REPUBLIC OF MACEDONIA
Regional and Local Roads Program Support Project

SECTORAL ENVIRONMENTAL ASSESSMENT

Vol. I. Text

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### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE (MoEPP)</td>
<td>Administration regarding Environment within MoEPP</td>
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<tr>
<td>DMEIA</td>
<td>Division for Monitoring and Environmental Impact Assessment</td>
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<tr>
<td>EA</td>
<td>Environmental Assessment</td>
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<tr>
<td>EAMF</td>
<td>Environmental Assessment and Management Framework</td>
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<td>EC</td>
<td>European Commission</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EMP</td>
<td>Environmental Management Plan</td>
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<td>EU</td>
<td>European Union</td>
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<tr>
<td>FNRR</td>
<td>Fund for National and Regional Roads</td>
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<td>GP</td>
<td>Good Practice</td>
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<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development</td>
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<td>IEE</td>
<td>Initial Environmental Examination</td>
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<td>IFI</td>
<td>International Finance Institution</td>
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<tr>
<td>MLE</td>
<td>Macedonian Law on Environment</td>
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<td>MoE</td>
<td>Ministry of Economy</td>
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<td>MoEPP</td>
<td>Ministry of Environment and Physical Planning</td>
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<td>MTC</td>
<td>Ministry of Transport and Communications</td>
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<tr>
<td>NDP</td>
<td>National Development Plan</td>
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<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
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<td>NTS</td>
<td>National Transport Strategy</td>
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<tr>
<td>NUTS</td>
<td>Nomenclature of Territorial Units for Statistics</td>
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<td>OE</td>
<td>Office of Environment</td>
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<tr>
<td>OP/ BP/ GP</td>
<td>Operational Policies, Bank Procedures and Good Practices</td>
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<tr>
<td>PEM</td>
<td>Public Enterprise Makedonijapat</td>
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<td>PEP</td>
<td>Pre-Accession Economic Programme</td>
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<td>PIP</td>
<td>Public Investment Programme</td>
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<td>RPF</td>
<td>Resettlement Policy Framework</td>
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<td>SEA</td>
<td>Sectoral Environmental Assessment</td>
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<td>SEI</td>
<td>State Environment Inspectorate</td>
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<td>TA</td>
<td>Technical Assignment</td>
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<td>ULSG</td>
<td>Units of local self-government</td>
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<td>UNDP</td>
<td>United Nation Development Programme</td>
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<td>WB</td>
<td>World Bank</td>
</tr>
</tbody>
</table>
# REPORT CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>4</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>1. PROGRAM DESCRIPTION</td>
<td>11</td>
</tr>
<tr>
<td>2. DESCRIPTION OF ENVIRONMENT (BASELINE DATA)</td>
<td>14</td>
</tr>
<tr>
<td>2.1. Biophysical Environment</td>
<td>14</td>
</tr>
<tr>
<td>2.2. Socio-Economic Environment</td>
<td>22</td>
</tr>
<tr>
<td>2.3. Cultural and Historical Environment</td>
<td>29</td>
</tr>
<tr>
<td>3. POLICY, LEGAL AND REGULATORY FRAMEWORK FOR ENVIRONMENTAL AND ROAD SECTOR</td>
<td>32</td>
</tr>
<tr>
<td>3.1. National Policy and Regulatory Frameworks</td>
<td>32</td>
</tr>
<tr>
<td>3.2. National Requirements for Environmental Impact Assessment</td>
<td>38</td>
</tr>
<tr>
<td>3.3. Other Relevant Guidelines and Procedures</td>
<td>44</td>
</tr>
<tr>
<td>3.4. WB Safeguards Procedures to be Considered</td>
<td>45</td>
</tr>
<tr>
<td>3.5. Assessment of Adequacy of National EA Requirements to the WB Rules and Procedures</td>
<td>47</td>
</tr>
<tr>
<td>4. INSTITUTIONAL FRAMEWORK AND CAPACITY TO PERFORM SAFEGUARDS</td>
<td>48</td>
</tr>
<tr>
<td>4.1. National Institutional Framework</td>
<td>48</td>
</tr>
<tr>
<td>4.2. Assessment of Capacities to Perform Safeguards</td>
<td>50</td>
</tr>
<tr>
<td>5. ENVIRONMENTAL IMPACTS</td>
<td>51</td>
</tr>
<tr>
<td>6. ANALYSIS OF ALTERNATIVES</td>
<td>54</td>
</tr>
<tr>
<td>7. ENVIRONMENTAL MANAGEMENT PLAN</td>
<td>56</td>
</tr>
<tr>
<td>7.1. National and Sector Level Mitigation</td>
<td>56</td>
</tr>
<tr>
<td>7.2. Environmental Assessment and Management Framework (EAMF)</td>
<td>57</td>
</tr>
<tr>
<td>7.3. Resettlement Policy Framework</td>
<td>65</td>
</tr>
<tr>
<td>7.4. Environmental Guidelines</td>
<td>65</td>
</tr>
<tr>
<td>7.5. Environmental Monitoring Plan</td>
<td>68</td>
</tr>
<tr>
<td>8. PUBLIC CONSULTATION</td>
<td>74</td>
</tr>
<tr>
<td>9. IMPLEMENTING ARRANGEMENTS AND BUDGET</td>
<td>75</td>
</tr>
<tr>
<td>9.1. Implementing Arrangements</td>
<td>75</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Introduction

The main objective of the project would be to reduce the cost of access from municipalities throughout Macedonia to markets and services, by improving the condition and quality of the network of Regional and Local roads. The World Bank sees itself as a partner in a Government Program for Regional and Local Roads in Macedonia and would support the Government in the preparation of such a Program, and then participate in its financing, together with one or several other IFIs and the Government’s own funding. The Sectoral Environmental Assessment is providing an assessment of potential environmental and social impacts of the Program, along with the needs and priorities for the capacity building at the sector level in order to avoid and/or mitigate any potential adverse impacts and to strengthen relevant institutional capacities in this area, as well as an Environmental Assessment and Management Framework (EAMF) that would guide Environmental Impact Assessment (EIA) of the road subprojects once they will be selected.

Terms of reference and methodology of the study

The main scope of the environmental assessment process is to: (i) ensure that environmental and social issues have been taken into account in the design and implementation of the project; and (ii) ensure that country capacity is increased and that a regulatory framework and procedures are established and will serve as the basis for environmental impact assessments for all future road sector rehabilitation and construction. For the proposed road investment program involving future projects (still to be defined), it is necessary to conduct: (i) a Sector Environmental Assessment (SEA) of the overall program prior to the commitment of resources and the finalization of subprojects; and (ii) a project-level EIA to provide more detailed and subproject-specific analyses once the subprojects are identified. Therefore, the overall SEA goal is to try and determine the future potential environmental and social impacts of the program in the road sector, to specify the needs for EA institutional capacity building, to define an EAMF that would guide conducting EIAs and preparation of Environmental Management Plans (EMPs) to be implemented during the road subprojects project design and implementation.

The study was conducted based on the following: (i) analysis of the existing national legal documents, regulations and guidelines; (ii) SEA reports prepared for similar WB projects in other countries; (iii) WB safeguard policies, as well as guiding materials; (iv) results of consultations with the representatives from all interested stakeholders.

Project Environmental Category

Although most of proposed project activities would be focused on rehabilitation and maintenance of the existing roads, which are not expected to generate significant adverse environmental and social effects, the project also might finance construction of new small segments of roads, which might have significant environmental impacts. Taking this into consideration and provisions of the World Bank Safeguard Policies (OP/BP/GP 4.01 Environmental Assessment) and of the national EIA legislation, the project is rated as category A with potential significant adverse environmental impact. For such projects a full EIA and an Environmental Management Plan (EMP) should be carried out as part of project preparation and design. The EMP would address the potential significant and/or moderate adverse environmental effects of the construction or rehabilitation activities of the project, would provide mitigation and monitoring plans to ensure appropriate attention to environmental and social issues, and would monitor management practices.
Environmental and Social Safeguards Review Process

Environment and social safeguards issues should be an integral part of project preparation and of the selected road subprojects design. As the project will consist of several relatively similar road improvement subprojects (to be identified at a later stage of project design), it was decided to apply a phased approach to the EA. At the first stage it is necessary to conduct the SEA. The SEA would consist of: (i) conducting an analysis of EA institutional capacities and preparing recommendations for improving the EA process in the roads sector; (ii) preparing an EAMF that would establish environmental safeguard procedures for selected road subprojects as well as guidelines with the details on potential environmental and social issues and on how to prepare EMPs. This would serve as a template to undertake an appropriate EIA of road subprojects once identified. Additionally as the project might support construction of new roads, which might require land acquisition, the SEA contains also a Resettlement Policy Framework (RPF) that should be applied in the case of such activities. At the second stage, the EA would include: (i) screening of proposed subprojects and identifying those that need a partial or full EIA study; and (ii) carrying out a specific EIA and preparing EMPs for selected roads.

National EA legal and institutional framework

Macedonia has its own developed legal and institutional framework for Environmental Assessments. This framework is generally in compliance with the existing WB EA rules and procedures as well as with the EU EIA Directives. Environmental Impact Assessment of certain projects is required to be carried out in the Republic of Macedonia in accordance with Articles 76-94 of the Law on Environment (Official Gazette of the Republic of Macedonia No. 53/2005). The types of projects that require an EIA are to be determined in accordance with Article 77 of the Law on Environment, which are specified in details by the Government of the Republic of Macedonia in the “Decree for Determining Projects for which and criteria on the basis of which the screening for an environmental impact assessment shall be carried out (Official Gazette of the Republic of Macedonia No. 74/2005). The Law on Environment and approved relevant bylaws define Procedures for conducting an EIA as well as the goal, objectives, and principles of the EIA, and stipulate the procedures for submitting project documentation, as well as reviewing procedures. The EIA procedure precedes decision-making about activities that may have an adverse impact on the environment. Financing of programs and projects is allowed only after positive approval of EIA Study by MOEPP. The responsible EIA authority in Macedonia is the Department on Environment within the Administration for Environment (AE), a body under Ministry Environment and Physical Planning (MoEPP).

Institutional capacities to perform safeguards

The EA institutional capacity of the borrower was assessed during project preparation. It was concluded the MoEPP needs to strengthen its capacities in particular to perform duties concerning reviewing EIA studies and enforcing EMP provisions. At the same time, within the Ministry of Transport and Communications (MTC) and the Fund for National and Regional Roads (FNRR) (the project implementing agency), there are no any special unit and/or especially designated staff responsible for environmental issues in the road sector, as well as any analytical laboratories that might assist in ensuring compliance with the existing legislation, regulations and ecological norms. In this regard it will be necessary to provide relevant TA to the MoEPP, MTC and FNRR to strengthen their capacity and to ensure the environmental requirements will be fully integrated into sectoral policies, and program design, as well as into design and implementation of the EIAs of the road subprojects.
Analysis of Environmental Impacts for the Road Sector

The nature and scale of impacts will be determined by the type of interventions undertaken by the project, which is expected to be focused mostly on rehabilitation and maintenance of the existing roads, but might also support construction of new small road segments. In the case of rehabilitation and maintenance activities most potential environmental and social impacts will be limited mainly to the effects associated with works such as dust and noise control, use of bitumen, disposal of solid or hazardous waste, erosion control, and labor camp management (which will be temporary with only minor and localized negative effects). After completion, the project will have positive indirect impacts on human health and safety through decreased number of accidents and reduced air pollution from more constant travel speeds on rehabilitated road sections. The impacts of construction of new roads in a way would be similar with those in the case of rehabilitation activities but more significant along with other potential significant impacts dealing with the larger land preparation works that might have adverse impacts on soil resources, natural vegetation, water resources, etc. Furthermore in the case of land acquisition there also might be significant social impacts. In order assist in identifying all the types of impacts that may arise from a project that will be selected, a checklist has been developed which highlights typical issues that need to be considered. The checklist serves to summarize potential impacts and provide a simple and visual tool for conducting an impact assessment, including assessment of magnitude and significance of the identified impacts.

Environment Management Plan

The SEA includes an EMP which covers different measures to mitigate any potential negative impacts, as well as a monitoring plan, budgets, responsibility, and schedules of execution. The EMP consists of the following: (a) proposals for developing the regulatory framework for the EIA, strengthening the EIA capacity in all institutions involved; (b) an EAMF that covers procedures for environmental screening of subprojects and criteria for categorization, procedures for conducting an EIA and/or preparing an EMP for selected subprojects; (c) Resettlement Policy Framework that is aimed to provide details on the likely impacts resulting from land acquisition for the above mentioned activities and the mitigatory measures that will be put in place to address these adverse impacts; (d) Environmental Guidelines with the description of potential environmental and social impacts and suggested mitigation measures, based on the most advanced international practices; (e) a Monitoring Plan, including specifications for supervision as well as the basic environmental and social performance indicators, timeframe and responsibilities for proposed monitoring activities; and (f) implementing arrangements and a budget covering each step of the implementation of all proposed measures.

The first section of the EMP (National and Sector level mitigation) outlines the results of a short analysis of EA policy and the institutional framework, which is based on a series of recommendations for developing the regulatory mechanisms for EIA, and strengthening the EIA capacity in all institutions involved, i.e. in governmental road sector and environmental agencies and among national contractors. In particular it is proposed to prepare an Environmental Road Handbook, which will include all relevant national legislation, norms and standards in the domain.

The EAMF outlines how the national EA rules, procedures and WB requirements will be applied to the civil works to be financed under the proposed project, and provides the tools to carry out the various steps required. It contains detailed procedures for environmental screening of subprojects and criteria for categorization, procedures for conducting an EIA and/or preparing an EMP for selected subprojects. The EAMF will be used as a guide and template by FNRR/PEMP to undertake environmental analysis and ensure compliance with the World Bank’s environmental safeguard policies, and the relevant provisions under the national Law on Environment and associated regulations once the road subprojects are selected. Detailed EIAs/EMPs for individual subprojects will be carried out (in accordance with the EAMF) by the design contractor and will be reviewed and cleared by the FNRR specialists as well as by the MOEPP under prevailing national environmental legislation in Macedonia and satisfactory to the Bank.
The Resettlement Policy Framework provides: (i) details on the policies governing land expropriation, the range of adverse impacts and entitlements; (ii) a strategy for achieving the objectives of the resettlement/land acquisition policy; (iii) a framework for implementation of the stated strategies to ensure timely acquisition of assets, payment of compensation and delivery of other benefits to project affected persons (PAP); (iv) details on the public information, consultation and participation, and grievance redress mechanisms in project planning, design and implementation; and (v) identified sources and estimates of required resources for implementation of the RAP; and (vi) a framework for supervision, monitoring and evaluation of resettlement implementation.

The environmental management guidelines describe the basic road maintenance and rehabilitation activities, identify possible environmental impacts for each activity, suggest mitigation measures, and designate responsibility for implementation. Implementation would be part of the road works contract while their enforcement would be the responsibility of the FNRR environmental specialist and supervision consultant, and of the State Ecological Inspectorate.

The Monitoring Plan includes measures that will be employed to track the effectiveness of the EMP, as well as environmental indicators to be monitored, monitoring methods and frequency, and reporting procedures. Furthermore, it also includes detailed recommendations concerning preparing and implementing road subproject Monitoring Plans.

Main SEA EMP provisions, especially with regard to EAMF, RPF, Environmental Guidelines and Monitoring Plans will be included in the Project Operational Manual and implemented by the FNRR and contractors. Furthermore, it is proposed the main stipulations of mentioned EMP sections be included in the Contract specifications that concern contractors’ responsibilities for civil works, and the mitigation measures be reflected in the engineering designs and bidding documents for each road subproject. Among the most important provisions to be provided to the contractors (though there are others) are the following: (a) provisions on spill prevention and cleanup, dust and noise control, traffic management during construction, safety enhancement, construction site cleanup and rehabilitation; and, (b) provisions governing the sources of construction materials. Materials (e.g., asphalt, stone, sand, etc.) would be supplied only from sources with approved licenses, permits, and/or approvals for environment and worker safety; any equipment used during construction would meet internationally recognized standards for environment and worker health and safety. The Bank will review the initial contracts for roads construction and/or rehabilitation works in each road subproject to ensure that these clauses and measures are incorporated as proposed.

The SEA EMP also provides details on implementing arrangements and capacity building activities. It is proposed an environmental specialist to be appointed in the FNRR to assist with the SEA and EMP implementation, as well as to provide training on environmental management aspects of the project to MTC and MoEPP. The project would also provide the MTC and FNRR with technical assistance for environment management and assessment, including training workshops in: (a) integrating environmental procedures, environmental policies and management into the project cycle; (b) reviewing projects that would require the preparation of limited or full environmental assessment; (c) applying Resettlement Policy Framework in the cases of land acquisition; and (d) implementing EMPs for selected road subprojects. Additionally the project will support training activities for AE (MoEPP) on supervision of the EMPs implementation and the enforcement of provisions.

In order to conduct the proposed TA activities, the NFRR will allocate needed resources for institutional strengthening of the MTC and FNRR/PEM, as well as to AE (MoEPP) staff. The actual cost of implementing the EMP for road subprojects was not estimated, provided these are incorporated into the project design and reflected in the works contracts then these costs would be borne by the contractors. No additional funding will be provided to the State Ecological Inspectorate for monitoring compliance with
agreed measures, enforcing laws, regulations and covenants; these costs would be borne by the institution itself.
INTRODUCTION

Macedonia’s roads and Government plans

Road transportation infrastructure of the Republic of Macedonia is characterized by relatively high density, exceptions being the highways. At the moment, Macedonia’s road network totals about 13,186 km, out of which 909 km are national roads, 3,781 km are regional and 8,496 km are local roads. Considering the small size of the country and its population, the road network size is mostly adequate, with little or no need for expansion. The network is not in good condition; about 50% of national roads are poor.

Rather poor level of the road infrastructure quality contrasts sharply with the high relative importance of this mode of transportation in the Republic of Macedonia. Road transportation namely accounts for by far the largest share of total transportation of goods and passengers in the country. Within the structure of all goods transported on the roads, internal transport participates with a dominant share while the rest is being distributed between international transport and transit. As far as passenger transportation is concerned, road transportation is even more dominant, as only a negligible per cent of all passenger travels in the country is done by railways.

The backbone of the country’s road network are the two pan European corridors. Of the 172 km long pan-European corridor X passing the country in the North – South direction 70.1 per cent has been already constructed at modern highway standards with the remaining sections accounting 29.1 per cent of the total being ready for construction. Construction of the pan-European corridor 8, with the total length of 304 km and passing the country from East to West, is less advanced. Only 27.6 per cent of the total is already built at modern highway standards with another 8.7 per cent being currently under construction.

Presently the Government is being prepared a comprehensive National Transport Strategy (NTS). The Strategy will address the underlying causes and issues of the road infrastructure crisis and propose legal, institutional and physical measures to overcome this situation. The National Transport Strategy (NTS) determines the transport development priorities for the period 2007-2017. The main objectives of the National Transport Strategy, are the following:

- Promote economic growth by building, enhancing, managing and maintaining transport services, infrastructure and networks to maximize their efficiency;
- Promote an integrated and interconnected transport network that establishes effective service to users and to areas and activities served by it in Macedonia.
- Promote social inclusion by connecting remote and disadvantaged communities and increasing the accessibility of the transport network;
- Protect our environment and improve health by building and investing in public transport and other types of efficient and sustainable transport which minimize emissions and consumption of resources and energy;
- Improve safety of journeys by reducing accidents and enhancing the personal safety of pedestrians, cyclists, drivers, passengers and staff; and
- Improve integration by making journey planning and ticketing easier and working to ensure smooth connection between different forms of transport.
The World Bank support

The World Bank and the Government have agreed that the Bank will support the **Country Program for Regional and Local Roads through IBRD funds, starting from 2008.** The Program would not only aim to improve those roads but also put in place a sustainable and transparent system of funding for both investment and maintenance. This multi-annual Program would create a unified system of planning and disbursement of road investment and maintenance funding. Regarding Regional roads, this program would increase funds available for investment. For Local roads, the program would increase the funding provided by the state budget to municipalities, applying the formula approach described earlier. The World Bank’s CPS for Macedonia for 2007-2011 includes support to the road infrastructure subsector through the implementation of a program to stop the degradation of the road network.

Project Environmental Category

Although most of proposed project activities would support rehabilitation and maintenance of the existing roads which are not expected to generate significant adverse environmental and social effects, the project also might finance construction of new small segments of roads, which might have significant environmental impacts. Taking this into consideration and provisions of the World Bank Safeguard Policies (OP/BP/GP 4.01 Environmental Assessment) and of the national EIA legislation, the project is rated environmental category A (significant adverse environmental impact). For such projects a full EA and an Environmental Management Plan (EMP) would have to be carried out as part of project preparation and design.

Environmental and Social Safeguards Review Process

Environment and social safeguards issues represent an integral part of project preparation. Since present project is a part of a broader Road Sector Program that would have significant effects on the roads conditions in the country and on the environment, as well as on existing sectoral policies and institutional capacity, there is a need to perform both Sectoral Environmental Assessment (SEA) and Environmental Impact Assessments (EIAs) of the selected roads (sub-projects), where actual physical works would be carried out. The SEA included evaluation of policy, legal and administrative frameworks; institutional strengthening plan in the field; recommendations for sector-wide regulatory changes, and mitigations measures. At this initial design stage, no road sections to be covered by project were identified, so a site-specific EIA could not be conducted for the roads to be rehabilitated. Therefore, an environmental assessment and management framework (EAMF) had to be prepared as part of the SEA, providing details of relevant environmental issues and guidelines on how to Conduct Environment Impact Assessments and prepare Environmental Management Plans (EMPs). This has to serve as a template for performing proper environmental analysis for road sub-projects to be identified. The EAMF describes the screening process for identifying sub-projects having potentially significant issues that would need to be addressed in a sub-project EIA. Furthermore, in the case of construction of new roads there will be needed land acquisition, the SEA should include also the Resettlement Policy Framework that should be applied in such cases. The Environmental Guidelines include a general assessment of potential impacts and proposed generic mitigation measures to be undertaken for identified sub-projects. EIAs and/or EMPs shall be prepared for all individual road subprojects before works begin to ensure appropriate environmental management.
Based on aforesaid, it was decided to apply a phased approach to Environmental Assessment that include: (i) SEA including developing recommendations for EIA process and institutional capacity, development the framework for environmental assessment and management (EAMF), complying guidelines on how to conduct EIAs and prepare EMPs to be served as a template for environmental assessment for road sub-projects once roads are identified, as well as Resettlement Policy Framework to be applied in the case of land acquisition; (ii) screening of proposed sub-projects and identifying those that need partial or full EIA study; (iii) carrying out specific environmental analyses for identified roads with insignificant environmental impacts; and, (iv) carrying full EIA study for sub-projects considered as category A and B projects (according to WB OP 4.01).

1. PROGRAM DESCRIPTION

The primary objective of the proposed Regional and Local Roads Program would be to reduce the cost of access from municipalities throughout Macedonia to markets and services, by improving the condition and quality of the network of Regional and Local roads. The Program would also help to create an adequate institutional and financial framework for the sustainable investment in, and maintenance of, Regional and Local road infrastructure. Both objectives are closely linked to the objectives stated in the CSP, which is the guiding framework for cooperation between the Government and the Bank.

The World Bank sees itself as a partner in a Government Program for Regional and Local Roads in Macedonia. The Bank would support the Government in the preparation of such a Program, and then participate in its financing, together with one or several other IFIs and the Government’s own funding. As much as possible, Macedonian country systems for procurement, accounting and financial management would be used.

Discussions between the Government and the Bank allowed envisaging the approximate financial volume of the program, as follows: (i) The World Bank would contribute IBRD resources of an amount of €35 million; and (ii) the Government will contribute from its own budgetary resources in the order of €8 million annually over the 2008 – 2012 period (€40 million total). The Government and the World Bank have jointly approached the European Investment Bank (EIB) which has in principle agreed to also contribute €35 million as additional funding for the Program. Discussions with other IFIs concerning further additional financing for the Program are at a preliminary stage and will be stepped up. The combined resources already identified until now would result in a financing scope of the program of about €94 million. A further increase of this amount could result if other IFIs or donors were to contribute more resources towards the program.

The following three Program components have been identified:

**Component 1: Rehabilitation and Periodic Maintenance of Regional Roads (€53.0 million).** This component would provide funding to cover about 265 km of paved roads in the 2008 – 2012 period (about 7% of all Regional roads) and would include (i) civil works, mostly for repair or replacement of structural layers and drainage structures, followed by full asphalt resurfacing; (ii) preparation of bidding documents for civil works; and (iii) works supervision and technical audits.

**Component 2: Rehabilitation and Periodic Maintenance of Local Roads (€53.0 million).** This component would provide funding to cover about 420 km of paved and unpaved roads over the 2008 – 2012 period (about 5% of all Local roads) and would include (i) civil works, mostly for repair or replacement of structural layers and drainage structures, followed by full asphalt resurfacing or regravelling; (ii) preparation of bidding documents for civil works; and (iii) works supervision and technical audits. The allocation of project resources to municipalities will be based on a formula approach (as described earlier) with additional safeguards to ensure that poorer and more remote municipalities
benefit most. Under the formula to be adopted, each municipality would thus be entitled for a specific amount of funds for the rehabilitation and improvement of road located in that municipality.
**Component 3: Institutional support (€4.0 million)**

This component would provide various types of institutional support, such as (a) setup and management of the Government’s Regional and Local Roads Program, (b) implementation of the National Road Transport Strategy and the new Road Law. The National Road Transport Strategy includes (i) the creation of an institutional and financial system for sustainable road network management and maintenance; (ii) the modernization of transport sector legislation; (iii) training and capacity building for persons working in the road sector (staff of the MoTC, FNRR, municipalities, and road design and construction firms); and (iv) specific support to bring Macedonia’s transport system closer to EU standards, and to help mobilize EU funding. The component would also finance annual technical and financial audits of the entire Program for Regional and Local Roads, and technical assistance as needed for the management and monitoring of the Program.

Based on the funding allocated to each municipality, municipalities would prepare and present to the Project Management Agency (Fund for National and Regional Roads) those road projects to be financed from Program funds. The Law on Local Self-Government encourages municipalities to pursue inter-municipal cooperation which is increasingly taking place already. Also, the Law on Equitable Regional Development has created eight Regions and has put in place Regional Councils formed by the mayors of the municipalities included in the respective Regions. Given their mutual interests, municipalities, in general, show a strong readiness to work together on road projects at a regional level. The proposed Program could support and strengthen the role of the Regional Councils, by involving them in the decision-making on the selection of individual regional and local roads to be rehabilitated or improved under the Program.

The program would need a strong central Program Implementation Agency. The Government has identified the Fund for National and Regional Roads (FNRR) to play that role. Individual road projects within the Program would in principle be prepared, procured and supervised by the FNRR, with the support from consulting firms. Municipalities would participate in each stage of the entire process through mechanisms which will be defined during program preparation.

The FNRR would also act as a disbursement agent for all Program funds and would carry out the financial management of the Program. It would be subject to annual technical and financial audits. The FNRR would also provide technical support to municipalities for the preparation of their local road development and maintenance programs.
2. DESCRIPTION OF ENVIRONMENT (BASELINE DATA)

The information presented in this Chapter is mainly aggregated national data and were selected taking into account their relevance for the road sector development.

2.1. Biophysical environment

• Country location and territorial – administrative structures

The Republic of Macedonia is a landlocked country in the middle of the southern Balkan Peninsula, and has a favourable geographic position. With a surface area of 25,713 km2, the country is one of the smallest in Europe. The total length of the border is 849 km, of which the western border is 191 km, the southern, 262 km, the eastern, 165 km and the northern, 231 km in length. (Figure 1 in Annex 1).

According to the Nomenclature of Territorial Units for Statistics (NUTS) classification in the country there are eight NUTS III regions and 84 municipalities (see Figure 2 in Annex 1): The main cities and towns are widely distributed, with Skopje the national capital city, being located in the north-west of the country. According previously mentioned classification 33 municipalities are city municipalities, 41 are village (rural) municipalities, while city of Skopje, covers 10 municipalities.

• Geology, topography and relief

Macedonia has a diversified topography, with high hills and deep valleys, surrounded by mountains, picturesque rivers, large and small natural lakes. The country also is widely known with its rich biodiversity. The relief of Macedonia, as part of the Balkan Peninsula, is characterized by complex geotectonic features, which produce developed relief, complex geology and, hence, a diversity of soil types. The territory of the country possesses a complex mosaic of various metamorphic, sedimentary and igneous rocks in all tectonic units. Generally, the metamorphic complex is dominant in the western zone of Macedonia and Pelagonia, with a reduced area in the Serbia-Macedonian massif and least developed in the Vardar zone. In this zone, sedimentary rocks are dominant, while in the Serbia-Macedonian massif, igneous rocks are characteristic.

The country is located in a region of high seismic activity, and is subject of earthquakes. The intensity of earthquakes can reach a rating of over 5 degrees on the Mercalli-Cancani-Sieberg (MCS) scale, approximately 4.8 on the Richter scale. Capital city of Macedonia - Skopje suffered a devastating earthquake in 1963, and Between 1970 and 1990, the Skopje Seismological Observatory (Sts. Kiril and Metodij University, Skopje) registered about 30 earthquakes with a magnitude exceeding above mentioned degrees.

Seismic situation should be considered for application of safety measures required for stability of roads, bridges and potential landslides, triggered by the earthquakes. This leads to stricter requirements to be applied to engineering works regarding safety and stability of infrastructure and consequently - to higher construction costs. (Figure 3 Annex 1).

1 Country study for biodiversity of the Republic of Macedonia, Skopje, July, 2003
The country’s topography is very diverse, and is represented by mountains, valleys, ravines, narrow gorges, saddles and other forms. The average elevation of the mountain massifs is 850 metres above sea level and more than 30 per cent of the land area is above 1000 metres.
The country has 14 mountain peaks higher than 2,000 metres. The highest peak, the 2,753-metre-high Golem Korab, is situated on the Albanian border. Amid the mountains are flat valleys and plains interconnected by passes or deep ravines.

The mountains are the most important among the large relief forms, and cover approximately two-thirds of the territory. They fall into two groups depending upon their time of formation, geological composition and size of extension - Rhodope and Dinaric groups. The Rhodope group is considered to be older and situated primarily in the eastern part of the country. The Dinaric group extends through the western, south-western, southern and central portions of the country. These mountains are considered to be young mountains and include the Shar Planina mountain group, Vardar zone and Pelagonian horst anticline.

“Valleys and larger plains are distributed over approximately one-third of the country. Most distinct are the ones extending along the Vardar River. From the northwest to the southeast, they are situated as follows: Polog (373 km²), Skopje (1,840 km²), Tikvesh (604 km²) and the Gevgelija - Valandovo Valley (620 km²).

- Climate

Due to specific natural and geographic characteristics, there are two main types of climate in the Republic of Macedonia: Mediterranean and continental. Thus, two prominent seasons occur: cold, wet winters and dry, hot summers. By the end of the XX century, starting with the 80s an extreme dry period has been registered. It had a character of an extended dry period lasting more than 7 years (till 1995/96). In addition to these, in the high, mountainous areas there is also a mountainous climate characterized by short, cool summers and considerably cold and moderately wet winters, where precipitation is mainly in the form of snow. In spite of the fact that Macedonia lies relatively close to the Aegean and Adriatic Seas, the influence of the Mediterranean climate does not reach very deeply into the country, except within a few valleys. This is a result of the high mountains which rise up in the west and south of the country. The influence of the Aegean Sea can be felt along the valley of the Vardar River northward to Demir Kapija, and slightly less so in the Skopye Valley. The continental influence enters from the north and continues towards the south; therefore, the characteristics of this climate are felt deep within the country, especially in the northeast and eastern regions.

The average annual temperature is 11.3°C. The hottest towns are Valandovo and Gevgeliya, with average temperatures of 14.5°C and 14.3°C, respectively. In the mountainous climatic areas, the mean annual temperatures are: on Popova Shapka, 4.7°C, in Lazaropole, 6.8°C and in Krushevo, 8.2°C. The average temperature in July is 22°C and in January –3°C. The warmest region of the country is Demir Kapija, where temperatures in July and August exceed 40°C.

The average precipitation within the country is 683.7 mm/year. The mountainous western region receives over 1000 mm of rainfall a year, while the annual precipitation in the Vardar valley is less than 500 mm. The areas of highest precipitation occur in Mavrovi Anovi and Resen, with 1,197 mm and 757.9 mm, respectively, and the least in Ovche Pole Plain with only 490.3 mm. Hail falls most often in the period from April to October, with the highest incidence in April and May. It is most frequent in the Ovche Pole, Tikvesh and Pelagonian areas and in the valleys of Gevgeliya-Valandovo and Skopje. Winds blow mainly from the northern quadrant but, in specific areas, their direction can changes according to the relief structure. Although the best known winds are the Vardarec and Jug, sometimes in valleys or ravines local winds occur, such as in Denik and Noknik.

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• **Surface waters**

The Republic of Macedonia contains a considerable number of water resources, both underground and surface. The total water resources reserves of Macedonia are estimated at: $18.8 \times 10^9$ m$^3$ from rainfall (with a 733 mm average rainfall); $6.37 \times 10^9$ m$^3$ discharged from the river basin areas; $0.52 \times 10^9$ m$^3$ groundwater; and $0.42 \times 10^9$ m$^3$ from the largest springs. The annual resources per capita are about $3.150$ m$^3$/year.

The rivers of Macedonia are divided into three primary watersheds: one flowing to the Adriatic Sea and two to the Aegean Sea. Another very small watershed flows to the Black Sea. The Vardar River (Aegean watershed) is the largest river, and bisects the whole country. Of its total length of 388 km, 301 km are inside the country, passing through the capital Skopje before crossing to Greece and finally flowing to the Aegean Sea near Thessalonica.

The territory of the country is affected periodically by floods. Extreme floods were registered in hydrographical year 1962/63 when great part of the territory of the country was flooded. Another major flooding in the country occurred in 1979.

There are several large natural lakes in the Macedonia. Of the natural ones, the most attractive are the tectonic lakes: Ohrid, Prespa and Doyran.

*Lake Ohrid* is the largest, occupying an area of 348.8 km$^2$, of which 229.9 are in the Republic of Macedonia and the remainder in Albania. It is 30.5 km long, 15 km wide. The lake is situated at 699 m above the sea level. In addition to flow from the Crni Drim River, the lake receives water from 80 surface and underground springs and from Prespa Lake, which is located at a higher altitude. Ohrid Lake, with its relict and endemic organisms, represents the most significant lake ecosystem in Europe (under the protection of the United Nations Educational, Scientific and Cultural Organization [UNESCO])

*Prespa Lake*, with an area of 274 km$^2$, is the second largest in the country, 176.8 km$^2$ of which belong to Macedonia, 47.8 km$^2$ to Greece and 49.4 km$^2$ to Albania. Its length is 28.6 km and its width is 16.9 km. Prespa Lake is situated at 853 m msl.

*Doyran Lake*, unlike the other two lakes which are located in western Macedonia, is situated in the south of the country, occupying an area of 42.74 km$^2$, 27.1 km$^2$ of the area belong to the Macedonia and the rest to neighbouring Greece. It is characterised by high floristic and faunal diversity and low endemicism.

The network of small internal river-courses and relevant floodplains are also important consideration for the road sector as it is required protection of surface water and safety measures to prevent floods as well as to protect road infrastructure.

• **Groundwater**

Macedonia’s ground waters include$^3$: phreatic, artesian, subartesian and well waters. They have great importance for the country, because it is estimated that nearly 60% of rural and 50% of urban drinking water supplies come from wells. A portion of these waters are used for industrial purposes, which is unpopular in light of the current situation with global water shortages. Artesian waters are common in the Pelagonian and Strumitsa-Radovish Valleys and can be found at depths of 60-80 m. Reserves in the Pelagonian Valley are estimated to be 170 million m$^3$, with about half this amount in the Strumitsa-Radovish Valley. In some places, there are also high mineral constituents. Underground waters from karstic springs and from aquifers (over 80 per cent of the waters used for the settlements’ water supply) have their watersheds (wide protection zone) usually in high mountain areas. For road sector the groundwater level and its flow are important factors to be considered, as it may significantly affect road stability and provoke contamination of drinking water wells.

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$^3$ Country study for biodiversity of the Republic of Macedonia, Skopje, July, 2003
• **Soils**

The country, although small in size, abounds in various soil types\(^4\) (Figure 4 in Annex 1). It has 1,244,000 ha of agricultural land or 48.4% of its total territory. The ratio between arable land area (612,000 ha) and area under pastures (630,000 ha) is 49.5%:51%. The structure of arable land is dominated by ploughland and gardens covering an area of 512,000 ha, or 84%. At European level, Macedonia belongs to the group of countries with medium availability of agricultural and arable land, or the average area of 0.30 ha arable land or 0.25 ha plough land per inhabitant or 2.3 ha per agricultural inhabitant. The share of arable land area in the current structure of agricultural land is 49.2%, and the same share in 2020 will be 47.7%, or arable land will decrease by 42,000 ha.

**Soil erosion.** Most of the territory of Macedonia is vulnerable to different levels of soil erosion\(^5\) (see Table 1).

<table>
<thead>
<tr>
<th>Soil erosion in Macedonia</th>
<th>Area (km(^2))</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely high</td>
<td>698</td>
<td>3</td>
</tr>
<tr>
<td>High</td>
<td>1,832</td>
<td>7</td>
</tr>
<tr>
<td>Medium</td>
<td>6,893</td>
<td>27</td>
</tr>
<tr>
<td>Low</td>
<td>7,936</td>
<td>32</td>
</tr>
<tr>
<td>Very low</td>
<td>7,463</td>
<td>31</td>
</tr>
</tbody>
</table>

An amount of 9,423 km\(^2\) or 36.65% of the total state territory is encompassed by stronger categories (I – III) (Figure 5 in Annex 1). The total annual production of erosive materials on the whole territory is about 17 x 106 m\(^3\) / year or 685 m\(^3\) / km\(^2\) / year, out of which 7.5 x 106 m\(^3\) / year or 303 m\(^3\) / km\(^2\) / year are transported. Annual soil loss represents an annual average loss of arable soil layer of 20 mm in depth over an area of 8,500 ha, or 0.33% per cent of the total surface of the country. About 40 thousand ha (annual soil loss of 308,000 m\(^3\)) of irrigated land is subject to erosion, due to furrow irrigation on sloping land.

**Landslides.** Due to the sudden short and intensive rainfalls which are also characteristic of a Mediterranean climate, intensive erosion and local floods can cause landslides that are quite common feature of Macedonia’s nature. Landslides take place in a much more localised area. These are phenomena where millions of cubic metres of soil begin to suddenly move, destroying large agricultural areas (Kavadartci) and forests (Dolna River near the village of Bitushe). In the area of Kavadartsi (near the village of Vatasha), a large landslide years ago closed the gorge of the Luda Mara River, forming a reservoir which is currently being used for irrigation. Landslides pattern also required attention on designing and construction phase to mitigate possible triggering of landslides and protect the roads.

• **Air Quality**

Pollution from energy sector and industrial production, the burning of fossil fuels and transport activities constitute a main threat to air quality, in particular in cities and areas with intensive industry, and consequentially cause a potential impact on a large part of the population. During 90s, air emissions decreased, mainly due to the overall transition which had greatest impact on industry. Since then, however, the trend is slowly reversing with modest, but steady, increases in the level of industrial activity, leading to mild increase in the emissions of SO2, NOx and dust. Air quality problems are particularly pronounced around the areas of major cities, thus potentially affecting 60% of the total population (see table 2).

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\(^4\) II COMUNICATION TO UNCCC, 2006 Map. 52 Soil map of Macedonia (scale 1:200 000), Andreevski, M. et all 2006

Table 2: Air pollutants by sectors for the period of 2002-2003

<table>
<thead>
<tr>
<th>SECTORS</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$SO_2$ t/year</td>
<td>$NO_x$ t/year</td>
</tr>
<tr>
<td>Combustion and power transformation in electricity generation plants (stationary sources)</td>
<td>90275.5</td>
<td>12267</td>
</tr>
<tr>
<td>Non-industrial combustion plants (stationary sources)</td>
<td>6298</td>
<td>1130</td>
</tr>
<tr>
<td>Combustion in manufacturing industry (stationary sources)</td>
<td>5400</td>
<td>1510</td>
</tr>
<tr>
<td>Production processes (stationary sources)</td>
<td>30660</td>
<td>4167</td>
</tr>
<tr>
<td>Solvent and other product use</td>
<td>3980</td>
<td>1420</td>
</tr>
<tr>
<td>Road transport and other mobile sources and machinery</td>
<td>514</td>
<td>11348</td>
</tr>
<tr>
<td>TOTAL emissions</td>
<td>137128</td>
<td>31842</td>
</tr>
</tbody>
</table>

As it can be seen, almost two thirds of the total annual $SO_2$ emissions derive from the combustion and transformation of energy, while energy production and mobile sources are the major sources of emissions of $NO_x$. With regard to dust, individual industrial production processes (especially SILMAK, Jegunovee) are the main sources, while road traffic is the major source of CO emissions.

The level of air emissions from mobile sources depends not only on the level of activity, but there is also a direct relation to the quality of the fuel that is used, and to age structure of the vehicle fleet. During the last years (1999-2005) the share of gasoline fuel is increased due to the fact that, 77.7% of total number of vehicles derive from vehicles which use gasoline as fuel, while percentage share of vehicles which use diesel as fuel is 17.9%. Vehicle fleet in 2005 was 483.738, increased from around 250,000 units in 1990 and the trend is still upward. The technical condition of the cars has a significant influence on emissions. It should be noted that in Macedonia, within all classes of motor vehicles, over 80% of the vehicles are over 10 years old, while the number of new cars is relatively small. Contribution of transport emission to the total annual emission of the country for the period of 2004 and 2005, according established CORINAIR methodology regarding the calculation of the values is presented in Table 3 below.
Table 3: Pollutants emissions regarding period 2004 – 2005

<table>
<thead>
<tr>
<th>Pollutant [Mg]</th>
<th>2004</th>
<th>2005</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Road transport</td>
<td>Other mobile sources and machinery</td>
<td>Total</td>
<td>Road transport</td>
</tr>
<tr>
<td>SO2</td>
<td>774.72</td>
<td>250.74</td>
<td>100797.35</td>
<td>803.22</td>
</tr>
<tr>
<td>NOX</td>
<td>9200.58</td>
<td>2068.80</td>
<td>33736.11</td>
<td>9668.61</td>
</tr>
<tr>
<td>NMVOC</td>
<td>8824.09</td>
<td>969.19</td>
<td>124087.63</td>
<td>8989.74</td>
</tr>
<tr>
<td>CH4</td>
<td>188.08</td>
<td>14.07</td>
<td>57199.97</td>
<td>195.54</td>
</tr>
<tr>
<td>CO</td>
<td>40927.16</td>
<td>2024.73</td>
<td>99734.61</td>
<td>41659.53</td>
</tr>
<tr>
<td>CO2</td>
<td>995.60</td>
<td>165.49</td>
<td>11917.94</td>
<td>1037.54</td>
</tr>
<tr>
<td>N2O</td>
<td>45.18</td>
<td>52.61</td>
<td>2045.25</td>
<td>46.02</td>
</tr>
<tr>
<td>NH3</td>
<td>0</td>
<td>0.28</td>
<td>8824.30</td>
<td>0</td>
</tr>
<tr>
<td>TSP</td>
<td>0</td>
<td>224.85</td>
<td>29920.95</td>
<td>0</td>
</tr>
</tbody>
</table>

**Biodiversity and Forest Resources**

Natural conditions in the country (geological structure, relief structure, climate, hydrography, pedological composition), enrol it among rare European countries with rich diversity of flora and fauna habitats. The richness and the diversity of species and ecosystems are the basic features of the biodiversity in the country and is illustrated by the outstanding number of over 16,000 floral, faunal and fungal species, out of which more than 850 are endemics and through the large variety of ecosystems hosting more than 260 plant communities.

For forests cover approximately 37% of the state territory (997 374 ha or 38.8% of the total territory or 0.49 ha/inhabitant) and broadleaf forests are dominating, (Figure 6 in Annex 1). According to the data contained in forest management master plans, the total area of developed forests and forest land areas amounts to 998.054 ha (92% of the total forest land areas), out of which 855.670 ha or 85.7% are covered with growth, and 142.384 ha or 14.3% are forest land areas not covered with growth. The reforested land is also increasing. Reforestation activities were particularly intensive in the period of 1970-1990, as well as during the last 15 years, though with lower intensity of reforestation.

Understanding of biodiversity importance for the country’s ecological stability is one of the key factors to be considered in the road sector. The special attention should be paid to conservation of such natural habitats as forests, meadows and steppe during road construction, maintenance and traffic. In particular, it relates to migratory ways which have to be considered while developing the road sector.

According Country Study for Biodiversity of the Republic of Macedonia, number of threatened categories and species is presented in Table 4.
Table 4: Threatened species of fungi, flora and fauna in the Republic of Macedonia

<table>
<thead>
<tr>
<th>Taxonomic group</th>
<th>Number of Threatened Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungi (Fungi)</td>
<td>67</td>
</tr>
<tr>
<td>Lichens (Lichenes)</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Fungi and Lichens</strong></td>
<td><strong>79</strong></td>
</tr>
<tr>
<td>Algae (Algae) – Bacillariophyta</td>
<td>74</td>
</tr>
<tr>
<td>Mosses (Bryoposida)</td>
<td>20</td>
</tr>
<tr>
<td>Peat mosses (Lycopsida)</td>
<td>6</td>
</tr>
<tr>
<td>Horsetails (Sphenopsida)</td>
<td>2</td>
</tr>
<tr>
<td>Ferns (Filicinae)</td>
<td>16</td>
</tr>
<tr>
<td>Gymnosperms (Gymnospermae)</td>
<td>8</td>
</tr>
<tr>
<td>Angiosperms (Angiospermae)</td>
<td></td>
</tr>
<tr>
<td>- Dicotyledonae</td>
<td>283</td>
</tr>
<tr>
<td>- Monocotyledonae</td>
<td>57</td>
</tr>
<tr>
<td><strong>Total Higher Plants</strong></td>
<td><strong>392</strong></td>
</tr>
<tr>
<td>Fishes (Pisces)</td>
<td>30</td>
</tr>
<tr>
<td>Reptiles (Reptilia)</td>
<td>1</td>
</tr>
<tr>
<td>Birds (Aves)</td>
<td>66</td>
</tr>
<tr>
<td>Mammals (Mammalia)</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Fauna</strong></td>
<td><strong>113</strong></td>
</tr>
</tbody>
</table>

According with the European Red List of Vertebrates, in absolute numbers, birds have the highest number of threatened species (66), followed by Fishes (30), Mammals (16) and then Reptiles (1). Major portions of the endemic invertebrate fauna in Macedonia are intrinsically linked to the aquatic ecosystems. The high threat level to this fauna results from the decline in the water levels of certain lakes, eutrophication of these lakes and the pollution of riverine ecosystems.

The network of protected areas of the country includes 74 sites of nature, with a total area of 187,770 ha or 7.30% of the national territory. According the Spatial Plan of the Republic of Macedonia, for the period 2004-2020, it is expected there will be created two additional National Parks, namely Jakupica and Sar Planina. Protected area of internationally recognized significance include Monument of Nature "Ohrid Lake"-world natural heritage (UNESCO), Monument of Nature "Prespa Lake" - Ramsar site; Monument of Nature "Marko's Towers" - world natural heritage (UNESCO-Preliminary list); and Monument of Nature "Slatino springs"- world natural heritage (UNESCO-Preliminary list). In order to promote the system of protected areas, the Republic of Macedonia accepted the approach of ecological networks. In 2002, the development of the EMERALD network was initiated, covering areas of special interest for conservation (ASCI). Currently, the national EMERALD network includes six ASCIs The activities concerning the development of the National Emerald network started in 2002. Presently, the network includes 16 areas\(^{14}\), and identification of new areas will continue until the network is completed. Furthermore, in 2004, were initiated new activities related to the development of the Pan-European Ecological Network (PEEN) for the South-East Europe Region and initial activities for establishment of the green belts under the Initiative of the IUCN. For the Balkan sub-region, has been created Balkan Green Belt (BGB).

\(^{14}\) This represents around 80% of the total Emerald network covering an area of around 198,145 ha.
Transport policy plays an important role in strengthening the economic and social cohesion of our country and environmental issues are increasingly integrated in the development of our transport policies which will be integral part of the EU transport policy, thus reducing social costs to the society. With a commitment to support sustainable travel the transport strategy provides further support to a more integrated land-use pattern which reduces the overall need to travel and, where travel is necessary, encourages the use of more sustainable options. (Figure 7 and 8 in Annex 1).

2.2 Socio-Economic environment

- Macro-economic and poverty features

Macedonia is a small economy with a gross domestic product (GDP) of about $6.2 billion, representing about 0.01% of the total world output. It also is an open economy, highly integrated into international trade with a total trade-to-GDP ratio of 99.2%. Agriculture and industry have been the two most important sectors of the economy, but the services sector has gained prominence in the past few years. Economic problems persist, even as Macedonia undertakes structural reforms to finish the transition to a market-oriented economy. The estimated GDP per capita at purchasing power parity in Macedonia in 2005 was around EUR 6,000, which is only 26 per cent of the EU 25 average, slightly behind Romania, Turkey and Bulgaria.

A largely obsolete industrial infrastructure has not seen much investment during the transition period. Consequently, the structure of economic activities changed during the transition period. The share of industry dropped considerably, from around 45% in the early 1990s to around 25% in 2005. With a share of about 60%, the services are now dominant in the structure of the GDP, with major contributions coming from trade, transport, and telecommunications. Agriculture still contributes with 12% to the GDP.

According to the preliminary data given by the State Statistical Office, quarterly data on GDP in 2006 have show a real growth of 3.1% in the first three quarters of the year, after growing by 4.1% and 4% respectively in 2004 and 2005. The growth was mainly the result of the growth in the service sector, where trade has increased up to 5.5%, while transport and communications up to 7.5%. The growth was broad-based as value added increased in all sectors, except in health and social protection. Mining and quarrying led the growth with a 26.8% annual increase, capitalizing on favourable world prices for various metals. Services grew by 3.6% on average, and trade was higher by 5%. Industrial output in 2006 was 3.6% higher than in 2005. The annualized consumer price index (CPI) rose by 3.2%. Compared to 2004, when industrial production had a negative growth, in 2005 it was the major driving force behind intensifying economic activity. The forecasts for industrial growth in that year were for 5% while actual figure was much higher (7%). Although most of the industrial activities were growing, still the highest growth rates were registered in the traditional export oriented branches: basic metals (with a growth rate of 33.4%), construction materials industry (21.4%), food industry, petrol industry, production of electronic machines, etc.

Other sectors of the economy also demonstrated high growth in 2005. This was in particular the case with trade (growth rate of 7.9%), but also with transport and communications (6.1%), tourism (6.6%) and the financial sector. The only industry which has shown a negative growth in 2005 was the construction industry, due to the delayed start of the construction of some large infrastructure projects.

15 http://www.state.gov/r/pa/ei/bgn/26759.htm
The official unemployment rate came down a bit to 36.0% in 2006. A conservative and poorly structured fiscal policy has kept the budget in a negligible deficit of 0.2% of GDP, well below the revised 0.8% annual target. In such circumstances, monetary policy provided for credit to households and enterprises to expand by 30.5% in 2006, and interest rates have continued to come down. Although export growth topped import growth by one percentage point in 2006, the trade deficit remained high at 21.9% of GDP. In spite of that, the current account deficit was only 0.4% of GDP, primarily due to large private transfer inflow. External debt remained stable at 39.3% of GDP.

Macedonia remains committed to pursuing membership in the European Union and global economic structures.

- **Population and demography**

According to the official data of the 2002 Census, Republic of Macedonia has 2,022,547 inhabitants and by 2005 it had increased to 2,036 millions, and by 2006 2,043 millions. The 2002 census showed 564,296 households, with an annual average growth of 9,577 inhabitants in the period 1994–2002, or average annual growth rate of 0.6%. In long term, the intensity of population growth has decreased significantly at national level, compared to demographic trends in former decades, when the average annual growth rate was around 1.6%. This indicates slower demographic growth in the country, especially during the last decade. In terms of regional distribution, demographic trends manifest different intensity and directions. Natural population growth in the Republic of Macedonia notes an average annual growth of 22,630 people.

Among the total 1,795 registered populated places, 29 settlements (1.6%) form the category of urban, and 1,766 settlements (98.4%) rural settlements. Development of urban settlements in the former period was accompanied by significant expansion of the influence zone over areas in suburban zones, where coverage scope and intensity of influence corresponds with population size and functional status of the city. (Figure 9 in Annex 1)

Thus, the country has a monocentric regional structure based on the dominance of the capital city Skopje with approximately 580,000 inhabitants (with 29% of the national population), that attracts about 40% of the urban population. The other cities are less economically attractive to compete successfully with the capital city and attract sufficient industry and commerce. Table 5 presents population, density, area and settlements by regions, and total value regarding Macedonia.

**Table 5: Population, density, area and settlements**

<table>
<thead>
<tr>
<th>Territorial units</th>
<th>Population (2002 census)</th>
<th>Density (per km²)</th>
<th>Area (in km²)</th>
<th>Number</th>
<th>%</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macedonia</td>
<td>2,022,547</td>
<td>78.6</td>
<td>25,713</td>
<td>100.0</td>
<td>1,767</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Pelagonia region</td>
<td>238,136</td>
<td>50.5</td>
<td>4,719</td>
<td>18.3</td>
<td>343</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td>Vardar region</td>
<td>133,180</td>
<td>39.8</td>
<td>3,346</td>
<td>13.0</td>
<td>171</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>North-east region</td>
<td>172,787</td>
<td>74.9</td>
<td>2,306</td>
<td>8.9</td>
<td>192</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>South-west region</td>
<td>221,546</td>
<td>67.0</td>
<td>3,280</td>
<td>12.7</td>
<td>286</td>
<td>16.2</td>
<td></td>
</tr>
<tr>
<td>Skopje region</td>
<td>578,144</td>
<td>318.0</td>
<td>1,818</td>
<td>7.0</td>
<td>142</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>South-east region</td>
<td>171,416</td>
<td>62.5</td>
<td>2,741</td>
<td>10.6</td>
<td>188</td>
<td>10.6</td>
<td></td>
</tr>
<tr>
<td>Polog region</td>
<td>304,125</td>
<td>123.4</td>
<td>2,479</td>
<td>9.6</td>
<td>184</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td>East region</td>
<td>203,213</td>
<td>48.5</td>
<td>4,188</td>
<td>16.3</td>
<td>261</td>
<td>14.8</td>
<td></td>
</tr>
</tbody>
</table>
Outside Skopje, in the country there are other 13 cities with a population above 50,000, 4 of which are in the Skopje region – there are no such large towns or cities in the Eastern region. The annual growth rate of 2.0% is typical in the recent years. Overall, the Skopje and Polog regions are experiencing higher growth rates than the national average and have higher average densities. In the area of urban development at national level, efforts are made to reduce the relative concentration of the population and activities in the Country’s capital, i.e. to achieve quality changes in their socio-economic structure, through intensified utilization of construction funds, land and positional advantages, expert, scientific and development potentials available territory. Part of this strategy is related to the fostering of appropriate programmes aimed at improving the quality of living in the settlements, as well as at stimulating the development in smaller towns.

The country is characterized with significant variations of the average population density - (75 inhabitants per km$^2$) - above 16 500 people on km$^2$ settled 2% of the territory of the country and on the 14% of the territory the density is 1-10 inhabitants per km$^2$. Generally, the population is increasing in the western and south-western parts and decreasing in the Eastern parts of the country as the result of the rate of the natural population growth and migrations too. 87% of the population is concentrated in major cities.

Large areas of the country are represented by rural settlements. Economically, the rural areas are weak. Statistics show that only 30% of the households have an income that meets their needs. Some activities have been undertaken to promote the economic development of the rural areas. The processes of depopulation of rural areas and abandonment of settlements have multiple effects on the environment, and social implications such as: Degradation of the environment due to the lack of communal services (water supply and sewerage, heating, waste management, etc.); Degradation of immovable cultural heritage due to the loss of its function; Changes in the use of land and loss of the arable land. With regard to the employment and unemployment in the country, Table 6 gives an overall description regarding population and employment for the period of 2003 – 2006.

<table>
<thead>
<tr>
<th>Table 6: Population and employment for the period of 2003 – 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population and employment in thousands</strong></td>
</tr>
<tr>
<td><strong>2003</strong></td>
</tr>
<tr>
<td>Population at mid-year</td>
</tr>
<tr>
<td>Economic activity of population</td>
</tr>
<tr>
<td>Number of employed persons according LFS*</td>
</tr>
<tr>
<td>Number of unemployed persons according LFS*</td>
</tr>
<tr>
<td>Persons outside of the labour force</td>
</tr>
<tr>
<td>Rate of unemployment according to LFS*</td>
</tr>
<tr>
<td>Rate of activity</td>
</tr>
<tr>
<td>Rate of employment</td>
</tr>
</tbody>
</table>

* Labour Force Survey

As it is presented in the Table above, the unemployment rate in Macedonia in 2006 is 36.0% of the total labour force and although the latest data regarding 2007 is 35.0%. The country is placed among countries with high unemployment rate in Europe. The Government has continuously conducted several policies and programs to fight with this huge problem. Yet, the results were missing until the last year.

16 Second National Environmental Action Plan, 2006
17 State Statistical Office of Republic Macedonia
Concerning other indicators, actually regarding livebirds and deaths, in Macedonia there were 22786 births in 2006, of which 22585 were livebirths and 201 stillbirths, which means 8.9 stillbirths per 1000 livebirths. In 2006, there were 18630 deaths, which is 1.2% more compared with the previous year. In 2006, there is an decreasing number of infant deaths for 9.4% compared with the previous year. The total number of infant deaths is 260.

- **Land-use**

According latest data, Republic of Macedonia has 1 244 000 ha agricultural land or 48.4\%\(^{18},^{19}\) of its total territory and 25.86\% of the agriculture land is arable. The ratio between arable land area (612 000 ha) and area under pastures (630 000 ha) is 49%:51\%. This balance was relatively stable for rather long period, but the total agricultural land has been permanently decreasing during the last 30 years.

The structure of arable land is dominated by ploughland and gardens covering an area of 512 000 ha, or 84\%. Macedonia belongs to the group of countries with medium availability of agricultural and arable land, or the average area of 0.30 ha arable land or 0.25 ha ploughland per inhabitant or 2.3 ha per agricultural inhabitant. Areas under fallows and uncultivated ploughland amount to 140,000 ha or 23\% of the total arable area. These areas have noted certain trend of decreasing since 1996. However, their share is still high. This has resulted from social and demographic transformations of rural population that abandoned hilly and mountainous areas where no mechanisation could be applied. Today, only a small fraction of the arable land is under intensive production. The number of households that have private agricultural land is increasing (126,000 households). Still, however, the average size of agricultural properties is low (1 ha per proprietor). Much arable land has been abandoned as a result of the migration of population (between 140,000 ha and 190,000 ha).

General overview of natural complexes in the Republic of Macedonia, with regard to their surfaces and percentage share per type of natural complex (water surfaces, plain terrains, reddish and mountain terrains), is presented in Table 7\(^{20}\).

**Table 7: Natural complexes in the Republic of Macedonia**

<table>
<thead>
<tr>
<th>Surface of Land</th>
<th>Total</th>
<th>Type of natural complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>- use</td>
<td>Republic of Macedonia</td>
<td>water surfaces</td>
</tr>
<tr>
<td>in km(^2)</td>
<td>25713</td>
<td>488</td>
</tr>
<tr>
<td>In %</td>
<td>100.00</td>
<td>1.9</td>
</tr>
</tbody>
</table>

With regard to land-use, also it must be noted that the process of urbanisation involves many pressures that in turn have many impacts on land and landscapes that also take a lot of side effects. The most important impacts relate to the loss of arable land (settlements take up about 35,000 ha of the total area, most of which is arable); to the effects on biodiversity, on landscape diversity and on habitats; on the quality of the environmental media; thereby generating a downward spiral of poverty and vulnerability and with negative repercussions on the prospects for sustainable development.

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\(^{18}\) Second National Environmental Action Plan, 2006  
\(^{19}\) Spatial Plan of Republic of Macedonia, 2004  
\(^{20}\) Statistical Yearbook of the Republic of Macedonia, 2005
• **Transport and road infrastructure**

Further development of the transport sector will contribute towards competitiveness of the national economy and balanced regional development. The relatively poor quality of the road network contrasts sharply with the high relative importance of the road transport in Macedonia. This is because road transport accounts for by far the largest share of total carriage of goods and passengers in the country. As indicated in the table below, the share of transport in the national GDP over the past few years is stable and is within the range of 7.8% and 8.4% (Table 8).

**Table 8: Transport share in GDP**

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP in million denars</th>
<th>Transport share in GDP in million denars</th>
<th>Transport share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>243,970</td>
<td>20.493</td>
<td>8.4</td>
</tr>
<tr>
<td>2003</td>
<td>253,454</td>
<td>21.037</td>
<td>8.3</td>
</tr>
<tr>
<td>2004</td>
<td>265,257</td>
<td>22.282</td>
<td>8.4</td>
</tr>
<tr>
<td>2005</td>
<td>284,226</td>
<td>23.307</td>
<td>8.2</td>
</tr>
<tr>
<td>2006</td>
<td>303,305</td>
<td>23.658</td>
<td>7.8</td>
</tr>
</tbody>
</table>

In general terms the physical infrastructure with regard to public roads consists of about 13.186 km, out of which 909 km are national roads, 3,781 km are regional and 8,496 km are local roads.

**Table 9: Road Network of the Republic of Macedonia**

<table>
<thead>
<tr>
<th>Type of Road</th>
<th>km</th>
</tr>
</thead>
<tbody>
<tr>
<td>National roads</td>
<td>909</td>
</tr>
<tr>
<td>Regional roads</td>
<td>3,781</td>
</tr>
<tr>
<td>Local Roads</td>
<td>8,496</td>
</tr>
<tr>
<td>Total</td>
<td>13,186</td>
</tr>
</tbody>
</table>

The national road network consists of six (6) roads (M-1 to M-6). Most national roads consist of two traffic lane carriageways. Two of the national roads are in concordance with the Pan-European Corridors as well as European road network M-1 (E-75) and M-2 (E-872) are in concordance with Corridors X and VIII respectively. Other national roads form part of important international links, for example, M-3 (E-65), M-4 (E-65), M-5 and M-6. The two Trans National Axes (Corridors VIII and X) that cross the country are important because they support the easy movement of people and goods within the country and also provide connections to regional neighbors and further to all other European Countries (Figure 10 in Annex 1).

Intra-Macedonian transport dominates the road freight sector while the remaining is distributed between international transport and transit transport. As far as passenger transportation is concerned, road transportation is even more dominant, as only negligible passenger trips are made by rail. Note that in 2003, the transport related energy consumption- 21.2% of total final national consumption in the country was 96.4% consumed by the road transport sector, 2.5% by the air transport sector and 1.0% by the rail transport sector. This is a higher rate of dominance than typical of EU countries (for example, the EU-15 group of established members has 81.9% attributed consumption in the road transport sector.

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22 State Statistical Office
With regard to the importance of the Corridors connecting the country, the EU Commission’s policy on the external aspects of the Trans-European Networks were established by the report of the High Level Group on the Extension of Major trans-European Transport Axes to the Neighbouring Countries and Regions (7th December 2005). The “Guidelines for transport in Europe and neighbouring regions” (COM (2007) 32 final) provide more recent indication about the direction followed by the EU policy regarding the extension of the major Trans-European Transport Axes to the neighbouring countries. The signatories aimed the adoption of the first multi-annual plan in 2006, composed of an integral regional strategy and a short list of concrete priority projects and measures.

According the considerations from National Transport Strategy In the Road Sector, (06MAC/09/102, 24.07.2007), the prime strategic improvements concerning regional core network have to be towards promotion of market-orientated transport services, implement measures to ensure that infrastructure is technically and financially sustainable, and harmonized with the EU transport policy. Thus, regarding National and Local Road network, major attention on the national level will be given to proper road maintenance with focus on retaining the continuous traffic flow between the cities in the country:

- Maintain the roads which are still in acceptable condition.
- Put the maintenance priorities on national roads and on the Regional reclassified roads - higher classification.
- Provide optimum road safety.
- Provide the proper connectivity to the remote places in the country.

The general trend\textsuperscript{23} in road traffic volumes in the Republic of Macedonia shows that the traffic volume on national road network, in the period 1995-1997 decreased at a yearly rate 4.4\% and 3\% respectively, followed by an increase that led to the highest volumes in the year 1999 (24\%). On the contrary, a significant decrease by almost 14\% occurred in 2000, which continued in 2001, when road traffic on the national roads decreased by 7.4\% due to political instability in the wider Balkan area, but it was also connected to the significant turmoil within the north-western part of the country itself and the problems in Kosovo. In the period 2002-2005, the traffic volume has decreased at a relatively stable rate (0.4\% yearly). Thus, for the year 2006 show that road traffic volume present high rates of increase on the national roads of Macedonia-16.5\%. This situation may lead to the conclusion that traffic volume is currently growing and expected to grow further in the future, in accordance with the overall growth trends in the country’s developing economy.

According to the Road Investment Plan Study, it is expected for the traffic to grow at an average rate from 18% to 30% on the national road network, and up from 18% to 40% on the regional road network. The assessment of the general conditions of the roads is estimated as follows in Table 10.

\begin{table}
\centering
\caption{Condition of the roads}
\begin{tabular}{|l|c|c|c|}
\hline
 & Good & Medium & Poor \\
\hline
Motorway (M 2x2) & 60\% & 30\% & 10\%
\hline
Magistral (M 1x2) & 60\% & 30\% & 10\%
\hline
Regional 1 (R1) & 45\% & 27\% & 28\%
\hline
Regional 2 (R2) & 20\% & 30\% & 50\%
\hline
Gravel (R2) & 50\% & 50\% & 50\%
\hline
\end{tabular}
\end{table}

\textsuperscript{23} Operational Programme Regional Development 2007 – 2009 (Draft), 2007
The overall condition of the “structural” road network (magisterial and important regional roads) is lower in comparison to European standards, as well as to the neighbouring countries network. There condition is satisfactory given the past periods of political and economical crisis. The existing constructions are in fact generally strong and of good quality. The magisterial roads, and in particular the motorways, which have to bear the higher portion of traffic are in a better condition than those of second importance. Relatively few potholes and cracks are found on the motorways and their roughness is excellent; whereas cracking can be considered to be the main problem on the regional network. Rutting is only a problem on a limited length and few identified sections (mainly motorway, carrying high traffic), but the rut depth can be considerable and affect the road user’s safety. The worst conditions can be assessed on low-traffic regional roads, most of them with dead ends. Many of them do present neither geometric, structural nor traffic characteristics justifying their classification into the regional road network.

The maintenance of national and regional roads is the responsibility of the public enterprise “Makedonijapat”, and for local municipal roads the maintenance is often undertaken by local public companies. The winter maintenance activities account for about 35 % of the expenses and represent by far the major component of maintenance. Periodic maintenance, including bridges, reaches 28% while the routine maintenance represents only about 20% of the total. Other works cover expenses mainly linked to the “road protection” and 18 % cover the toll collection.

The Macedonia vehicle fleet in 2003 was around 330,000 units \(^{24}\), increased from around 250,000 units in 1990. Passenger cars dominate, with around 308,000, and the number of buses and coaches is only 2,500 and lorries only around 20,000 units (Road Transport units in 1999 – 2003 are presented in the Table 11 bellow). However, the poor statistics mask the condition and age of the fleet, with many elderly units seen in circulation, especially among the commercial vehicles. Older vehicles are typically less reliable and less fuel efficient than modern counterparts and sourcing suitable spare parts becomes increasingly difficult. However, they retain the attraction of lower acquisition costs, even when operating costs are higher. It should be noted that within all classes of motor vehicles, over 80% of the vehicles are over 10 years old, with the attendant higher operational costs and inherent additional maintenance and repair costs associated with operating older vehicles. These characteristics tend to create higher than typical transport provision costs with the downstream transport supply unit costs also being high.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|}
\hline
\textbf{Transport units} & \textbf{1999} & \textbf{2000} & \textbf{2001} & \textbf{2002} & \textbf{2003} \\
\hline
Motor-cycles & 3506 & 3729 & 4483 & 2918 & 2142 \\
Cars & 289860 & 299588 & 309562 & 307581 & 299809 \\
Buses & 2479 & 2498 & 2620 & 2497 & 2478 \\
Commercial vehicles & 20011 & 20763 & 21727 & 20213 & 19042 \\
Special vehicles and road tractors & 7610 & 8552 & 9554 & 10292 & 10826 \\
Tractors and working vehicles & 1777 & 1417 & 1560 & 918 & 741 \\
Trailers & 5588 & 5921 & 6270 & 5965 & 5726 \\
\hline
\end{tabular}
\caption{Road Transport units in 1999 – 2003 \(^{25}\)}
\end{table}

\(^{24}\) Operational Programme Regional Development 2007 – 2009 (Draft), 2007
\(^{25}\) Statistical Year book of the Republic of Macedonia, 2005
The vehicle ownership (number of vehicles per 1,000 inhabitants) in Macedonia is low and relatively stable, as estimated for the period 1995-2001. Over this period the car ownership increased from 144 cars per 1000 people up to 153 cars per 1000 people. Since 2001 the car ownership decreased, reaching 123 (124) cars per 1000 people for the year 2003 (2004), whereas EU countries have high income per capita and high values of car ownership. There is a common opinion that Macedonia will steadily follow the earlier development of Western European countries in private motorisation. Car ownership is forecast to grow by 2020 to 217-264 cars per 1000 people. Car ownership growth stimulates increases in private travel but reduces travel by public transport.

2.3. Cultural and Historical environment

• Nature as a patrimony and cultural heritage

Republic of Macedonia is rich in Immovable cultural heritage of exceptional cultural, historical and artistic values, confirming the existence, the continuity and the identity of Macedonian people, as well as those of citizens living within its borders as parts of Albanian, Turkish, Vlach, Serbian, Rhoman, Bosniak and other peoples through past millenniums. According to official records kept in the national organization responsible for cultural heritage conservation and its local units, there are 11.200 immovable monuments of culture registered in the Republic of Macedonia. Among the immovable cultural heritage discovered so far, the most prominent place belongs to archaeological sites - 4,260, out of which 88 sites of scientific interest are under excavation. The number of recorded and registered churches and monasteries is 1,726, with more than 150,000 m2 frescos, 1,213 structures of old urban and rural architecture, 47 towers, fortresses and bridges, 1,026 monuments and memorial points, 126 structures of Islamic architecture, 24 old bazaars and other historical, urban and architectural entireties, 32 commercial buildings and several other types of buildings and immovable. The immovable cultural heritage is distributed throughout the territory of the Republic of Macedonia, but the following can be pointed as most prominent areas: Ohrid-Struga area with highest concentration of monuments of culture; Pelagonia region with abundant wealth of all types of cultural heritage; Skopje monumental area, with numerous monasteries, churches, mosques, baths, inns, old bazaars and fortresses and other monuments from Middle Ages, and Vardar River valley accommodating highest number of archaeological sites.

In the central register of immovable culture monuments by August 1997, the number of enrolled immovable monuments of culture was 1,088, located in the vicinity of 202 populated places in 83 municipalities in the country. Highest number of registered monuments is found in the following municipalities: Bitola (72), Kratovo (29), Krusevo (34), Ohrid (69), Rostuse (49), Centar-Skopje (52), Struga (30), Strumica (49) and Stip (41). The Inventory of registered immovable monuments of culture contains also more than 5,000 (5,328) immovable goods located in all municipalities throughout the country, under well founded assumption of having monumental features.

• Culture

The Republic of Macedonian through its turbulent history has captured its culture as a mosaic of aesthetics, and luminous fluorescence through its arts, frescoes, icons, mosaics, sculpture, architecture, music, folklore, folk arts, literature, text, renaissance and many others. Thus, Macedonia has a long history of cultural traditions in the field of cultural infrastructure, education, art, music and folklore. The rural traditions in folk arts and crafts (such as knittwear, embroidery, carpeting and ceramics) represent a cultural expression of the fundamental ethnic values of the Macedonian nation and contribute to maintenance of its national identity.

26 Spatial Plan of Republic of Macedonia, 2004
The revitalization and development of these spheres is fundamentally important. Consequently, the cultural fabric of the country had been developing over a long period as a result of a number of factors including ethnic heterogeneity (Turks, Albanians, Serbs and etc.), percentage of rural people, impact of foreign influence, western media, a high degree of ideological inculcation.

**Ethnicity**

In 2002 the country had a population of 2.022 million and by 2005 it had increased to 2.036 millions. The 2002 census showed that Macedonians constitute 64% (64.18%) of the population and Albanians 25% (25.17%), and then Turks 3.85%, Roma 2.66%, Serbs 1.78% and other sub-groups constitute 10% of the population.

**Health and Education**

As previously mentioned, the latest Census of 2002 in the Republic of Macedonia recorded a total population of 2,022,547, out of which 21% are the young population (age below 15), while 10.5% belong to the old population (age 65 and more). The current trend is one of aging. This is further confirmed by the healthy life expectancy estimated at 62.2 years and the Disability-Adjusted Life Expectancy of 63.7\(^{27}\). The UNDP Human Development Index for the Republic of Macedonia is 0.78 for 2001. The standardized mortality rate shows an overall slight trend of decline over the past decade, decreasing from 1,094.3 per 100,000 populations in 1992 down to 1.033,73 per 100,000 in 2003. These rates are in line with the CEE average, though 1.3 times higher than in the European Union. The structure of deaths for 2003 by cause (ICD-IX), shows that the highest number of deaths is caused by circulatory diseases. This represents 56.6% of the total number of deaths. Neoplasms is the second most important cause of death with a share of 18.0% and the third is the group "symptoms, signs and undefined conditions". Respiratory diseases covered the fourth place with 3.9%, and the fifth most important causes of death are accidents and poisoning with 3.5%.

Concerning other indicators\(^{28}\), actually regarding livebirths and deaths, in the Republic of Macedonia there were 22786 births in 2006, of which 22585 were livebirths and 201 stillbirths, which means 8.9 stillbirths per 1000 livebirths. In 2006, there were 18630 deaths, which is 1.2% more compared with the previous year. In 2006, there is an decreasing number of infant deaths for 9.4% compared with the previous year. Table 12 presents life expectancy of population for the period of 2001-2005.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>73.21</td>
<td>73.39</td>
<td>73.62</td>
</tr>
<tr>
<td>males</td>
<td>70.80</td>
<td>71.15</td>
<td>71.44</td>
</tr>
<tr>
<td>females</td>
<td>75.74</td>
<td>75.75</td>
<td>75.88</td>
</tr>
</tbody>
</table>

With regard to education, the average number of completed years of schooling in Macedonia is smaller than in EU countries, but the education background of younger generations increased in the last decade. During the 1990s the number of university students in Macedonia has also increased, which is followed by a larger share of university graduates. It is expected that this trends will continue in future, since vast number of citizens now (in contrast to previously) consider education as an investment in the future of young generations. The high share of secondary and post-secondary school students already has, and in the forthcoming years will continue to result in an increased number of educated and skilled job seekers on the labour market.

\(^{27}\) Second National Environmental Action Plan, 2006

\(^{28}\) State Statistical Office of Republic Macedonia
• **Relationship with Natural Resource Base**

Relationship of population with natural resources should be considered in development of the road sector in Macedonia, especially with regard to the rural population. This aspect is due to the fact that poverty mostly has stricken the rural population which has to rely on the land resource base to survive. The land provides rural families with daily food and additional food for making living. The groundwater resources provide water for domestic use. Local surface water resources (ponds, reservoirs, small rivers) are strongly affected by soil erosion, contaminated runoff from the earth surface, waste water discharges and unauthorized waste disposals/dumps. However, natural resources remain an important local resource for livestock watering, fishing, and recreation. Share of grazing areas is limited in the most of villages, and local authorities usually designate for this purpose the less productive lands, including road surroundings. Other areas such as forests, wetlands and roadside plantations are often under grazing pressure. Forests and even individual trees are important sources of firewood and local building materials. In order to provide additional home income, rural inhabitants, collect for sale, some natural products which are rare as mushrooms and flowers in the forested areas. Forests, also are source of medical plants and materials for basket weaving. Clay and sand deposits, and reed if located closely to the village, are a source for building materials in villages. Therefore aforementioned aspects are relevant and important consideration for the road sector.
3. POLICY, LEGAL AND REGULATORY FRAMEWORK FOR ENVIRONMENTAL AND ROAD SECTOR

3.1. National Policy and Regulatory Frameworks

National environmental and road sector policy and regulatory frameworks were analyzed on the three-levels basis documents (i) environmental, road and other associated strategies, programs, policies and concepts, (ii) legislation; and (iii) specific by-law regulations (standards, requirements, rules). The most emphasis was placed on Environmental Impact Assessment procedures and requirements which were described in separate sub-chapter.

- **Programs and Policies**

Government of the Republic of Macedonia adopted several national strategies and programs related to transport policy, environmental protection and sustainable development. Some of them may be relevant to the proposed program.

In 2004, the Government adopted the **Spatial Plan of the Republic of Macedonia**. The Spatial Plan is of long-term nature, with a time horizon till 2020. The basic strategic determination of the Spatial Plan of the Republic of Macedonia is the achievement of higher level of the overall functional integrity of the space in the Country, as well as facilitation of conditions for significantly greater infrastructure and economic integration with neighboring and other European countries. The document defines the spatial organization of the country and the goals and concepts of spatial development for individual areas, as well as the conditions for their implementation. The environment, spatial and structural grouping of the national territory into environmental management regions in the frameworks of basins of major rivers has been conducted. According to the SP, significant improvements in road transportation can be expected with the implementation of road corridors of the TEM (Trans-European Motorways) system which passes through the Republic of Macedonia or concerns it in terms of the close vicinity. In this regard main goals for transport sector are:

- Development of transportation system that will minimize harmful impacts of the traffic on environment and contribute to an improved quality of living in urban and rural areas of the country;
- Establishment of transport inter-modal centers, as main contact points among different transport types, as a precondition for developing an efficient, flexible and cost-effective transportation system;
- Reconstruction and development of transportation and communication networks and transportation means provision through application of state of art technology at the levels of preparation, designing, construction, maintenance and use;
- Dynamic implementation of infrastructure, through application of priorities based on transport and economic criteria, in line with strategic determinants of the country when transportation acts as initial factor of the overall development;
- Specific development of tracks passing through or by major urban agglomerations;
- Increase of pass through capacity of the Macedonian transportation system, its connection with neighboring countries and joint connection to European systems and trends;
- Provision of high level of mobility of the population and products, as well as high level of telecommunication connection of the territory of the Republic of Macedonia;
- Provision of appropriate accessibility throughout the national territory, thus creating conditions for more balanced development in all areas of the Republic of Macedonia;
- Planning of transportation system to support and foster economic development and international integration of the Republic of Macedonia etc.
Key objectives of the transport sector as defined in the National Development Plan (NDP) (2007-2009) are to support the country’s international competitiveness and ensure a balanced regional development leading to higher growth and improved living standards. In particular, developed transport infrastructure secures businesses reliable, fast and cost-effective access to production inputs, reducing the costs of production. Similarly, it allows businesses quality access to internal and external product without a large burden on the price. In addition, a good transport infrastructure eases citizens’ movement in the country and abroad, and their daily commuting for job or for other reasons. The NDP emphasizes the priority for enhancing international competitiveness in the transport sector by building and modernizing the road and railway infrastructure along the Corridors while enhancing safety and limiting the adverse impact of the traffic on the environment. In accordance with the NDP, the construction of both corridors is of equal importance for development of the core transport network in the country.

The national priorities for development of the transport sector are defined in several national and regional strategic documents. The National Transport Strategy (NTS) adopted in July 2007 determines the transport development priorities for the period 2007-2017. The main objectives of the National Transport Strategy, such as:

- Promote economic growth by building, enhancing, managing and maintaining transport services, infrastructure and networks to maximize their efficiency;
- Promote an integrated and interconnected transport network that establishes effective service to users and to areas and activities served by it in Macedonia.
- Promote social inclusion by connecting remote and disadvantaged communities and increasing the accessibility of the transport network;
- Protect our environment and improve health by building and investing in public transport and other types of efficient and sustainable transport which minimize emissions and consumption of resources and energy;
- Improve safety of journeys by reducing accidents and enhancing the personal safety of pedestrians, cyclists, drivers, passengers and staff; and
- Improve integration by making journey planning and ticketing easier and working to ensure smooth connection between different forms of transport.

According to the Strategy, of the 172 km long pan-European corridor X passing the country in the North – South direction, 70.1 per cent has been already constructed according to modern highway standards with the remaining sections accounting 29.1 per cent of the total being ready for construction. The construction of the pan-European corridor VIII with the total length of 304 km and passing the country from East to West is less advanced. Only 27.6 per cent of the total length has been already built so far according to modern highway standards with another 8.7 per cent being currently under construction.

The Public Investment Programme (PIP) (2008-2010) includes projects/programs for which the government has made an assessment confirming that they can substantially contribute to the development of the country. The PIP, covering a three-year period and being updated annually, contains projects for all economic infrastructure sectors, including energy, transport, water supply, irrigation, environment, as well as for the social infrastructure segments. The current PIP (2008-2010), in the part pertaining to transport, identifies the sections of the Corridors VIII and X that will have a major contribution towards achieving the sector’s development.
In 2006, the **Second National Environmental Action Plan** had been adopted. It provides general guidelines and directions in the area of environment for the forthcoming six year period (by 2011). In addition to setting up general priorities and goals in different sectors, NEAP also envisaged specific measures and actions that need to be implemented in order to achieve the main goals, as the continuation of the process of approximation with the EU environmental policy, that is, management of an integrated policy as a unique method to effectively meeting the challenges, the establishment of directions for environmentally sustainable approach, the enhancement of the extent of compliance with the obligations applicable under regional and global agreements and the opening of new perspectives and involvement in international systems for environment protection. In the frame of NEAP, transport sector was identified as one of the important sector related to environment.

**Pre-accession Economic Programme 2008 – 2010.** By acquiring the status of a candidate country in November 2005, the Republic of Macedonia undertook the obligation to submit to the European Commission, annually, a medium-term economic programme. The 2008- 2010 Pre-Accession Economic Programme (PEP) is the second document prepared by the Government of the Republic of Macedonia, covering the macroeconomic trends and projections in the country, precisely presenting the public finances and the policies for their improvement, as well as the structural reforms necessary for attaining dynamic economic growth. Transport sector is presented in the document as one of the main sectors where infrastructure investments are needed.

- **Basic legislation (Laws)**

Since 2002, the country commenced the process of harmonization of its national transport legislation with the EU *acquis*. Further regulation, regarding the drafting of secondary legislation in the transport sector as a whole is an on-going process. The approximation of the transport legislation is an important step towards implementation of projects that put in place EU requirements in the field of transport.

**The Law on Road Transport** (Official Gazette N0.68/04; 127/06) regulates the conditions and the manner in which the transport of passengers and goods is carried out, both in the domestic and international road transport. It prescribes the terms for professional competency and financial stability, some of the conditions for access to the profession of transport operator, as well as the terms and procedures for acquiring a license for carrying out transport of passengers and goods by road. Several bylaws arising from the Law on Road Transport have been adopted in 2007 and three remaining are under preparation.

**The Law on Public Roads** (Official Gazette No.26/96; 40/99; 96/00; 29/02 and 68/04) regulates the conditions and the manner of construction, reconstruction, maintenance, protection, use, management, and funding of public roads, as well as the supervision of the enforcement of this Law. Among the most important issues, the Law regulates:

1. Road categories; competencies; sources of funding and allocation of funds among the entities responsible for the road network;
2. Adoption of medium-term and annual programmes for construction, reconstruction and maintenance of roads;
3. Competencies for granting concessions

In accordance with the law, the responsibilities and obligations of three institutions of the road sector, namely Ministry of Transport and Communication, Fund of National and regional roads and the public company for maintenance Makedonija Pat, have been formulated.
The Law on Road Transport Safety (Official Gazette No.88/05) determines the conditions which have to be met by the vehicles engaged in road transport, as well as the devices and equipment which have to be provided in the vehicles, dimensions, overall mass and axle weight of vehicles; the conditions for obtaining a driving permit and the form and application form for the driving permit, verification and technical control of the vehicles, registration of the vehicle and the application form for the traffic permit etc.

Law on Carriage of Dangerous Goods (Official Journal of the Socialist Federal Republic of Yugoslavia No.27/90 and no.45/90 and Official Gazette of RM No 12/93 and 31/93) regulates the carriage of dangerous goods both by road and railway. It regulates the terms and conditions according to which the transport of dangerous goods is carried out (including preparation of the goods, loading, transport, manipulation which can occur during the transport, unloading, security during transport and adequately equipping the vehicle as well as training of staff).

The Law on Mandatory Transport Insurance governs the mandatory insurance for all types of transport based on the previously outlined Laws. Numbers of bylaws were adopted in order to regulate certain provisions in a more detailed manner.

Since 2002 the country started the process of harmonization of the environmental legislation with the EU and new laws on Environment, Nature, Air Quality and Waste Management have been passed by the Parliament. A draft Law on Waters has been submitted to the Parliament for first reading. It is expected that the Law on Waters will be adopted by the end of 2007. Further regulation, regarding the drafting of secondary legislation in the environmental sector as a whole is an on-going process, guided and supervised with EU technical assistance.

The Law on Environment (Official Gazette no. 53/05, 81/05, 24/07) as a framework law in the area of environment has transposed the segment of the acquis communautaire known as horizontal legislation. The Framework Law on Environment incorporates the basic principles of environmental protection, on the basis of which the relevant environmental management procedures are regulated. They are common to the principles of the laws regulating individual areas of the environment. The Law regulates the issues of access to environmental information, public participation in environmental decision-making, environmental impact assessment procedure, plans for industrial accidents controlling, as well as control mechanisms available to environmental inspectors.

The Law places specific emphasis on integrated environmental permits, with regard to which it introduces the system of gradual adjustment to the required standards for integrated pollution prevention and control, through the introduction of integrated permits for compliance with operational plans, representing a condition for existing installations to continue their operations. Separate chapters of the law deal with EIA and SEA, namely the Directive 97/11/EC amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2003/35 is transposed in the Chapter XI of the Law on Environment.

The procedure on strategic environmental assessment (SEA) is prescribed in Chapter X of the Law on Environment (Official Gazette No.53/05, 81/05, 24/07). The chapter transposes the main requirements of EU Directive 2001/41/EC. In accordance with the Law on Environment (LoE) competent authority for implementation of the EIA procedure is the Ministry of Environment and Physical Planning (MoEPP).
The area of nature protection is regulated by the **Law on Nature Protection** (Official Gazette No. 67/2004, 14/2006), which has been harmonized with the *acquis communautaire* and incorporates the obligations deriving from the ratified multilateral agreements in this area. Full implementation of the Law will be enabled upon the adoption of the relevant secondary legislation. The Law regulates the protection of the nature, through protection of biological and landscape diversity and protection of natural heritage, provision for sustainable utilization of natural resources, prevention of harmful activities by legal and natural persons. The Law also provides a legal basis for establishment of ecological networks i.e. NATURA 2000. The Law also includes application of provisions contained in other laws referring to the protection of nature. The Law also specifies the procedure for trading with protected species of wild fauna and flora, in line with the CITES and provides legal grounds for the protection of species of both national and European importance.

The **Law on Waters** (Official Gazette of the Republic of Macedonia No. 4/98, 19/00 and 42/05) establishes the legal framework for protection and management of waters in the Republic of Macedonia. It regulates the manner of water use and exploitation, the protection against harmful effects from water, protection of waters against excessive abstraction and pollution, waters management, the sources and the funding of water management activities, granting of water for use by means of approval (concession), transboundary water resources and other issues of relevance for the provision of unique regime of water use. Series of bylaws have been adopted on the basis of this Law, for the purpose of its implementation. The Law is not approximated with the *acquis commuautaire* in this area.

The **Law on Waste Management** (No. 68/04 and 71/04 of the Official Gazette) provides the general rules applying to the following issues: Strategy, Plans and Program formulation; Waste handling procedures; Handling of hazardous waste; Landfills; Incineration and co-incineration of waste; Import, export and transit of waste through the national territory; Monitoring and data management; Information system; Financing; Supervision and competent authorities; Punitive provisions; Transitional and final provisions. The Law on Waste Management has important linkages to other Laws, in particular to the Law on the Environment, that includes basic issues such as IPPC permitting and EIA procedures.

The air quality management is regulated by the **Law on Ambient Air Quality** (Official Gazette of the Republic of Macedonia No. 67/04), which is harmonised with the Framework Directive 31996L0096. Several bylaws regulating individual limit values of emissions in the air are in force in the Republic of Macedonia, adopted on the basis of the old laws.

On the basis of the Law on Ambient Air Quality some of those were replaced by adoption of the Decree on limit values of the levels and types of ambient air pollutants and alert thresholds, terms for limit values achievement, margins of tolerance for the limit values, target values and long-term targets for ozone, sulphur dioxide, nitrogen oxides suspended particles of 10 micro-meters, carbon monoxide and benzene (Official Gazette of the Republic of Macedonia No. 50/05); and Rulebook on the criteria, methods and procedures for ambient air quality assessment (Official Gazette of the Republic of Macedonia No. 82/06). Chapter XIX of the Law on Environment regulates issues of climate change, where the amendments of the Law assign the MEPP as a body responsible for the reporting on climate change on national level.

The **Law on Forests** (Official Gazette of the Republic of Macedonia No. 47/97, 7/00 and 89/04) regulates forests cultivation, use and protection, where the protection of the forests is an integral and indivisible part of forest management. Forest protection includes protection against: unlawful usurpation and use, illegal timber felling, fires, plant diseases and pests, cattle grazing, collecting acorns, unlawful collection of other forest products and other damages. With reference to the management of forests in state and private ownership, the Assembly of the Republic of Macedonia adopts a general plan for forest management for a period of 20 years. On the basis of this plan, the forest managing entities adopt specific plans for forest management, for a period of 10 years.
**Law on Spatial and Urban Planning** (Official Gazette of RM, No. 4/96, 8/96, 70/96, 7/97, 28/97, 53/01, 45/02, 52/05). This law prescribes a basis for the preparation of standards and norms regarding spatial planning, including a specification of parameters for environmental protection. It is in line with State Spatial Plan, which envisages possibilities and solution for complex spatial problems and conflicts in interaction with development process, trends and constraints.

The **Law on the Implementation of the State Spatial Plan** was established in parallel with the adoption of the Plan (Official Gazette of RM no 39/2004). The Law states that MEPP is responsible to issue a spatial consent for any construction outside the areas that are earmarked for urban development. Also, the Law is to improve intersectoral communication and the assessment of possible territorial impacts. Efforts are thus made to improve the relevant laws and regulations.

**Law on Investment Projects Development** (Official Gazette of RM, No. 15/90, 11/91, 11/94, 18/99 and 25/99). This law prescribes a basis for the preparation of standards and norms regarding the design of objects, including a specification of parameters for environmental protection.

The protection of cultural heritage is covered by the **Law on the Conservation of Cultural Heritage** (Official Gazette of RM no.20/2004). There are no management plans for the culture heritage sites. There is a need for improvements and developments in the intersectoral collaboration between the MEPP and MC with regard to projects for integrated protection of natural and cultural heritage and the development of municipalities and culture.

Other related laws:

**The Law on Agricultural Land** (Official Gazette of RM no 25/98, 18/99, 02/04)

**Law on Construction** (Official Gazette of RM no 51/05) (New text of the Draft Law on Construction – Phase II, is currently under preparation).

**Law on Construction of Investment Buildings** (“Official Gazette RM” No 15/90, 11/91, 11/94; 18/99 and 25/99);

**Law on protection and rescue ( Official Gazette of RM no36/04, 49/04)**

**Law on storage and protection from Flammable Liquids and Gases** (Official Gazette of RM no 15/76)

- **Government Decision, Instructions, Standards**

**The Book of Regulation on standards and norms for spatial planning** (Official Gazette of RM, No. 2/2002) contains a list of facilities for which EIAs are compulsory. This list is in accordance with Annex I of EC Directive. However, there are some facilities missing; such as roads and water-management facilities (dams and reservoirs). The EIA procedure for these facilities is included in separate legislation (Law on Public Roads and Law on Water Resources), which refer to the aforementioned regulation and its relevant sections on EIA. In the Book of Regulation on standards and norms for facility projection (Official Gazette of RM, Nos. 66/99, 102/2000 and 2/2002), the contents of an Environmental Impact Assessment Study is defined.

**Brief Overview of Design Standards for Roads in Macedonia.** Nowadays, the preparation of technical documents (studies, project proposals and main projects) for roads in Macedonia is based on the “Rulebook for designing main roads” (Official Gazette of SFRY no. 11/1981). Until the adoption of a new one, this rulebook is still in force. Once Macedonia gained its independence in 1991, it was agreed that all regulations, standards and rulebooks from SFRY (Socialist Federal Republic of Yugoslavia) will be used until the adoption of new ones. According to article 93 of the Law on Standardization of the Republic of Macedonia published in the Official Gazette of the RM from 27 April 1995, all of the standards which may be found in practice with the designation JUS shall receive the destination MKS.

### 3.2. National requirements for Environmental Impact Assessment

The environmental impact assessment (EIA) process has been established and implemented in Macedonia, to a smaller or greater extent, since the country became an independent state. Within the framework of the former Yugoslavia, it was obligatory to prepare studies containing assessments of environmental impact. These studies, called ‘technological-ecological elaborates’, ‘ecological elaborates’ contained several aspects of the current EIA process.

- **EIA and Road Project Development**

From engineering or planning perspective, project development generally follows a well-defined process, which includes pre-feasibility and feasibility studies, preliminary design, detailed design, and construction. This is followed by operation and maintenance of the completed project. Depending on the nature of the project, consultation with various government agencies, the public, or both, may be an essential component during several of the early stages of the process.

It is important to synchronize environmental studies with the project development process. Ideally, the EIA and project development processes should be conducted jointly. The EA document should be completed by the feasibility stage of the engineering work, and the implementation of the mitigation plan should be tied handbook, since they are most pertinent to road projects.

According to the present legal framework, the EIA process is conducted on the basis of several laws containing a few articles that ‘could’ refer to EIAs. Main provisions for EIA procedure are stipulated in Law on Environment.

- **Major players in the EIA process for Road Project Development**

The Ministry of Transport and Communications is responsible for screening process of an EIA study for the road investment projects. The Investors submits the EIA study to the Ministry of Transport and Communication, and they apply them to the Ministry of Environment and Physical Planning for issuance of an opinion.

The main stakeholders of the EIA process in Macedonia include the following:

1. **Ministry of Transport and Communications (MTC).** Within the framework of the EIA process, this ministry determines the need of an EIA study for investment projects (screening). Afterwards, the ministry submits the EIA studies to the Ministry of Environment and Physical Planning for issuance of an opinion.

2. **Ministry of Economy (MoE).** According to the Law on Energy and the Law on Mineral Resources, and with reference to the EIA process, this ministry requires that the investor include an EIA study for projects involving any research of mineral resources, as well as for the construction of new power generating facilities or the reconstruction of existing ones.
Macedonia Regional and Local Roads Program Support Project  Sectoral Environmental Assessment

- Ministry of Environment and Physical Planning (MoEPP). The Division for Monitoring and Environmental Impact Assessment (DMEIA), within the Office of Environment (OE), is in charge of issuing opinions on the submitted EIA studies.
- Accredited organisations and experts. The Ministry of Environment and Physical Planning grants accreditation for the preparation of EIA studies.
- Units of local self-government (ULSG). These bodies are required to organise and involve public participation in certain projects of local relevance.
- Non-governmental organisations (NGOs). Current legislation in Macedonia specifies details concerning public information or public participation in the decision-making process within the EIA process.

**EIA procedures**

Subject of the environmental impact assessments are the projects which concerning their characteristics, scope or operational location can impact on the environment.

EIA generally has three objectives:

1. To present to managers and decision makers a clear assessment of potential impacts, which a project (or a strategic level initiative) may have on overall environmental quality;
2. To apply to a project (or a strategic level initiative) a methodology that assesses and predicts impacts and provides:
   a) The means for impact prevention and mitigation,
   b) The enhancement of project benefits,
   c) The minimization of long-term impacts;
3. To provide a specific forum in which consultation is systematically undertaken in a manner that allows stakeholders to have direct input to the environmental management process.

Environmental Impact Assessment of certain projects is required to be carried out in the Republic of Macedonia in accordance with Articles 76-94 of the Law on Environment (Official Gazette of the Republic of Macedonia No.53/05, 81/05, 24/07). ‘Projects’ is a term used to describe, inter alia, developments such as the building of roads, the extension of a factory or mining.

The types of projects that require an EIA are to be determined in accordance with Article 77 of the Law on Environment 2005 which are specified by the Government of the Republic of Macedonia in the “Decree for Determining Projects for which and criteria on the basis of which the screening for an environmental impact assessment shall be carried out” (Official Gazette of the Republic of Macedonia No. 74/2005).

The “Decree for Determining Projects for which and criteria on the basis of which the screening for an environmental impact assessment shall be carried out” stipulates the following two project categories:

- Projects for which compulsory environmental impact assessment procedure is carried out prior to the issuance of decision for the project implementation
- Projects that may have significant environmental impact and are therefore subject to environmental impact assessment screening prior to the issuance of decision for the project implementation
There are 20 types of projects requiring a full EIA. Among others, these include:

Construction of:

(a) Lines for long-distance railway traffic and airports with a basic runway length of 2,100 m or more;
(b) Motorways;
(c) New road of four or more lanes, or realignment and/or widening of an existing road of two lanes or
less so as to provide four or more lanes, where such new road, or realigned and/or widened section of the
road will be 10 km or more in a continuous length

Related to implementation of EIA procedure several decrees were developed and adopted:

③ Decree on the content of the requirements that need to be fulfilled by the study on environmental
impact assessment (Official Gazette of the Republic of Macedonia No. 33/2006);
③ Decree on additional criteria, the manner, the procedure and the expenses for enrolment in and
withdrawal from the List of experts (Official Gazette of the Republic of Macedonia No. 33/2006);
③ Decree on the content of announcement of the notification of the intention to implement a project,
of the decision on the necessity of an environmental impact assessment, of the study on project
environmental impact assessment, of the report on the adequacy of the study on project
environmental impact assessment, and of the decision for approval or rejection for the project to
proceed, and the manner of public consultation (Official Gazette of the Republic of Macedonia
No.33/2006);
③ Decree on the information contained in the notification of intent to implement a project and the
procedure for determining the need for environmental impact assessment of a project (Official
Gazette of the Republic of Macedonia No.33/2006);
③ Decree on the form, content, procedure and manner of developing the report on the adequacy of
the study on environmental impact assessment of the project and the procedure for authorization
of persons from the List of experts for environmental impact assessment responsible for the
preparation of the report (Official Gazette of the Republic of Macedonia No.33/2006);
③ Decree on the amount of expenses covered by the Investor for implementation of environmental
impact assessment procedure (Official Gazette of the Republic of Macedonia No.33/2006);
• Projects which are subject to environmental impact assessment

The procedures for Environmental Assessment Process cover the following aspects:
• Project Screening – (within CARDS 2004 Project the mentioned procedures are described more detailed)
• EA Document Content (Scoping)
• EA Review and Approval including Public Consultation
• Disclosure

The EIA Study consists of a rigorous documentation of existing conditions, an identification of impacts, and a comparative examination of impacts arising from the road project alternatives. It should be conducted by national certified experts following the defined methodology, report structure and documentation requirements. The public is involved during the whole EIA process in accordance with provision stipulated in Law on Environment.

Investor who is intending to implement a project that is likely to fall under Article 77 and Article 78, of the Law on environment shall send a notification on its intention to implement the project, together with an opinion of the need of environmental impact assessment to the MoEPP. The MoEPP shall inform the investor within 10 days from the date of the receipt of the notification on the need for supplementing the notification and within five working days of the receipt of the full notification, announce the notification in daily news paper.
**Screening** is the stage of the EIA process by which the body of the state administration responsible for the affairs of the environment determines whether an EIA is required for a particular project. Scoping follows screening and is the activity of deciding on the particular matters that are to be investigated within the EIA if the Screening Decision is positive, i.e., the Screening Decision indicates that an EIA is required to be carried out for the proposed project. The public are to be consulted at the screening stage. A number of steps are taken at the screening stage to determine whether EIA is required for a project.

The following flow diagram summarises the basic procedural and substantive elements of the screening procedure:

1. **Step 1**
   - **Annex I or II**
   - Is the project in a category listed in Annex I or II?
     - Yes → **Screening**
     - No → **No** → EIA not required

2. **Step 2**
   - **Mandatory List**
   - Is the project on a mandatory list or projects for which EIA is always required?
     - Yes → **EIA required**
     - No → **Screening**

3. **Step 3**
   - **Exclusion List**
   - Is the project on an exclusion list of projects for which EIA is not required?
     - Yes → **EIA not required**
     - No → **Screening**

4. **Step 4**
   - **Case-by-Case**
   - Is the project likely to have a significant effect on the environment?
     - Yes → **EIA required**
     - No → **EIA not required**

The **scoping** stage is the process during which the body of the state administration responsible for affairs of the environment determines the content and extent of the matters which should be covered by the EIA report on environmental impact assessment study (EIA Study), as per Article 8 of the Draft Ordinance and issues the ‘Scoping Opinion’ outlining this to the Investor. The purpose of the scoping stage and the Scoping Opinion is to inform the Investor of the issues that the final report on EIA Study should respond to. This should include the specific requirements on the basis of the characteristics of each particular proposed project.
Articles 81(4) and 82(1) of the Law on Environment provide that scoping is mandatory. The Investor therefore must request a scoping opinion from the body of the state administration responsible for affairs of the environment.

One aim of Scoping is to identify alternatives and mitigation measures which it may be appropriate for the Investor to consider in finalising the project proposal. For example, the Investor could take a different type of action, choose an alternative location or change the design of the project so as to reduce or mitigate the potential environmental impacts of the project.

**DIAGRAM OF EIA SCOPING PROCEDURE**

Once scoping is completed the **EIA study can be undertaken.** The Investor shall prepare the study on the project environmental impact assessment required for the carrying out of the project environmental impact assessment procedure in accordance with Article 2 of the Decree on the content of the requirement that need to be fulfilled by the study on environmental impact assessment (Official Gazette R. M. No. 33/2006).

After the environmental impacts have been identified and assessed by the Study on the Project Environmental Impact Assessment (the EIA Study), the EIA process continues with the **review stage.** The developer/investor will send the EIA study to MoEPP for review and approval. Public consultation is a Macedonian requirement, and is defined as a part of the reviewing process led by MoEPP (MLE, Article 91). Review is the process of checking the adequacy of the EIA study - ‘Report on the adequacy of the study on project environmental impact assessment’. The review of the quality of an EIA study is one of the main ‘safeguards’ built into the EIA process. Often, the quality of the EIA study can be considerably improved by review, resulting in more informed approvals and better environmental outcomes.

The Review should identify any deficiencies in the EIA Study. The Review should also focus on any shortcomings in the EIA Study and any separate any crucial deficiencies which may directly impede decision-making from less important ones. If no serious shortcomings are found, this should be stated. Any remarks about less important deficiencies can be placed in a separate section or appendix in the Review. Finally, the Review should recommend how and when any serious shortcomings in the EIA Study are to be remedied to facilitate informed decision-making and appropriate measures for project implementation. In case there is at least one answer of “inadequate” in Review Checklist, the MoEPP shall require that further work on the EIA study be undertaken.
The EIA study shall be **accepted (approved)** by the MoEPP unless there is an answer of “inadequate”. The MoEPP shall, on the basis of the study on the project environmental impact assessment, the report on the adequacy of the study on the project environmental impact assessment, the public debate referred to in Article 91 of this Law and the opinions obtained, issue a decision on whether to grant consent to or reject the application for the project implementation within 40 days from the date of submission of the report.

The decision shall contain assessment of whether the project environmental impact assessment study fulfils the requirements prescribed by this Law and the permit conditions for the project implementation, as well as measures for prevention and reduction of the harmful effects.

- **Projects which are not subject to environmental impact assessment**

The Government of the Republic of Macedonia may in exceptional cases decide on the basis of case-by-case examination not to carry out environmental impact assessment, either in whole or in part, of projects, in case of:

- War or state of emergency,
- Defense needs of the Republic of Macedonia, if it is found that the implementation of the procedures for environmental impact assessment would have adverse effect on the defense, or
- need for urgent prevention of events that could have not been predicted and are likely to have a serious impact on health, security or property of people, or on the environment.

In this case an alternative method of environmental impact assessment proposed by the MoEPP shall apply. For this purpose the Ministry shall:

- inform appropriately the public and explain the decision not to carry out an environmental impact assessment; and
- inform the public concerned on information obtained through alternative environmental impact assessment methods.

Also, along with other types of projects with potentially insignificant environmental impacts, the light rehabilitation of roads (most of the proposed under the current Program sub-projects will rely on this definition), routine and periodic road maintenance, small repair/improvement of roads and relevant roadside works, according our Law, do not require environmental impact review.

### 3.3. Other relevant guidelines and procedures

In 2006 in the frame of CARDS 2004 GUIDANCE for conducting screening, scoping and review in environmental impact assessment in Republic of Macedonia was developed. This Guidance document is intended to be read in conjunction with the current laws that regulate the environmental impact assessment (EIA) process in the Republic of Macedonia. These laws are referred to in this document. An aim of this Guidance is to assist in the interpretation of the EIA laws so that they can be applied in practice.

This Guidance is drawn in part from the screening, scoping and review Guidance provided by the European Commission. It accompanies Republic of Macedonia efforts to implement the EIA Directive and is designed to help investors, bodies of the state administration and other involved parties to undertake the highest standards of environmental impact assessment. This Guidance may be used as a general guidance showing environmental concerns and procedures also for road construction and rehabilitation activities/works.
According to the Law on Environment, MoEPP stipulate the strategies, the plans and the programmes, including amendments to such strategies, plans and programmes, (planning documents), that are subject to a mandatory assessment of their impact on the environment and human health (strategic assessment). Strategic assessment shall be carried out on the planning documents prepared in the area of agriculture, forestry, fisheries, energy, industry, mining industry, transport, regional development, telecommunications, waste management, water management, tourism, spatial and urban planning and land use, on the National Environmental Action Plan and local environmental action plans, as well as on all strategic, planning and programme documents by which implementation of projects that are subject to environmental impact assessment are planned. Secondary legislation as well as Guidance for Strategic assessment procedure was not prepared until 2007.

3.4. WB Safeguards procedures to be considered

WB has a series of safeguards policies and procedures that address different issues. WB safeguards policies that may be triggered by current project are the following: (a) Environmental Assessment (OP 4.01); (b) Natural Habitats (OP 4.04); (c) Physical Cultural Resources (OP 4.11); and (d) Involuntary resettlements (OP 4.12). It is strongly recommended that during feasibility studies and road subprojects design the provisions of mentioned safeguards policies\(^\text{29}\) will be fully applied.

Environment Assessment. World Bank requires environmental assessment (EA) of projects proposed for financing by Bank to ensure their environmental soundness and sustainability, and thus to improve decision making (OP 4.01, January 1999). EA is a process whose profundity and type of analysis depends on nature, scale, and potential environmental impact of the proposed project. EA evaluates a project’s potential environmental risks and impacts; examines project alternatives; identifies ways of improving project selection, sitting, planning, design and implementation by prevention, minimization, mitigation or compensation of adverse environmental impacts and enhancing positive ones. It also includes mitigation and management of adverse environmental impacts during project implementation. The Bank prefers preventive measures rather than mitigation or compensatory ones, whenever feasible.

EA takes into consideration the natural (air, water, and land), social (human health and safety, and such social aspects as involuntary resettlement, indigenous peoples) and cultural environments, as well as transboundary and global environmental aspects. It also takes into account the variations in project and country conditions, findings of country environmental studies, national environmental action plans, the country’s overall policy framework, national legislation, and institutional capabilities related to the environmental and social aspects, and obligations of the country to be met under relevant international environmental conventions and agreements. The Bank does not finance projects that would not comply with these obligations, if this identified during EA.

Natural Habitats. The Bank promotes and supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development the conservation of natural habitats and the maintenance of ecological functions. Wherever feasible, Bank-financed projects are sited on lands already converted (excluding any lands that in the Bank’s opinion were converted in anticipation of the project). At the same time, the Bank does not support projects involving the significant conversion of natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. In the case that a project would significantly convert or degrade natural habitats, the project includes mitigation measures acceptable to the Bank. Such mitigation measures include, as appropriate, minimizing habitat loss (e.g., strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area.

\(^{29}\) For details regarding WB safeguards policies see: www.worldbank.org/safeguards
In deciding whether to support a project with potential adverse impacts on a natural habitat, the Bank takes into account the borrower's ability to implement the appropriate conservation and mitigation measures. If there are potential institutional capacity problems, the project includes components that develop the capacity of national and local institutions for effective environmental planning and management. The mitigation measures specified for the project may be used to enhance the practical field capacity of national and local institutions.

**Physical Cultural Resources.** This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. The Bank assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process. The steps elaborated below follow the EA sequence of: screening; developing terms of reference (TORs); collecting baseline data; impact assessment; and formulating mitigating measures and a management plan.

The following projects are subject to the provisions of this policy: (a) any project involving significant excavations, demolition, movement of earth, flooding, or other environmental changes; and (b) any project located in, or in the vicinity of, a physical cultural resources site recognized by the borrower. When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.

**Involuntary Resettlement.** As involuntary resettlement may cause severe long-term hardship, impoverishment, and/or environmental damage within the financed projects, it is necessary to undertake appropriate measures that would include the following: (a) involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs; (b) where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits. Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs; and (c) displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

**Information disclosure and consultation.** For (i) A and B projects and (ii) sub-projects categorized as A and B, the borrower consults project-affected groups and local non-governmental organizations (NGO’s) about the project's environmental and social aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them. The Borrower provides relevant information in a timely manner prior to consultation and in a form and language accessible to the groups being consulted.

The Borrower makes the draft EA (for category A projects) or any separate EA report (for category B projects) available in country in a local language and at a public place accessible to project-affected groups and local NGOs prior to appraisal. The final EA report should be sent to the InfoShop prior to appraisal for all projects of category A and B. For category A projects, the task team sends a summary of the EA report to the Board of Directors as soon as it is received. Separate Resettlement Plans are disclosed with the relevant EIA report.
3.5. **Assessment of adequacy of National EA requirements to the WB rules and procedures**

The Republic of Macedonia has a comprehensive set of environmental laws and regulations. Environmental provisions stipulated both by the Constitution, and such laws and Law on Environment and other environmental sectoral laws comply with World Bank environmental and social safeguards policies. Macedonian Law on Environment (MLE) (Official Gazette of the Republic of Macedonia No.53/2005) includes environmental assessment legislation (MLE, Chapter IX: Environmental Impact Assessment of Certain Projects; Decree determining projects for which and criteria on the basis of which the screening for an environmental impact assessment shall be carried out, Official Gazette of the Republic of Macedonia No.74/2005), which is essentially aligned with the comparable EU directives. There is also comparability with the World Bank (WB) Operational Policy on Environmental Assessment (OP/BP 4.01). All the key elements of a well-developed environmental impact assessment system – such as notification of the competent environmental authority, screening of the project to determine the needed level of environmental scrutiny, analysis of alternatives, licensing/permitting and public disclosure – are all present in the MLE and its associated regulations.
4. INSTITUTIONAL FRAMEWORK AND CAPACITY TO PERFORM SAFEGUARDS

4.1. National Institutional Framework

Road sector

The Ministry of Transport and Communications (MTC) is the institution in charge of the transport sector in the country but several other independent bodies and public institutions are in charge of various areas of the transport sector. It is organized into 12 Departments that in turn are responsible for developing and implementing policies through 32 specialized Units. Among its main responsibilities are: (a) promoting policies and new legislation in the domain; development transport and communication strategies and action plans, creating incentives for private sector involvement; supervising activities in the areas of its responsibilities, etc.

Fund for National and Regional Roads (FNRR) is responsible for designing and implementing the Annual Program concerning the planning, funding, construction, reconstruction, maintenance, and protection of the national and regional road network. FNRR for 2007 has its annual budget of about $74,000,000. The investment budget for road construction, amounting to approximately 40% of the total budget of the FNRR increases every year.

Most of the investments in the road network in 2007 are to be funded through loans, while the maintenance budget (approximately 20% of the total budget) is spent for maintenance of the national and regional road networks in the country carried out by PE Makedonijapat (PEM) according to the annual contract signed with FNRR. PE Makedonijapat is a public enterprise that, in accordance with the Law on Public Roads, is authorised in regards to the maintenance of national roads, regional roads, and motorways in the country. At present, it signs an annual contract with FNRR which governs its work and activities.

The activities in connection with maintenance of roads not carried out by the Public Enterprise “Makedonija pat” – Skopje are outsourced to other contractors, according to the existing Law on Public Procurement. This means that the existing legislation does not promote free competition relating to road maintenance. The activities in connection with planning, financing, construction, reconstruction, maintenance and protection of local roads and streets are a responsibility of the local self-government units, which prepare annual programmes in that respect. The selection of contractors for implementation of the annual programmes is carried out pursuant to the Law on Public Procurement (Official Gazette of RM No 19/04). Contractors for road construction and road rehabilitation are totally or partially privatizes. It is noteworthy to mention that institutions related to the road sector will be subject to further restructuring after preparation of the study for Road Restructuring Sector (ongoing project financed under CARDS 2006). The purpose of road sector restructuring is to provide fair competition in the market for road maintenance in compliance with the EU practices. This will be achieved through restructuring the key players in the road sector in the country and re-orienting them towards the new conditions and provisions that will increase the governmental income through better quality construction and rehabilitation activities in the road network as well as improved competitiveness in international markets.
**Environment sector**

The *Ministry of Environment and Physical Planning* is competent authority and responsible for environmental tasks including the legal harmonization process, preparation of national strategies and action plans, inspection and enforcement and nationwide monitoring and information systems. The MoEPP sets the overall framework for policies and legislation.

The competent EIA authority in Macedonia is MoEPP. *The Administration for Environment (AE)* (where Division for EIA under the Department of Environment exists) is a body under MoEPP responsible to perform EIA at national and local level. There aren’t independent environmental agencies or other institutions that perform EA in Macedonia.

EIA is performing by one permanently employed state expert working in the Division for EIA and one on contract basis; they may ask for additional support from experts and specialized institutes for revision of EIA documents for complex and dangerous objects, as well as from any other resource (for instance, Macedonian Academy of Science, Macedonian State Universities, Construction University, relevant state institutes, etc.).

*The Investor* preparing the study on the project environmental impact assessment in accordance to the Law on Environment shall engage at least one person from the List of Experts who shall sign the study as responsible person with regard to its quality. If the study is prepared by more than one person, other experts or legal person, the Investor shall appoint at least one person from the List of Experts, who shall sign the study as responsible person with regard to its quality.

The enforcement of the implementation of the Law, including ascertains whether elaborate of project's environment impact has been prepared as prescribed in the Regulation, as well as whether the elaborate has been submitted to the body competent for the project implementation approval and check whether the requirements contained in the elaborate have been met is on the *State Environmental Inspectorate* (SEI). The SEI is also responsible for ordering the implementation of a measure specified in the elaborate and specify the term for the measure completion.

It should be mentioned that the Government of Macedonia shall, upon a proposal of the MoEPP, stipulate the strategies, the plans and the programmes, including amendments to such strategies, plans and programmes, (hereinafter: planning documents), that are subject to a mandatory assessment of their impact on the environment and human health (hereinafter: strategic assessment.)

There are no any environment departments or staff in charge within MTC and Fund for National and Regional Roads. There is also lack of environmental specialists among permanent staff of the PE Makedonijapat.
4.2. Assessment of capacities to perform safeguards

While Macedonia made impressive progress in developing legislation on environmental protection and EIA, more effective environmental management requires progress in relation to: (i) promoting to apply the current Sectoral Environmental Assessment towards mitigation any serious unanticipated environmental consequences and incorporation of feasibility studies environmental findings into selection and design of sub-projects; (ii) development institutional capacity within MTC for performing of the Strategic Environmental Assessment (SEA) for the whole sector development plans and application of the Environmental Impact Assessment (EIA) for newly constructed or heavily rehabilitated roads; and (iii) further strengthening of FNRR, PE Makedonijapat and State Environmental Inspectorate capacities towards supervising of implementation of monitoring plans, (iv) increasing capacity of relevant institutes (including private ones) in relation to consideration of environmental concerns.

The actual institutional capacity of borrower was evaluated during project preparation stage. On the basis of this evaluation one can conclude, that MoEPP don’t have enough relevant capacities to perform their duties concerning reviewing EA studies and enforcing EMP provisions.

As noted, at the national level EA policy development, review, and enforcement are charged by MoEPP, AE and State Environmental Inspectorate. MoEPP has a mandate to develop the regulatory framework for environmental assessment, as well as for the national environmental policy, planning regulation and coordinating of environmental matters with the line ministries. The actual intention of MoEPP is to introduce the Strategic Environmental Assessment (SEA) procedures to be incorporated into in-line ministries as a planning tool. MoEPP start the process of preparation of sub legislation for SEA.

At the same time, within MTC and project implementing agencies (FNRR and PEM) there are no any special unit and/or especially designated staff responsible for environmental issues. Furthermore, in both institutions there are no subdivisions that work in this area, and also analytical laboratories that might ensure compliance with the existing legislation, regulations and ecological norms.

From the performed analysis evidently that at present the country does not have enough capacity to implement efficiently environmental safeguards in particular in the road sector. In this regard, the project would support capacity building in institutions responsible for EA, as well as with MTC, FNRR and PEM staff. First of all, it was proposed to provide MTC, FNRR and PEM with technical assistance for environment management and assessment, including training workshops, preparation of environmental guidelines in the road sector and provision of full-time environmental specialist to the FNRR and PEM. Proposed capacity building activities are described in details under chapter Institutional Arrangements.
5. ENVIRONMENTAL IMPACTS

The purpose of this section is to identify possible environmental impacts resulting from planned development of the road sector in general (in relation to the Government’s Road Development Strategy) and proposed activities under Macedonia Secondary and Local Roads Project.

The nature and scale of impacts have been determined by the type of interventions within the proposed project to assist the road sector, which mostly focuses on improvements of existing roads through resurfacing, provision of drainage, and routine road maintenance, and possible new small road segments construction. Therefore, the environmental impact analysis for several stages (expected under the Road Sector Program) was performed separately. These stages are next:

- Construction of small segments of the new roads;
- Reconstruction of heavily damaged roads;
- Improvement of existing roads; and
- Routine road maintenance.

Besides, more important aspects of potential (negative and positive) impacts at the stage of constructed/improved roads operation (traffic) were evaluated.

The major impacts may have new roads construction, while for the rehabilitation activities, no major project environmental impacts are expected. In the case of construction of new roads significant disturbances to land, interference to soil stability and hydrology in the construction area might occur. In the case of rehabilitation works most environmental impacts will be temporary and local, mostly during the construction phase and will cause only minor, localized and short-term negative effects. Most of them will be mainly linked with light rehabilitation works such as leveling, grading, potholes patching, cracks priming, surfacing, quarrying, use of hazardous materials, such as combustive-lubricating ones, bitumen, etc., traffic of construction vehicles/ hauling of road-building materials, building materials stockpiling and use of waste disposals. These impacts are common in road rehabilitation works and can be mitigated by existing management techniques.

Impacts originated from use of asphalt-concrete mixtures, bitumen and other hazardous materials, and their hauling from sites where they are produced to the sites where they are applied had been considered, as well. All these impacts are also common for such kind of works and can be easily mitigated through application of existing techniques and measures.

After completion, the project will have positive indirect impacts on human welfare, safety, health and socio-economic environment through reduced vehicles operating cost, decreased number of accidents; reduced air pollution resulted from vehicles emissions on rehabilitated road sections; cleaning up of roadside drains; reduced risk of soil pollution and erosion, and water pollution resulting from rehabilitation of drainage system, reduced risk of landslides due to slope stabilization, better access to settlements and markets, development of new business opportunities, etc.

Using as a reference the guidelines provided in World Bank’s Handbook on the Roads and Environment a general list of potential impacts during construction/rehabilitation; operational and maintenance phases (see Annex 2) has been prepared that lists vide range of possible environmental and social impacts that could be anticipated from a project of this nature.

Annex 2, Table 1 reflects the environmental and social impacts during the new small road constructions (linking with existing roads), have a number of temporary and local on-site environmental impacts. These
impacts can provoke significant disturbances to land, interference to soil stability and hydrology in the construction area. Impacts on air quality and noise levels will depend on the projected increase of traffic flow and anticipated reduction of traffic congestion - both due to improved road conditions.
Presumably, the net effect on air quality and noise levels will have a positive effect as the roads considered for construction are the national roads which are generally used permanently even in cases where the road conditions have deteriorated significantly and/or an alternative route with better conditions are available. Most of the negative environmental impacts triggered under this project will be seen off-site where road-building material would be sourced. If not managed properly, quarry and borrow sites can have substantial impacts on the surrounding environment as well as intrusion on the aesthetic quality of the sites. Considering this it was decided that the project will specify contract provisions governing the sources of constructional materials (e.g. asphalt, stone, sand, etc.) would be supplied only from sources with approved licenses, permits, and/or approvals for environment and worker safety. Contractors will be required to produce relevant licenses for quarries and borrow sites where constructional material will be excavated.

As shown in Annex 2, Table 2, outlined environmental and social impacts for road rehabilitation phase, resurfacing of existing roads, - the impacts are similar with above mentioned impacts from the construction of new small roads, but not so significant. In addition to main impacts identified above, it should also consider temporary disturbances to the environment due to waste water runoff from construction camps, spills of substances used in equipment/machinery operation and maintenance, traffic congestions caused by improperly planned detours and closures can cause localized impacts, which can be temporary quite significant and hence need to be carefully considered.

Annex 2, Table 3, outlined potential environment and socio-economic impacts during the road operation phase which are mostly linked with combustion gases emissions, contaminated surface run-off and at the same time, reduced vehicles operating costs and reduced emissions into air as compared to previous road conditions.

Annex 2, Table 4 reflects the environmental and social impacts during the road maintenance phase mostly linked with light road repair works.

These annexes identify in details road project implementation activities, potential positive and negative impacts caused by these activities and suggested measures to be taken towards impacts mitigation.

Relevant information from this section should be applied when specific environmental analysis is conducted (it is expected during feasibility study) to determine the type of impacts and extent of severity linked with further identified sub-projects.
6. ANALYSIS OF ALTERNATIVES

The Sectoral Environmental Assessment considers potential alternatives generally linked with sector policy and priority of road resources for various regions and types/conditions of the roads.

There might be at very small scale new roads construction but only for linking with existing roads, and hence, in-depth analysis and evaluation of alternatives will be required only for these cases. Motor roads remain the most significant goods and passenger’s transportation pattern in the country and play a vital part in development of Macedonia. In such a way, other types of transportations, e.g. railway, air will not be considering as an alternative to the motor one, traditionally developed in Macedonia.

The only strategic alternatives are “no rehabilitation and/or maintenance” or “rehabilitation and/or maintenance” approach.

The “no rehabilitation/maintenance” (or “no project”) alternative is not a good environmental option which being chosen may provoke adverse environmental effects/environmental risks over time. These risks may arise as a result of the following conditions:

- road’s technical status (roadway covering, road basement, engendering enforcement structures, side and cut-off drains, etc.) will be progressively deteriorating;
- poorly controlled surface and groundwater flows may cause localized erosion, disturb drainage patterns and trigger landslides and ravines processes which in turn, can affect the nature and roads infrastructure itself;
- lack of sufficient maintenance (cracks and potholes on road surface) will affect road’s safety and cause car accidents, humans death and injury, as well as accidental spills contributing to pollution of down land soil and waterways, etc.;
- poor roads will force drivers to apply lower speed under non-optimal engine regime that may result in increased emissions of combustion gases and additional pollution of air, soil and water, as well as bigger noise impact;
- progressive road’s deterioration will also increase transportation time, discomfort to passengers, losses and damages to goods, more fuel consumption and other social and economic negative impacts;

The “rehabilitation and/or maintenance” approach, proposed by the Macedonia’s Road Sector Program is a better environmental alternative, as most of impacts described in previous chapter are temporary, local, easily recovered and managed.

The feasibility study to be performed before sub-projects are finally selected, may suggest a range of specific options that have to be considered, including:

- location of sub-projects and related roads segments lengths;
- types of improvements for certain roads sectors;
- technical and engineering solutions;
- work schedule and modes of traffic regulations on the road sections under rehabilitation/maintenance;
- environmental consideration, such as reduction of emissions into air, wild animals migration patterns, livestock movement, noise control measures, etc.
- selection of borrow pits and queries to provide local building materials (sand, gravel);
- identification of places for asphalt-bitumen plants operation, transportation and heating of bitumen;
- requirements and specification for road construction machines, equipment and techniques,
Analysis of aforesaid options is out of the scope for Sectoral Environmental Assessment, but specific environmental analysis of alternatives would be very important at the stage of feasibility study and of subprojects design.
7. **ENVIRONMENTAL MANAGEMENT PLAN**

The Environmental Management Plan (EMP) includes: (i) national and sector level mitigation with outlined proposals for developing of policy/regulatory and institutional framework for EA as well as strengthen the EA capacity in all institutions involved, i.e., in government road sector, environmental bodies, among national contractors; (ii) EA management framework to be used for environmental assessment/screening of the proposed road sub-projects; (iii) Resettlement Policy Framework to be applied in the case of land acquisition; (iii) Environmental Guidelines to be applied during the construction/rehabilitation activities, (iv) and Environmental Monitoring Plan.

7.1. **National and sector level mitigation**

It was suggested that the project would support capacity building activities for MTC, FNRR and PEM staff, as well as for the institutions responsible for performing EA. First of all, it was proposed to provide MTC, FNRR and PEM with technical assistance for environmental management and assessment, including appointment of full-time environmental specialist, revision/adoption of environmentally oriented road design/construction requirements and training.

The environmental specialist within FNRR is needed to assist in: (i) integrating environmental procedures into project cycle and into sectoral environmental policies and management; and, (ii) reviewing sub-projects that would require conducting of limited or full environmental assessment, (iii) coordination of preparation of environmental studies, EA reports, and relevant chapters of design documentation, (iv) coordinate all required environmental approvals and permits, both at the national and local levels, (v) check if bidding documentation and contractors’ contracts include all required environmental considerations, (vi) prepare curriculum and supervise/implement training activities for AE (MoEPP) and state and local ecological inspectors on supervision of EMPs implementation, (vii) to carry out FNRR monitoring of environmental impacts resulting from project activities, monitor correct application and efficiency of mitigation measures commissioned by contractors. Detailed requirements and scope of works for full-time environmental specialist are included in chapter on Implementing Arrangement. The environmental specialist may be trained through visiting of similar WB projects abroad in order to gain and improve relevant experience and skills.

It was also proposed that the project would support training for MoEPP, MTC, FNRR and PEM staff in the field of Strategic Environmental Assessment, organization of workshop that would contribute to relevant capacity, and preparation/publication of Strategic Environmental Assessment guidelines for road sector development. For this purposes resource experts or experienced NGO may be engaged.

It was proposed that the project may finance preparation of general Environmental Road Handbook mostly designated for road policy managers and design companies, transport specialists. The Environmental Road Handbook may incorporate national and WB policies, findings from relevant WB handbooks, other technical and policy guidelines and summarize international experience and Europeans standards in the field. The main purpose of this activity is to prepare guidelines which will be oriented to the environmental and road safety policy issues, and would include the framework for better environmental decisions and involvement of public rather than a technical engineering document. The guidelines may be prepared by private consultants, private consultant company or NGO. According Law on Construction, referring Article 50 paragraph 1, exist around 20 decrees, resolutions and rulebooks which are used during the procedure regarding issuing of decision for the terms of location and approval for design (building) in relation to designed objects from first and second category.

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30 "Roads and the Environmental Handbook", WB Technical paper No 376
Additionally, the project will support training activities for AE (MoEPP) and national/local ecological inspectors on supervision of EMPs implementation and on enforcement of their provisions. Environmental specialist, employed by FNRR and PEM may implement this activity, with assistance from resource experts, if needed.

It is also proposed to produce environmentally oriented leaflets, booklets, placards, reflecting the major environmental findings obtained during project implementation and designated to provide information for public and NGOs community.

### 7.2. Environmental Assessment and Management Framework (EAMF)

The proposed Environmental Assessment and Management Framework (EAMF) covers: (a) procedures for environmental screening of sub-projects and criteria for categorization; (b) procedures for conducting Environmental Impacts Assessment and/ or preparing the EMP for selected sub-projects; and (c) roles and responsibilities for EIAs and/ or EMP reviewing, approval, monitoring and enforcement.

The proposed EAMF should serve as a template for performing of appropriate environmental analysis of sub-projects and if designed, for ensuring consistency with Macedonia national environmental requirements and WB safeguards policies. The EAMF aims to ensure that: (a) the sub-project activities do not create or result in serious adverse impacts on local communities and environment, (b) the mitigation plan is adequate and implemented properly, and (c) possible complaints from local authorities and communities are avoided and/or minimized. The EAMF also covers institutional arrangements needed for evaluation and monitoring of environmental impacts during design, construction, operation and maintenance phases. The EAMF contains also recommendations concerning public consultations to be held for each selected road sub-project of category A and B and disclosure of EMP.

- **Procedures for environmental screening of sub-projects and criteria for categorization**

Sectoral Environmental Assessment identifies generic issues that are typically associated with road rehabilitation and maintenance activities, as proposed under the Macedonia Road Sector Program Support Project and may be expected under entire Macedonia’s Road Sector Program, and should be apply when relevant details are available. In such circumstances, OP 4.01 requires that arrangements be made whereby the project implementing institutions undertake the functions of sub-project screening, EA review and implementation of mitigation and monitoring plans.

Before design, the consulting companies that will be hired to conduct feasibility studies should identify sub-projects and assess their alternatives. At this stage it is important to evaluate proposed sub-projects also from environmental perspective and define type of EA required and specific formal requirements.

During feasibility study and design of road subprojects it may become evidently that some of sub-projects (or parts of roads or supporting infrastructure) may require full detailed EIA study\(^{31}\), some of them – only partial EIA and environmental review from AE (MoEPP) of design documentations\(^{32}\), or, for some of them, - environmental elaborates/permits.

\(^{31}\) MoEPP may classify the project activities as complex and harmful for environment and have a right to ask preparation of EIA, or, as example - the full EIA may be required for construction of asphalt-bitumen factories if stationary plants had to be build.

\(^{32}\) Formally Environmental Review is required for any deposits (which may be build for constructional materials as example), enterprises for constructional materials (ex. asphalt-bitumen factory) and construction of roads (heavily reconstruction potentially may be classified under this category)
Nevertheless each individual sub-projects (and relevant supporting infrastructure like deposits, asphalt-bitumen plants, constructional materials carriers if it is the case) will be assessed and, if necessary, engineering documentation will be reviewed and cleared by the AE (MoEPP) as applicable (for category A and B projects), under prevailing national environmental legislation in Macedonia and by WB prior to the approval of disbursement of funds.

The sub-project environmental assessment will involve following steps:\(^{33}\):

**Step 1:** Road sub-project screening  
**Step 2:** Preparing Environmental elaborates/permits (in the case of category C projects), a simple EMP and/or full EIA and EMP in the case of category B and A projects  
**Step 3:** Consultation in the case of category A and B projects  
**Step 4:** Environmental Review and Approval  
**Step 5:** Implementation  
**Step 6:** Supervision and Reporting

Further the details for each step are elucidated.

**Step 1: Road sub-project screening.**

The screening process is not intended to interdict carrying out of roads construction, rehabilitation and/or maintenance-related works, including in environmentally and socially sensitive areas, but ensures that proper mitigation measures are proposed, included in design documentation and undertaken appropriately to avoid adverse impacts on affected population, natural environment and cultural heritage. Therefore, Initial Environmental Examination (IEE) for all sub-projects (or parts of roads or supporting infrastructures, if it is a case) has to be conducted by the FNRR and PEM full-time environmental specialist in close cooperation with team/experts in charge for feasibility study. The findings of IEE will be analyzed and approved by the AE (MoEPP) authorities in order to have formal agreement (between FNRR and AE (MoEPP)) on what kind of EA and procedures will be required further.

If IEE demonstrates that sub-project (or parts of roads or supporting infrastructures, if it is a case) is located in or near protected areas or other critical habitats or cultural heritage (as per WB relevant safeguards), it will require to establish close cooperation with State Environmental Inspectorate in collaboration with National and/or Municipal Inspectorate Environmental Inspectorate or central AE (MoEPP) authorities and other concerned agencies (for example, health, geological, water or forest authorities) and consult to World Bank to determine whether a full EIA needs to be conducted and/or design documentation would require passing of AE (MoEPP) formal procedures. Nevertheless the scope and contents of an IEE should be limited by follows:

- Brief description of the proposed project area and works;  
- Description of relevant components of the existing environment, particularly those which caused that the area was classified as "environmentally and socially sensitive", if applicable;  
- Assessment of effects of the specific road works activity on relevant components of the existing environment already identified and described.  
- Suggested practical mitigation measures towards lessen the specific potential effects identified;  
- A short report of any public consultations carried out, including names and details of those consulted, any suggestions made, and how these were incorporated into the recommended mitigation measures;  
- Recommendation on either specific mitigation measures have to be undertaken, including applicable ones from Annex 2, or if more comprehensive EA is required (EMP, EIA and EMP);  
- Clear procedure steps for environment safety examination and obtaining of relevant permits.

\(^{33}\) Depending on the nature of the subproject and readiness of the proposal, the steps 1, 2, and 3 may be combined into one single review and clearance step.
Typically the IEE would include the description of the key environmental features of the project site, whether physical cultural heritage, critical natural habitats, forests, or rare and endangered species are likely to be impacted, whether water courses or groundwater sources will be affected, and wastes and contaminants likely to be generated during construction and operation, etc. In order to decide whether the proposed sub-project (or parts of roads or supporting infrastructures, if it is a case) may cause adverse environmental impacts that need to be addressed with more details in project design, it is proposed to perform an IEE to determine potential impacts and level of required environmental assessment.

In order assist IEE implementation a model of checklist has been developed and presented in the Annex 3. The checklist highlights typical issues that need to be considered and modus of identifying of all types of impacts that may arise from a project. It must be noted that each road project will have impacts that are specific for that road, and hence may emerge issues that are not covered by the checklist. Checklist should serve to summarize potential impacts and provide a simple and visual tool for conducting assessment. It also demonstrates magnitude and significance of the impacts. Completed checklist should help to make a decision on what type of further environmental consideration and procedures are important for specific sub-project (or parts of roads or supporting infrastructures, if it is a case). The coordination of its preparation with environmental authorities is essential.

Depending on nature and scale of the impacts, the reviewing authority (FNRR environmental specialist after consultation with State and local Environmental Inspections or AE (MoEPP) authorities) will inform FNRR about decision concerning further environmental documentation required for the sub-project.

The screening process, in most of the cases, may display the following:

- **The sub-project is assessed by FNRR environmental specialist as not having adverse environmental impact (WB environmental category C).** No specific environmental action is required. In dependence on scale of road activities, the design company has to elaborate a set of simple mitigation measures during the civil works to be carried out and which have to be describe in the contracts signed by road civil works Contractors. Most of these measures are very simple and based mostly on avoidance approach. They may be selected from the measures presented in the Annex 2 and Annex 7, and simple EMP has to be prepared.

- **The sub-project is assessed by FNRR environmental specialist as having adverse environmental impacts for which mitigation measures can be easily elaborated (WB environmental category B and national requirements regarding Environmental Review should be considered).** For such projects EMP as a part of WB procedures and set of design documentation for national AE (MoEPP) are required. The EMP should describe relevant environmental concerns and suggest mitigation and monitoring measures. In this case a partial environmental assessment study may be required before the EMP is complied. If EIA procedures are applicable, the FNRR environmental specialist will consult with AE (MoEPP) authorities. Consultation with affected population is expected during the planning stage (consultation on the TORs for the EA); on the draft EMP as well as during the implementation phase.

- **The sub-project is assessed by FNRR environmental specialist as having significant adverse environmental impacts that are sensitive, diverse, or unprecedented, as well as projects in the sensitive environmental and social areas (WB environmental category A and national requirements regarding Environmental Expertise should be considered).** For such projects there is necessary to conduct a full EIA study and prepare an EMP. The EMP should describe relevant environmental and social concerns and suggest mitigation and monitoring measures. Consultation with affected population is expected during the planning stage (consultation on the TORs for the EA); on the draft EMP as well as during the implementation phase.
The table below presents typical sub-project screening criteria for categorization of Road Maintenance and Rehabilitation activities.

<table>
<thead>
<tr>
<th>Project activity</th>
<th>Objectives</th>
<th>WB project category</th>
<th>Environmental Protection Rules</th>
</tr>
</thead>
</table>
| Minimum Maintenance                      | The minimum maintenance standard reflects the current practice in the absence of major maintenance works. These include the following:  
  Patching: Repair of road covering by potholing, wide structural cracking and gravelling. It is carried out annually.  
  Crack Sealing: This technique treats transverse thermal cracking and even wide structural cracking when area is limited. It is carried out annually.  
  Routine Works: Routine works include all works that do not affect pavement performance. These works include shoulder repairs and various routine works such as vegetation control, road sign repairs and replacement, road striping, guardrail repair and replacement, etc. Routine works are carried out annually.  
  Winter Maintenance: Winter maintenance includes all works carried out as part of winter maintenance such as salt spreading, snow removal, etc. An annual cost is specified for each road class. It applies to all roads. | C                   | WB: Simple mitigation measures should be considered in the design and incorporated into the contracts for construction Contractors. Simplified EMP should be complied.  
  National: The Environmental Review is not required.  
  For the activities, classified as rebuilding and reconditioning, the construction permit is not required if road improvement works are carried out within the Right of Way of such a road. |
<p>| Surface Treatment (Single or Double)     | To preserve the integrity of the pavement by sealing the carriageway in order to delay major intervention and renewal of the skid resistance. | C                   |                                                                                                 |
| Surface Treatment With Shape Correction  | To preserve the integrity of the pavement by sealing the carriageway in order to delay major intervention, improving roughness and renewal of the skid resistance. | C                   |                                                                                                 |
| Resurfacing by Overlay                  | To renew surface characteristics including skid resistance, to improve roughness and to contribute towards the overall pavement strength. Overlay by surfacing included thickness between 30 and 50 mm and were applied over a roughness values varying from 3 to 5 IRI and low rutting level. | C                   |                                                                                                 |
| Strengthening by Overlay                | To strengthen pavements, which have reached or soon to reach the critical stage (poor or fair roughness condition), improve roughness and renew surface characteristics. Strengthening by overlay concerned the application of multi-layer overlays (two or three layers) varying from a thickness of 80 to 270 mm applied over a range of roughness values varying from 4 to 9 IRI. | C                   |                                                                                                 |
| Strengthening by Mill and Replace       | To strengthen pavements, which have reached or soon to reach the critical stage (poor or fair rutting condition), improve roughness and renew surface characteristics. It is achieved by removing the distressed top asphalt layer (s) and replacing it (them) with a new (or recycled) asphalt of similar thickness but with better structural characteristics. This standard was applied over a range of rutting varying from 10 to 35 mm. | C                   |                                                                                                 |</p>
<table>
<thead>
<tr>
<th>Project activity</th>
<th>Objectives</th>
<th>WB project category</th>
<th>Environmental Protection Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthening by Reconstruction</td>
<td>To reconstruct pavements, which have reached the failure stage (poor roughness condition). Reconstruction is achieved through removal of the old pavement structure down to the subbase course and replacing it with a new (or recycled) pavement structure with high strength. Pavement structures varied according to road class and were applied over a range of roughness values carrying from 8 to 11 IRI</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Widening to 7 m</td>
<td>To increase the narrow roads to a minimum standard road width of 7 meters. This standard is applicable to Main roads with 6 meter or less width.</td>
<td>C</td>
<td>WB: An environmental impact assessment (EIA) and environmental management plan (EMP) are required and are to be cleared by national reviewing authorities and the WB</td>
</tr>
<tr>
<td>2 Lanes addition to Single Carriageways</td>
<td>To add two lanes to a single 2-lane carriageway (not dualisation) in order to increase capacity. This improvement standard is applied over a wide range of volume/capacity ratios varying from 0.5 to 1. It is mainly applied to Trunk and Main roads, which are not dual yet.</td>
<td>B</td>
<td>National: The Environmental Review is required if road improvement works are carried outside of the Right of Way limits of such a road and if the construction involves additional territories. EIA is required regarding, Construction of: (a) Lines for long-distance railway traffic and airports with a basic runway length of 2,100 m or more; (b) Motorways; (c) New road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such new road, or realigned and/or widened section of the road will be 10 km or more in a continuous length</td>
</tr>
<tr>
<td>1 Lane addition to Dual Carriageways</td>
<td>To add 1 lane to either sides of a dual two-lane carriageway in order to increase capacity. This improvement standard is applied over a wide range of volume/capacity ratios varying from 0.5 to 1. It is mainly applied to Motorways, Expressways, and Trunk Roads with Dual Carriageways.</td>
<td>C/B</td>
<td></td>
</tr>
<tr>
<td>2 Lanes addition to Dual Carriageways</td>
<td>To add 2 lane to either sides of a dual two-lane carriageway in order to increase capacity. This improvement standard is applied over a wide range of volume/capacity ratios varying from 0.5 to 1. It is mainly applied to Motorways, Expressways, and Trunk Roads with Dual Carriageways.</td>
<td>B/A</td>
<td></td>
</tr>
<tr>
<td>Reconstruct to Expressway Single Carriageway</td>
<td>To upgrade GP roads to Expressway single carriageway standard. This improvement standard is applied over a wide range of volume/capacity ratios varying from 0.5 to 1.</td>
<td>B/A</td>
<td></td>
</tr>
<tr>
<td>Reconstruct to Expressway Dual Carriageway</td>
<td>To upgrade GP roads to Expressway dual carriageway standard. This improvement standard is applied over a wide range of volume/capacity ratios varying from 0.5 to 1.</td>
<td>B/A</td>
<td></td>
</tr>
<tr>
<td>Project activity</td>
<td>Objectives</td>
<td>WB project category</td>
<td>Environmental Protection Rules</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Construction of new roads</td>
<td>To streamline the existing roads</td>
<td>A</td>
<td>WB: An environmental impact assessment (EIA) and environmental management plan (EMP) are required and are to be cleared by national reviewing authorities and the WB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>National: The EIA is required for new roads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EIA is required regarding, Construction of: (a) Lines for long-distance railway traffic and airports with a basic runway length of 2,100 m or more; (b) Motorways; (c) New road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such new road, or realigned and/or widened section of the road will be 10 km or more in a continuous length</td>
</tr>
</tbody>
</table>

- Procedures for conducting Environmental Impacts Assessment and/or preparing an EMP for selected sub-projects

**Step 2: Preparing a simple EMP or EIA plus EMP.**

In case of category C of sub-project, in conformity with WB requirements, each sub-project (or parts of roads or supporting infrastructures, if it is a case) is required a simple EMP, containing basic mitigation measures for the roads rehabilitation and maintenance activities as well as monitoring and supervision measures. The main civil works will be limited by activities typically defined as routine and periodic maintenance (resurfacing and bridge small repairs; flood repairs or emergency maintenance; regular upkeep of safety features and road signs, etc.) and small rehabilitation works to strengthen the road, repair structural defects, restore the road to its initial condition, make small changes or improvements to alignment, and cleaning of drainage and footpaths. If large-scale rehabilitation works are needed, FNRR will inform the Bank before proceeding with the contract. The works will be carried out within the existing right of way and will not involve relocation and land acquisition. For most sub-projects a simple EMP, complied by the FNRR environmental specialist (see provisional example in the Annex 4), and environmental/monitoring requirements for design/construction contractors included in their contracts (see example in the Annex 5) will be sufficient to guide mitigation and monitoring.
In the case of **category B and A** of sub-project, the step 2 requires preparation of EIA\(^{34}\) and EMP as stipulated in the WB policy documentation and will require conduction of AE (MoEPP) of project design documentation (see sub-chapter National Requirements for Environmental Impact Assessment and Ecological Review). In those cases, when such documentation is required. The FNRR will organize preparation of the relevant documents for submission during the time indicated by the reviewing authority, with considering of WB requirements and national AE (MoEPP). Depending on environmental impacts resulting from project, the environmental documentation for WB could represent either a separate report, or simply be presented as a section in the overall project documentation submitted for appraisal to the approving authority (outline of EIA and EMP are presented in Annex 6). According to the national requirements it should be a chapter “Environment Protection” and sub-chapter “Environment Protection during Construction Phase” submitted as an integral part of engineering design documentation and other requested materials for Environmental Review (see sub-chapter National Requirements for EIA). The FNRR environmental specialist will be responsible for preparation of all documentation regarding WB requirements and should control whether in a contract to be signed with design/construction companies includes WB requirements and needs for preparation/ submission of all necessary documentation for AE (MoEPP) under national rules. Should land acquisition and relocation is needed, the Bank will be informed, and the Resettlement Policy Framework will be applied (see Annex 8).

**Step 3: Consultation.**

For **category C** of sub-projects, the consultation to be held during preparation of IEE may be sufficient. The FNRR environmental specialist will include a summary of local consultation in the checklist and will check whether findings of local environmental concerns are adequately presented in the design/ construction contracts and covered financially by the contractors.

For **category B** of sub-projects, the FNRR will organize a hearing for consultation with and comments from project-affected groups and local non-governmental organizations (NGOs) during the environmental assessment process at the time when draft EIA report is ready and consider their opinions before making a decision on financing of proposed project. The FNRR should provide relevant materials (EMP summary, process descriptions, maps, permits, building plans, etc.) to participants in a timely manner and in a form and language that are understandable to consulted groups. The FNRR environmental specialist will be responsible for organizing of consultation, and also should provide the summary of initial consultation for design/construction contactors (this has to be included in the documentation for AE (MoEPP) reviewing and approval). If necessary, the additional consultation will be held by the FNRR environmental specialist jointly with the contractor, specifically in regard to proposed mitigation measures and monitoring to be applied by the construction contractors. The FNRR environmental specialist will be responsible for preparation of overall summary of consultation meetings in conformity with WB procedures.

In the case of **category A** of sub-project, the consultation should be done as mentioned above for category B project, but at least two times, - at the stage of scoping, for discussing with all interested parties the TORs for the EIA, and at the stage when the draft EIA report is ready.

\(^{34}\) At this stage it is not expected that full EIA will be needed for sub-projects.
• **Roles and responsibilities for EIAs and/or EMP reviewing, approval, monitoring and enforcement**

**Step 4: Environmental Review and Approval.**

For **category C** of sub-projects, environmental review and approval will be responsibility of FNRR environmental specialist. He/she should check whether design/ construction contracts include environmental items/clauses and whether design/ construction contractors fully use findings/ recommendations of IEE. To ensure that all environmental requirements are in place, the construction works can start only if FNRR environmental specialist issues an approval document.

For **category A and B**, the project documentation will be reviewed and approved by AE (MoEPP) and WB. The decision on environmental aspects of the project, and any additional measures or changes required to the proposed environmental management plan will be conveyed at this stage. WB will also evaluate EIA and EMP that should be prepared as outlined in the Annex 6. The AE (MoEPP) will specifically look for the implementation capacity and monitoring arrangements for the proposed mitigation measures and ensure that the costs of environmental management are considered in the project’s cost. The FNRR environmental specialist will control whether all documentation prepared by the Design Company and contractors is appropriately complied and relevant for AE (MoEPP) submission. The FNRR environmental specialist is also responsible for presentation of required materials needed for WB reviewing.

**Step 5. Implementation.**

At this stage, for of proposed sub-projects, the FNRR incorporate the environmental requirements into bidding/contract document for design/construction and ensures compliance of the contractors during the bidding process. The construction Contractors should appoint an officer responsible for environmental issues, including for the implementation of mitigation measures, for holding of Contractor’s monitoring plan, and for liaison with FNRR (via FNRR environmental specialist). This officer should inform FNRR prior to proceeding of construction works (at least 15 days before planned commencement of works) in order they would be prepared to make relevant inspections during the whole construction period. FNRR supervising engineer and FNRR environmental specialist will closely monitor the contractor performance and document this in the supervision/progress report. Relevant recommendations towards increasing efficiency of the mitigation plan should be provided, as well. Progress reports to FNRR provided by the FNRR environmental specialist.

**Step 6: Supervision and Reporting.**

Once project implementation starts, the FNRR environmental specialist, the FNRR supervisor engineer, preferably jointly with representative of relevant environmental authority AE (MoEPP) (who should be informed in advance), supervise the implementation of the mitigation measures for **category C** of sub-projects and application of EMP for **category A and B** of sub-projects through the FNRR will provide World Bank with a summary of financed sub-projects and their environmental impacts in order to assess and prevent any cumulative effects of similar investments. The FNRR will make all environmental assessments and environmental management plans prepared for financed sub-projects available to the World Bank project supervision missions.

The FNRR will periodically review the supervision report, periodically inspect the contractor performance, communicate to public, and prepare a semi-annual report to be submitted to the Bank. The overall responsibility for environmental supervision and reporting is a responsibility of the FNRR environmental specialist.
7.3. Resettlement Policy Framework.

While the focus of the project is on rehabilitation of the existing roads, it might also support construction of new small segments of roads. In this case there will be needed land acquisition. Land acquisition might provoke involuntary resettlement. If unmitigated, these resettlements give rise to severe economic, social, and environmental risks for the affected population: production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. In such cases the FNRR should apply a series of measures that are emphasized in the presented in the Annex 8 “Resettlement Policy Framework”. This framework includes safeguards to address and mitigate these impoverishment risks, having as main objectives the following:

- Provide details on the policies governing land expropriation, the range of adverse impacts and entitlements;
- Present a strategy for achieving the objectives of the resettlement/land acquisition policy;
- Provide a framework for implementation of the stated strategies to ensure timely acquisition of assets, payment of compensation and delivery of other benefits to project affected persons (PAP);
- Provide details on the public information, consultation and participation, and grievance redress mechanisms in project planning, design and implementation;
- Provide identified sources and estimates of required resources for implementation of the RAP;
- Provide a framework for supervision, monitoring and evaluation of resettlement implementation.

7.4. Environmental Guidelines

The proposed Guidelines define preventive and mitigation measures to be taken to prevent potential adverse impacts that might arise during the implementation of the road subprojects.

Guidelines for mitigation of environmental impacts during designing/planning phase

The adequate planning and design of environmental protection activities and mitigation measures will be required to minimize potential environmental impacts. Contract documents for design will incorporate all requirements to minimize effects on environment that may result from planned activities, as well as to avoid social and health impacts. For sub-projects which will require application of EIA, defined by national legal provisions, the preparation of necessary documentation for submission is essential. Thus all contractors will be required to use environmentally acceptable technical standards for design and comply with environmental, health and safety regulations stipulated by national legislation and World Bank requirements.

The associated costs and compliance of all procedures with AE (MoEPP) will be full responsibility of contractor for designing works. Incorporation of mitigation measures in the design documentation will be monitored by the FNRR supervision engineer, jointly with the FNRR environmental specialist to ensure compliance with the contract.

Guidelines for mitigation of environmental impacts during construction, rehabilitation operation and maintenance phases

Construction and rehabilitation phase: construction and rehabilitation mitigation measures will be required to minimize potential environmental impacts as well as any inconveniences to the public. To minimize potential construction-related negative environmental impacts, a combination of preventive actions and monitoring should be applied. Adverse construction activities will be reduced through the adoption of a set of mitigation activities, and adopted and applied to all sub-projects.

Contract documents for construction will incorporate all requirements to minimize disturbance from construction activities, including proper management of construction waste; control measures for waste fuel, oil and lubricants, other hazardous substances; provisions for protection of vegetation and fauna, including migratory species (if applicable), actions to reduce noise and dust levels; soil erosion control and water quality protection, and rehabilitation of areas under construction camp, asphalt-concrete plants and temporarily storage of building materials once the project is completed. The necessary mitigating measures would constitute integral part of the project implementation including the contracts binding the contractors to carry out the environmental obligations during road rehabilitation works. If contractors decided to include in their submitted proposals the construction of permanently or temporary supporting facilities (e.g. warehouses, asphalt-concrete plants, etc.) the costs for their design, mitigation and EIA procedures should be clearly presented, and this should be a full responsibility of contractors. Thus, all contractors will be required to use environmentally acceptable technical standards and procedures during carrying out of works. Additionally, contract clauses shall include requirements towards compliance with all national construction, health protection, safeguard laws and rules as well as on environmental protection.

Furthermore, each contractor will identify officers responsible for implementation of on environmental protection activities in conformity with instructions received from the design engineer, FNRR environmental specialist or relevant environmental protection agency/agencies. Financial penalties should be associated with compliance failure but with overall coverage by the contractors. Many mitigating measures should be included as separate items in the contracts’ breakdown cost if it is a unit price contract. An identified extra fund will ensure that the contractor having known that there is a budget for this and will clearly identify any extra costs associated with environmental measures.

Elucidating of all potential effects and mitigating measures should also be included in all training courses, or general guidelines prepared for contracts supervisors. Contract specifications concerning contractors’ responsibilities during carrying out of civil works and taking mitigation measures should be reflected in engineering designs and bid documents for each sub-project. The EMPs should also specify contract provisions governing the sources of constructional materials and vehicles. Materials (e.g. asphalt, stone, sand, etc.) will be supplied only from sources with approved licenses, permits, and/or approvals to ensure environmental and workers safety, and any equipment to be used during construction should meet internationally recognized standards for environmental health and workers safety. The EMPs should also include provisions for spill prevention and cleanup in case of accidental spills, dust and noise control, and appropriate traffic management during construction, safety enhancement, construction sites cleanup and rehabilitation, etc. Further, the Bank will review the initial contracts for roads rehabilitation works in each sub-project to ensure that these clauses and measures are incorporated, as proposed.
To ensure that contractors understand the actions to be taken and the cost implications of environmental management, and that required actions and measures are priced in bid proposals, short-listed contractors will be informed about environmental protection requirements (for category C of sub-projects) and EMP (for category A and B of sub-projects) at the Pre-Bid Meetings. It is also proposed, that shortly after their appointment, contractors jointly with MTC supervisors and FNRR project personnel will attend a seminar on environmental management dedicated to environmental impact prevention/mitigation, explanation of EMP included in their contracts and provisions for environmental management monitoring to be carried out. The training seminar will be guided by the FNRR environmental specialist. During construction the contractors’ compliance with the provisions specified in the bid documents will be supervised by the FNRR environmental specialist, FNRR supervising engineer and State Ecological Inspectorate.

Some preventive and mitigation measures should be envisaged in all sub-projects. In particular, it relates to:

(a) construction contracts should comply with environmental, health and safety regulations stipulated by national legislation and WB procedures;
(b) contractors should follow a set of environmental guidelines for contractors prescribed by the EMP;
(c) contractors should be required to submit, as part of their bid, a site-specific environmental management plan including organization of training for participating staff. The scope of the plan and training requirements should depend on the scale of proposed activities.

To ensure compliance with the contract, implementation of mitigation measures will be monitored by the FNRR supervision engineer, jointly with full-time FNRR environmental specialist and AE (MoEPP).

**Operational phase:** operational impacts will be addressed in order to avoid deterioration of road conditions and associated safety problems. Among major issues to be addressed during operation are: proper functioning of drainage facilities, landslide and erosion control. During this phase, the potential negative impacts will result also from civil works to be executed as part of the regular maintenance. To minimize potential operation-related negative environmental impacts, some preventive measures should be taken during the design phase, and then a combination of sound operational activities and monitoring should be carried out. This has to be a part of the bidding documents.

**Maintenance phase:** Safeguards measures for road maintenance shall be included in technical specifications for contractors. The guidelines form the basis of contractual obligations that are to be fulfilled by road maintenance contractors. Contracts for maintenance will include specific clauses for environmental protection based on the guidelines. Supervision and monitoring of environmental performance will be carried out on the site by the FNRR supervising engineer jointly with the FNRR environmental specialist. Periodic audits will also be carried out during regular Bank supervision missions. The FNRR will also prepare periodic (semi-annual) reports on adherence to environmental requirements under the project.

- **Guidelines for mitigation of social impacts during construction\rehabilitation and operation phases**

Mitigation measures must also address the human or social environment and respectively, social and socio-economic impacts resulting from road sub-projects implementation. One of the main objectives of social impact assessment is to predict and prevent or mitigate unacceptable adverse social environmental effects on people from the proposed actions or projects. This is done through involving the community and all other stakeholders, so that changes can be recommended at the planning, design and implementation stages.
Methodologies for public involving should be designed and implemented in a flexible manner adapting and responding to the local communities and conditions. That is why public involvement should initially be built into the project budget. Public involvement activities must be carried out in an open and transparent manner.

Public involvement is an essential element of environmental management of roads. It consists of three stages:
- information dissemination
- consultation, and
- stakeholder participation.

These stages of involvement can be applied at various times throughout the sub-project designing process, as well as the road project cycle, and may be used either once or simultaneously. It is necessary, therefore, to develop procedures and skills for informing the public and other interested parties about road development proposals. A catalytic role of local authorities will be getting people to participate in the various stages of the road project should be considered.

7.5. Environmental monitoring plan

This section contains suggested monitoring activities on implementation of the EMP prepared as an integral part of current Sectoral Environmental Assessment. It includes the basic monitoring indicators, timeframe procedures and responsibilities for proposed monitoring activities. A sample of the monitoring indicators and implementing arrangements is presented in the Table.13
Table 13: Sample of monitoring matrix for roads construction/rehabilitation projects

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Install</td>
<td>Operate</td>
</tr>
<tr>
<td>Construction</td>
<td>Air</td>
<td>Most affected residential areas</td>
<td>NO\textsubscript{x}, CO, SO\textsubscript{2}, VOC, PM\textsubscript{2.5}, PM\textsubscript{10}, TSP</td>
<td>Not required</td>
<td>Not applicable</td>
<td>&lt; 1000 USD/month</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td>Most vulnerable areas to pollutant releases</td>
<td>pH, solid suspensions, Ca\textsuperscript{2+}, Mg\textsuperscript{2+}, SO\textsubscript{4}^{2-}, COD, BOD, oil products</td>
<td>Monthly, by a specialised company</td>
<td>Not applicable</td>
<td>SRA</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>Most vulnerable areas to fuel discharges</td>
<td>Total hydrocarbons from oil products</td>
<td></td>
<td>Not applicable</td>
<td>SRA</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>Most affected residential areas</td>
<td>Noise levels – dB(A)</td>
<td></td>
<td>Not applicable</td>
<td>SRA</td>
</tr>
<tr>
<td></td>
<td>Vegetation</td>
<td>Most affected areas</td>
<td>Dust deposition</td>
<td></td>
<td>Not applicable</td>
<td>SRA</td>
</tr>
<tr>
<td>Operation</td>
<td>Noise</td>
<td>Residential areas</td>
<td>Noise levels – dB(A)</td>
<td>Periodic, together with traffic census</td>
<td>SRA</td>
<td>SRA</td>
</tr>
</tbody>
</table>
| Decommission | Not required for the road rehabilitation project, but for all temporary occupied sites. The same monitoring company will monitor decommissioning, by taking into account all agreements and permits issued for the usage of each site occupied by Contractor.
The costs for monitoring is not indicated as this was included in the operational expenditures of FNRR and covered by budget envisaged for FNRR environmental specialist. With regard to monitoring of capacity building activities it is proposed the following sample, presented in the Table 14.
### Table 14: Sample of monitoring activities of capacity building activities

<table>
<thead>
<tr>
<th>Mitigation measures*</th>
<th>Monitoring indicators and procedures</th>
<th>Cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FNRR environmental specialist:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiring of environmental specialist</td>
<td>Qualification of candidates</td>
<td>FNRR office</td>
<td>Revision of CVs, interviews</td>
</tr>
<tr>
<td></td>
<td>Scope of work</td>
<td>FNRR office</td>
<td>Clarification of contract and TOR</td>
</tr>
<tr>
<td><strong>Training of:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FNRR environmental specialist</td>
<td>Training results</td>
<td>FNRR office</td>
<td>Evaluation of training report</td>
</tr>
<tr>
<td>MTC, MoEPP and FNRR staff</td>
<td>Prepared training materials, training results</td>
<td>FNRR office</td>
<td>Evaluation of training report</td>
</tr>
<tr>
<td>AE (MoEPP) staff</td>
<td>Prepared training materials, training results</td>
<td>FNRR office</td>
<td>Evaluation of training report</td>
</tr>
<tr>
<td>State Ecological Inspectorate</td>
<td>Prepared training materials, training results</td>
<td>FNRR office</td>
<td>Evaluation of training report</td>
</tr>
<tr>
<td>Contractors</td>
<td>Prepared training materials, training results</td>
<td>FNRR office</td>
<td>Evaluation of training report</td>
</tr>
<tr>
<td><strong>Guidelines:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic Environmental Assessment Guideline</td>
<td>Scope of work, prepared materials</td>
<td>FNRR office</td>
<td>Clarification of contract and TOR, supervision of work, evaluation of final product</td>
</tr>
<tr>
<td>National Environmental Road Handbook</td>
<td>Scope of work, prepared materials</td>
<td>FNRR office</td>
<td>Clarification of contract and TOR, supervision of work, evaluation of final product</td>
</tr>
</tbody>
</table>

* defined by the current Sectoral Environmental Assessment
### Mitigation measures* and Cost

<table>
<thead>
<tr>
<th>Mitigation measures*</th>
<th>Monitoring indicators and procedures:</th>
<th>Cost</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Environmental Engineering Standards</td>
<td></td>
<td></td>
<td>FNRR, Environmental specialist</td>
</tr>
<tr>
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<td>To ensure that contractors understand requirements</td>
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</table>
In addition to the monitoring of mitigation measures shown in the table above, the monitoring of environmental indicators and mitigation measures performance will be a part of the overall project monitoring. The FNRR environmental specialist will review the environmental status of the sub-project areas to assist with the establishment of a baseline for the major environmental parameters and set up a monitoring program for periodic review of the sub-project’s impact on environment. Monitoring of implementation of environmental mitigation measures in road rehabilitation sub-projects, established within specific EMPs, will be the responsibility of:

- construction Contractors;
- FNRR environmental specialist (with assistance from FNRR supervising engineer), and
- National and local ecological inspectors.

The findings of the relevant monitoring activities will be reflected in quarterly and annual progress reports. The progress reports will cover the implementation of proposed by EMP, activities, as well as extent of environmental impacts (if any). The site supervisors should be trained to be able to inspect construction sites, borrowing and dumping areas, and other potentially affected areas. Specific aspects to be monitored include:

- Carrying out of monitoring during construction;
- Monitoring of significant impacts during the operation of roads.

Monitoring indicators shall be developed for both the construction and operation phases of each road sub-project. Monitoring of construction activities will have to ensure that mitigation measures of construction impacts are being implemented properly, while the monitoring of operation is to ensure that no unforeseen negative impacts are arising. Periodic monitoring of roads will be conducted by FNRR environmental specialist to ensure compliance with submitted monitoring plan. The functions of FNRR environmental specialist be to: (i) review and approve environmental management plans (EMP) of roads to be funded under the program; (ii) monitor compliance with EMP by the various players involved in the implementation of the project; and (iii) collect data to document that the environmental and social procedures are being met. Furthermore, monitoring and evaluation of sub-projects will be conducted by a local or international consultant during the mid-term review and at the end of the project.

FNRR will supervise and monitor the overall activities and prepare a semi-annual report on the application of environmental guidelines and other frameworks and action plans during the planning, design and construction phase of the project. FNRR with assistance from FNRR environmental specialist will also develop the reporting requirements and procedures to ensure compliance of the contractors, conduct public consultation and implement public awareness programs, and hold periodic training for field engineers and contractors, as appropriate.

A detailed monitoring program designed to validate the effectiveness of the mitigating measures shall to be included in the EMPs for individual sub-projects. It should contain detailed environmental compliance-monitoring requirements, including parameters and indicators for all activities relating to the recommended mitigation measures (see Table 14). Implementation of the monitoring program will be the responsibility of the FNRR, in collaboration with the State Ecological Inspectorate and its local offices and will be supervised by the MTC nominated officer. Their terms of reference would require them to report on compliance with the provisions of the EMP through the regular progress reports that they are required to submit to the MTC and the Bank.
8. PUBLIC CONSULTATION

While preparing current Sectoral Environmental Assessment in December 2007 there were consulted stakeholders from MTC, MoEPP, AE (MoEPP), FNRR, State Ecological Inspectorate and other relevant authorities at both stages, - (a) for defining the key issues of the SEA that should be reflected in the TORs for the study; and (b) for preparing the SEA Report. Furthermore, the draft TORs were officially submitted to the MoEPP (No 022337/3 from 30.11.2007) which agreed with them. The consultations were held primary to clarify project intervention to the environment, potential associated impacts, and national environmental assessment and approval procedures, as well as to inform interested stakeholders about the proposed project and potential environmental impacts. The stakeholders agreed with the main SEA approaches and recommendations and affirmed their commitment to the project and its environmental objectives. Meetings were also held in particular with representatives from MoEPP, MTC, MoH and from various environmental NGOs. The draft SEA was also publicly disclosed in Macedonia on the website of MTC (http://www.mtc.gov.mk), on January 23, 2008 and on the website of the MEPP (http://www.moep.gov.mk) on January 29, 2008. The final version of the SEA was posted on the same websites on March, 2008.

The draft SEA was sent to the InfoShop on January 28, 2008 for public consultation, while its final version, on March, 2008.

The Public consultation on the final version of the draft SEA was held on 15.02.2008 at premises of the Fund for National and Regional Roads (FNRR), at Dame Gruev no.14, 1000 Skopje, from 12.00 a.m. to 13.30 p.m. The consultation meeting was aimed at presenting to the relevant interested stakeholders and concerned public (NGOs) the main SEA, EMP, EAMF and Environmental Guidelines, conclusions and recommendations, as well as to give them the opportunity to state their comments, opinions and remarks on the matter. Summary of the public consultation meeting is presented in Annex 9 with enclosed list of participants and public announcements. A complete SEA (in English and Macedonian) will be kept at NFRR in Skopje for review by interested parties, as well as for its further implementation.
9. IMPLEMENTING ARRANGEMENTS AND BUDGET

9.1. Implementing arrangements

The project will be implemented under the general supervision and responsibility of the Ministry of Transport and Communications. MTC will execute the project through the Fund for National and Regional Roads (FNRR).

*Fund for National and Regional Roads.* Direct responsibility for implementation of the Project would rest with the FNRR. Its responsibilities would include: procurement, financial management, contract management, project and program monitoring and evaluation, and reporting. To strengthen FNRR’s capacity accomplish these functions, at least five local specialists have to be recruited under consultant contracts, through a competitive selection process. These will be in the areas of procurement, financial management, environment and contract management. They would work with regular FNRR staff to transfer skills, organize activities, and generally increase the efficiency of the agency. In addition, an international Management Consultant will be recruited to provide general technical assistance and support to the Government overall Road Sector Program, for entire duration of the Project. Among his responsibilities will be to assist with the overall implementation of the Project and the Program, ensuring compliance with procurement rules and procedures, contributing to knowledge transfer, ensuring harmonization between donor- and the Government-funded activities, and generally providing technical and strategic advice to MTC. A Bid Evaluation Committee will be established to carry out the selection of contractors, consultants and suppliers in conformity with agreed procurement rules and procedures. The Committee would be mostly represented by technical specialists from the Road Sector (MTC and FNRR), but would also include representatives from other ministries/organizations, such as the Ministry of Finance and others.

*Environmental specialist.* In order to increase FNRR capacities in the field of environmental management a full-time environmental specialist will be recruited to oversee the environmental aspects of project development and implementation. The primary tasks of the environmental specialist will be:

**A. Identification of required types for Environmental Assessments:**
- Conducting the Initial Environmental Assessments in order to identify the potential impacts and types of Environmental Assessment required for selected road sub-projects;
- Identification of road sub-project’s environmental category and specification of details for environmental assessments. Coordinate the findings of Initial Environmental Assessments and project environmental categorization with AE within MoEPP and clarification of needs for preparation of Environmental Impact Assessment report or simple Environmental Management Plan or documentation for formal State Ecological Review;

**B. Environmental Impact Assessment report or Environmental Management Plan or documentation for formal State Ecological Review:**
- To ensure that required environmental documentation (Environmental Impact Assessment report or Environmental Management Plan or documentation for formal Environmental Review) for each selected sub-project (or parts of roads) for rehabilitation is prepared. This documentation should be prepared and adopted in conformity with national requirements before the construction works commence. The Environmental Management Plan should reflect potential negative impacts associated with planned works and include proposals for mitigation measures to be taken, as well as monitoring activities related to potential impacts and mitigation measures;
- To ensure that implementation of mitigation measures and carrying out of monitoring are included in the financial plan for road sub-projects;
• To ensure that Environmental Impact Assessment report or Environmental Management Plan or documentation for formal Environmental Review are presented for AE (MoEPP) in conformity with national requirements.

C. Integration of environmental requirements in contracts issued for carrying out of rehabilitation works:

• To present at the pre-qualification meetings of contractors the full set of environmental requirements to be followed by the contractors with use of general framework for sub-project evaluation and management;
• To exam contractors proposals (in the light of environmental protection requirements) and identify the gaps not covered by the proposed measures or budget;
• To prepare the environmental clauses which will be included in the contractor’s contracts for implementation of road sub-projects;
• To ensure that sub-contracts proposed by the contractors are prepared for agencies which provide goods and services (particularly, for those providing and producing constructional materials – borrow materials, asphalt plants etc.) and have respective valid licenses and environmental permits in conformity with national environmental requirements.

D. Institutional Capacity Building, including improvement of environmental regulations in the road sector:

• To prepare the program (curricula) and organize training for: (a) integration of environmental requirements and procedures in project cycle and in sector policy; (b) performing of Environmental Review of the documentation for road construction/ rehabilitation projects; (c) implementation of the state control and department’s supervision over projects in the road sector;
• To organize pilot study and training on application of Strategic Environmental Assessments in the National Program for construction/ reconstruction and rehabilitation of roads in the Republic of Macedonia;
• To organize revision and improvement of environmentally oriented regulatory acts, instructions and standards in relation to the road sector, including Requirements for Environment Protection during the design, construction, rehabilitation, repairing period and maintenance of roads and bridges;
• To organize publishing of materials on environmental matters in the road sector for specialists and for general public;
• To prepare TOR and organize selection process for experts, private companies, state institutes or NGOs to ensure implementation of required actions in the frameworks of Environmental Management Plan (included in current Sectoral Environmental Assessment report) in relation to institutional capacity building and training;
• To organize undertaking of measures for improvement of documentation ensuring incorporation of environmental protection requirements into program or projects on construction/ rehabilitation of roads.

E. Supervision and monitoring:

• To control and ensure that public participates in discussion on EMP reports for selected sub-projects;
• To supervise independently or jointly with the State Ecological Inspectorate the mitigation and environmental protection measures stipulated in Environmental Management Plan for each sub-project selected for rehabilitation of roads;
• To ensure implementation of the monitoring plan of sub-projects as well as establishing of baseline for sub-projects and efficiency of mitigation measures.
**F. Reporting:**

- To prepare semi-annual reports on the progress of implementation of measures proposed by the Environmental Management Plan;
- To prepare semi-annual reports on the environmental impacts originated during implementation of sub-projects and efficiency of mitigation measures applied to minimize negative consequences;
- To prepare outline and requirements for contractors reports related to the implementation of mitigation and environmental protection measures and to analyze completed reports;
- To present the effects of mitigation and environmental protection measures applied for overall public by specific publication or/and by annual seminars.

**G. Identification and Implementation of the Activities related to Resettlement and Land Acquisition**

The specialist would assess whether a road rehabilitation, reconstruction or construction involves land acquisition and resentment activities. The specialist will make sure that the land acquisition that the Fund is undertaking are being done in compliance with The Bank OP dealing with land acquisition. The guidelines are stressed in the RAP in the SEA.

The Environmental Specialist implementing the TOR’s requirements should consider national environmental legislation and regulations, in particular, as well as other environmental policy and guidance of the World Bank, EBRD and IDA.

The Environmental Specialist must have an advanced degree in Environmental Science or related field, should have at least 5 years working experience related to environmental management, designing and engineering projects (preferably in the road sector). He/ she should be familiar with procedures for environmental assessments and monitoring, road construction, maintenance and operational environmental management issues, national and international environmental standards and requirements for road management, and should have significant experience in working on environmental issues and coordination of public consultations in the Republic of Macedonia. The Environmental Specialist should have demonstrated proficiency in English, Macedonian and/or Albanian and should be computer literate and familiar with all relevant packages.

*Training.* A training program to develop and improve professional skills and capacity in environmental management issues for the staff involved in project implementation will be organized under the project. The development of training program is under overall responsibility of FNRR. For this purpose the FNRR environmental specialist will be specially appointed for curricula development and organization of training. The overall training program is drafted as follows:

**A. Training for FNRR environmental specialist**

The training is intended to increase capacity of hired environmental specialist in such fields as impact identification, mitigation measures elaboration, and preparation of environmental clauses for Contractors, monitoring and reporting. It is expected that FNRR environmental specialist may visit similar WB projects abroad to gain relevant experience and skill. The duration of training is up to 2 weeks.

**B. Training for MTC, MoEPP and FNRR staff**

The training is intended for integration of environmental requirements and procedures into the project cycle and in sector policy. Training can be organized as two separate training sessions: first one - for integration of environmental requirements into the project cycle (first year of project operation), and second one - for presentation of Strategic Environmental Assessments of the National Program (Strategy) for construction/ reconstruction and rehabilitation of roads in Republic of Macedonia (at the time when Program and Strategy are drafted) – to be replaced with another one with regard to other issue. Both sessions will be held as one day workshop. Up to 25 participants are expected to be trained.
They could represent senior/middle staff of MTC, MoEPP, FNRR, road design and planning institutes, NGOs. To conduct training sessions, a resource experts or experienced NGO should be hired.

C. Training for AE (MoEPP) staff

The training is intended for improving of performance of the AE (MoEPP) regarding documentation for road construction/rehabilitation projects.

Training can be organized as a half-day training session (first year of project operation) for AE (MoEPP) staff on national and local levels (MoEPP, State Ecological Inspectorate, Local Ecologic Inspections situated within the project area). Up to 25 participants are expected to be trained. To hold training, a resource expert or experienced NGO may be hired.

D. Training for State Ecological Inspectorate

The training is intended to strengthen the state control and department’s supervision of sub-projects implementation in the road sector.

Training can be organized as a set of one day regional training sessions (second year of project operation) for local (municipality) environmental inspectorates placed within the project area. At least 3 training sessions should be organized and up to 15 participants are expected to be trained as per region (north, south, and west).

The FNRR environmental specialist will hold the training focusing on the monitoring/supervision/inspection issues for different sub-projects.

The major findings obtained from the screening stage and preparation of simple EMP (for category C of sub-projects) and EIA and EMP (for category A and B of sub-projects) should be presented, and relevant monitoring requirements should be discussed.

E. Training for construction Contractors

The training is intended to improve capacities of Contractors to implement mitigation, monitoring and comply with WB and national environmental requirements during their works.

Training may be organized during second year of project operation as a two days training session for hired construction Contractors. Potential attendees of this training are senior managers, designated field engineers for environment, senior engineers, field engineers and labor brigadiers. Up to 15 participants are expected to be trained (for three construction contracts).

The FNRR environmental specialist will hold the training focusing on EMP findings (mitigation and monitoring), environmental items/clauses for contracts, routine supervision of environmental conditions, reporting.

Revision of guidelines. Revision of environmental guidelines in the road sector is important long-term investment. Due to the fact that actually there are no adequately prepared national relevant guidelines, revision of several guidelines by FNRR is recommended. The FNRR environmental specialist will be responsible for setting up requirements for contractors and evaluation of outputs.
A. National Environmental Road Handbook

It is proposed that the project may finance preparation of the general Environmental Road Handbook mostly designated for road policy managers and general public. The Environmental Road Handbook may incorporates WB policies, findings from relevant WB handbooks37, other technical and policy guidelines and summarize other international experience and Europeans standards in this field. The main purpose is to prepare a guideline which will be more oriented to environmental and road safety policy issues will include the framework for better environmental decisions and involvement of public rather than poor technical engineering document. This activity may be carried out by private consultants, private consultant company or NGO.

B. National Environmental Engineering Standards

The Engineering Standards can be appropriately upgraded in the light of policy guideline, and a modern version in local language may be produced. This activity may be carried out by engineering consultants or company.

Public awareness. The project will produce several environmentally oriented leaflets, booklets and placards, reflecting major environmental findings obtained during the project implementation and designated to provide information for public and NGOs community. The expected FNRR environmental specialist will provide inputs for setting up the tasks and evaluation of results. Activity may be implemented by the experienced NGO.

37 “Roads and the Environmental Handbook”, WB Technical paper No 376
Proposed tentative budget covers implementation of environmental management plan developed within the current Sectoral Environmental Assessment.

The FNRR will be responsible for implementation of EMP and should estimated costs in more details. A tentative breakdown of budgetary requirements (in $US) is shown below.

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### Monitoring of mitigation measures during construction phase

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### Sub-total

| Sub-total | 9000 | 9000 | 2000 | 20000 | Covers potential requirements for studies, EMP and resource expertise |

### TOTAL

| TOTAL | 21000 | 56000 | 33000 | 110000 | Salary for environmental specialist and required operational expenditures are not included |

### FNRR environmental specialist

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### Guidelines

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<th>Yr.3</th>
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### Public awareness

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<td>Leaflets, booklets, placards</td>
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### Sub-total

| Sub-total | 12000 | 47000 | 31000 | 90000 | Covers training, guidelines and public awareness |

### Additional field

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<td>additional field studies may be raised during sub-project screening. The cost can not be carefully predicted. It is recommended maintaining a certain financial reserve.</td>
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<td>EIA and EMP preparation</td>
<td>Implication of resource expertise</td>
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<td>10000</td>
<td>The needs for additional specific expertise for EIA/EMP preparation may be raised. The cost can not be carefully predicted. It is recommended maintaining a certain financial reserve.</td>
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<td>Implication of resource expertise</td>
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<td>2000</td>
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<td>The needs for additional specific expertise during inspection/monitoring of EMP requirements may be raised. The cost can not be carefully predicted. It is recommended maintaining a certain financial reserve.</td>
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<td>9000</td>
<td>2000</td>
<td>20000</td>
<td>Covers potential requirements for studies, EMP and resource expertise</td>
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<td>TOTAL</td>
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<td>21000</td>
<td>56000</td>
<td>33000</td>
<td>110000</td>
<td>Salary for environmental specialist and required operational expenditures are not included</td>
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