ENVIROMENTAL MANAGEMENT FRAMEWORK
for rehabilitation of selected sections of Lifeline Roads Network

Yerevan 2012
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LIST OF ACRONYMS

BoQ  Bill of Quantities
EA   Environmental Assessment
EIA  Environmental Impact Assessment
EMF  Environmental Management Framework
EMP  Environmental Management Plan
IBRD International Bank for Reconstruction and Development
IDA  International Development Association
LNIProject Lifeline Network Improvement Project
MoTC Ministry of Transport and Communication of the Republic of Armenia
MNP  Ministry of Nature Protection of the Republic of Armenia
NGO  Non Governmental Organization
O&M  Operation and Maintenance
OP   Operational Policy
PIU  Project Implementation Unit
RA   Republic of Armenia
SI   State Institution
SNCO State Non Commercial Organization
WB   The World Bank
INTRODUCTION

The Republic of Armenia has applied for a loan from International Bank for Reconstruction and Development (IBRD) in the amount of US$ 40 million equivalent to implement the Lifeline Network Improvement Project (LNIProject) so as to reconstruct and repair local roads in different regions of Armenia in the period of 2013-2015. In addition to this funding the Government of the Republic of Armenia will provide its contribution in the amount of approximately US$10 million equivalent. Civil Works for approximately 70 km roads included in the first year program will be completed by the end of 2013 with contracts defects liability period extending into the end of 2014.

LNI Project will provide an immediate economic stimulus to rural communities by providing employment as well long term benefit of an improved lifeline infrastructure. In addition to the economic benefits (regional employment, access to markets for agricultural products, etc.), there are substantial social benefits to the rural populations in improving their access to education, medical and social opportunities.

The Ministry of Transport and Communication of Armenia (MoTC) has the overall responsibility for implementation of the LNIProject and has delegated implementation functions to the Transport Projects Implementation Unit State Institution (Transport PIU).

The MoTC through the Transport PIU has hired a consulting firm to undertake an assignment for the Preparation of Design and Environmental Management Plans for rehabilitation of roads included in first year program of LNIProject.

All rehabilitation works envisaged under the LNI Project will be undertaken on existing alignments and will include reconstruction, pavement rehabilitation, improvement of drainage facilities and road safety features resulting in stable and safe roads.

According to the World Bank rules, the LNI Project triggers OP/BP 4.01. Therefore, the proposed Project is subject to environmental screening and review. Because the Project will finance similar types of rehabilitation works in multiple locations over the country environmental impacts of which are pretty much well known beforehand, the environmental review process would imply development of an Environmental Management Framework (EMF) document and link-specific Environmental Management Plans in a checklist format.

The Environmental Management Framework developed for the Lifeline Roads Improvement Project and updated for its Additional Financing to it has been used as a basis for the preparation of present EMF for the LNI Project. This EMF provides general guidelines for applying environmentally sound practices to lifeline road rehabilitation. Environmental Management Plans (EMPs) in a checklist format will be developed for all the proposed links included in the Project.
**WORLD BANK SAFEGUARD POLICIES**

The World Bank's OP 4.01 Environmental Assessment is considered to be the umbrella policy for the Bank's environmental safeguard policies. These policies are critical for ensuring that potentially adverse environmental and social consequences are identified, minimized, and properly mitigated. These policies receive particular attention during the project preparation and approval process. The World Bank carries out screening of each proposed project to determine the appropriate extent and type of EA to be undertaken and whether or not the project may trigger other safeguard policies. The Borrower is responsible for any assessment required by the Safeguard Policies, with general advice provided by the World Bank staff. The safeguard policies and triggers for each policy are presented in the table below:

<table>
<thead>
<tr>
<th>Operational Policy</th>
<th>Triggers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment</td>
<td>If a project is likely to have potential (adverse) environmental risks and impacts in its area of influence.</td>
</tr>
<tr>
<td>(OP 4.01)</td>
<td></td>
</tr>
<tr>
<td>Forests</td>
<td>Forest sector activities and other Bank sponsored interventions which have potential to impact significantly upon forested areas.</td>
</tr>
<tr>
<td>(OP 4.36)</td>
<td></td>
</tr>
<tr>
<td>Involuntary Resettlement</td>
<td>Physical relocation and land loss resulting in: (i) relocation or loss of shelter; (ii) loss of assets or access to assets; (iii) loss of income sources or means of livelihood, whether or not the affected people must move to another location.</td>
</tr>
<tr>
<td>(OP 4.12)</td>
<td></td>
</tr>
<tr>
<td>Indigenous Peoples</td>
<td>If there are indigenous peoples in the project area, and potential adverse impacts on indigenous peoples are anticipated, and indigenous peoples are among the intended beneficiaries.</td>
</tr>
<tr>
<td>(OP 4.10)</td>
<td></td>
</tr>
<tr>
<td>Safety of Dams</td>
<td>If a project involves construction of a large dam (15 m or higher) or a high hazard dam; If a project is dependent upon an existing dam, or dam under construction.</td>
</tr>
<tr>
<td>(OP 4.37)</td>
<td></td>
</tr>
<tr>
<td>Pest Management</td>
<td>If procurement of pesticides is envisaged; If the project may affect pest management in the way that harm could be done, even though the project is not envisaged to procure pesticides. This includes projects that may (i) lead to substantially increased pesticide use and subsequent increase in health and environmental risk, (ii) maintain or expand present pest management practices that are unsustainable, not based on an IPM approach, and/or pose significant health or environmental risks.</td>
</tr>
<tr>
<td>(OP 4.09)</td>
<td></td>
</tr>
<tr>
<td>Physical Cultural Resources</td>
<td>The policy is triggered by projects which, prima facie, entail the risk of damaging cultural property (e.g. any project that includes large scale excavations, movement of earth, surface environmental changes or demolition).</td>
</tr>
<tr>
<td>(OP 4.11)</td>
<td></td>
</tr>
<tr>
<td>Natural Habitats</td>
<td>The policy is triggered by any project with the potential to cause significant conversion (loss) or degradation of natural habitats whether directly (through construction) or indirectly (through human activities induced by the project).</td>
</tr>
<tr>
<td>(OP 4.04)</td>
<td></td>
</tr>
<tr>
<td>Projects in Disputed Areas</td>
<td>The policy is triggered if the proposed project will be in a “disputed area”.</td>
</tr>
<tr>
<td>(OP 7.60)</td>
<td></td>
</tr>
<tr>
<td>Projects on International Waterways</td>
<td>If the project is on international waterway such as: any river, canal, lake, or similar body of water that forms a boundary between, or any river or body of surface water that flows through, two or more states (or any tributary or other body of surface water that is a component of this waterway); any bay, gulf, strait, or channel bounded by two or more states or, if within one state, recognized as a necessary channel of communication between the open sea and other states-and any river flowing into such waters.</td>
</tr>
<tr>
<td>(OP 7.50)</td>
<td></td>
</tr>
</tbody>
</table>
NATIONAL LEGISLATION

The 10th Article of the Constitution of the Republic of Armenia (adopted in 1995 and amended in 2005) stipulates that the State is responsible for environmental protection, reproduction and wise use of natural resources. Since 1991 more than 25 codes and laws as well as numerous by-laws and regulations have been adopted to protect the environment. The list of key environmental laws regulating the field of nature protection of the RA is presented below:

- Law on Ensuring Sanitary-epidemiological Security of the RA Population (1992);
- Law on Atmospheric Air Protection (1994);
- Law on Environmental Impact Assessment (1995);
- Law on the Protection and Use of Fixed Cultural and Historic Monuments and Historic Environment (1998);
- Law on Environmental and Nature Use Charges (1998);
- Law on Rates of Environmental Charges (2006);
- Law on Flora (1999);
- Law on Fauna (2000);
- Land Code (2001);
- Law on Environmental Education (2001);
- Water Code (2002);
- Code on Underground (2011);
- Law on Wastes (2004);
- Law on Environmental Monitoring (2005);
- Law on Environmental Oversight (2005);
- Law on Specially Protected Natural Areas (2006);
- Forest Code (2005);
- Law on Transport (1998);

Summaries of several laws from the list, which are most relevant to the Lifeline Network Improvement Project, are presented below:

The Law on Environmental Impact Assessment (EIA), adopted in 1995, provides legal basis for implementation and introduction of state expertise of planned activities and concept frameworks as well as presents the standard steps of the EIA process for various projects and activities in Armenia. It establishes in Articles 2-5, the general legal, economic, and organizational principles for conducting mandatory
state EIA of various types of projects and “concepts” of sectoral development (e.g., energy, mining, chemical industry, construction, metallurgy, pulp and paper, agriculture, food and fishery, water, electronics, infrastructure, services, tourism and recreation, etc.). The Law also stipulates provisions directly related to road sector, particularly in the Article 4 “Intended Activities Subject to Expertise” the Law enumerates the types of planned activities subject to environmental impact assessment: In the infrastructure sector the construction of highways, tunnels, bridges, the underground, railways, airports and roads exceeding the threshold is subject of environmental impact assessment (“thresholds” were set by the Governmental Decree N193 issued on March 30, 1999). The Law forbids any economic unit to operate or any concept, program and plan to be implemented without a positive conclusion of an EIA (if deemed necessary by provisions of this law). In addition, an EIA may be also initiated for projects that do not meet the “threshold” requirements. According to the Article 4, such right was given to local authorities, ministries, local communities and NGOs. Other national legislation that determines the “special status” of a particular territory may also trigger a review of environmental impact. The Ministry of Nature Protection can initiate a review of environmental impact when it deems it to be necessary. The EIA Law specifies notification, documentation, public consultations, and appeal procedures and requirements. The Law on EIA law also provides for public involvement and participation. The Law demands that for the operation of any economic unit, or implementation of a plan or programs, a positive conclusion on an environmental impact assessment must be obtained from the State Environmental Expertise State Non Commercial Organization of the RA Ministry of Nature Protection.

The Law on EIA is generally consistent with the EIA approaches followed by international conventions and development assistance agencies (e.g., WB, USAID, EU, and MCC). The law is applicable for the following activities: construction, replacement, expansion, technical re-equipment and closure. In such cases, for implementation of a plan or programs, a positive conclusion of an environmental impact assessment must be obtained from the State Environmental Expertise SNCO of the Ministry of Nature Protection. The Law on EIA law also provides for public involvement and participation at all stages of the EIA. The works envisaged by the LNI Project will be of rehabilitation nature and undertaken only on existing alignments.

**Land Code (2001)**

The Land Code defines the main directives for management use of the state lands, included those allocated for various purposes, such as agriculture, urban construction, industry and mining, energy production, transmission and communication lines, transport and other purposes. The areas used for roads, bridges and tunnels, as well as their relevant alienation zone are considered as lands allocated for transport objects. The Code defines the lands under the specially protected areas as well as forested, watered and reserved lands. It also establishes the measures aimed to the lands protection, as well as the rights of state bodies, local authorities and citizens towards the land.

**Law on Wastes (2004)**

The law regulates legal and economic relations connected to the collection, transfer, maintenance, development, reduction of volumes, prevention of negative impact on human health and environment. The law defines objects of waste usage, the main principles and directions of state policy, the principles of state standardization,
inventory, and introduction of statistical data, the implementation of their requirements and mechanisms, the principles of wastes processing, the requirements for presenting wastes for the state monitoring, activities to decrease the amount of the wastes, including nature utilization payments, as well as the compensation for the damages caused to the human health and environment by the legal entities and individuals, using the wastes, as well as requirements for state monitoring and legal violations. The law defines the rights and obligations of the state governmental and local governmental bodies, as legal entities and individuals.

**Law on Environmental Oversight (2005)**
The Law regulates the issues of organization and enforcement of oversight over the implementation of environmental legislation of the Republic of Armenia, and defines the legal and economic bases underlying the specifics of oversight, the relevant procedures, conditions and relations, as well as environmental oversight in the Republic of Armenia. The existing legal framework governing the use of natural resources and environmental protection includes a large variety of legal documents. Governmental resolutions are the main legal instruments for implementing the environmental laws. Environmental field is also regulated by presidential orders, Prime-Minister’s resolutions and ministerial decrees.

**Law on Automobile Roads (2006)**
The Law regulates economic, legal and organizational bases for development and administration of a motor road network; designing, construction, repair and maintenance, classification and registration of roads in the Republic of Armenia, as well as regulates legal relationships between bodies and organizations implementing those functions.

**International Agreements**
In addition to the above presented list and summaries of laws, numerous strategies, concept frameworks, and national programs related to the nature protection have been developed as well as a number of international agreements and conventions have been signed and ratified by the Republic of Armenia. International Conventions and Protocols signed and ratified by the Republic of Armenia, which are most relevant to the LNIPJectare presented in the list below:

- Convention on Biological Diversity (Rio-De-Janeiro, 1992);
- UN Framework Convention on Climate Change (New-York, 1992) and Kyoto Protocol (Kyoto, 1997);
- UN Convention to Combat Desertification (Paris, 1994);

**Permitting**
Environmental permits necessary for accomplishing the works envisaged by the LNIPJectare, including data on issuing authorities and tentative timing of obtaining the permit are summarized in the below table:
### Name of permit | Issuing authority | Permit obtaining stage
--- | --- | ---
Construction license | Ministry of Urban Development | After design stage, prior to bidding
State Traffic Police Permit | Traffic Police of RA | During the design stage, approval of the traffic management plan
Construction permit | Head of the appropriate community | Prior to construction
Lease agreement or ownership documents for construction site | Property owner | Before establishment of the construction site
Mining license * | Ministry of Economic Development | During construction stage
Purchase documents for purchased crushed stone | Authorized seller | During construction stage - purchase of the materials
Maximum permissible discharge permit | Ministry of Nature Protection | During construction stage
Agreement for disposal of construction waste | Head of the appropriate community | Before disposal of the waste off-site, at least 3 months prior to issuance of the final certificate

* If construction materials are purchased, owner of the quarry must have a valid permit from the MNP.

All of the above permits are relevant for the LNI Project implementation, however some of them might not be necessary depending on the nature of works and their organization (e.g. contractor is not requested to have a mining license in case the crushed stone is purchased, however the company producing the crashed stone should possess a valid mining license).

### INSTITUTIONAL SETTING

This section briefly presents the roles of entities that may have involvement in the LNI Project, primarily but not exclusively from an environment perspective.

**Ministry of Nature Protection**

The Ministry of Nature Protection (MNP) is responsible for the protection, sustainable use, and regeneration of natural resources as well as the improvement of the environment in the Republic of Armenia. In those areas, the MNP authority includes overseeing national policy development, developing environmental standards and guidelines, and enforcement. The MNP implements those functions through the following structural departments:

- Normative-methodological Department (including Division of Legislation and Division of Standards and Technical Regulations);
- Department of International Cooperation;
- Department of Environmental Protection (including Division of Biodiversity and Water Resources Protection and Division of Land and Atmosphere Protection);
- Department of Hazardous Substances and Waste Management;
- Department of Nature Protection and Environmental Economics;
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- Department of Underground Resources Protection;
- Department of Meteorology and Monitoring of Atmosphere Pollution.

The MNP also undertakes several functions through the following key detached divisions and subordinate bodies:

- Water Resources Management Agency;
- State Environmental Expertise SNCO (conduct environmental assessments, issue conclusions);
- State Environmental Inspectorate;
- Environmental Impact Monitoring Centre;
- Bio-resources Management Agency;

Ministry of Energy and Natural Resources
The Ministry of Energy and Natural Resources is a republican body of executive authority, which elaborates and implements the policies of the Republic of Armenia Government in the energy sector. The ministry is also responsible for the protection, sustainable use, and regeneration of natural resources, and implements its functions through the following separate divisions and agencies:

- Agency of Mineral Resources;
- Subsoil Concession Agency.

Ministry of Emergency Situations
The Ministry of Emergency Situations elaborates and implements the policies of the Republic of Armenia Government in the area of civil defense and protection of population in emergency situations. Armenian State Hydro-meteorological and Monitoring Service SNCO is among the structural entities acting within the Ministry of Emergency Situations.

Ministry of Transport and Communication (MoTC)
The Republic of Armenia Ministry of Transport and Communication is a republican body of executive authority, which elaborates and implements the policies of the Republic of Armenia Government (GoA) in the transport, communication, and information technologies sectors. The Department on Road Construction is the main structural subdivision of the Ministry involved in road sector, and mainly in developing state policy on improvement and perspective development of road network in the country.

Transport Project Implementation Unit SI of the MoTC is an organization established by the GoA to implement investment and development projects in transport sphere developed by the MoTC and regional administrative bodies and approved by the GoA at the expenses of the State Budget and funding provided to the Republic of Armenia by foreign states and international financing organizations.

Armenian Roads Directorate SNCO of the MoTC is an organization established by the GoA involved in development of projects aimed at improvement and expansion of road network, implementation of various studies and analysis with respect to development, operation and maintenance of roads.
Ministry of Territorial Administration
Marzpetarans (regional administration bodies) are responsible for administration of public roads of local significance falling under the regional jurisdiction. Bodies of local self-government (communities) are responsible for administration of public roads of local significance registered as ownership of communities.

Ministry of Health
Within the structure of the Ministry of Health of RA the State Hygienic and Anti-epidemiological Survey is responsible for coordination of all issues related to health (including those on noise and vibration) and for supervision over implementation of sanitary norms, hygienic and anti-epidemiological measures implementation by organizations and citizens.

PROPOSED PROJECT DESCRIPTION
The main objective of the proposed LNI Project is to improve access to economic and social services for rural communities through the reconstruction and improvement of selected sections of the rural road network and by doing so to create employment in the rural sector. The LNI Project will cover about 200 km of lifeline roads. The selected roads will be paved roads or gravel roads that will be upgraded into paved roads. Efficient technical design standards will be used, as introduced in the ongoing Lifeline Roads Improvement Project, and will be based on traffic and road condition. The road sections to be upgraded in the first year of the Project life are already identified and designed. The second and third year program will be identified and designed during the Project implementation. The Project will include the financing of a pilot rehabilitation and maintenance contract and two small pilot maintenance contracts using micro-enterprises.

The road links included in first year of the LNI Project as well as data on their location and length are presented in the table below:

<table>
<thead>
<tr>
<th>Road section #</th>
<th>Marz</th>
<th>Road section</th>
<th>Approximate length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aragatsotn</td>
<td>M9-Arteni-Aragats-Getap km 25+940 – km 49+250</td>
<td>23.3</td>
</tr>
<tr>
<td>2</td>
<td>Aragatsotn</td>
<td>M1-Agarak-Byurakan-Antarut km 0+000 – km8+650</td>
<td>8.65</td>
</tr>
<tr>
<td>3</td>
<td>Armavir</td>
<td>M5-Nor Kesaria-Shenavan-Getashen km1+900 – km6+700</td>
<td>4.8</td>
</tr>
<tr>
<td>4</td>
<td>Gegharkunik</td>
<td>M10-Nerkin Getashen-VerinGetashen-Madina km 0+000 – km10+100</td>
<td>10.1</td>
</tr>
<tr>
<td>5</td>
<td>Kotayk</td>
<td>Mayakovski-Nor Gyugh-Kotayk-Kaputan-Zovashen km 0+000 – km4+500 and km 7+000 – km 19+800</td>
<td>17.3</td>
</tr>
<tr>
<td>6</td>
<td>Lori</td>
<td>M7-Arevashogh</td>
<td>2.5</td>
</tr>
<tr>
<td>7</td>
<td>Syunik</td>
<td>M12-Kornidzor</td>
<td>4.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>71.15</td>
</tr>
</tbody>
</table>
The proposed Project will be implemented by the existing Transport Projects Implementation Unit State Institution (Transport PIU). The Transport PIU has experience in cooperating with the World Bank and other donors. The Transport PIU is adequately staffed and has the capacity to address all aspects of the Project implementation, including safeguard compliance. The civil works will be supervised by a consulting company (Technical Supervisor) commissioned by Transport PIU. Along with other responsibilities, this firm will be assigned to track compliance of civil works contractors with the EMPs and will monitor implementation of the prescribed mitigation measures.

ENVIRONMENTAL SCREENING

The main purpose of environmental screening is to ensure that all environmental issues are properly reflected and adequate solutions to those issues have been provided. All works envisaged by the proposed Project are of rehabilitation nature and will be implemented on existing alignments. Thus, the Project is not expected to have significant impact on the environment. Overall long-term social and environmental impacts will be positive, while negative impacts will be of minor scope and duration, and totally associated with small-scale road rehabilitation activities. Project activities may cause temporary disruption of traffic in the sections of roads under rehabilitation. They may generate noise and dust typical for road works and lead to accumulation of construction waste. Pollution from fuel and lubricants associated with the deployment of transportation and construction machinery is also possible. All of these possible negative impacts are modest provided the small scale of the planned works; confined to the immediate area of project intervention; and will be mitigated through application of standard good environmental practice. Expected impacts on the human health and natural environment are minor, because the project will finance rehabilitation of the existing local roads only, excluding highways and other large infrastructure. No new roads will be constructed within the scope of the proposed project. Since the project works will be done on the existing road alignment so it is not anticipated that there will be any land acquisition/physical relocation of households and businesses/uprooting of trees and standing crops/loss of income. Therefore, it is concluded that the project does not carry any considerable risk of destroying important habitats, damaging forest stands, or affecting other ecosystems in any tangible and/or irreversible ways. Based on the nature and scope of the proposed project activities, the project is classified through environmental screening as Category B.

Link-specific EMP checklists will be prepared for all road links included in the Project. These link-specific EMPs specify environmental risks associated with rehabilitation works to be carried out at the respective locations, recommend respective mitigation measures, and provide monitoring schemes for tracking adherence to the mitigation plans. EMPs will cover both - construction and operation phases - and concurrence with them will be mandatory for works providers engaged through the conventional roads rehabilitation contracts as well as through road maintenance, and road rehabilitation and maintenance pilot contracts. Adherence to the EMPs in the course of all types of civil works will be sufficient for keeping environmental impacts of the project at the acceptable minimum level.
POTENTIAL IMPACTS AND RISKS

In general, the potential adverse environmental impacts associated with rehabilitation works carried out on local roads are expected to be minor, short-term and localized. The vast majority of the potential adverse impacts could be observed during the construction/rehabilitation period. The environmental impacts that for rehabilitation mainly occur within the road corridor are concentrated to the construction period.

Degradation of landscapes and soil erosion. Some of the areas are sensitive to soil erosion; therefore, when ditches and slopes along a road are restored anti-erusive measures shall be implemented during the re-cultivation period.

Pollution by construction run-offs. As a result of oil leakage from machinery and stock piled asphalt, oil products and chemicals can penetrate to the ground water or run off to water recipients.

Impacts on the biodiversity of the project region. During the construction period there might be damages to the plant cover and the habitat for wild life could be disturbed/spoiled in the cutting and filling areas close to the road. Earth borrowing, mining of local aggregates and spoils disposal sites will have a temporary negative impact on the environment. For these sites already used quarries should be selected to minimize the impact both during the construction and later during operation.

Noise and vibration disturbances during construction and temporary air pollution (dust) related to the transportation of construction materials and truck traffic. Dust and the bitumen smoke arising from road construction work will have negative impact on the ambient air quality, and it is necessary to take effective protective measures to minimize the negative impact, especially in settlements and protected areas. All asphalt plants should be certified and inspected according to Armenian norms before they are allowed to be used for the rehabilitation. The Law on Atmospheric Air pollution (adopted 1994 and revised 08.05.2001, 01.01.2006 and 05.05.2007) and Government Resolution No 192 concerning emission licenses, norms of maximum permitted hazardous atmospheric air pollution emissions from 30.03.1999 deal with these issues. If mobile asphalt plants are used they could cause negative impact on water, ground water and air if not properly managed. This type of asphalt plant should be avoided.

Disposal of excavated materials and construction wastes. Demolition debris will be generated during the rehabilitation/construction works on roads. These effects will be localized, and will be minimized by means of appropriate removal and disposal procedures, which may include but not be limited to careful selection of waste temporary accumulation sites, clear delineation of these sites to exclude their expansion, prevention of washout of such sites, obtaining written agreement on permanent disposal site with local authorities and timely transportation of waste to the permanent dump site.

Safety hazards from construction activities. No major hazards are expected during construction of the proposed project elements as long as proper construction practices and safety procedures are applied. During the operation period negative impact might occur as a result of driving with higher speed. Increased speed and expected higher traffic volumes can increase the number of traffic accidents. To
some extent such impacts can be prevented by undertaking appropriate safety measures envisaged in design documents (e.g. speed bumps, etc).

**Impacts on population.** Impacts on population and occupation are expected to be in general positive. Road rehabilitation will have certain impacts on demographic structure of labor force in the area affected by the proposed road improvements. It will make it possible for young people to stay in the villages and commute to work. The rehabilitated roads will increase the access to markets for local producers and promote development of the agricultural sector, tourism and in some cases development of local industry. Furthermore, improved roads will give access to new employment. The economic development will help to get more investments in public utility facilities, energy, telecommunications, education, public health, cultural and entertainment, etc. The rehabilitated road section will lead to reduction of vehicle operating costs, which also will have a positive effect on the private economy of car owners. Another negative impact could be the increased number of traffic accidents due to higher speed on the rehabilitated roads.

**Resettlement/ land acquisition/ compensation.** No resettlement is expected during project implementation since major works consist in rehabilitation of existing infrastructure.

**Impacts on historic-cultural and archaeological monuments.** No archaeological or cultural resources are expected to be encountered during project implementation since major works consist in rehabilitation of existing infrastructure, where excavations have been conducted before and no findings have been reported.

Among the positive impacts, expected as a result of project implementation the following could be mentioned: provision of reliable connection, speedy and safe movement of goods and passengers; considerable reduction of O&M costs; creation of new employment opportunities; reduction of migration from rural areas, etc.

**MITIGATION MEASURES**

Mitigation measures that could be used where appropriate (depending on type of road, volume and type of traffic, road surrounding area, etc) are separately defined for the design, construction and operation phases. Appropriate measures are included in the Environmental Management Plans.

**Design phase**

In order to reduce number and severity of traffic accidents the designs should provide for the crash barriers on hazardous sections, traffic calming road humps where appropriate, direction posts in curves and new traffic signs and road markings. In some places the stabilization of steep slopes with gabions shall also be considered.

**Construction phase**

Before the construction works start the traffic management plan to ensure smooth traffic flow and safety both for workers and the passing traffic should be developed and approved. The construction phase is the period when most disturbances to the environment will occur. This will include clearing of vegetation and excavation
establishment of base camps with storage of oil, chemicals, the emission of dust and noise during working hours etc. To minimize potential degradation of landscapes and soil erosion and pollution from disposal of excavated materials and construction wastes, existing quarries for required additional materials will be used where possible and suitable excavated and dredged soils shall be reused in order to limit the need for new quarries. Work areas shall be clearly delineated and closely monitored, so that they do not expand unduly during construction. Safety guards should be arranged at road sections close to schools or other areas with many unprotected road users. Workers on the road should have safety equipment needed for their personnel security. Dust and noise from the construction site should also be minimized especially nearby resident areas. Construction concrete rubbles, debris and spoils shall be transported and disposed in approved landfills/dump sites.

After completion of construction and rehabilitation works landscape shall be restored to quasi-original conditions.

**Operation phase**

During the operation phase emphasis should be on better vehicle maintenance and emission checks to minimize negative environmental impact from traffic. The drainage system should be periodically maintained to ensure proper drainage in order to prevent flooding and damages caused by water in the road structure and frost heave.

**COST OF EMP IMPLEMENTATION**

Costs of implementing the proposed individual mitigation measures are modest and difficult to single out from the costs of construction operations. Therefore, costs of adherence to the good environmental practice and compliance with this EMP are expected to be integrated into the pricing of various construction activities.

**REMEDIES FOR EMP VIOLATION**

The Transport PIU, as the client of construction works, will be responsible for enforcing compliance of contractor with the terms of the contract, including adherence to the requirements of EMPs.

For EMP infringements identified by the technical supervisor of work, the Contractor will be given a notice by the client to initiate action to remedy the problem within 48 hours. If remediation and restoration has been satisfactorily initiated but could not be completed during this period, the client shall determine a reasonable extended period to complete the remediation in consultation with the contractor. If within the 48 hour period, in the judgment of the client, contractor has not initiated any action or the restoration is not being done properly or in a timely manner during the extended period, the client shall be entitled to employ and pay others to carry out the work. The Contractor shall pay to the client all costs reasonably incurred by the client in remedying the problem.
STAKEHOLDER CONSULTATION

The RA Environmental Laws and International Agreements regulating public consultation and coordination, as well as information availability to public are listed below:

- The Law on the Environmental Impact Assessment (1995) ensures citizen’s right to obtain information concerning the activities that may cause environmental impacts.

The draft final EMF for LNI Project was disclosed nationwide in Armenian and English languages. A stakeholder consultation meeting with participation of the State agencies, professional organizations, stakeholders, and NGOs was held on September 20, 2012. The questions posed during the consultation were responded in a comprehensive and professional manner. Minutes of the stakeholder consultation meeting are attached to the present EMF. Road-link-specific EMPs will also be publicly disclosed and stakeholders will be given opportunity to comment on them prior to commencement of works on each road section.

ENVIRONMENTAL MANAGEMENT PLANS

For low-risk construction projects, such as minor roads rehabilitation works the checklist-type format for EMP has been developed by the World Bank safeguards team to ensure that basic good practice measures are recognized and implemented, while designed to be both user friendly and compatible with the World Bank’s safeguards requirements.

The checklist-type format of EMP attempts to cover typical key mitigation measures to civil works contracts with small, localized impacts or of a simple, low risk nature. This format provides the key elements of the EMP to meet the minimum World Bank Environmental Assessment requirements for Category B projects under OP 4.01.

This EMP checklist offers practical, concrete and implementable guidance to Contractors and supervising Engineers for simple civil works contracts. It should be completed during the final design phase and, either freestanding or in combination with any environmental documentation produced under national legislation, and should constitute an integral part of the bidding documents and eventually the works contracts.

The EMP checklist has the following sections:

Part 1 includes a descriptive part that characterizes the project, specifies institutional and regulatory aspects, describes technical project content, outlines any potential need for capacity building and briefly characterizes the public consultation process. This section should indicatively be up to two pages long. Attachments for additional information may be supplemented as needed.
Part 2 includes a screening checklist of potential environmental and social impacts, where activities and potential environmental issues can be checked in a simple Yes/No format. If any given activity/issue is triggered by checking “yes”, a reference to the appropriate section in the table in the subsequent Part C can be followed, which contains clearly formulated environmental and social management and mitigation measures.

Part 3 represents the environmental mitigation plan to follow up proper implementation of the measures triggered under Part B. It has the same format as required for Environmental Management Plans produced under standard safeguards requirements for Category B projects.

Part 4 contains a simple monitoring plan to enable both the Contractor as well as authorities and the World Bank specialists to monitoring due implementation of environmental management and protection measures and detect deviations and shortcomings in a timely manner.

Part B and C have been structured in a way to provide concrete and enforceable environmental and social measures, which are understandable to non-specialists (such as Contractor’s site managers) and are easy to check and enforce. The EMP will be included in the tender documents so that its implementation priced by bidders. Part D has also been designed intentionally simple to enable monitoring of key parameters with simple means and non-specialist staff.

The separate EMP checklists are to be developed for all the links included in the LNI Project in accordance with the format provided in Attachment I. The format of Environmental Supervision Checklist to be used to track the compliance with EMP requirements during implementation of the project is presented in the Attachment II. Attachment III presents Environmental Management Guidelines for Contractors, which provide the environmentally sound practices applicable to roads construction. Adherence to these guidelines and compliance with the mitigation plan will ensure keeping environmental impacts of the Project to the acceptable minimum level.
## Attachment I: Environmental Management Plan Checklist for Small Scale Road Construction or Rehabilitation

### CONTENTS
1. General Project and Site Information
2. Safeguards Information
3. Mitigation Measures
4. Monitoring Plan

### PART 1: GENERAL PROJECT AND SITE INFORMATION

<table>
<thead>
<tr>
<th><strong>INSTITUTIONAL &amp; ADMINISTRATIVE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
</tr>
<tr>
<td><strong>Project title</strong></td>
</tr>
<tr>
<td><strong>Scope of project and activity</strong></td>
</tr>
<tr>
<td><strong>Institutional arrangements</strong> (Name and contacts)</td>
</tr>
<tr>
<td><strong>Implementation arrangements</strong> (Name and contacts)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SITE DESCRIPTION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name of site</strong></td>
</tr>
<tr>
<td><strong>Describe site location</strong></td>
</tr>
<tr>
<td><strong>Who owns the land?</strong></td>
</tr>
<tr>
<td><strong>Description of geographic, physical, biological, geological, hydrographic and socio-economic context</strong></td>
</tr>
<tr>
<td><strong>Locations and distance for material sourcing, especially aggregates, water, stones</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>LEGISLATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify national &amp; local legislation &amp; permits that apply to project activity</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PUBLIC CONSULTATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify when / where the public consultation process took place</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>INSTITUTIONAL CAPACITY BUILDING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Will there be any [ ] N or [ ] Y if Yes, Attachment 2 includes the capacity building program</strong></td>
</tr>
</tbody>
</table>


capacity building?
**PART 2: SAFEGUARDS SCREENING AND TRIGGERS**

**ENVIRONMENTAL /SOCIAL SCREENING FOR SAFEGUARDS TRIGGERS**

<table>
<thead>
<tr>
<th>Activity/Issue</th>
<th>Status</th>
<th>Triggered Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Roads rehabilitation</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section A below</td>
</tr>
<tr>
<td>B. New construction of small traffic infrastructure</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section A below</td>
</tr>
<tr>
<td>C. Impacts on surface drainage system</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section B below</td>
</tr>
<tr>
<td>D. Historic building(s) and districts</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section C below</td>
</tr>
<tr>
<td>E. Acquisition of land(^1)</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section D below</td>
</tr>
<tr>
<td>F. Hazardous or toxic materials(^2)</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section E below</td>
</tr>
<tr>
<td>G. Impacts on forests and/or protected areas</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section F below</td>
</tr>
<tr>
<td>H. Risk of unexploded ordinance (UXO)</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section G below</td>
</tr>
<tr>
<td>I. Traffic and Pedestrian Safety</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If “Yes”, see Section H below</td>
</tr>
</tbody>
</table>

\(^1\) Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transfered and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

\(^2\) Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.
### PART 3: MITIGATION MEASURES

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>PARAMETER</th>
<th>MITIGATION MEASURES CHECKLIST</th>
</tr>
</thead>
</table>
| 0. General Conditions | Notification and Worker Safety | (a) The local construction and environment inspectorates and communities have been notified of upcoming activities.  
(b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works).  
(c) All legally required permits have been acquired for construction and/or rehabilitation.  
(d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.  
(e) Workers’ PPE will comply with international good practice (hardhats, as needed masks and safety glasses, harnesses and safety boots).  
(f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| A. General Rehabilitation and/or Construction Activities | Air Quality | (a) During excavation works dust control measures shall be employed, e.g. by spraying and moistening the ground.  
(b) Demolition debris, excavated soil and aggregates shall be kept in controlled area and sprayed with water mist to reduce debris dust.  
(c) During pneumatic drilling or breaking of pavement and foundations dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site.  
(d) The surrounding environment (sidewalks, roads) shall be kept free of soil and debris to minimize dust.  
(e) There will be no open burning of construction / waste material at the site.  
(f) All machinery will comply with the national emission regulations, will be well maintained and serviced and there will be no excessive idling of construction vehicles at sites. |
| | Noise | (a) Construction noise will be limited to restricted times agreed to in the permit.  
(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible. |
| | Water Quality | (a) The site will establish appropriate erosion and sediment control measures such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in canalization and nearby streams and rivers. |
| | Waste management | (a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from excavation, demolition and construction activities.  
(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.  
(c) Construction waste will be collected and disposed properly by licensed collectors.  
(d) The records of waste disposal will be maintained as proof for proper management as designed.  
(e) Whenever feasible Contractor will reuse and recycle appropriate and viable materials (except when containing asbestos). |
| B. Impacts on surface drainage system | Water Quality | (a) There will be no unregulated extraction of groundwater, nor uncontrolled discharge of process waters, cement slurries, or any other contaminated waters into the ground or adjacent streams or rivers; the Contractor will obtain all necessary licenses and permits for water extraction and regulated discharge into the public wastewater system.  
(b) There will be proper storm water drainage systems installed and care taken not to silt, pollute, block or otherwise negatively impact natural streams, rivers, ponds and lakes by construction activities.  
(c) There will be procedures for prevention of and response to accidental spills of fuels, lubricants and other toxic or noxious substances.  
(d) Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies. |
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>PARAMETER</th>
<th>MITIGATION MEASURES CHECKLIST</th>
</tr>
</thead>
</table>
| C. Historic building(s) | Cultural Heritage | (a) If construction works take place close to a designated historic structure, or are located in a designated historic district, notification shall be made and approvals/permits be obtained from local authorities and all construction activities planned and carried out in line with local and national legislation.  
(b) It shall be ensured that provisions are put in place so that artifacts or other possible “chance finds” encountered in excavation or construction are noted and registered, responsible officials contacted, and works activities delayed or modified to account for such finds. |
| D. Acquisition of land | Land Acquisition Plan/Framework | (a) If expropriation of land was not expected but is required, or if loss of access to income of legal or illegal users of land was not expected but may occur, that the Bank’s Task Team Leader shall be immediately consulted.  
(b) The approved Land Acquisition Plan/Framework (if required by the project) will be implemented. |
| E. Toxic materials | Asbestos management | (a) If asbestos is located on the project site, it shall be marked clearly as hazardous material.  
(b) When possible the asbestos will be appropriately contained and sealed to minimize exposure.  
(c) The asbestos prior to removal (if removal is necessary) will be treated with a wetting agent to minimize asbestos dust  
(d) Asbestos will be handled and disposed by skilled & experienced professionals.  
(e) If asbestos material is be stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site.  
(f) The removed asbestos will not be reused. |
| F. Affected forests, wetlands and/or protected areas | Ecosystem protection | (a) All recognized natural habitats, wetlands and protected areas in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities.  
(b) A survey and an inventory shall be made of large trees in the vicinity of the construction activity, large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided.  
(c) Adjacent wetlands and streams shall be protected from construction site run-off with appropriate erosion and sediment control feature to include by not limited to hay bales and silt fences.  
(d) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas. |
| G. Risk of unexploded ordinance (UXO) | Hazard to human health and safety | (a) Before start of any excavation works the Contractor will verify that the construction area has been checked and cleared regarding UXO by the appropriate authorities. |
| H. Traffic and pedestrian safety | Direct or indirect hazards to public traffic and pedestrians by construction activities | (a) In compliance with national regulations the Contractor will ensure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to:  
- Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards,  
- Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes,  
- Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement,  
- If required, active traffic management by trained and visible staff at the site for safe passage for the public,  
- Ensuring safe and continuous access to all adjacent office facilities, shops and residences during construction. |
### PART 4: MONITORING PLAN

<table>
<thead>
<tr>
<th>What</th>
<th>Where</th>
<th>How</th>
<th>When</th>
<th>Why</th>
<th>Cost</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Is the parameter to be monitored?)</td>
<td>(Is the parameter to be monitored?)</td>
<td>(Define the frequency / or continuous?)</td>
<td>(Is the parameter being monitored?)</td>
<td>(if not included in project budget)</td>
<td>(Is responsible for monitoring?)</td>
<td></td>
</tr>
</tbody>
</table>

**CONSTRUCTION PHASE**

1. 
2. 
3. 
... 
x. 

**OPERATION PHASE**

1. 
... 
y.
## Attachment II: Environmental Supervision Checklist

<table>
<thead>
<tr>
<th>General information</th>
<th>DD/MM/YY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report prepared by</td>
<td></td>
</tr>
<tr>
<td>Name of road link and location of construction site</td>
<td></td>
</tr>
<tr>
<td>Name of contractor/subcontractor</td>
<td></td>
</tr>
</tbody>
</table>

### Permits, agreements

<table>
<thead>
<tr>
<th>Permit obtained for quarry opening during construction</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreement obtained for disposal of construction waste</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Management of construction sites

<table>
<thead>
<tr>
<th>Proper location of construction site/camp</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of proper storage for fuel, oil and construction materials</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Proper maintenance of construction machinery and equipment (prevent leakage of fuel, oil, lubricants, etc.)</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Availability of places of preliminary accumulation of excavated and demolished materials and construction wastes within the existing right-of-way</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Timely removal of excavated and demolished materials and construction waste from the places of preliminary accumulation and disposal to planned and agreed places</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Use covered trucks for transportation of construction materials and waste</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Clean the surrounding area from dust by water sprinkling in construction zone (when necessary)</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Clean/wash tires of vehicles before they get to dwellings and/or drive on highways (when necessary)</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Implementation of works at the established time (e.g. work during daytime)</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Installation of road signs in construction sites, camps and along access roads</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Ensure proper sanitary/hygienic conditions for workers at the construction site</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Restoration of the area of construction sites and camps when the construction works are over</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Safety measures

| Workers are provided with necessary safety uniform (e.g. vests, helmets, high boots, gloves, glasses, etc.) and use them | Yes | No | N/A |
| Availability of fire-resistant measures on construction sites/camps (fireproof shield, fire extinguisher, sand, etc.) | Yes | No | N/A |
Attachment III: Environmental Management Guidelines for Contractors

Rods and footpaths
In order to carry out the rehabilitation works, it may be necessary to close or divert certain motorways and/or footpaths, either permanently or temporarily during the construction period. The contractor should arrange diversions for providing alternative route for transport and/or pedestrians in the course of works.

After breaking up, closing or otherwise interfering with any street or footpath to which the public has access, the Contractor shall make such arrangements as may be reasonably necessary so as to cause as little interference with the traffic in that street or footpath during construction of the rehabilitation works as shall be reasonably practicable.

Wherever the rehabilitation works interfere with existing public or private roads or other ways over which there is a public or private right of way for any traffic, the Contractor shall construct diversion ways wherever possible. The standard of construction and lighting shall be suitable in all respects for any class of traffic using the existing ways, and the widths of the diversions shall not be less than that of the existing way wherever possible. Diversion ways shall be constructed in advance of any interference with the existing ways and shall be maintained to provide adequately for the traffic flows.

The Contractor shall be responsible for supplying, erecting and maintaining for the requisite periods all statutory and public information notices.

Movement of trucks and construction machinery
The Contractor moving solid or liquid construction materials and waist shall take strict measures to minimize littering of roads by ensuring that vehicles are loaded in such a manner as to prevent falling off or spilling of construction materials and by sheeting the sides and tops of all vehicles carrying mud, sand, other materials and debris.

The Contractor shall also take all reasonable measures to avoid to the extent possible that delivery vehicles park on the highways prior to entering the construction site.

Traffic safety measures
The Contractor shall provide, erect and maintain such traffic signs, road markings, lamps, barriers and traffic control signals and such other measures as may be necessary for ensuring traffic safety around the rehabilitation site. The Contractor shall not commence any work that affects the public motor roads and highways until all traffic safety measures necessitated by the work are fully operational.

Access across the construction site and to frontages
In carrying out the rehabilitation works, the Contractor shall take all reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of the adjacent properties, and to the public generally. The Contractor shall maintain any existing right of way across the whole or part of the rehabilitation site and public and private access to adjoining frontages in a safe condition and to a standard not less than that pertaining at the commencement of the contract. If required, the Contractor shall provide acceptable alternative means of passage or access to the satisfaction of the persons affected.
Protection of the existing installations
The Contractor shall properly safeguard all buildings, structures, works, services or installations from harm, disturbance or deterioration during the concession period. The Contractor shall take all necessary measures required for the support and protection of all buildings, structures, pipes, cables, sewers, railways and other apparatus during the concession period. In case of damage incurred in the course of works to the existing infrastructure, the Contractor must absorb responsibility for its restoration.

Use of existing structures
The Contractor shall not locate stockpiles for materials, stores, plant or temporary works upon or adjacent to or under existing structures such as bridges, viaducts, towpaths, walls and embankments in such a way as to endanger these structures.

Noise and dust control
The Contractor shall take all practicable measures to minimize nuisance from dust and noise from the rehabilitation sites. This includes:
- Respecting normal working hours in or close to residential areas;
- Maintaining equipment in a good working order to minimize extraneous noise from mechanical vibration, creaking and squeaking, as well as emissions or fumes from the machinery;
- Shutting down equipment when it is not directly in use.

Water supply conflicts
The Contractor must ensure that the workforce have adequate access to a safe water supply, which is not provided to the detriment of services to the local population. If there is a risk of competition for limited water resources, then the Contractor must ensure that the local supply is not affected, and that workforce is provided with an alternative source if necessary (e.g. tankered and stored water).

Waste disposal
The Contractor must agree with the Client municipality about arrangements for construction waste disposal. The municipality shall designate a dumping site or landfill for the disposal of solid waste. Should any hazardous waste be involved and unexpectedly encountered, the Contractor must inform the Client municipality on the above and strictly follow the Client’s guidance for disposal of such waste.

Soil protection
The Contractor must take all practicable measures to avoid degradation and erosion of soil. The use of heavy machinery must be limited to the extent possible for avoiding land compaction. Soil erosion and slope instability should be addressed through hillside terracing, tree planting and construction of check dams.

Protection of trees and other vegetation
The Contractor shall avoid loss of trees and damage to other vegetation wherever possible. Adverse effects on green cover within or in the vicinity of the rehabilitation site shall be minimized by adequate selection of access routes, piling and storage locations for construction materials and parking lots for heavy machinery.

Emergency contacts and procedures
The Contractor shall prepare and maintain emergency contact information for each rehabilitation site which shall be displayed prominently and accessible for all personnel.
Emergency contact information shall contain phone numbers and the method of notifying local authorities/services for action in case of fire, health emergencies, disorder in communications, emergency release of hazardous materials, etc.

**Clearance of rehabilitation site on completion**

The Contractor shall clear up all working areas both within and outside the rehabilitation site and accesses as work proceeds and when no longer required for the carrying out of the Rehabilitation works. All surplus soil and materials, temporary roads, plant, sheds, offices and temporary fencing shall be removed, post holes filled and the surface of the ground restored as near to its original condition as conditions permitting.
Minutes of Public Consultation
on
ENVIRONMENTAL MANAGEMENT FRAMEWORK AND
RESETTLEMENT POLICY FRAMEWORK FOR
LIFELINE NETWORK IMPROVEMENT PROJECT

Date: September 20, 2012
Venue: Ministry of Transport and Communication, 28 Nalbandyan St. Yerevan

The meeting was summoned at 11:00.

18 participants attended the meeting, including representatives of the Ministry of Transport and Communication, State Expertise, Transport PIU, North-South Road Corridor Investment Program, MCA-Armenia Program, USAID EDMC, Kocks Consult, local companies for design and technical supervision, road construction and maintenance companies, representatives of beneficiary communities. Participants of the public consultation have registered in the List of Participants and provided their contact details (Annex I). Photographs made during public consultation are presented in the Annex II. Annex III presents an announcement posted in the building of the Ministry of Transport and Communication on a day of public consultation.

Mr. Alexander Bakhtamyan, Director of Transport PIU opened the meeting, presented the purpose of public consultation and briefly provided details on Lifeline Network Rehabilitation Project preparation and implementation. He emphasized the importance of environmental and social analyses conducted during the preparatory phase of the project. Mr. Bakhtamyan noted that the documents to be discussed were posted at the web-site of the Ministry of Transport and Communication and can be also requested from Transport PIU in printed copy whenever is needed. The announcement on public consultation was published in the national newspaper and at the web-site of the Ministry of Transport and Communication. Mr. Karen Badalyan, Deputy Director of Transport PIU welcomed participants and briefly presented the key information regarding the Lifeline Network Rehabilitation Project, including works planned for the first year of the project.

Following opening remarks, Ms. Armine Simonyan, Environmental and Social Specialist of Transport PIU, presented the Environmental Management Framework and Resettlement Policy Framework developed for Lifeline Network Improvement Project.

Presentation on Environmental Management Framework (EMF) covered the purpose of EMF development, its objectives and issues addressed in the document. Information was also provided on World Bank’s Sagerf Policies and triggers for each policy, relevant legislation of the Republic of Armenia and institutions that may be involved in the current project. The potential environmental impacts associated with rehabilitation works to be carried out on local roads as well as major mitigation measures that could be used to prevent or minimize the impacts were presented. At the end of presentation information was provided on Environmental Management Plans developed for seven road links included in the first-year activities of the project.

Presentation on Resettlement Policy Framework (RPF) covered the purpose of RPF development, its objectives and approaches presented in the document. Information was also
provided on World Bank’s Operation Policy on Involuntary Resettlement and relevant Armenian legislation, gaps identified and approaches recommended in order to address gaps, eligibility and compensation mechanism to be applied for the project, as well main entities to be involved in development, review, approval and implementation of land acquisition / resettlement process. Steps of development and implementation of Resettlement Action Plan were also presented, and followed by presentation of details on monitoring and grievance redress approaches. It was emphasized that no new roads will be constructed as a part of the project, and that the project envisages implementation of rehabilitation works on existing road alignment. Taking the above facts into account, it was noted that though no resettlement is expected for the Lifeline Network Improvement Project, the RPF is developed to serve as a tool in case the land acquisition / resettlement is required for any of the road sections to be rehabilitated as a part of the project activities.

Afterwards, the participants were invited for a question-and-answer session. The main questions raised during the consultation and responses provided are briefly summarized below.

**Question 1**
In case the project requires relocation of utilities, how this will be carried out? What happens if the trees have to be cut?

**Reply**
Mr. Badalyan provided clarification with respect to the question on relocation of utilities and explained that relocation will be included in the design and will be carried out by respective utility managers (e.g. Armenian Water and Sewerage Company for water supply and wastewater system, Electric Networks of Armenia for power transmission lines, etc.). He also mentioned that in case the land is required for installation of relocated utilities, the land acquisition will be carried out prior to commencement of works. Ms. Simonyan provided explanation with respect to the second question, and clarified that in case of resettlement the compensation is envisaged not only for the lost land, houses, other structures, employment and income, but also for the lost assets, such as crops and trees, thus the trees and crops will be also compensated. In addition, eligibility and compensation matrix, in addition to other provisions, envisages allowances for livelihood restoration, relocation, vulnerable groups, etc.

**Question 2**
What are the major differences between in Armenian laws and World Bank’s Operation Policies in terms of development of environmental documents?

**Reply**
Ms. Simonyan explained that the local legislation requires Environmental Impact Assessment for various types of projects exceeding the thresholds defined by respective Governmental Decree. The World Bank OP 4.01 “Environmental Assessment” is considered to be the umbrella policy for the Bank’s environmental safeguard policies, which are critical for ensuring that potentially adverse environmental and social consequences are identified, minimized, and properly mitigated. The World Bank carries out screening of each proposed project to determine the appropriate extent and type of environmental assessment to be undertaken and whether or not the project may trigger other safeguard policies. Lifeline Network Rehabilitation Project is assigned “B” category and an Environmental Management Plan is required for each road section, while
there is no such provision under the local legislation. From environmental perspective, application of more strict requirement (the World Bank’s requirement) allows ensuring timely identification of potential adverse environmental impacts and their adequate mitigation in compliance with best environmental practices.

**Question 3**
Please provide information on the road links to be included in second and third years of project activities?

**Reply**
Mr. Badalyan clarified that the road links for the second and third years of the project are not identified yet, and details are available only for seven road links included in the first-year activities of the project.

**Question 4**
How the project road links are selected?

**Reply**
Mr. Badalyan explained that the links are selected from a pool of lifeline road sections, connecting communities with other settlements and marz centers, and the selection is made as a result of review and appropriate analysis by a number of components.

The meeting was closed at 12:15.

Minutes taken by Armine Simonyan, Environmental and Social Specialist of the Transport PIU.
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<tr>
<th>NN</th>
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<th>Occupation / position</th>
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<tr>
<td>1</td>
<td>Viktor Bakhtamyan</td>
<td>USAID EDMC, Environmental Expert</td>
<td>091011304</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Karen Badalyan</td>
<td>Transport PIU, Deputy Director</td>
<td>091417389</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Kajik Kababyan</td>
<td>Ministry of Transport and Communication, Transport Department, Deputy Head</td>
<td>094220116</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Carsten Griese</td>
<td>Kocks Consult, Project Manager</td>
<td>+4926113020</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Davit Hovsepian</td>
<td>Dorproject Institute, Chief Engineer</td>
<td>091430416</td>
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<td>6</td>
<td>Armine Yedigaryan</td>
<td>North South Road Corridor Investment Program, Head of Unit on Resettlement and Environment</td>
<td>091727245</td>
<td></td>
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<tr>
<td>7</td>
<td>Bagrat Badalyan</td>
<td>Construction Project Implementation Unit</td>
<td>091007809</td>
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<td>8</td>
<td>Varad Karapetyan</td>
<td>Ministry of Finance, FFPMC, MCA-Armenia Program</td>
<td>093282350</td>
<td></td>
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<td>Vladimir Sidorov</td>
<td>“Chanaparh” Ltd., Chief Engineer</td>
<td>010627240</td>
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<td>10</td>
<td>Sergey Avagyan</td>
<td>RA State Expertise, Chief Engineer</td>
<td>09143288</td>
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<td>Garnik Tadevosyan</td>
<td>“Ijevan Road Maintenance and Construction” CJSC, Chief Engineer</td>
<td>091402300</td>
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<td>Armen Mkrtchyan</td>
<td>“Talin Road Maintenance and Construction” CJSC, Director</td>
<td>091419916</td>
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<td>Erik Poghsyan</td>
<td>“Sisami BUAT” CJSC, Deputy Director</td>
<td>077805090</td>
<td></td>
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<td>Sahak Harutyunyan</td>
<td>Kotayk Marz, Kotayk Community</td>
<td>093208971</td>
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<td>Gegharkunik Marz, Verin Getashen Community Leader</td>
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<td>Gegharkunik Marz, Madina Community Leader</td>
<td>093430059</td>
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<td>17</td>
<td>Varduhi Sargsyan</td>
<td>Office Manager, Kocks Consult</td>
<td>099-457088</td>
<td></td>
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<tr>
<td>18</td>
<td>Armine Simonyan</td>
<td>Transport PIU, Environmental and Social Specialist</td>
<td>0930000325</td>
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ANNEX II. PHOTOGRAPHS MADE DURING PUBLIC CONSULTATION