Programme. Any upcoming issues need to be reported in the construction supervision's monthly progress reports and bi-annual reports.

161. The relevant organizational entities for the project include the Government of the Azerbaijan Republic, Ministry of Finance (MoF), Azeravtoyol OJSC, Project Implementation Unit under Azeravtoyol OJSC, the Ministry of Enviromental and natural Resources which is in charge of issuing environmental license, and ADB.

162. PIU is working under Azeravtoyol OJSC will carry out the responsibilities

163. Ministry of Enviromental and Natural Resources is responsible for environmental policy, regulatory development, and oversight of environmental assessments and permits. It's responsibilities include issuing of environmental licence.

164. MoF is the responsible government body for coordination with ADB and other donors for foreign assistance.

165. Responsibilities for the implementation of the monitoring requirements of this report are summarized in Table 9 (Environmental Monitoring Plan).

166. The contractor should have full time environmental specialist on board to conduct daily monitoring of EMP implementation and as well to provide necessary training, supervision to workers in order to ensure compliance with environmental safeguard requirements. Contractor will submit monthly progress reports, which include a section on implementation status of environmental management measures. The environmental monitoring and management reports will be prepared by the Contractor's Safeguard Specialist with assistance from the Supervision Consultant.

167. Environmental specialist of the CSC should visit project site on a regular bases agreed with PIU (at least every two weeks) and monitor EMP implementation. He/she should provide necessary capacity building training to ES and other relevant staff of Contractor on safeguard requirements. He/she should inspect and monitor proper implementation of al mitigation measures. CSC will prepare quarterly environmental monitoring reports to PIU including detailed description of the status of EMP implementation, as well as observed non-compliances

by safeguard specialist of the CSC and the status of the non-compliances. Report also should include received grievances and their status.

168. PIU will submit semi-annual Environmental Monitoring Report to ADB. PIU should use report template provided by ADB to make sure to include all necessary information in to the report. PIU environmental specialist should visit project sites on a monthly bases to inspect the environmental safeguards and should keep regular contact with specialist of CSC and provide necessary support when needed.

2. Environmental Management Plan

169. The EMP describes the various measures proposed under this Project, which were designed to avoid, mitigate, or compensate the adverse environmental impacts that may result from the Project. As such the EMP considers all phases of the Project cycle, namely the detailed design, construction and operational phases of the Project.

170. To ensure that the proposed mitigation measures will be carried out by the contractors during the construction stage, the design consultant will clearly set out in the tender and contract documents the contractor's obligation to undertake the respective environmental mitigation measures.

171. The Enviromental Management and Enviromental Monitoring Plans consists of tables. Table 7 summarizes the environmental mitigation measures, and table 8 provides an overview of the environmental monitoring. At the end is a statement which includes the responsibilities for carrying out the environmental monitoring.

3. Environmental Management Budget and Resources

172. Most of the mitigation measures require the contractors to adopt good site practice, which should be part of their normal construction contract, so there will be no additional costs to be included in the EMP.

173. The estimated cost for the environmental management and monitoring on the consultancy for the entire project construction period of two (2) years is shown in the Table below. This will include fees and other associated cost for management and monitoring of the construction sites and affected areas in the project road. In addition, the main Contractor shall undertake periodic parametric measurements as basis for action to improve their performance on the implementation measures. Hence, a budget for periodic parametric measurements is hereby included in the Table below.

Table 10: Environmental Monitoring Budget

Item	Quantity	Unit cost	Total cost
Implementation of EMP		**US $**	**US $**
International Environmental Specialist	2 months	10 000	20 000
National Environmental Specilaist	6 months	2 500	15 000
Others (travels, surveys, reporting and etc.)	LS	8 000	8 000
Periodic parametric measurements	6 months	3 000	18 000
Total			***61 000***

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L. CONSULTATION PROCESS AND INFORMATION DISCLOSURE

174. Public Consultation Meetings where held on 05, 06, 07th of April 2017 in Goyjeli village of Agstafa region, Kommuna village of Gazakh region**,** Zalimkhan village of Agstafa region, Kochvelili village of Agstafa region. Results of the conducted consultation meetings with local, municipality representatives and as representatives of local and city executive power. are attached in Appendix 2.

175. At the meetings, the preliminary design for the road project were presented, alongside the arguments for the preferred routes of sections, and a brief descriptive report.

176. Comments from locals has been collected in order to meet all their needs and in order to the minimize negative impact that can occur during the implementation and operation of the project.

177. Public consultations for the Rehabilitation of the local roads in Ganja-Gazakh region was scheduled on 05 April 2017 at 11 am in Goyjeli village of Agstafa region, 06 April, 2017 at 11 am Kommuna village of Gazakh region , 07 April, 2017 at 11 am in Zalimkhan village of Agstafa region and April 07, 2017 at 02 pm in Kochvelili village of Agstafa region with the Local Executive Power of regions , wherein local residents, village officials/representatives, , and other stakeholders were invited.

178. Due to the close distance Kommuna and Huseynbeyli village people were invited to meeting at Kommuna village (06 April) and one combined public consultation meeting were held for both villages. Separate participant list for each village is provided at Appendix 2.

179. A total of 17 participants attended the public consultation in Goyjeli village of Agstafa region; 19 in Kommuna village of Gazakh region; 23 in Zalimkhan village of Agstafa region; and 20 in Kochvelili village of Agstafa region. The Consultant elaborated the rehabilitation works, project's environmental impacts with the mitigating measures in a slide presentation (PowerPoint), maps, graphics, and handouts. Comments were later solicited from the participants in an open forum and by means of written documentation filled out by the participants themselves. The consultant's team consisted of the international and local environmental specialists. A recap of the comments, recommendations, and additional information is shown in Appendix 2.

180. Upon completion of the draft IEE report for the Rehabilitation of the local roads in Ganja-Gazakh region by the consultant, report will be submitted to the Asian development Bank for comments. Once all the comments have all been addressed and the report finalized, Subsequently, the Bank shall post the approved IEE report in their website.

181. Contractor should organize regular public consultation meetings during the construction works in order to inform project updates and in order to provide opportunity to local people to riase their questions and concerns regarding the project implementation. These meetings must be organized by ES of Contractor. Other relevant staff of Contactor as well CSC should attend to the meetings.

182. Besides that Contractor under the supervision of CSC and with PIU should preaper informational leaflet that includes brief info about: project, implementation schedule, all involved parties and grievance procedures and contacts. These leaflets should be disseminated at local villages along the project alignments.

M. CONCLUSIONS & RECCOMMENDATIONS

183. It is identified as the result of Initial Environmental Examination that the rehabilitation of local roads will be confined within existing ROW. Therefore, the impacts to be arisen may occur only during the construction phase. These impacts will be short term and localized and associated with the construction process. The impacts to be expected in construction stage will be minor and eliminated by mitigation measures.

184. Construction methods for the project are routine with well-established mitigation procedures.

185. There are two straightforward but essential recommendations that need to be followed to ensure that the environmental impacts of the project are successfully mitigated. AAY OJSC and its consultants should ensure that:

- Preparation of İnitial Environmental Examination Report and all mitigation measures proposed in this IEE report and;
- The Environmental Management and Monitoring Plans proposed in this report are implemented in full.

186. The overall conclusion of the IEE is that there will be considerable environmental and social benefits resulting from the rehabilitation of local roads, there should be no significant negative environmental impacts.

187. Based on the IEE it is right to say that no major negative environmental impacts are likely to occur due to the construction activities and normal operations after the proposed rehabilitation. Recommendations have been made in this document to mitigate and compensate the identified expected negative impacts.

188. Overall the project has significant advantages to the local people and companies operating in the country by providing better access to national and regional markets.

189. The better condition of the road will decrease costs originating from wear out of vehicles utilizing it. Road safety measures are also improved by providing new traffic signs, safety railings, etc. for the road.

190. This IEE report includes an Environmental Management Plan and a Monitoring Plan which were prepared as required by ADB. The results of these documents show that the potential environmental impacts of the proposed road rehabilitation are likely to occur due to construction activities and much of these impacts are temporary in nature. Implementation

of appropriate mitigation measures during the design, construction, and operation phases will minimize the negative impacts of the project to acceptable levels.

191. The level of study applied to different fields was commensurate with expected impacts, and potential positive and negative impacts were identified in relation to design, location, construction and operation of the improved infrastructure. The project will have considerable positive impacts, most of which are permanent. Many of the negative impacts are short term and localised, and associated with the construction process. Mitigation measures have been developed to reduce all negative impacts to acceptable levels.

192. Most of potentially negative impacts arise during the construction phase. These potential impacts are temporary and localised, and most are easily managed by following good construction practice. Whilst the provisional EMP in Table 7 provides mitigation measures for the potential negative impacts associated with the construction and operation of the project.

193. The overall conclusion of the IEE is that is that there will be considerable environmental and social benefits resulting from the upgrades and new sections of highway, and, providing the mitigation and compensation measures are implemented in full, there should be no significant negative environmental impacts as a result of location, design, construction or operation of the project.

194. In conclusion, the Project will have certain degree of temporary negative impacts, but it will also contribute to improving socioeconomic conditions along the project road. The negative impacts will be carefully monitored and adequately mitigated or compensated. Therefore, the completion of this IEE fully meets the ADB and government standards and no further environmental study is required for this project.

N. REFERENCES

The following references were used for preparing this Initial Environmental Examination:

Azerbaijan Demographics Profile 2014; Index Mundi http://www.indexmundi.com/azerbaijan/literacy.html

Initial Environmental Assessment Report on Yevlakh-Ganja road rehabilitation. Prepared by ENGCONSULT Ltd. (January 2005)

Ministry of Transport of Azerbaijan, Road Transport Service Department (November 2005): Regional Environmental Review, prepared by Scott Wilson

Environmental Protection Report on Gazakh-Georgia Border Road.
Prepared by Kocks Consult for the Ministry of Transport of Azerbaijan Republic (2008).

Environmental Assessment Report for the M4 Muganli-Yevlakh Road Rehabilitation.
Prepared by Kocks Consult for the Ministry of Transport of Azerbaijan (2008).

Report on Poverty Analyses conducted by the ADB; Country Strategy Partnership, 2014-2018 (http://www.adb.org/documents/azerbaijan-country-partnership-strategy-2014-2018)

Climate Map of Azerbaijan. Baku Cartography Factory of the State Committee of Land and Cartography. Year 2005.

Official website of the State Statistical Committee of the Republic of Azerbaijan
http://www.stat.gov.az/source/regions/indexen.php

Appendix 1: Relevant Environmental Standards

Table 11: Ambient Air Quality Standard[1]

Pollutant	**Maximum allowable concentration (in mg/m³)**	
	For a given moment (maximum)	**For 24 hours**
Particulates[2]	0.1500	0.0300
Sulphur dioxide	0.3000	0.2000
Carbon monoxide	3.0000	2.0000
Nitrogen dioxide	0.0800	0.0700
Nitric oxide	0.4000	0.2400
Formaldehyde	0.0200	0.0050
Lead and its compounds (except tetraethyl lead)	0.0010	0.0002

Table 12: Road Noise Level Standard*[3]*

Maximum allowable noise levels, dB(A)		**Description**
23 pm to 7 am	**7 am to 23 pm**	
45	60	Residential Areas
55	65	Industrial Areas
35	50	Public Areas of Leisure and Tourism
30	40	Sanitary Areas and Resorts
45	50	Agricultural Areas
up to 30	up to 35	Protected Areas

[1] UNECE 2004

[2] No particulate size provided

[3] Recommendations on Environment Protection in Road and Bridge Design, Moscow, 1995

Table 13: National ambient surface water quality standard[4]

№	Components	Allowed concentra-tions	Unit
1	Hydrogen index pH	6,5-8,5	
2	Electrical conductivity	-	$x10^{-3}$Cm/cm
3	Limpidity	> 30	cm
4	Turbidity	< 1,0	FTU(NTU)
5	Solid substances	0,25	mg/l
6	Dissolved oxygen	≥4,0	mg/l %
7	Roughness	7,0	mg-ekv/l
8	Calcium ion Ca2+	180,0	mg/l
9	Magnesium ion Mg2+	200,0	mg/l
10	Chloride ion, Cl-	350,0	mg/l
11	Sulphate ion, SO42-	500,0	mg/l
12	Bicarbonate ion,HCO3-	-	mg/l
13	Carbonat ion, CO3	-	mg/l
14	Na+ + K+ ions	-	mg/l
15	Sum of ions, ∑	<1000	mg/l
16	Nitrite ion, NO2-	0.02	mg/l
17	Nitrate ion ,NO3-	9,0	mg/l
18	Ammonium ion, NH4 +	0.39	mg/l
19	Phosphate ion, PO43-	0,05	mg/l
20	SSAM	0.1	mg/l
21	Phenol	0.001	mg/l

[4] *Maximum allowed concentrations of toxic elements in the surface water Decree № 1; Monitoring Committee of Ecology and Natural Resources, 1994*

Appendix 2 : Public Consultations

Minutes of the Public Consultation Meeting and list of participants under the Initial Environmental Examination Report

Road Sections: Vurgun-Kohne Gishlag rural road project of Agstafa region

Date: April 05, 2017
Place of meeting: Goyjeli village of Agstafa region
Meeting started: 11.00
Presented:
Zakir Ibrahimov: Safeguard Specialist
Tural Omarov : Engineer
Cahit Sayin: Highway Engineer

CONSULTANT "IRD Engineering" LLC

LOCAL COMMUNITY (List is attached).

Agenda: Presentation on Local Road Rehabilitation Project in Ganja-Gazakh region

Tural Omarov made a presentation on Rehabilitation of Local Roads in Ganja-Gazakh Region to the local community (residents of Goyjeli).

The presentation covered the following issues:

1) who is going to finance the project implementation, 2) who will implement the project, 3) ADB policy, 4) economic and social benefits of the project 5) environmental impacts' mitigation measures. Also, people were explained about the Grievance Redress Mechanism to be applied towards APs and others having any relation to the project implementation.

Upon completion of the presentation made by T. Omarov, local residents asked a few questions.

Question : Will be the upgrading of existing local roads?

Tural Omarov explained that rehabilitation works will be undertaken within the existing ROW. Therefore there is no need the upgrading .

Question: What is the width of the designed road?

Tural Omarov: Local roads project is categorized as IV Road Category.

According to the technical parameters the designed width of roadway is 10 meters.

- Number of lanes: 2
- Lane width: 3 m
- Carriageway width: 6 m (2 x 3.m)
- Width of shoulder: 2m (2x2 m; of which 0.50 m will be paved)

Question: Will be the existing bridges replaced with new ones?

Tural Omarov : There exist 2 bridges for the project.

The bridge on channel which is located on about 1 + 947 km of Vurgun-Kohne Gishlag route will be replaced with new one and the bridge which is located about KM 12+500 on Hesensu river will be repaired.

Question: What about the road signs and bus stops? Will they be provided?

Zakir Ibrahimov: Traffic lights, road signs are foreseen by the project.. All road construction works will be carried out in accordance with all established standards, the construction supervision consultant will monitor the whole construction process.

Then Tural Omarov explained that there would be the Grievance Redress Mechanism to be implemented within the frameworks of the Project. This mechanism would facilitate and speed up the feedback with the public. He also informed on measures to be taken to reduce the environmental impacts.

At the end of the meeting, T. Omarov thanked the participants for taking part in the public consultation meeting and expressed hope for successful cooperation in the course of the project implementation.

Qazax-Ağstafa regionunda yerli yolların bərpası - Ağstafa rayonu

Vurğun-Köhnə Qışlaq yolunun (km16.6) bərpası ilə əlaqədar ictimaiyyətlə görüş

5 **aprel 2017**

№	Adı və soyadı	İş yeri	Tutduğu vəzifə	Məşğuliyyəti	Əlaqə nömrəsi	İmza
1	Əhmədova [illegible]	Göyçəli İN-yi mühasibi	mühasib		050-568 01-95	
2	Həsənova Məhsəti	Pensiyaçı		[illegible]	050-526 17-53	
3	Abbasova Sənəsi	Göyçəli İN	Nümayəndə.		070 316 59-93	
4	Məmmədova Cəmalə	Göyçəli bələdiyyəsi	Sədr.		050-358 37-48.	
5	Quliyeva Ziba	Göyçəli uşaq bağı	dayə			
6	Rəhimova Növrəstə	Göyçəli İN	xadimə			
7	İbrahimova Esmira	Uşaq bağı	müəllim	müəllimlik		
8	Rəhimova Afət	Bağça	müəllimə	müəllimlik		
9	Qurbanova Afət	Bağça	müəllimə	müəllimlik.		
10	Mehdiyeva Gülnur	Bağça	Xadimə	təmizlikçi.		
11	Eyubov Qardaş	Xəstəxana	fəhlə	sürücü		
12	Həsənzamanov İlman	Xəstəxana	fəhlə.	sürücü		
13	Məmmədov Elcan	Bağça	bağban.	fəhlə		
14	Musayev Abbasəli	Xəstəxana	bağban	fəhlə.		
15	Rəhimova Başxanım	Bağça	müəllimə	müəllimelik		
16	Hüseynov Rahib	IRA	ARE	mühəndis	050-417-68-67	
17	Omarov Tural	İRD	Topoqraf	mühəndis.	055-260-54-60	
18						
19						
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Minutes of the Public Consultation Meeting and list of participants under the Initial Environmental Examination Report

Road Sections: Kommuna and Huseynbeyli section of Gazakh-Duzgishlag road of Gazakh region

Date: April 06, 2017
Place of meeting: Kommuna village of Gazakh region
Meeting started: 11.00
Presented:
Zakir Ibrahimov: Safeguard Specialist
Tural Omarov : Engineer
Cahit Sayin: Highway Engineer

CONSULTANT "IRD Engineering"

LOCAL COMMUNITY (List is attached).

Agenda: Presentation on Local Road Rehabilitation Project in Ganja-Gazakh region

Tural Omarov made a presentation on Rehabilitation of Local Roads in Ganja-Gazakh Region to the local community (residents of Kommuna village).

The presentation covered the following issues: 1) who is going to finance the project implementation, 2) who will implement the project, 3) ADB policy, 4) economic and social benefits of the project 5) environmental impacts' mitigation measures. Also, people were explained about the Grievance Redress Mechanism to be applied towards APs and others having any relation to the project implementation.

Upon completion of the presentation made by Tural Omarov local residents asked a few questions.

Question: It is difficult the utilization of existing irrigation culverts because of poor condition. Will be the irrigation culverts replaced with new ones?

Tural Omarov explained that drainage culverts crossed with road will be replaced with new ones in detemined section of project road. İt is intended to place of new culverts if required .

Question: Wıll be recruited of local residents in construction period? Old oak trees passes through the project road. What will do for its future? Will the information disclosed to be cut of which trees?

Zakir Ibrahimov: Of course, local residents will be recruited according to their professional qualification in the construction period. The residents will be informed in the meetings and the report will be distributed to the relevant authorities.

Question: What about the trees, adjacent to the existing road?

Zakir Ibrahimov: The information is collected about the trees to be cut and removed in advance. All relevant authorities will be informed about it and this process will be carried out in accordance with the requirements of environmental legislation. Unavoidable tree cuts will be compensated by indigenous new tree plantings at the respective locations alongside the Project road. Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October).

Then Tural Omarov explained that there would be the Grievance Redress Mechanism to be implemented within the frameworks of the Project. This mechanism would facilitate and speed up the feedback with the public. He also informed on measures to be taken to reduce the environmental impacts.

At the end of the meeting thanked the participants for taking part in the public consultation meeting and expressed hope for successful cooperation in the course of the project implementation.

Qazax-Ağstafa regionunda yerli yolların bərpası - Qazax rayonu

Qazax-Düzqışlaq (Hüseynbəyli hissəsi) avtomobil yolunun (2.6 km) bərpası ilə

əlaqədar ictimaiyyətlə görüş 6 aprel 2017

№	Adı və soyadı	İş yeri	Tutduğu vəzifə	Məşğuliyyəti	Əlaqə nömrəsi	İmza
1	Mustafayev Ramil	işsiz	əkinçi.	əkinçilik.	055 953 13 43	[signature]
2	Əhmədov Namiq	Mədəniyyət evi	müdir		0556418701	[signature]
3	Mirzəliyev Musa	təqaüdçü		işsiz	055 340 47 53	[signature]
4	Bağırov Bəhruz	işsiz	əkinçi	əkinçilik	055614449 82	[signature]
5	Məmmədov Elrum	işsiz	əkinçi	əkinçilik.	0555911736	[signature]
6	Səğurov	işsiz	fəhlə	dəmirçi	050 5418155.	[signature]
7	Tacəddin	Çoban.	fəhlə	sürücü.		[signature]
8	Əliyev Əyyub	kənd	fəhlə	əkinçi	0708185162	[signature]
9	Nadirov Sarif	kənd	fəhlə	əkinçi	0504738944	[signature]
10	Məmmədov Nadir	kənd	fəhlə	sürücü	055 774-73-89	[signature]
11	Yusufov Yusif	kənd	fəhlə	dəmirçi		[signature]
12	Dadaşov Elman	kənd	fəhlə	qaynaqçı	0556429448	[signature]
13	Nəbiyev Aslan	kənd	fəhlə	qaynaqçı		[signature]
14	Hadiyev Gülşən	kənd	fəhlə	sürücü		[signature]
15	Əsədova Nərgiz	kənd	fəhlə	sürücü		[signature]
16	Şahmalıyeva Şahnisə	kənd	fəhlə	sürücü		[signature]
17	Osmanova Aidə	kənd.	fəhlə	əkinçi.		[signature]
18	Hüseynov Kahin	İRA Layihə	mühəndis	ARE	050-417-6867	[signature]
19	Ömərov Tural	İRD	Topoqraf	mühəndis	055-260-34-60	[signature]
20						
21						
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Qazax-Ağstafa regionunda yerli yolların bərpası - Qazax rayonu

Kommuna (km2.6) yolunun bərpası ilə əlaqədar içtimaiyyətlə görüş
6 **aprel 2017**

№	Adı və soyadı	İş yeri	Tutduğu vəzifə	Məşğuliyyəti	Əlaqə nömrəsi	İmza
1	Nağıyev Rüstəm	Qoyçu kombi.	tex ekspert		055 952 48 38	[signature]
2	Suleymanov Rza	Qoşa K.	fəhlə	sürücü	0506496932	[signature]
3	Əhmədov Oruc		fəhlə	qaynaqçı	055 771 10 65	[signature]
4	Mustafayev Miqdad		fəhlə	sürücü	055-748-44-58	[signature]
5	Şaniyev Kənan	Suvarma	təzələ agenti		055 402 99 86	[signature]
6	Ибрагимов	[illegible]			055 760 69 03	[signature]
7	Nuriyev Babək		Müəllim	müəllimlik	050 328 16 66	[signature]
8	Исмайылов	Чобан	Müəllim	müəllimlik.		[signature]
9	[illegible]	[illegible]	fəhlə	bənna	055 539 72 64	[signature]
10	Гасымов	Бəhруз	fəhlə	bənna	050 484 29 72	[signature]
11	Ибрагимов	Етибар	fəhlə	dəmirçi	050 752 33 93	[signature]
12	Məmmədov Eyvaz		fəhlə	sürücü	055 833 76 09	[signature]
13	Mustafayev Sücayət		fəhlə	sürücü	0709658020	[signature]
14	Həsənov	Samir	fəhlə	sürücü	051 621 40 17	[signature]
15	Bərnayev	Rəhim	fəhlə	qaynaqçı	055 581 81 60	[signature]
16	Şaniyev Təyyar	işsiz	təqaüdçü		0505227895	[signature]
17	Nağıyev Mürsəl	işsiz	təqaüdçü		0503678189	[signature]
18	Коćуев	[illegible]	fəhlə	sürücü	055 923679[illegible]	[signature]
19	Hüseynov Kəhin	IRD	ARE	Mühəndis	050-4176867	[signature]
20	Omarov Tural	İRD	Topoqraf.	mühəndis	055-260-54-60	[signature]
21						
22						

Minutes of the Public Consultation Meeting and list of participants under the Initial Environmental Examination Report

Road Sections: Ashagi Kesemen-Zelimkhan rural road

Date: April 07, 2017
Place of meeting: Zalimkhan village of Agstafa region
Meeting started: 11.00
Presented:
Zakir Ibrahimov: Safeguard Specialist
Tural Omarov : Engineer
Cahit Sayin: Highway Engineer
CONSULTANT "IRD Engineering"

LOCAL COMMUNITY (List is attached).

Agenda: Presentation on Local Road Rehabilitation Project in Ganja-Gazakh region

Tural Omarov made a presentation on Rehabilitation of Local Roads in Ganja-Gazakh Region to the local community (residents of Zalimkhan village).

The presentation covered the following issues: 1) who is going to finance the project implementation, 2) who will implement the project, 3) ADB policy, 4) economic and social benefits of the project 5) environmental impacts' mitigation measures. Also, people were explained about the Grievance Redress Mechanism to be applied towards APs and others having any relation to the project implementation.

Upon completion of the presentation made by Tural Omarov local residents asked a few questions.

Question: Will be required the land acquisition during the construction period?

Tural Omarov explained that rehabilitation works will be undertaken within the existing ROW. Therefore there is no need the upgrading

Question: It is known that the vehicles will move in high speed on rehabilitated road. What measures will be taken for road safety?

Zakir Ibrahimov: Road safety measures are also improved by replacement of old road signs with new ones and providing of new road signs. These signs will provide the more careful of road users.

Question: Wıll be recruited the local residents in construction period? There are old oak trees through the project road. What will do for its future? Will be the information provided to be cut of which trees?

Zakir Ibrahimov: Of course, local residents will be recruited according to their professional qualification in the construction period. The residents will be informed in the meetings and the report will be distributed to the relevant authorities.

Qazax-Ağstafa regionunda yerli yolların bərpası - Ağstafa rayonu

Ağstafa- Aşağı Kəsəmən-Zəlimxan avtomobil yolunun (9.6 km) bərpası ilə əlaqədar

ictimayyətlə görüş 7 **aprel 2017**

№	Adı və soyadı	İş yeri	Tutduğu vəzifə	Məşğuliyyəti	Əlaqə nömrəsi	İmza
1	Əliyeva Bədəm	Poçt		poçt işi		[signature]
2	Həmmədova Arzu	Poçt		Poçt işi.		[signature]
3	Musayev Mirzədiq	kənd	fəhlə	qaynaqçı	035-631-33-03	[signature]
4	Quliyev Fərrət	Şəhər	fəhlə	elektrik		[signature]
5	Səlim Məmmədov	Şəhər.	fəhlə	sürücü	050-3323678	[signature]
6	Məlikqasımov Qurban	kənd	fəhlə	əkinçi		[signature]
7	Vəliyev Aydın.	kənd	fəhlə	əkinçi		[signature]
8	Əliyev Vəli	kənd	fəhlə	əkinçi		[signature]
9	Tağıyev Cavanşir.	kənd	fəhlə	əkinçi		[signature]
10	Süleymanov İlqar	şəhər.	fəhlə	elektrik	050 614 87 34	[signature]
11	Hüseynov Musa	kənd	fəhlə	sürücü	050 368 51 31.	[signature]
12	Əzizov Abdulkərim	kənd	fəhlə	qaynaqçı		[signature]
13	Qarayev Samir	kənd	fəhlə	dəmirçi	055-871-41-39	[signature]
14	Həziyev Bayram	şəhər	fəhlə	qaynaqçı		[signature]
15	Cəfərov Vüqar	kənd	fəhlə	sürücü		[signature]
16	Cəfərov Elbəz	kənd	fəhlə	əkinçi		[signature]
17	Bağmanov Əli	kənd	fəhlə	əkinçi		[signature]
18	Bayramov E.	kənd	fəhlə	əkinçi		[signature]
19	Həsənov Bəxtiyar	kənd	fəhlə	əkinçi		[signature]
20	Yaqubov	Rəşad	fəhlə	əkinçi		[signature]
21	Orucov Murad	kənd.	fəhlə	sürücü		[signature]
22	Hüseynov Kərim	Paylı. İRA	ARM.	mühəndis	050-4176867	[signature]
23.	Ömərov Tural	İRD	Topoqraf	mühəndis.	055-260-54-60	[signature]

Minutes of the Public Consultation Meeting and list of participants under the Initial Environmental Examination Report

Road Sections: Soyug Bulag –Tinglik rural road of Agstafa region

Date: April 07, 2017

Place of meeting: Kochvelili village of Agstafa region

Meeting started: 14.00

Presented:

Zakir Ibrahimov: Safeguard Specialist

Tural Omarov : Engineer

Cahit Sayin: Highway Engineer

CONSULTANT "IRD Engineering"

LOCAL COMMUNITY (List is attached).

Agenda: Presentation on Local Road Rehabilitation Project in Ganja-Gazakh region

Tural Omarov made a presentation on Rehabilitation of Local Roads in Ganja-Gazakh Region to the local community (residents of Soyug Bulag and Hazi Aslanov villages).

The presentation covered the following issues: 1) who is going to finance the project implementation, 2) who will implement the project, 3) ADB policy, 4) economic and social benefits of the project 5) environmental impacts' mitigation measures. Also, people were explained about the Grievance Redress Mechanism to be applied towards APs and others having any relation to the project implementation.

Upon completion of the presentation made by Tural Omarov local residents asked a few questions.

Question: Who will be the contractor?

Tural Omarov: The contractor will be determined based on results of the tender.

Question: How will the construction works influence on the environment of Soyug Bulag –Hazi Aslanov village?

Tural Omarov: Without doubt in the course of rehabilitation works the dust level will increase as well as other emissions since along with the usual traffic flow some heavy road construction equipment and heavy trucks will be engaged. Certain measurements will be taken. The results of those measurements will be used as a basic reference environment data and will being compared with the results of the following measurements. The environment condition will be monitored within the settlements through which the road passes.

Question: What about the trees, adjacent to the existing road?

Zakir Ibrahimov: The information is collected about the trees to be cut and removed in advance. All relevant authorities will be informed about it and this process will be carried out in accordance with the requirements of environmental legislation. Unavoidable tree cuts will be compensated by indigenous new tree plantings at the respective locations alongside the Project road. Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October).

Qazax-Ağstafa regionunda yerli yolların bərpası - Ağstafa rayonu

Soyuqbulaq-Tinklik yolunun (km9.3) bərpası ilə əlaqədar ictimaiyyətlə görüş
7 **aprel 2017**

№	Adı və soyadı	İş yeri	Tutduğu vəzifə	Məşğuliyyəti	Əlaqə nömrəsi	İmza
1	Aslan Muradov	Soyuqbulaq su nasosunda	fəhlə	dəmirçi.	070-379-25-80	[signature]
2	Osman Osmanov			pensiyaçı		[signature]
3	Vagif Kazımov		fəhlə	əkinçi.	070-518-84-05	[signature]
4	Sagif Şəmsiyev	Ağstafa S.S. idarəsi	sahə rəisi		050-449-09-40	[signature]
5	Anar Məmmədov	Köçəşli Polis Bölməsi	polis nəfəri		050-246-06-01.	[signature]
6	İlqar İbrahimov	Ağstafa Elektrik şəbəkə	nəzarətçi		051-667-43-09.	[signature]
7	Nurəddin Abdullayev			hərbi pensiyaçı	050-971-31-35	[signature]
8	Tofiq Yaqubov			hərbi pensiyaçı	050-706-80-05	[signature]
9	Rafiq Qurbanov			işsiz	050-530-77-38.	[signature]
10	Murtuz Məmmədov	065 №-li hərbi hissə	sürücü fəhlə.	sürücü	050-483-70-03	[signature]
11	Mikayıl Mikayılov	Qarayazı İcra Nümayəndəliyi	nümayəndə		050-265-88-67	[signature]
12	Mühid Yaqubov	Qarayazı İcra nümayəndəliyi	müavin		070-722-86-24.	[signature]
13	Məhəmməd Həsənov	Qarayazı bələdiyyəsi	Sədr		050-508-10-43	[signature]
14	Məhəmməd Ömərov	Soyuqbulaq meşəbəyliyi	meşəbəyi	Meşəni qorumaq	077-317-41-31	[signature]
15	Aydın Məmmədov		yoxdur	işsiz		[signature]
16	İbrahim Eyvazov		yoxdur.	pensiyaçı		[signature]
17	Şahin Şıxlinski		yoxdur.	işləmir	055-437-80-33	[signature]
18	Hüseynov Kahin	İRA	ARE	mühəndis	050-4176867	[signature]
19	Omarov Tural	İRD	Topoqrafik	mühəndis.	055-260-54-60	[signature]
20						
21						
22						