

# Modernization of local public services in the Republic of Moldova

- Intervention area 2: Regional planning and programming -



## Regional Sector Program on Regional and Local Roads

### Development Region South

Final

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## Acronyms and abbreviations

AA	Association Agreement
ATU Gagauzia	Autonomous Territorial Unit of Gagauzia
DR	Development Region
DRC	Development Region Centre
DRN	Development Region North
DRS	Development Region South
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
EU	European Union
FEZ	Free Economic Zone
GDP	Gross Domestic Product
GIZ	German Development Cooperation through Deutsche Gesellschaft für Internationale Zusammenarbeit
IFI	International Financial Institution
iRAP	International Road Assessment Programme
IRI	International Roughness Index
LPA	Local Public Administration
LTIS	Land Transport Infrastructure Strategy
MCC	Millennium Challenge Corporation
MDL	Moldovan Lei
MoE	Ministry of Environment
MoEd	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoIA	Ministry of Internal Affairs
MoITC	Ministry of Information Technology and Communications
MRDC	Ministry of Regional Development and Construction
MSPL	Project "Modernization of Local Public Services in the Republic of Moldova"
MTRI	Ministry of Transport and Road Infrastructure
NARS	National Agency for Road Safety
NBS	National Bureau of Statistics
NCCRD	National Coordination Council for Regional Development
NDS	National Development Strategy
NPB	National Public Budget
NSRD	National Strategy for Regional Development
NSRS	National Strategy for Road Safety
PPC	Possible Project Concept
PPP	Public-Private Partnership
RAMS	Road Asset Management System
RD	Regional Development
RDA	Regional Development Agency
RDC	Regional Development Council
RDS	Regional Development Strategy
RED	Road Economic Decision Model

RF	Road Fund
RLR	Regional and Local Roads
RM	Republic of Moldova
ROW	Right-of-Way
RSP	Regional Sector Program
RSWG	Regional Sector Working Group
SEE	State Ecological Expertise
SEI	State Ecological Inspectorate
SME	Small-Medium Enterprise
SNiP	Norms and Rules in Construction
SRA	State Road Administration
TAU	Territorial-administrative Unit
TBD	To Be Determined
TLS	Transport and Logistics Strategy
VOC	Vehicle Operating Cost
VPC	Viable Project Concept
WB	World Bank

## Definitions

The main terms used in the document are defined below:

**Asphalt concrete** – a resilient road surface type consisting of resistant granular material such as crushed stone combined with asphalt as a binder.

**Asphalt mixture** – construction material based on specified combinations of natural or artificial aggregates and fillers with bitumen.

**Average Daily Traffic** –average number of vehicles using a roadway in any one day.

**Average Annual Daily Traffic (AADT)** –a measure used primarily in transportation planning and traffic engineering. It is the total volume of vehicle traffic on a highway or road for a year divided by 365 days.

**Bitumen (for roads)** – a black viscous construction material obtained by oxidation of the residue from petroleum distillation.

**Bridge** – a structure spanning and providing passage over an obstacle, such as a waterway.

**Carriageway** – that part of the road normally used by vehicular traffic excluding shoulders.

**Car ownership rate / motorization rate** –number of passenger cars per 1,000 inhabitants and a common indicator in international comparisons of economic development and environmental issues.

**Cell** – an area defined by, and within, the existing network of national roads and state border. This area will contain communities and facilities and be served by regional and local roads which feed into the surrounding national road network.

**Cold recycling** – a process in which reclaimed asphalt pavement materials are combined with new asphalt and / or recycling agents to produce cold base mixtures.

**Corridor** - an extended linear transport connection, or connections, serving a series of communities and facilities. In this document they refer to regional and local roads providing regional and interregional connectivity in support of regional development.

**Crack** – a fracture of the pavement surface not necessarily extending through the entire thickness of the pavement.

**Crown** – the highest portion of the cross-section of a cambered carriageway surface in the form of two pitch roof.

**Culvert** – any structure, not classified as a bridge, which provides an opening under the roadway.

**International Roughness Index (IRI)** - an index based on the measurement of road roughness, that is, the accumulated number of surface undulations over a specified distance. IRI is measured in metres per kilometre.

**Inter-municipal cooperation** –a relationship between two or several local authorities having a status of legal persons and enjoying political, legal and financial autonomy (in accordance with the European Charter of Local Self-Government).

**Local roads** – roads proving the link between the residence-towns and villages (communes) of rayon composition and the link between villages (communes), including the access to them from national roads and which are public property of territorial-administrative units.

**Maintenance Company** – an enterprise specialized in carrying out works for maintenance and repair of roads.

**Maintenance cost** – cost for the maintenance activities.

**National roads** – roads that are state public property and provide the main international road connections, the connection between the country's capital and residence-towns, municipalities and objectives of republican importance, as well the connection between them.

**Patch** – repair of a pothole in the pavement surface.

**Pavement** – durable surfacing of a road, path or other such area, including material such as asphalt, bitumen, gravel, concrete, stones.

**Periodic maintenance works** – those works which are carried out in a periodical and planned manner to rectify, partially or entirely, wear caused to the road pavement, structures, road safety facilities and other road-related elements.

**Potholes** – holes in the pavement surface, commonly caused by moisture.

**Regional roads** – roads of regional significance providing the link between the localities of two or more rayons or at least between 4 localities of a territorial-administrative unit.

**Rehabilitation works** – intervention works necessary to improve the operational and safety performance of existing roads, including structures, in order to extend their service life according to established methods and parameters.

**Right-of-way** – land area occupied by the components of a road such as carriageway, pavement, cycle lanes, sidewalks, shoulders, ditches, culverts, retaining walls and others.

**Road** – an identifiable route or path specially designed for the movement of vehicles and pedestrians.

**Road condition** – existing surface condition of a road which determines its ride quality. This may vary during the course of the year as a result of differing weather conditions. Road surface condition can be measured and defined in terms of road roughness or IRI in m/km. Under the IRI classification: good = <4 IRI, fair = 4-6 IRI, poor = 6-8 IRI, bad = >8 IRI.

**Road defect** – a fault in the road pavement resulting from one or more of the following: traffic usage, weather, inadequate construction or maintenance.

**Road drainage** – a system for capturing, collecting and disposal of infiltrated water in order to drain road body.

**Road fund** – monies collected on behalf of the national government from road users specifically for use within the road sector, primarily for road maintenance. Fuel taxes, road user charges, international vehicle taxes and overloading fines are examples of revenue types used by Road Fund.

**Road infrastructure** – the totality of structures, installations and facilities that constitute a roadway.

**Road maintenance** – a set of activities to keep the roads operational continuously during the year.

**Road network** – a system of interacting roads for use and movement of vehicles in a given area.

**Road repair** – physical intervention works aimed to rectify, partially or entirely, the wear and obsolescence resulting from normal road use / operation and / or climatic factors.

**Road roughness** –deviations of a pavement surface from a true plane surface with characteristic dimensions that affect vehicle dynamics and ride quality.

**Road structure** – the number, depth and composition of the layers / courses which comprise a road pavement.

**Roadway** – part of the road comprising the carriageway, shoulders, and where appropriate, median, sidewalks and cycle lanes.

**Routine maintenance** – maintenance activities that occur every year on a routine basis or of a cyclic nature. These activities include such aspects as winter maintenance, summer maintenance, pot hole patching, minor gravel road repair, minor drainage cleaning, road cleaning or sweeping, crack repair, vegetation control, cleaning (signs, bridges, roads), and trash removal.

**Shoulder** – side strip between the road boundary and the edge of road platform.

**Sidewalk** –a footpath along the side of a road for pedestrians.

**Speed** – distance travelled per unit time.

**Traffic growth** –change in traffic volumes over time. This is primarily driven by national and or regional economic growth although other more specific and local factors may contribute.

**Traffic safety** – refers to methods and measures for reducing the risk of a person using the road network being killed or seriously injured.

**Traffic volume** –number of vehicles or pedestrians passing a given point on road during a specific period of time.

**Vehicle fleet** – the total set of vehicles owned and operated within a country; these may include private and state owned vehicles, vehicles used by individual households and those operated by private companies and public institutions.

**Vehicle operating cost (VOC)** – a measure that includes the total direct vehicle operating cost in a given period (the resource cost of fuel and additional running costs including tyre, oil, repair, maintenance and as well as the time cost of vehicle occupants.

**Wearing course** – the top layer of a pavement made of resistant, waterproof materials that come into direct contact with vehicle tyres and atmospheric conditions.

## **1 Introduction**

### **1.1 Purpose of development of the Regional Sector Program**

The purpose of development of the Regional Sector Program (further RSP or Program) is to establish the directions for development of Regional and Local Roads (RLR) infrastructure in the Development Region South (DRS), for the planning period of 6 years (2015-2020).

The overall objective of this RSP is to provide sustainable, safe and cost effective year around road connectivity in the regions, in order to support their development and to increase the welfare of the population.

RSP is an operational tool for regional planning aimed to:

- Develop projects in compliance with the relevant legal, policy and institutional framework;
- Create the necessary conditions for development of a project pipeline in the RLR sector, which incorporates the sector development needs, as well as complies with the existing sector policies, practices and relevant strategic framework;
- Increase the capacity of Local Public Administrations (LPAs) to develop sustainable road projects at the regional level, based upon which projects can be prepared from Possible Project Concepts (PPCs) into Viable Project Concepts (VPCs) and developed until the phase of projects ready for financing by different financial institutions and donors;
- Initiate a comprehensive, transparent and re-applicable process of regional planning in the roads sector;
- Contribute to the facilitation of the decision making process regarding the need for financial resources for the further development of projects;
- Serve as basis for dialogue with potential development partners, presenting a clear view of investment needs and development perspectives in the RLR sector.

At the same time, there are clear and commonly agreed limitations of the RSP, and mainly that:

- RSP is not aimed at creating an additional set of policy documents in DRS;
- RSP does not substitute the sector development policies at the central level, but facilitates their implementation in the region;
- RSP should not be perceived as all-embracing sector plans and programs aimed at comprehensively implementing all aspects of national policy at the regional level.

This Program will be the basis for further project identification, planning, development and implementation of RLRs in DRS. Priority will be given to projects than can be implemented in the short-to-medium term. Eventually, implementation of the recommendations of this RSP will result in establishing a planning and programming process of the sector activities in DRS, which complies with the national development objectives, European Union (EU) policies and which will significantly contribute to the regional and local sector development on national level.

Therefore, RSP focuses on strengthening the RLR sector planning and programming process at the regional and local level in order to optimize investments and develop sustainable projects in the sector.

## **1.2 Problem identification**

Roads are essential for the movement of goods and people in a modern society. Although the road infrastructure in DRS is sufficiently developed, its condition is the key challenge for the region's development.

As stated in the National Development Strategy (NDS) "Moldova 2020", the poor condition of the roads is perceived as a major constraint that prevents the economic development. An adequate road infrastructure is a precondition for harmonious regional development and access of the population to public services. Also, Republic of Moldova cannot achieve entire economic and investment potential because of the poor roads that limit the access to educational and health services, production, markets, cultural and tourist centres etc. Due to unsatisfactory condition of the road network, users bear additional costs for access to social and administrative services.

Bad road condition has a negative impact on road safety, the number of fatalities registered being 6-9 times higher than in EU countries. Similarly, roads in poor condition have a negative impact on environment, as these are additional sources of noise and vibration, and the increased fuel consumption generates additional emissions of harmful substances into atmosphere.

Given the length of the existing road network in DRS and the generally poor condition of roads in the Republic of Moldova, a mechanism has to be found to identify those projects that make the most effective use of available funds and resources, as well as to allow identification of new funding sources. Once implemented, the identified projects are expected to have a multiplicative effect, by supporting the development of social, economic and other services of regional and local importance.

## **1.3 Methodology for Program development**

This RSP has been developed following a participatory approach based on the Regional Sector Working Group (RSWG) activity, created under the aegis of the Regional Development Agency (RDA) South and with technical assistance from national and international experts from the GIZ/MLPS project. RSWG includes representatives of LPAs of level 1 and 2, Ministry of Regional Development and Constructions (MRDC), Ministry of Transport and Road Infrastructure (MTRI) and the State Road Administration (SRA). RSWG activity took place over four workshops related to the Program development.

The resulting document is composed of six chapters. The first chapter outlines the objectives for RSP development, identifies the problem in RLR sector and provides the methodology for Program development.

The second chapter provides an analysis of the current situation assessing the legal, policy and institutional framework. The chapter also covers the socio-economic and geographical profile, description of the road network, road sector financing, social and gender issues as well as key issues and risks in the development of regional and local roads.

The third chapter presents the "Vision and objectives for RLR sector development" in DRS, developed by RSWG under the aegis of RDA South. This chapter defines the objectives and targets on the national as well as regional level.



Chapter four describes RLR sector development directions. This chapter analyses the costs of works in RLR sector and financial resources needed for each presented scenario. In addition, this chapter describes the ways of eliminating institutional deficiencies and proposes an institutional structure for RSP implementation.

The methodology of identifying a system of cells and priority RLR corridors is introduced in the fifth chapter: “Short to medium term planning: Possible Projects”. Based on the analysis carried out by the RSWG, the process, methodology, and criteria have been defined according to which possible projects can be identified and prioritised. In support of the overall regional development goals, accessibility criteria to social, health, education and business have been defined and applied by the participants. This resulted in the identification of a series of priority corridors that most effectively address the identified needs. The chapter provides further information on how to arrive at Possible Project Concepts in the short term.

Chapter six presents the Action Plan, which includes the necessary activities for achieving the RSP objectives, as well as the evaluation and monitoring procedures of the Program implementation.

## 2 Current status analysis

This chapter describes and analyses the current situation assessing the legal, policy and institutional framework. The chapter also covers the socio-economic and geographical profile, description of the road network, road sector financing, social and gender issues as well as key issues and risks in the development of regional and local roads.

### 2.1 Legal framework

#### 2.1.1 Law on Roads<sup>1</sup>

The main legal act dealing with roads, road maintenance and road financing is the Law on Roads, which establishes among others:

- The concept of what a road is;
- Road classifications based on its destination, ownership and functionality;
- Responsibilities for design, construction and maintenance at various levels;
- Partial transposition of provisions of the Directive 96/53/EC as with regard to the maximum vehicle weights and dimensions;
- Sets a regime for the use of tolls as a means of financing road construction and maintenance on the basis of concessions;
- Liabilities of the road owner / administrator towards traffic participants.

The Law identifies three different types of ownership for roads, namely:

- Roads under the ownership of state;
- Roads under ownership of LPA;
- Private roads.

In addition, the Law establishes functional classifications of roads. The following table shows those classifications relevant to this Program:

**Table 2-1: Functional road classifications in the Republic of Moldova**

Class of Road	Characteristic
European roads	International roads (may coincide with highways, express roads and republican roads) <sup>2</sup>
National roads: <ul style="list-style-type: none"> <li>• Motorways;</li> <li>• Express roads;</li> <li>• Republican roads.</li> </ul> Regional roads.	National roads – roads which are state public property and provide the main international road connections, connection between the country' capital and residence-towns, municipalities and objectives of republican importance, as well as the connection between them. Motorways – roads of high capacity and speed, reserved exclusively for circulation of motor vehicles, with two lanes of one way direction separated by a median, having at least two lanes for each direction and an emergency lane, grade-separated intersections and limited accesses, on which the en-

<sup>1</sup> Law No. 509-XIII of 22.06.1995 on Roads, published in the Official Gazette No. 62-63 of 09.11.1995, Art. 690, last amended by the Parliament Law No. 85 of 07.07.2011

<sup>2</sup> International roads passing through the Republic of Moldova in accordance with European Agreement on main international traffic arteries (AGR)

Class of Road	Characteristic
	<p>try and exit of vehicles is allowed only through specially designed areas, named road interchanges - equipped with special devices for safety and comfort of road users.</p> <p>Express roads – roads with two or more traffic lanes to which the access is possible only through the road interchanges and controlled intersections, and on which stopping and parking for means of transport is prohibited on the carriageway(s).</p> <p>Republican roads – roads providing the link between the capital of the country and residence-towns, municipalities and objectives of republican importance, as well the link between residence-towns, between municipalities, between residence-towns and municipalities, and also between residence-towns and railway stations, airports and inland ports in the immediate surroundings.</p> <p>Regional roads – roads of regional importance providing the link between localities from two or more rayons or between minimum 4 localities of a territorial-administrative unit.</p>
Local roads	Public roads providing the link between residence-towns and villages (communes), as well as the link between villages (communes), including access to them from national roads and which are public property of territorial-administrative units
Streets	Public roads within municipalities and which are public property of territorial-administrative units.
Roads	Roads providing the link between residence-village, communes and the component villages, or objectives of communal interest and which are public property of territorial-administrative units.

Source: Law No. 509-XIII of 22.06.1995 on Roads

### 2.1.2 Road Fund Law<sup>3</sup>

The Road Fund Law is the legal framework that earmarks funding to road infrastructure. It identifies the following mandatory and possible financing sources for the road sector. These are:

- Not less than 50% in year 2010, 65% in year 2011, 80% in year 2012 and subsequent years from the total volume of fuel excise taxes, subject to excise taxation, except for liquefied gas;
- Road taxes levied under the Fiscal Law;
- The fee for issuance of the permits for international freight and occasional passenger road transport within the limits in which these taxes does not form the budget of public authorities responsible for issuance thereof;
- Fines for negligence of rules for passenger transportation, for deterioration of roads, constructions, equipment and road side plantations;
- The tax for the sale of natural gas for use as fuel for motor transport unites.

In accordance with the Law, the use of the fund is determined annually by the Government. However, at least 50% of the revenue must be used on the maintenance, repair and rehabilitation of national roads (magistral<sup>4</sup> and republican roads – M and R design-

<sup>3</sup> Law No. 720-XIII of 02.02.1996 on Road Fund, published in the Official Gazette No. 247-251 of 17.10.2010, Art. 753, last amended by Parliament Law No. 324 of 23.12.2013

<sup>4</sup> Currently, SRA uses the old functional road classification in its own statistical data, including the collocation of "magistral roads"

nation). The remaining percentage is to be spent on local roads, but there is no clear breakdown as to how and where it must be spent, though much appears to be spent in practice on the maintenance of roads under the inventory of the State Roads Administration (SRA).

Local road maintenance can also be done on request of the LPAs, but to achieve this, LPAs must be proactive and apply via the MTRI for finance or to have work carried out.

In summary, while the Road Fund Law provides considerable amount of money for maintenance and construction of roads in the Republic of Moldova, funding is not divided in such a way that local administrations have predictable access to funding for their local needs.

#### 2.1.3 Law on Road Traffic Safety<sup>5</sup>

In accordance with the Law on Road Safety, the Ministry of Transport and Road Infrastructure (MTRI) is responsible for the management, maintenance, repair and road signs on national roads. Furthermore, the MTRI is to ensure further safety along national roads by providing cycle lanes and pedestrian infrastructure.

The local public administrations are responsible for design, construction, management, maintenance, repair of local roads, including roads signs, though the Law is not clear if this only applies to those under their administration or to all local roads.

#### 2.1.4 Law on Administrative Decentralization<sup>6</sup>

The Law on Administrative Decentralisation provides a general framework for administrative decentralisation based on the division of powers between authorities. It assigns a certain level of autonomy (both administrative and financial) to local public administrations of the first level, though does so within the limits other legislation such as the Law on local public finance. It assigns the responsibility for “the construction, administration and repair of roads of rayon interest, as well as of road infrastructure” to LPA 2. Furthermore, it assigns to LPA 1 (which include towns, villages and communes) responsibility for “the construction, maintenance and illumination of streets and local public roads”.

#### 2.1.5 Law on Local Public Administration<sup>7</sup>

The Law on Local Public Administration defines delegated powers of the local councils and mayoralities. The local councils’ responsibilities with respect to road infrastructure include decision making on the design, construction, maintenance and upgrading work of roads, bridges, housing under the Law on housing, as well as the entire economic, social and recreational infrastructure of local interest. The Law also introduces the requirement for documentation on “state ecological expertise” in case of construction and repair of roads.

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<sup>5</sup> Law No. 131 of 07.06.2007 on Road Traffic Safety, published in the Official Gazette No. 103-106 of 20.07.2007, Art. 443, last amended by the Parliament Law No. 109 of 19.06.2014

<sup>6</sup> Law No. 435-XVI of 28.12.2006 on Administrative Decentralization, published in the Official Gazette No. 29-31 of 02.03.2007, Art. 91, last amended by Parliament Law No. 100 of 26.04.2013

<sup>7</sup> Law No. 436-XVI of 28.12.2006 on Local Public Administration, published in the Official Gazette No. 32-35 of 09.03.2007, Art. 116, last amended by the Parliament Law No. 164 of 05.07.2013

### 2.1.6 Environmental legislation

The Moldovan legal basis for environmental assessment is covered by three main laws. During the process of approximation of Moldovan legislation to the EU acquis, these laws are to be amended in the near future.

The Law on Environment Protection<sup>8</sup> represents the main legal framework for development of special normative acts and instructions in the field of environment protection in order to ensure a healthy living environment, conservation of the natural environment, ecosystem restoration etc.

The Law on Ecological Expertise<sup>9</sup> describes the concept of the State Ecological Expertise (SEE) which precedes decision-making on activities that may have an adverse impact on the environment. It is compulsory for all economic activities that might have negative impact on environment regardless of their destination, ownership, investments, location, source of financing, etc.

The new Law on Environmental Impact Assessment<sup>10</sup> describes procedures and requirements for Environmental Impact Assessment (EIA) on the national level.

Consequently, all future projects that will be developed in the regional planning process in the RLR sector will be subject to SEE and the corresponding documents shall be prepared and submitted to the responsible agencies together with the technical project documentation.

The national authority responsible for SEE in Republic of Moldova is the State Ecological Inspectorate (SIE), which is a subdivision of the Ministry of the Environment (MoE). The State Ecological Expertise System is described in the Chapter II of the Law on Ecological Expertise, while the organization of the SEE is described in the Chapter V.

In relation to the national environmental permitting procedure of various project-types and activities, there are the SEE and the EIA. The new Law on Environmental Impact Assessment describes in detail the EIA procedure, requirements and process.

In conclusion, for all projects that are to be developed under the RSP in RLR sector, the SEE shall be conducted. For larger scale projects that include construction of bypasses or realignments, there may be the additional requirement to prepare an EIA.

Therefore, two project categories can be distinguished on the national level:

- Projects requiring SEE only;
- Projects requiring SEE and EIA.

Road projects requiring an EIA on the national level are listed in the annexes of the new Law on Environmental Impact Assessment.

It is expected that most of the road projects to be developed under this RSP will not fall in any of the categories requiring a full scale EIA on the national level. However, at present, it cannot be excluded the likelihood of single projects (e.g. bypass options), developed in the frame of this RSP, that shall be later subject to full scale EIA.

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<sup>8</sup> Law No. 1515 of 16.06.1993 on Environment Protection, published in the Official Gazette No. 10 Of 01.10.1993, Art. 283, last amended by the Parliament Law No. 9 of 14.02.2014

<sup>9</sup> Law No. 851 of 29.05.1996 on Ecologic Expertise and Environment Impact Assessment, published in the Official Gazette No. 52-53 of 08.08.1995, Art. 494, last amended by Parliament Law No. 86 of 29.05.2014

<sup>10</sup> Law No. 86 of 29.05.2014 on Environment Impact Assessment, published in the Official Gazette No. 174-177 of 04.07.2014, Art. 393. Date of entry into force: 04.01.2015

Besides the national environmental legislation, there are international environmental conventions to which the Republic of Moldova is a party. Of these, the following are considered in the organization of the Environmental Assessment process for the different project roads:

- The Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters<sup>11</sup>;
- The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat<sup>12</sup>;
- The Bonn Convention on the Conservation of Migratory Species of Wild Animals<sup>13</sup>;
- The Bern Convention on the Conservation of European Wildlife and Natural Habitats<sup>14</sup>;
- The Espoo Convention on Environmental Impact Assessment in a Trans-Boundary Context<sup>15</sup>.

Thus, considering the above, it must be concluded that there are substantial environmental protection requirements to be met even in the case of the relatively small projects as envisaged under this RSP. Furthermore, as much of the financing is expected to come from IFIs, these environmental requirements must be met in such way as to satisfy the requirements of the IFIs.

## 2.1.7 Design and construction standards

The Appendix 1 to the Road Law provides the technical categories associated with the functional classification of public roads, which is shown in the table below:

**Table 2-2: Technical categories of public roads in the Republic of Moldova**

Technical category of the road	Functional purpose of the road	Intensity of perspective traffic (average annual daily traffic), in physical vehicles	Type of recommended road
I-a	National roads with highly intense traffic, designed exclusively for auto-vehicles circulation, including international traffic	over 16,000	Highways
I-b	National roads with intense traffic, designed for republican and international traffic	8,001–16,000	Express roads
II	National roads with medium traffic, opened for international traffic	3,501–8,000	Two lane roads

<sup>11</sup> Parliament Decision No. 346-XIV of 07.04.1999 for the ratification of the Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters, published in the Official Gazette No. 39 of 22.04.1999

<sup>12</sup> Parliament Decision No. 504-XIV of 14.07.1999 on the ratification of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, published in the Official Gazette No. 080 of 29.07.1999

<sup>13</sup> Parliament Law No. 1244-XIV of 28.09.2000 for the adherence of the Republic of Moldova to the Bonn Convention on the Conservation of Migratory Species of Wild Animals, to the Agreement on the conservation of wild birds, to the Agreement on the conservation of the african-euroasiatic migratory water birds and to the Agreement on bats conservation of Europe, published in the Official Gazette No. 133 of 26.10.2000

<sup>14</sup> Parliament Decision No. 1546-XII of 23.06.1993 for the adherence of the Republic of Moldova to some conventions in the domain environment protection and ratification of the Convention on Biological Diversity, published in the Official Gazette No. 006 of 30.06.1993

<sup>15</sup> See the reference No. 14

Technical category of the road	Functional purpose of the road	Intensity of perspective traffic (average annual daily traffic), in physical vehicles	Type of recommended road
III	National roads with reduced traffic	751–3,500	Two lane roads
IV	Local and commune roads with very low traffic	200-750	Two lane roads
V	Commune secondary roads	under 200	Two lane roads

Source: Law No. 509-XIII of 22.06.1995 on Roads

Based on the type of pavement roads are classified into:

- Roads with permanent pavement – with asphalt concrete or cement concrete pavements;
- Roads with semi-permanent pavement – using local materials covered with bitumen binder;
- Roads with temporary pavement – unpaved roads.

The standards applicable to roads design were covered by SNiP 2.05.02 - 85, which dated back to the Soviet period (1985). A normative document on constructions NCM D.02.01:2015 „Public Road Design” entered into force in February 2015. Thus, the current standards used in the Republic of Moldova represent a mix of former Soviet Union, post-soviet and modern standards.

In summary, there is an extensive legal framework that is applicable in the road sector. The Law on Roads establishes the ownership of roads and the related responsibilities in regard to maintenance and upkeep. However, ownership and control of roads, especially at local level is also affected by the Law on Administrative Decentralisation and the Law on Local Public Administration, each of which provide guidance as regard to the role of the LPAs. The current legislation does not clearly specify role and ownership liability on all local roads. The MTRI is working on a policy to turn over a certain amount of roads to LPAs. The financing of road construction and upkeep is arranged by means of the Road Fund Law, which earmarks certain sources of funds for exclusive use for road maintenance and limited rehabilitation. Specific targets for road safety to be achieved by 2020 are established by the Road Safety Strategy and implemented by means of the Law on Road Traffic Safety. Finally, roads are subject to a large number of environmental laws and conventions during their construction and use.

## 2.2 National level policy framework

### 2.2.1 The Association Agreement between the Republic of Moldova and EU<sup>16</sup>

The Association Agreement (AA) between the Republic of Moldova and the European Union (EU), apart from its political aspect, is important for the socio-economic development of the country. It contains compulsory provisions, regulatory norms and cooperation arrangements in all sectors.

<sup>16</sup> Law No. 112 of 02.07.2014 for the ratification of Association Agreement between the Republic of Moldova, on one hand, and European Union and the European Atomic Energy Community and their Member States, on the other hand, published in the Official Gazette No. 185-199 of 18.07.2014, Art. 442

The AA envisages creation of the Deep and Comprehensive Free Trade Area that involves progressive liberalization of the trade in goods and services by reducing or elimination of customs duties, fees and other charges.

The AA emphasises the importance of improving transport connections by making them smoother, safer and more reliable. In this regard, the AA focuses on cooperation to connect the strategic transport network of the RM to the Trans-European Transport Network (TEN-T) and to identify projects of mutual interest on the related network.

The AA also foresees further development of transport connections through cooperation with IFIs, improvement of the infrastructure policy in order to better identify and evaluate infrastructure projects, exchange of the best practice on financing options of infrastructure projects, including through Public-Private Partnerships (PPP).

### 2.2.2 National Development Strategy “Moldova 2020”<sup>17</sup>

The policy framework for development in the Republic of Moldova, relevant in the context of regional development is provided by the National Development Strategy (NDS) “Moldova 2020”.

The Strategy considers key issues in the following four sectors: education, roads, access to finance, and business environment. In accordance with the Strategy, addressing these issues will contribute to ensuring economic growth and poverty reduction. As long-term strategic objectives, the NDS “Moldova 2020” envisages eight development priorities. One of the main priorities entails increasing public investment in the national and local road infrastructure in order to reduce transport costs and improve accessibility. With regard to the relationship between regional development and the road sector, the NDS “Moldova 2020” emphasizes that an adequate road infrastructure is a precondition of the population to public services such as administrative buildings, hospitals and schools, especially in the context of the hospital and school services rationalisation that is ongoing.

### 2.2.3 Transport and Logistics Strategy 2013-2022

The Transport and Logistics Strategy (TLS), 2013-2022 was approved by the Government Decision No. 827 of 28 October 2013. The TLS replaces the Land Transport Infrastructure Strategy (LTIS) drawn up for the period 2008-2017.

The main thrust of the Strategy, which covers the high level infrastructure network is that it aims to outline an approach to the provision of a minimum set of transport infrastructure to support development of the economy.

The Strategy identifies a “priority network” of roads that are aimed at connecting strategic locations in the country to each other and to facilitate international connectivity. This priority network, which is limited, is complemented with an “other national roads” network which broadly connects regional centres, either directly or via the priority network to the economic centre of gravity, which is believed to be the corridor between and around Chisinau and Balti. Furthermore, as the high level network would not provide sufficient connectivity if not complemented by an adequate local road network, the Strategy contains a number of provisions and action items in relation to local roads, which are as follows:

- Identify and implement projects for local roads repair;

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<sup>17</sup> Law No. 166 of 11.07.2012 for the approval of the National Development Strategy „Moldova 2020”, published in the Official Gazette No. 245-247 of 30.11.2012, Art. 791, last amended by Parliament Law No.121 of 03.07.2014



- Preserve the results obtained from the repair of the local roads by maintaining them appropriately;
- Reorganize through merger the joint stock companies and state owned enterprises in charge of road maintenance;
- Adjust the legal and regulatory framework and technical standards to the requirements of the new maintenance system;
- Implement modern technologies for road maintenance and procure the necessary equipment;
- Implement new road maintenance contracts in line with the best international practices;
- Ensure the implementation of the routine road maintenance work through public competition;
- Strengthen the capacity and managerial training of the staff involved in road maintenance;
- Implement the roads maintenance management system;
- Decentralize the local roads administration by:
  - Transforming some important local roads into regional roads;
  - Transferring those local roads, which are still on the balance sheet of LPA 2 to LPA 1, making sure that sources are allocated from the Road Fund for their repair and maintenance;
  - Ensuring the transfer of capacities for a more efficient management of local roads.

The Strategy focuses on the short-term perspectives until 2015, medium-term perspectives until 2018 and long-term perspectives until 2022. It draws on current Government policy and on research carried out in the context of the preparation of the Strategy.

The investment program related to the strategy has a short to long term program, covering the period from 2013 to 2022. The program up to 2022 covers priority investments, not just in roads but also in other transport infrastructure that has the highest possible return for society.

The road network has to provide both long distance and local connectivity and is intended to do so by providing a high quality national road network while ensuring adequate local connectivity. It also identifies maintenance funding and organisation as important factors to ensure sustainability of the investment.

Therefore, TLS provisions ensure a strategic framework allowing the efficient development of local connectivity, which is considered one of the main priorities of the Program and is further formulated as a specific objective in Chapter 3.

#### 2.2.4 The National Strategy for Road Safety

The National Strategy for Road Safety (NSRS) for the period 2011-2020, approved by the Government on the 27<sup>th</sup> of December 2010<sup>18</sup>, describes the concept of “Progressive Vision Zero”<sup>19</sup> which establishes that the loss of human lives and serious injuries are

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<sup>18</sup> Government Decision No. 1214 of 27.12.2010 on approval of the National Strategy for Road Safety, published in the Official Gazette No. 43-45 of 25.03.2011, Art. 186

<sup>19</sup> Introduced by the Swedish Parliament as a term

unacceptable and that the transport system needs to be planned in a way that these events do not occur.

The use of this concept focuses on reducing the accident severity rate and accident consequences; improving road infrastructure; traffic rules and their enforcement and developing and educating the behaviour of road users.

In accordance with the Strategy drafters, it is to be expected that implementation will be difficult as long as the economic situation is less than optimal. To finance the implementation of the Strategy, the drafters recommend using financial resources from the following sources:

- Budgets of responsible ministries and subordinated agencies thereof;
- Rayon and local budgets;
- External funds (including foreign investment, and “economic agents”);
- The Road Fund.

This funding would contribute to a road safety fund, which is according to the Strategy to be established before 2015 but may never materialise under the current circumstances.

Furthermore, the “Special Centre for Evidence and Monitoring” (Centrul Unic pentru Evidenta si Monitorizare) has been established with the responsibility of monitoring all programs under the Strategy over the period of its implementation.

In addition, in accordance with the Strategy, the National Committee for Traffic Safety will be transformed into the National Agency for Traffic Safety (NATS)<sup>20</sup>. The Road Safety Fund is expected to use resources from the budgets of the Ministries, Road Fund, local budgets, etc.

However, the Road Fund Law does not contain any provision that enables the participation of the fund in the financing of traffic safety. The entire NSRS includes very soft provisions, such as: “may”, “could”, “is recommended to”, etc. Moreover, there are only 2 deadlines set out - until 2015 and until 2020.

Notwithstanding the vagaries of the NSRS, a total of 3,000 km of roads has been surveyed and given a star rating in accordance with EuroRap methodology<sup>21</sup>.

Results published by EuroRap<sup>22</sup> show that the majority of the network (56%) scored the lowest 1-star rating for car occupants, with a further 23% rated as 2-star. Only 6% of the network length surveyed fell into the lower risk range, with no sections achieving the safest category. On the measure of pedestrian safety, 95% of the network scored 3-stars, with 1% achieving the highest 5-stars.

Road safety in the Republic of Moldova remains a reason for great concern despite the beginning of implementation of the Government’s road safety Action Plan. Various factors such as the poor state of the roads, their design, driver behaviour and insufficient enforcement of road traffic regulations play a significant role.

For instance, according to the latest available data from the Single Monitoring and Co-ordination Centre of the Patrol National Inspectorate, 295 persons died and 3,221 were

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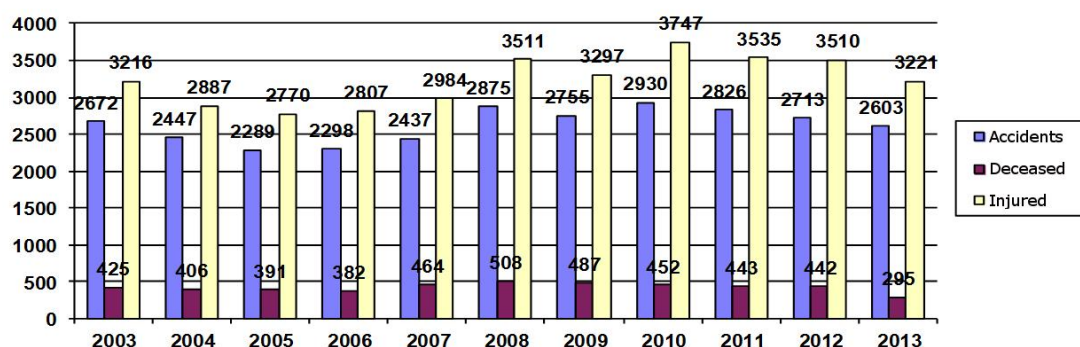
<sup>20</sup> To be achieved by 2015

<sup>21</sup> By the end of 2011

<sup>22</sup> <http://www.eurorap.org/partner-countries/moldova/>

injured in 2,603 road traffic accidents in the year 2013. While the number of road traffic deaths decreased in 2013, the number of injured people remains rather high compared with the last 10 years.

**Figure 2-1: Frequency of the road traffic accidents during 2003 – 2013, number of cases**



Source: Single Monitoring and Coordination Centre of the Patrol National Inspectorate

Another main priority of this RSP is to ensure that road safety provisions are included in the planning and programming of RLR. This is further described in more detail as a specific objective in Chapter 3.

## 2.2.5 National Strategy for Regional Development 2013-2015<sup>23</sup>

At the central administration level, the coordination, implementation, monitoring and evaluation functions of the regional development policy are assigned to the Ministry of Regional Development and Construction (MRDC). After approving the first NSRD 2010-2012 in March 2010, a number of measures were taken to implement the Law on Regional Development in the Republic of Moldova, notably:

- Creation of the institutional framework for Regional Development;
- Planning and coordination of measures for Regional Development;
- Elaboration and implementation of Regional Development financing mechanisms;
- Elaboration of the methodology for monitoring and evaluation of Regional Development supporting measures.

The National Strategy for Regional Development (NSRD) 2013-2015 contributes to the achievement of NDS “Moldova 2020” objectives. The overall objective of the NSRD is to achieve:

- Balanced and sustainable development in all the development regions of the Republic of Moldova.

Furthermore, according to the specific objectives, the Strategy aims to:

- Improve the legal and regulatory framework in regional development sector;

<sup>23</sup> Government Decision No.685 of 04.09.2013 on approval of the National Strategy for Regional Development 2013-2015, published in the Official Gazette No.198-204 of 13.09.2013, Art. 792

- Support sustainable development of regions and ensure a polycentric urban system;
- Consolidate capacity of regional development institutions in the regions;
- Reduce significant local, inter- and intra-regional disparities;
- Develop and promote integrated and participatory planning in the process of regional development.

In relation to roads the NSRD provides the following detail:

- 166.5 km of roads and 27 bridges will be renovated;
- 10 bridges and 2 km of roads will be built;
- 727.8 thousand inhabitants from 89 localities will become beneficiaries.

#### 2.2.6 Action Plan of the Government for 2014<sup>24</sup>

In the Action Plan for 2014 the Government outlines its most important priority actions for 2014. This includes addressing the issues that prevent access to the EU market for agriculture, as well as addressing the poor state of the roads that leads to additional costs for rural enterprise. In relation to regional and local roads, the Action Plan envisages:

- Increase in the size of the Road Fund to 1.15% of GDP;
- Rehabilitation of 700 km of local roads;
- Development of multi-annual road maintenance contracts;
- Re-classification of roads;
- Procure and execute 80% of the Road Fund expenditure on competitive basis;
- Rehabilitation of access routes from the magistral roads to schools and hospitals from adjacent rural areas.

In relation to Regional Development, the Action Plan envisages:

- Stimulation and implementation of measures for the organization and development of communities by implementing the principles of polycentrism, focusing the development efforts on the urban municipalities with a potential for economic growth;
- Using economic potential of cities for development and implementation of programs and investments projects that will contribute to development of adjacent areas thereof;
- Reducing the significant local, inter- and intra- regional disparities by implementing new mechanisms and tools such as: clustering the services held in various interconnected domains; implementation of the territorial observatory; inter-community cooperation; regionalization of public utility services; implementation of private-public partnership in carrying out of the projects for regional development.

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<sup>24</sup> Government Decision No. 164 of 05.03.2014 on approval of the Action Plan of the Government for 2014, published in the Official Gazette No. 60-65 of 14.03.2014, Art. 182.

Each of the above regional development priorities highlights the importance of the improved road connections between cities and towns and their adjacent rural areas. It reinforces the case for investments in local and regional roads in such way that rural areas are better connected to their regional urban centre in order to provide access to services.

In summary, at policy level it is clear that the need for targeted improvement in local and regional road infrastructure is universally recognised, hence the need for a specific program to address the shortcomings that currently exist in the local and regional road network. The Transport and Logistics Strategy (TLS) 2013-2022 outlines the priorities in relation to the national road network, while acknowledging the need for improvements in other roads. The National Development Strategy (NDS) "Moldova 2020" indicates the need to improve access to socially important infrastructure (schools, hospitals), which is mostly located in the regional centres, from the surrounding areas. The NDS "Moldova 2020" Action Plan foresees the reclassification of roads to clarify ownership and responsibility, and outlines targets for rehabilitation works.

### **2.3 Regional level policy framework**

#### **Regional Development Strategy South**

The Regional Development Strategy (RDS) South for the period 2010-2016 (revised in 2012) represents a public policy document that provides a vision for medium term development of the region and is aligned to the national strategies NDS "Moldova 2020" and the NSRD.

The RDS South provides an extensive analysis of issues related to road infrastructure. Some of these are the same as identified at national level, such as the general poor quality of the road network. However, the strategy provides a deeper analysis of connectivity, which leads to the conclusion that, though within the region, north-south connectivity is provided of a sufficient standard, east-west connections are deficient and this results in fragmentation of the region. This fragmentation is not supportive to development of the region.

Additionally, the Strategy identifies the fact that a number of localities do not have a paved road, or are not connected to the public road network at all. Furthermore, the Strategy emphasizes the necessity for an efficient planning and allocation of disposable funds in order to reduce deficiencies related to physical infrastructure and services from the region. It sets a number of general priorities and proposes some measures by sectors. At the strategic level, especially for the roads sector RDS South envisages the following priority and measures:

- "Priority 1. Physical infrastructure rehabilitation:
  - Measure 1.2. - Construction, rehabilitation and modernisation of regional and local roads;
  - Measure 1.3. - Rehabilitation of access ways to border crossing points."

Based on the findings above, the RDS South envisages the improvement of some republican roads (R47, R26, R30), although these are part of the national road network. Furthermore, the specific priorities are:

- Connectivity of communities with growth potential;
- Connectivity of those communities located in the vicinity of communities with growth potential;

- Accessibility to objects of strategic importance, such as the airport of Cahul, Giurgiulesti port, Nufarul Alb healthcare facility of Cahul, etc.

The above priorities appear to provide sufficient guidance for identification of priority projects. Nevertheless, the communities with growth potential are not identified in the strategy although these are believed to be mostly the towns with a substantial number of inhabitants.

Implementation of the Strategy is supported by the Regional Operational Plan (ROP) developed for a period of three years, which includes priority programs and projects for regional development.

## **2.4 Institutional framework**

### **2.4.1 National level**

This sub-chapter presents relevant institutions for the realization of national policies related to RLR sector.

#### **Ministry of Regional Development and Construction**

The Ministry of Regional Development and Construction (MRDC) is the governing body responsible for elaboration, implementation and promotion of the regional development policy. MRDC also has the responsibility to coordinate and monitor the elaboration process of regional development strategies and programs, as well as planning, development and rehabilitation of physical infrastructure including in the regional and local roads sector, in order to achieve a balanced socio-economic territorial development.

#### **Ministry of Transport and Road Infrastructure**

The main body responsible for transport regulation in the Republic of Moldova is the Ministry of Transport and Road Infrastructure (MTRI). The Ministry was re-established in November 2009 following a period of one year during which there was no Ministry for Transport in the Republic of Moldova, but there was only the Transport Agency. The Ministry is in charge of railway transport, civil aviation, auto transport, water transport and road infrastructure and has a wide range of tasks in accordance with its statute.

More specifically, in relation to roads, the MTRI is in charge of the:

- Elaboration and promotion of state policy in the field of transport and road infrastructure;
- Elaboration and implementation of draft laws and plans for transport infrastructure, including in the context of cross-border cooperation.

#### **The State Road Administration**

Directly subordinated to the MTRI the State Road Administration (SRA) is a state owned enterprise responsible for the day-to-day management and maintenance of Moldova's road network to the extent that it is under its responsibility<sup>25</sup>. It holds the title

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<sup>25</sup> Not all roads and streets are owned by the SRA, such as those that are not under the authority of local public administrations. These local administrations do not receive funding for their local roads from the central administration, but must find this in their local budget.

of ownership of the roads and their right of way. It is in charge of all road construction, maintenance and rehabilitation and of road safety in accordance with applicable laws. The annual work plan in relation to road maintenance and investments in roads is prepared by the SRA, considered by the MTRI and Road Fund Council and approved by the Government.

The State Road Administration is responsible for implementation of decisions concerning the use of funds for roads, both from the State Budget and from the Road Fund as well as the implementation of those contracts financed by International Financial Institutions (IFI). The SRA awards contracts for “day to day” maintenance to the regional road maintenance companies and for rehabilitation and maintenance of roads to firms on the basis of competitive bidding.

Thus, at the national level the responsibilities for roads are clear and processes are well established. The SRA controls about 6,000 km of roads classified as “local” in its inventory. However, there is an extensive network of roads and streets of local relevance, which are under the responsibility of LPAs of level 2 and 1.

#### 2.4.2 Regional and local level

The local public administration of the Republic of Moldova consists of two levels: LPA 2 – 32 rayons, Chisinau and Balti municipalities, as well as autonomous territorial units with special legal status, and 977 LPA 1 which are towns and communes, the latter being groups of villages. The institutional structure, responsibilities and ownership of the LPAs 2 and 1 in relation to roads are further outlined in the following sub-chapters.

### **Regional Development Agencies and Councils**

The Law on Regional Development<sup>26</sup> of the Republic of Moldova represents the main legal document defining the concept of Development Regions (DRs), institutional framework as well as establishing main notions, general objectives and principles, responsibilities of local public administrations in regional development, including other institutional and planning aspects from the sector.

In February 2008, the Government of the Republic of Moldova adopted a Decision<sup>27</sup> regarding the measures on the implementation of the Law on Regional Development. This Decision provided the creation of the Regional Development Agencies (RDAs) and Regional Development Councils and their regulations. Furthermore, it facilitated the establishment of the National Fund for Regional Development and procedures for the use of funds.

The National Coordination Council for Regional Development (NCCRD) is a structure created to approve, promote and coordinate objectives on regional development at the national level.

The Regional Development Council (RDC) is a deliberative functional structure, without a legal personality, at the level of each development region, created to elaborate, coordinate and promote the implementation of the development programs at the regional level. The council consists of four representatives from each rayon: the head of rayon, a mayor designated as representative by the mayors association, a representative of

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<sup>26</sup> Law No. 438 of 28.12.2006, published in the Official Gazette No. 21-24 of 16.02.2007, Art. 68

<sup>27</sup> Government Decision No. 127 of 08.02.2008 regarding measures for realization of the Law No. 438-VI of 28.12.2006 on regional development in the Republic of Moldova, published in the Official Gazette No. 34-36 of 19.02.2008, Art. 200

the private sector and a representative of the civil society, who are selected by means of a procedure established by the MRDC.

RDA South is a public non-commercial institution subordinated to the MRDC, responsible for implementation of the regional development policy, created for the implementation of the Regional Development Strategy South and the Regional Operational Plan and provides organizational, methodological and secretarial support to the RDCs.

Currently, the organisation chart for RDA South consists of 4 departments: Strategic planning and programming, Project management, Finance and procurement, and Administration.

## **Local Public Administrations of level 2**

The local public administration (LPA 2) authorities comprise of 32 rayons and 5 municipalities, as well as the autonomous territorial unit with special legal status. These are consisted of local councils as deliberative authorities and a chair person / mayor as executive authority through whom the local autonomy is undertaken. The rayon / municipal (city) council is the representative authority of the rayon / municipality population consisting of councillors, which coordinate the activities of the local councils in order to provide public services on a rayon or municipal level.

LPA 2 have a large range of competences, including to “decide on the design, construction, maintenance and upgrading of roads, bridges, housing under the Housing Act, as well as to decide on the economic, social and leisure infrastructure at local level”. The multitude of responsibilities of the chairperson of the council in different area reflects the competing priorities under permanent budgetary constraints.

## **Road maintenance companies**

While the SRA has, as the owner of certain roads, formal responsibility for their construction and maintenance, it does not carry out any works itself, but relies on private companies for construction and rehabilitation and on joint stock maintenance companies for regular / routine maintenance.

Originally, there were 38 road maintenance companies, though these have in the period 2012 – 2013 been merged in accordance with Government Decision No. 244<sup>28</sup>. As a result, 12 new road maintenance companies were established by mid-2013, 3 of those operate in the Development Region South.

Presently, the road maintenance joint stock companies operate in two formats with the SRA:

- Through direct contract of routine maintenance works without public procurement;
- Through routine maintenance and periodical repair works contracts awarded following competitive tendering carried out by the SRA.

According to information provided by the SRA, in 2012 more than 75% of the routine maintenance and periodical repair works procured through the Road Fund have been

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<sup>28</sup> Government Decision No. 244 of 19.04.2012 on the Reform of Public Roads Maintenance System, published in the Official Gazette No. 82-84 of 27.04.2012, Art. 280



contracted through competitive tendering. These include various maintenance activities such as markings, bituminous surface treatments and pothole patching.

Contracts awarded by the SRA for routine maintenance and winter maintenance remain, for now, excluded from the scope of competitive bidding even if they would exceed the threshold for public tender.

The road maintenance companies are also contracted by LPAs through tenders for repair of local and communal roads and streets that are under their control.

In the near future, in line with the Action Plan for road maintenance system reform, multi-annual performance-based road maintenance contracts are to be introduced in the newly established road maintenance companies. The Plan also envisages, among other important measures, privatisation of the road maintenance companies by 2017.

Challenge will be to avoid the creation of private monopolies in the construction sector by further supporting the development of new contractors in the sector.

### **Local Public Administrations of level 1**

In the Republic of Moldova, local public administrations of the first level (LPA 1) are the closest to the population. According to the NBS data of 2014, there are 977 LPA at level 1, including 61 towns. Two or more villages can merge and form a single territorial-administrative authority called “commune”. The smallest of the LPA is less than 1,500 inhabitants, while the largest can reach around 41,000 inhabitants.

The local councils (towns, communes and villages) have a large number of competences in accordance with the Law No. 436 of 28.12.2006 on Local Public Administration. In relation to roads, the LPAs have the authority to “decide on the design, construction, maintenance and upgrading work of roads, bridges, housing under the Law on Housing, as well as the entire economic, social and recreation infrastructure of local interest”. Again, the variety of tasks indicates the many priorities in which road maintenance and repair is only one of the many tasks competing for funding.

#### **2.4.3 Institutional shortcomings and potential**

At the national level, the institutional setup for the road sector is clear and works well up to now, though the SRA may be hard pressed to take on the management of more rehabilitation projects with its current staff levels.

The further planned reform of the road maintenance companies and the introduction of performance based contracting will further clarify the relationship between the SRA and the road maintenance companies and is expected to improve the performance of the system of routine and periodic maintenance, which is seen as in need of improvement.

Capacity at local level is a different matter despite the fact that LPA's have an elected local council of between 9 and 27 persons, which constitutes the representative democratic structure at that level. Until 20 of February 2013, the Government Decisions No. 688 and 689 of 10 June 2003 determined the level of staff for each of the local public administrations. Currently, after abrogation of the respective normative acts, LPA 1 and 2 have the full freedom to establish their administrative structure, however it has not changed essentially. The level of staff budgets are small and leave little scope for increases or even maintenance of existing staff levels.

Most of the LPAs lack the necessary capacity to provide services or to ensure an appropriate management. In accordance with aforementioned acts, the smallest of LPA, those below 1,500 inhabitants, had only 4 employees, while those with a population

over 10,500 had on average 13.5 persons at work. At the level of villages and communes, there would be no technical specialists of any type available, regardless of their size.

In relation to towns, which are a separate class for the purpose of staffing, the legislation envisaged a staff level of 8 persons for the smallest town with below 5,000 inhabitants and 26.5 for those over 30,000 inhabitants. Towns with over 10,000 inhabitants were allowed a half architect and a half construction specialist (possibly one person taking both roles or sharing with other roles).

At rayon level, the situation would be slightly better, but still far from ideal. Rayons below 50,000 inhabitants were envisaged to have on average 2.5 persons dealing with construction, communal households and roads. The larger rayons, over 50,000 inhabitants, were envisaged to have 4 of such specialists.

As mentioned, currently the LPA's composition has not changed considerably, the staff being limited in regards to its number. At the same time deficiencies were identified in respect to sector specific qualification of the personnel hired in the corresponding positions. These institutional capacity constraints have an impact on various LPA activities, including on the preparation of consistent strategies for socio-economic development at the local level.

The above institutional shortcomings have direct impact on the capacity of carrying out a regional and local roads program. Addressing this issue is considered one of the main priorities of the RSP which is reflected as a specific objective in Chapter 3.

## **2.5 Socio-economic and geographical background**

### **2.5.1 Socio-economic aspects of road development**

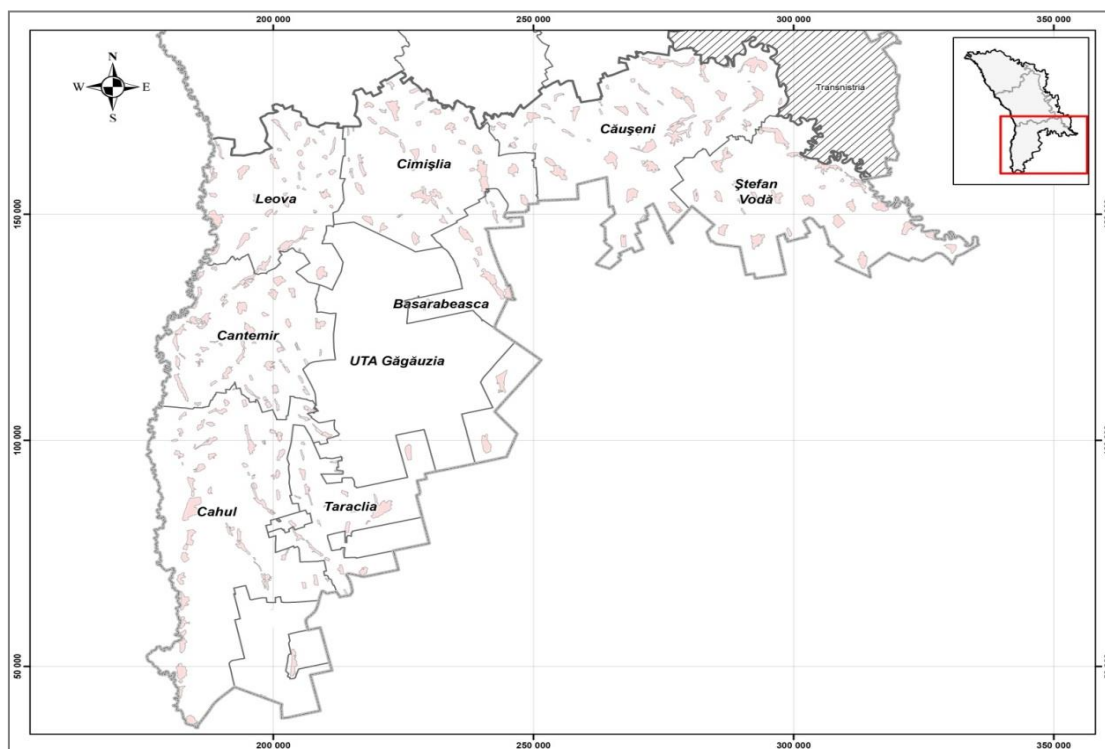
Regional and local roads have the function to provide connectivity and accessibility for the region's population. Therefore key in identifying needs in the road sector is to understand the context in which those roads provide connectivity and accessibility. Those key aspects relate to the distribution of the population in the region – where people live and to where they have to be connected. Other key aspects relate to what has to be transported on a given road? For example what type of produce has to be transported? Geography, topography and the environment are other important considerations in the development of a road network. The following sub-chapter describes the context in which the road network has to be developed and improved in DRS.

### **2.5.2 Territorial organisation of the DRS**

DRS covers the south and south-east territory of the Republic of Moldova. Geographically, this region is bordering to the south-west with Romania and to the south-east with Ukraine. The southernmost rayon is Cahul, with the administrative centre in Cahul town.

The region has a total surface area of 7,379 km<sup>2</sup> or 24.2 % of the total area of the country. The territorial-administrative organization of DRS consists of 284 localities and 11 cities (without status of municipality, whereof including 8 rayons: Basarabeasca, Cahul, Cantemir, Causeni, Cimislia, Leova, Stefan Voda and Taraclia) which are organised in 187 LPA 1 and of 8 LPA 2.

**Figure 2-2: Geographic location and territorial division of the DRS**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

### 2.5.3 Population nationwide and in the DRS

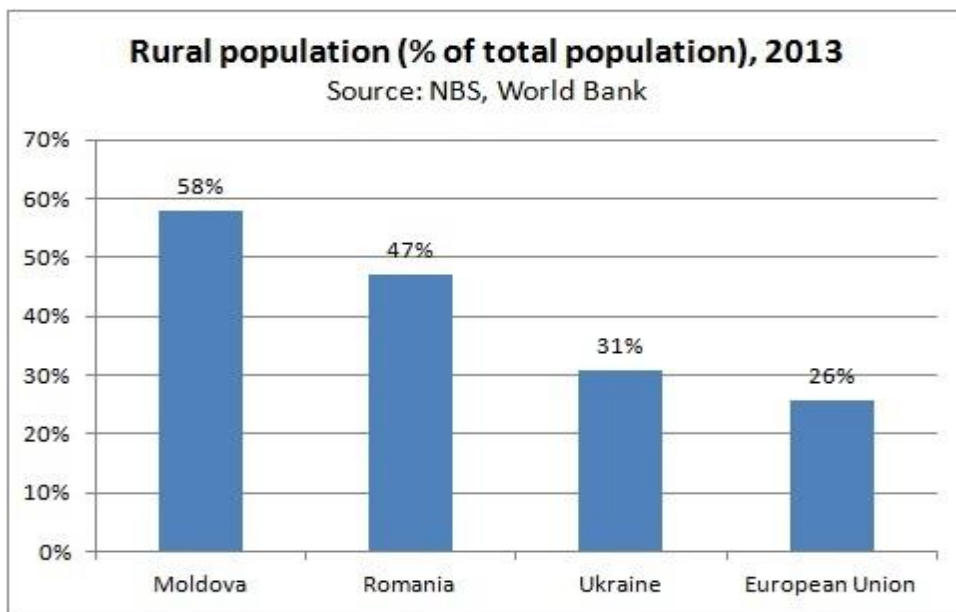
#### Population nationwide

The population of the Republic of Moldova was 3,559,497 in 2013 (excluding Transnistria). Chisinau, the capital city, has a population of some 800,600<sup>29</sup>. The Republic of Moldova has the highest population density among ex-Soviet Republics, with presently on average 105 inhabitants / km<sup>2</sup>, and 5,427 inhabitants / km<sup>2</sup> in Chisinau. According to the 2004 census as published by the National Bureau of Statistics, a negative annual growth of approximately 0.09% per year was observed since the previous census.

With nationwide 58% of the population living in the rural areas, the Republic of Moldova has the largest percentage of rural population of any European country, where the average represents only 26%. This is a fairly significant share compared with the neighbouring countries. In Romania around 53% of population lives in urban areas and 47% in the rural, while in Ukraine around 69% of population lives in urban areas and 31% in the rural. The average age of the population in the Republic of Moldova is 35 years with about 30% under the age of 20.

<sup>29</sup> National Bureau of Statistics, January 2013

**Figure 2-3: Rural population, comparative diagram, 2013**



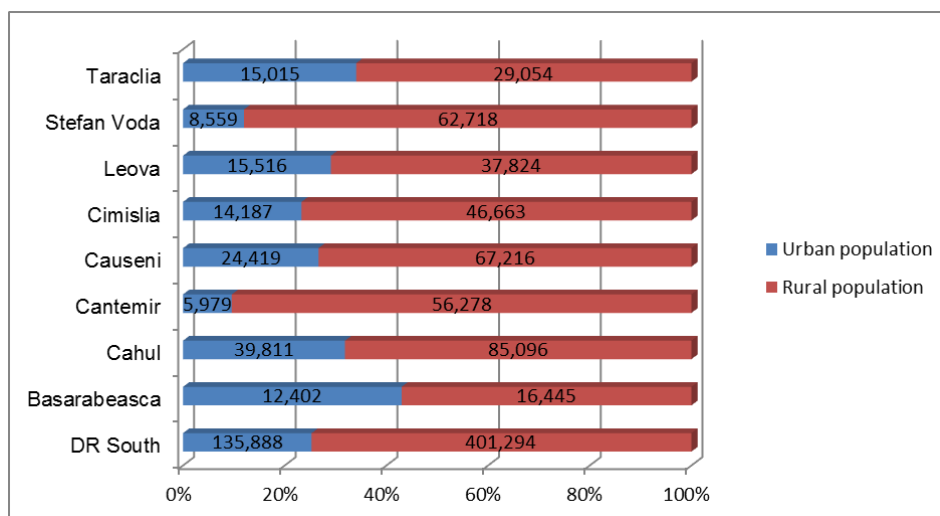
Source: National Bureau of Statistics

### Population in the DRS

According to the National Bureau of Statistics (NBS) data of January 2013, from the total population of 537,182 inhabitants in DRS, 74.7% live in rural areas and 25.3% in urban areas. During recent years, the DRS population has been in continuous decline due to negative natural growth and migration.

The largest urban area in the region is Cahul town, with an official population of 39.8 thousand inhabitants, followed by Causeni with 24.4 thousand inhabitants and Leova with 15.5 thousand inhabitants. As can be seen from the figure below, the majority of population in DRS lives in the rural areas.

**Figure 2-4: Number of population by rayon in DRS, January 2013**



Source: National Bureau of Statistics

The key demographic developments in the Republic of Moldova, as well as in DRS are characterized by the following:

- Population is declining;
- Both male and female population decreased with little differences in urban to rural areas;
- The number of school age children is consistently falling. Over the last twenty years, the number decreased by about 41%;
- High level of outmigration of Moldovan nationals to other countries – some studies estimate 5.9 migrants/1,000 population per year.

The current demographic situation and its development provide an additional challenge for the road sector. Though with a relatively high population density by former-soviet standards, the high percentage of rural dwellers and a falling population make local road provision expensive and difficult to plan. However, a majority of the population rely significantly on regional and local roads for their daily transport needs.

#### 2.5.4 Economic activity

##### **Economic activity at the national level**

More than in any other sector, the economy has an impact on the transport sector by determining what is affordable, though the transport sector also determines the economy, as cost of transport and availability of access to market are main determinants of the economic potential of a given country or region. Poor countries generally cannot afford good road infrastructure, though they would need it most to be able to develop. The need for specific infrastructure is furthermore determined by the structure of the economy, while investment priorities may depend on the contribution to the economy of a particular economic sector.

According to the latest data of the National Bureau of Statistics (NBS), in 2013 the Republic of Moldova registered a GDP of about EUR 6,000 million. Moldova's recent economic growth performance has been strong but volatile, leading to national poverty and extreme poverty rates falling from 30.2% and 4.5% in 2006 to 16.6% and 0.6% in 2012, respectively. This makes the Republic of Moldova one of the world's best performers in terms of poverty reduction. Current forecasts for real GDP growth are generally in the range of from 4 to 5% per annum for the period up to 2016. This is based on the assumption of stable economic and political conditions underpinned by continuing moves towards European integration<sup>30</sup>.

The Republic of Moldova is a country where agriculture still represents a very large proportion of employment in comparison with other countries. In the EU, even after the entry of the new EU member states, agriculture only provides for 5% of total employment. In Moldova, the proportion is much higher with close to 29% of total employment.

The above mentioned context is important to local and regional roads since these roads provide local access routes from fields, orchards to the markets.

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<sup>30</sup> World Bank: <http://databank.worldbank.org/data/views/reports/tableview.aspx>

## Economic activity in DRS

As can be seen from Figure 2-5, about 4% of the Moldova's production is generated in DRS. Key contributors to the economic performance includes output from activities like mining and quarrying, processing industry and production, supply of electricity, heat, steam, hot water and air conditioning, water supply; sewerage, waste management and remediation activities. Particular activities include:

**Agriculture:** DRS specializes in viticulture, cereals and sunflower, breeding of sheep and cattle. It is considered to be a traditional wine and sheep growing region. The well-known wineries (53 wineries) and high quality sheep cheese produced in the DRS are in demand both in the internal and external markets.

**Mineral deposits:** there are useful mineral deposits in DRS, such as sand, clay, loam, and bentonite. Additionally, limited quantities of natural gas are discovered and extracted in Ciobalaccia commune from Cantemir rayon and petrol in Valeni village from Cahul rayon.

**Industry:** there are three Free Economic Zones in DRS, mainly "Tvardita" Free Economic Zone, "Taraclia Industrial Park" and Giurgiulesti International Free Port. Other industrial production objects are located throughout the whole region. Also, there are two business incubators in Stefan Voda and Leova. Efforts are underway to create an industrial park in Cimislia. Additional to its main specialization in producing wine, DRS has registered in 2012 a high production of bread and bakery foods of about 12.2% and 11.4% of flour on a national level.

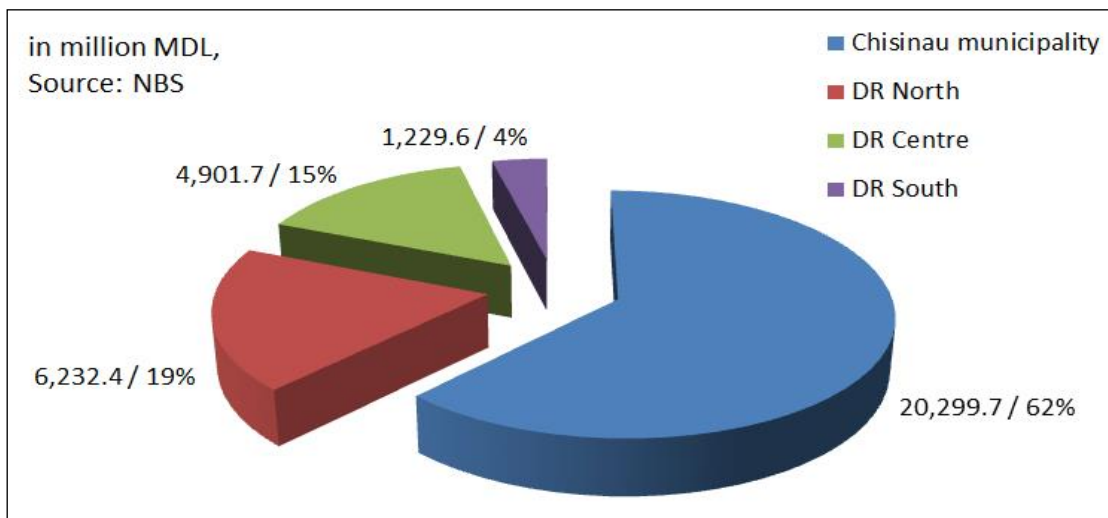
**Tourism:** the tourism potential of the DRS is in the process of development being represented by "Purcari" and "Ciumai" wineries included in the "Wine Road"; the balneal-therapeutic resort - "Nufarul Alb" with mineral and thermal springs; the scientific reservation "Prutul de Jos" in Cahul rayon; the unique "green museum" in Moldova in Stefan Voda rayon; the historic architectural monument from the XVI-XVIII centuries, the church "Adormirea Maicii Domnului" in Causeni rayon; the forest "Padurea Turceasca" in Talmază village.

Of a great interest for tourists could be the forest "Padurea Turceasca" (village of Talmază); the oxbow lakes "Nistrul Chior" in Stefan Voda rayon; over 15 local archaeological and historical museums; „Valul lui Traian“ a historic monument, erected by the Romans during the 3<sup>rd</sup> century AD spanning a length of about 126 km, starting from the Prut river at the Valul lui Isac village in Cahul rayon, to Causeni rayon and continuing to the Sasac lake (Tatarbunar, Ukraine); 6 monasteries, including the famous monastery from Codrii Tigheciului, the monastery of Capaclia (Cantemir rayon), the monastery from Zloti (Cimislia rayon) and the convent in Causeni.

In order to support regional development, key-locations, as mentioned above, activities need to be connected by good roads.

While unemployment has been low in national statistics, the monthly gross average earning in DRS increased by about 10%, from MDL 2,328 in 2011 to MDL 2,576 in 2012, which is less than in DRN and DRC. As can be noted, despite the recent economic successes, the DRS produces a relatively small share of GDP and income in the region is low in comparison with, for example Chisinau municipality. The implication of this is that the identification of priority roads projects cannot take place purely on the basis of possible economic return, but must also include considerations of equality between regions.

**Figure 2-5: Value of production by region in 2012**



Source: National Bureau of Statistics

### 2.5.5 Natural environment

The environment in which a road is located in, plays a significant role in its operation, maintenance and reconstruction. The following summarizes the condition in DRS.

The climate in DRS is moderate continental. The average air temperature is 11°C, the absolute minimum temperature of January is -25°C and the maximum of July is 39-40°C. Rainfall varies between 500-550 mm and in recent years there has been increasing climatic variability accompanied by a greater frequency of dangerous climatic phenomena.

This region is the warmest and most arid of the country, the daily temperature being 2 to 3 degrees higher than in other regions. The climate is characterized by many sunny days: about 190 days per year or 2,354 hours of sunlight per year. The volume of precipitation is not uniform; sometimes there are periods of drought. Climate change in recent years has brought about soil degradation, and a higher frequency and degree of extreme climatic phenomena. This situation is due to air pollution, inefficient energy consumption, and insufficient development of local energy resources.

The DRS is located on the southern Moldova Plateau and the Tigheciul Plateau, while the north-east of the region (Causeni and Stefan-Voda rayons) gradually enter the Lower Nistru Plateau. The Lower Prut Plateau is a large valley fragmented by smaller valleys and slopes, and is subject to active soil erosion and landslides. The topography of the DRS comprises fields at an altitude of up to 250 m; this altitude falls from the north towards the south and south-west. The maximum registered altitude is 301 m (Larguta hill), which is the highest and most hilly area in the region.

The natural vegetation of the steppe zone is characterized by grasses with typical Mediterranean representatives as *Stipa* sp., *Bothriochloa* sp. and *Festuca* sp. (bunchgrass, red grass/red-leg grass and hard fescue) although the native steppe historically included many *Artemisia* (wormwood) species. The steppe also contains forest elements such as *Quercus pubescens* (downy oak) and *Quercus robur* (pedunculate oak).

The Development Region South is largely under agricultural use but there exist areas of high biodiversity. This refers particularly to the Prut river valley in the southern part of

the country. There is the "Lower Prut Scientific Reserve" which was established in 1996. It has a surface of 1,691 ha and represents one of the last remaining natural floodplains in Moldova's Lower Danube region.

In areas of high biodiversity potential impacts on fauna and animal migration corridors (mammals, birds, reptiles, and amphibians) might occur and need to be considered in the Environmental Management Plan.

Additionally, the south region has the highest level of water pollution and limited access to water resources for irrigation and potable water.

Roads, like any man-made construction, have an impact on the natural environment. Construction and operation of roads can result in habitat fragmentation of flora and fauna, including changes in local natural conditions. At a later stage of feasibility study and detailed design, more detailed knowledge of the natural environment will enable to assess and prevent or diminish a road's impact on the environment. In addition, provisions have to be made that during construction activities no adverse impacts on the environment will occur.

## **2.6 Description of the road network**

### **2.6.1 Road network at the national level**

The Republic of Moldova is currently served by a sufficient amount of road infrastructure: 9,352 km of roads administered by the State Road Administration (SRA) and an additional estimated 32,000 km of streets, paths tracks, and roads under the administration of LPAs. Despite the suitable size of the infrastructure its condition represents the key challenge. As a result of its infrastructure legacy from the Soviet Union, duplicate and over dimensioned transport corridors exist. Overall, the road transport infrastructure network today:

- Is well developed in extent and covers the entire country but may be over-dimensioned for the economic needs of the Republic of Moldova, its size of population and maintenance capabilities<sup>31</sup>;
- Some parts of the transport infrastructure may not be at the locations where current and future economic activity takes place.

SRA data from 2013 show that 88% of national roads and 41% of local road length is paved. This gives an overall figure of 57.5% paved for the entire network of 9,352 km. The density of the road network, 314 km per 1,000 km<sup>2</sup> and 2.6 km per 1,000 persons, is considered reasonable for a country such as the Republic of Moldova. The immediate post-Soviet years were also characterised by an economic collapse and consequently by a significant reduction in road traffic, which further emphasised the more than adequate extent of the road network.

The table below summarises the road network by surface type as of early 2013. The data is for those roads which are the responsibility of SRA and excludes Transnistria.

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<sup>31</sup> Transport and Logistic Strategy.



**Table 2-3: Length of SRA road network by surface type, 2013**

Status	Concrete	Asphalt Concrete	Surface Treatment	Gravel	Earth	Total
Magistral, km	249	551	18	3	0	821
%	30.3%	67.1%	2.2%	0.4%	0%	
Republican, km	38	2,107	121	249	0	2,515
%	1.5%	83.8%	4.8%	9.9%	0%	
Local, km	42	2,393	343	2,721	517	6,016
%	0.7%	39.8%	5.7%	45.2%	8.6%	
<b>Total, km</b>	<b>329</b>	<b>5,051</b>	<b>482</b>	<b>2,973</b>	<b>517</b>	<b>9,352</b>
%	3.5%	54%	5.2%	31.8%	5.5%	

Source: State Road Administration

The section above provides a clear view of the dilemma faced by policy makers. The current road network is adequate in relation to the land area as well as population density of the Republic of Moldova, but it is more than the country can currently afford to maintain. In part, this is because many of the materials for the road sector have to be purchased at world market prices.

## 2.6.2 Road network in the DRS

The DRS is served by a number of magistral and republican roads, which make up the backbone of the region's road network. The function of these roads is to provide for international and inter-regional traffic.

Regional and local connectivity is provided by "local" roads administered by the State Road Administration, as well as roads in the ownership of local public administrations.

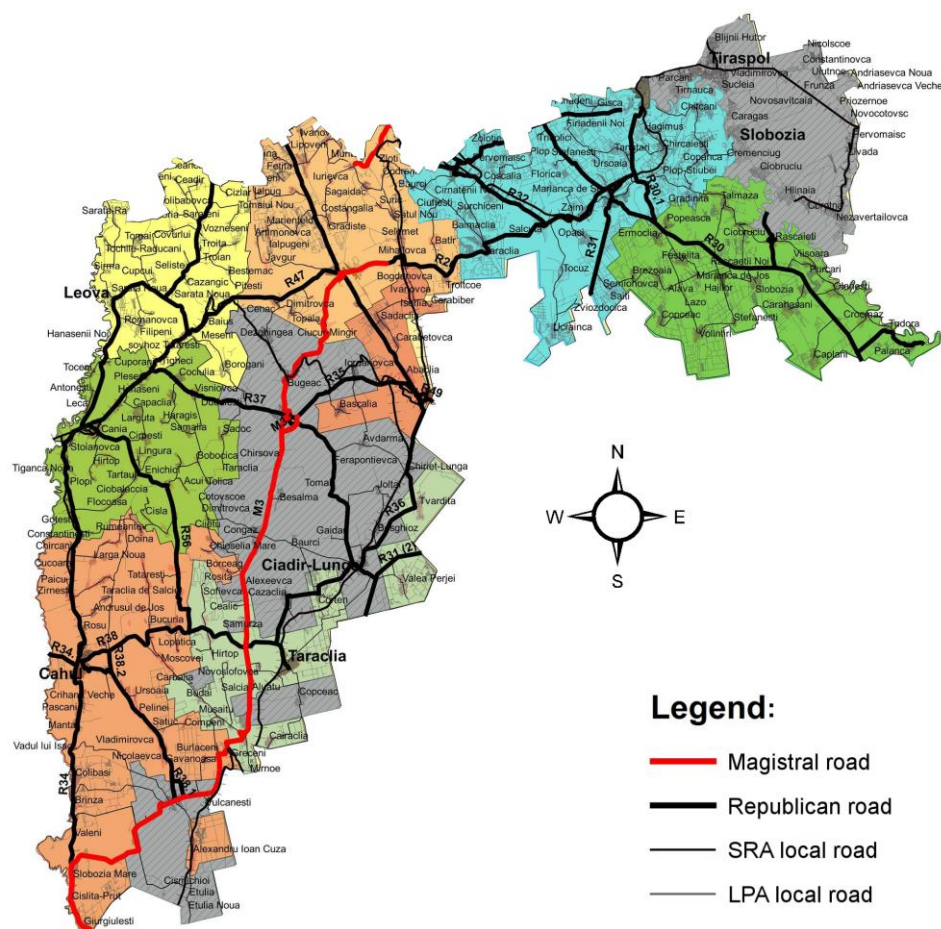
In DRS are about 2,091 km of roads that are being administered by the SRA and an estimated 10,812 km of roads, paths and streets under LPA ownership. In total about 12,903 km of roads and streets as well as about 424 km of railway tracks provide connectivity and accessibility in the region. The table below presents further detail on the transport infrastructure in the region. Figure 2-6 below presents the road network in Development Region South.

**Table 2-4: Length of SRA road network by surface type in DR South, 2013**

Status	Concrete	Asphalt Concrete	Surface Treatment	Gravel	Earth	Total
Magistral, km	0	71.03	13.33	2.32	21.50	108.18
%	0%	65.7%	12.3%	2.1%	19.9%	
Republican, km	0	575.46	39.07	66.99	0	681.52
%	0%	84.4%	5.7%	9.8%	0%	
Local, km	2.58	381.02	104.4	646.5	166.9	1,301.4
%	0.2%	29.3%	8.0%	49.7%	12.8%	
<b>Total, km</b>	<b>2.58</b>	<b>1,027.51</b>	<b>156.8</b>	<b>715.81</b>	<b>188.4</b>	<b>2,091.1</b>
%	0.1%	49.2%	7.5%	34.2%	9%	

Source: State Road Administration

**Figure 2-6: DRS road network**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

**Table 2-5: DRS transport infrastructure**

Type of road	Length (km)	Other indicators	No
Magistral roads	108.18	Bus routes	32
Republican roads	681.52	Bus stops	181
Local roads - SRA	1,301.4	Rail stops	35
Local LPA roads*	10,812.4	Bridges	221
		Culverts	708
Total	12,903.5	Petrol stations	93
		Border-crossing points	24 <sup>32</sup>
		Hospitals, medical centres	37

Source: Project “Modernization of Local Public Services in the Republic of Moldova”

<sup>32</sup> Based on Geographic Information System (GIS) data / geospatial location information obtained from the State Road Administration and open sources as [www.geofabrik.de](http://www.geofabrik.de)

Note: Current road lengths are rough estimates which accuracy will be refined at a later stage; other information such as mini-bus routes and stops is absent due to lack of sources

### 2.6.3 Connectivity

The DRS has direct connection with the European Union and Romania through the following border-crossing points: Cahul-Oancea and Giurgiulesti-Galati, including a rail-crossing point Cantermir-Falciu. To the east, the DRS is connected with Ukraine through the following border-crossing points: Palanca-Maiaki Udobne, Tudora-Starokazacie and Unguri-Bronnita (rail).

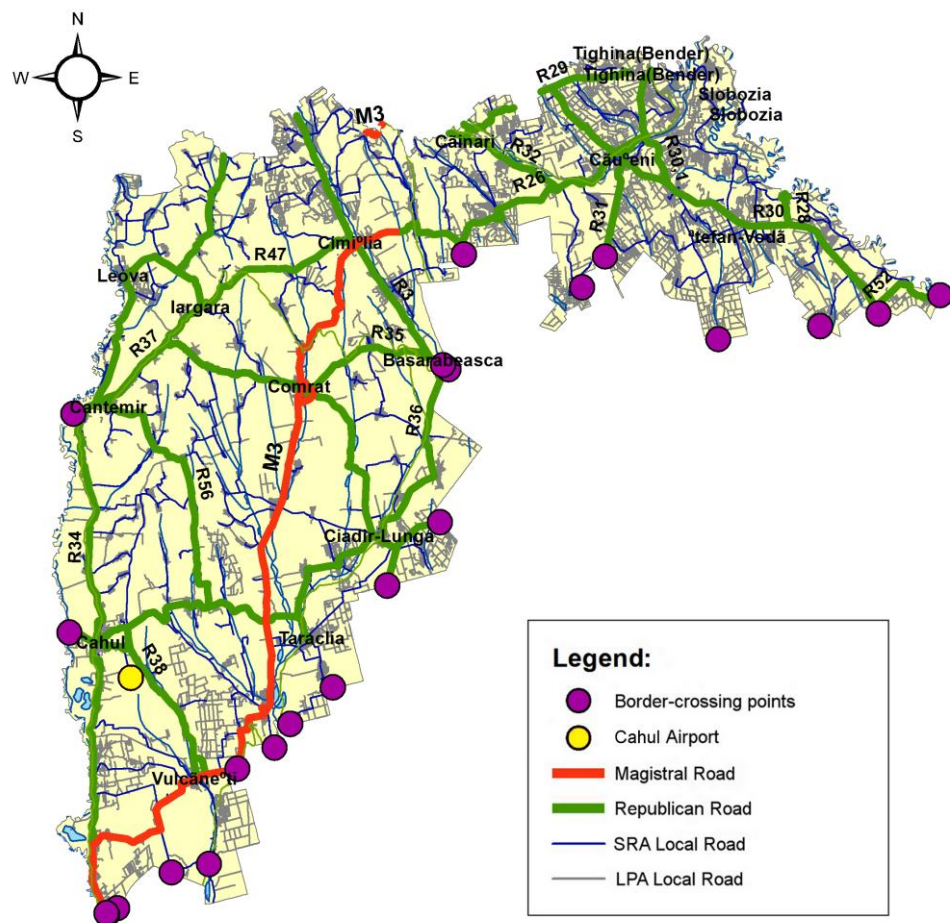
To the north-east, DRS is connected to the Development Region Transnistria through the town of Bender and by the Rascaleti and Chiscani bridges over the River Nistru. To the north, the DRS is connected with the DRC by an international road (the M3 Chisinau-Giurgiulesti) and also by many public and local routes, including: the R30 Chisinau-Stefan-Voda, the R3 Chisinau-Basarabeasca and the R34 Chisinau-Cahul.

The DRS has access to the Black Sea through the international port of Giurgiulesti, and is connected with international sea routes. The minimum distances from the region to main cities are: Chisinau – 30 km; Iasi, Romania – 70 km; Galati, Romania – 20 km, Constanta, Romania – 160 km, Odessa, Ukraine – 50 km, and Istanbul, Turkey – 600 km.

The component rayons of the DRS are parts of various Euro-regions. The rayons of Cimislia, Leova, and Basarabeasca are members of the Siret-Prut-Nistru Euro-region; Cahul and Cantemir are members of the Lower Danube Euro-region; and the rayon of Cahul is the only in the DRS that is a member of the Black Sea Euro-region. The participation in Euro-regions offers greater opportunities for social and economic development of the DRS, and bringing the Republic of Moldova closer to EU, in general.

Furthermore, the local and regional roads provide connectivity through a large number of road border crossings, some of which are only to be used by local inhabitants and therefore may be of importance for local life. The border crossings are marked out on the map below for information and as can be noted, not all are on magistral or republican roads with some on roads of local and regional significance.

**Figure 2-7: State border crossing points, air and land checkpoints in the DRS**

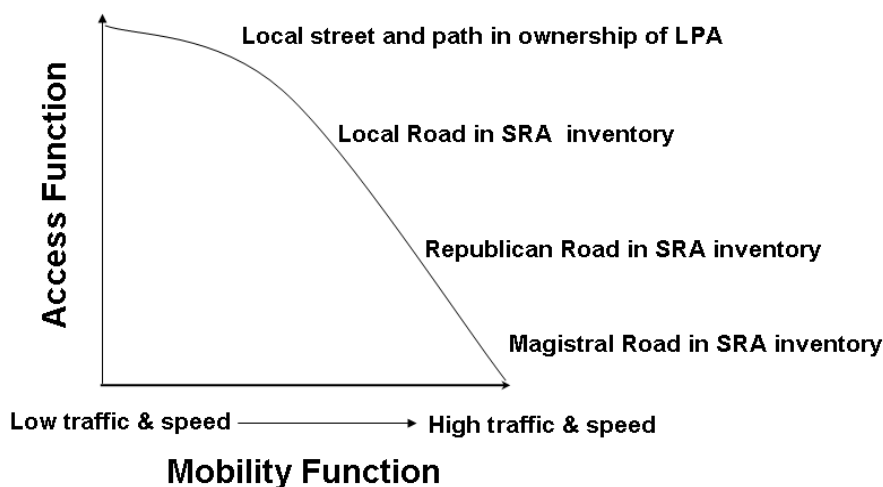


Source: Border Police of RM

### Definition of regional and local roads

As outlined above magistral and republican roads provide for international and inter-regional connectivity. The figure below provides an overview of the relationship of the two most important functions fulfilled by roads. On the one hand roads provide access to destinations such as an individual home or business and at that local level are characterized by low speeds and low traffic volumes. On the other hand international and interregional roads provide mobility over longer distances and higher speeds. To accommodate both types of traffic roads are constructed to varying standards.

**Figure 2-8: Relationship of access and mobility function**



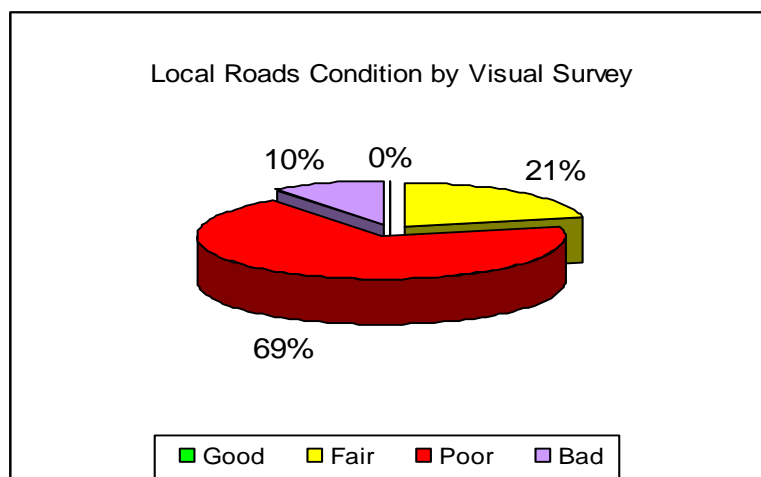
Source: Project “Modernization of Local Public Services in the Republic of Moldova”

This RSP focuses on regional and local roads that provide accessibility and connectivity on a regional and local level. Therefore, in the framework of this RSP, regional and local roads are considered those roads which have the best impact on regional development, simultaneously satisfying the needs and interests of maximum population by connecting to the national road network and other relevant (regionally) infrastructure. RLR corridors can consist of any combination of roads (local, national, streets, paths), operated by any administrator (LPAs, SRA), which can be located within the border of a rayon, be inter-rayonal or even inter-regional, as long as they best serve the principles of regional development, as defined in the national and regional development strategies.

#### 2.6.4 Road condition information

In 2012 a survey was carried out on a selection of “local” roads in the Republic of Moldova, resulting in the assessment that only 21% of local roads are in fair condition.

**Figure 2-9: Local roads condition, 2012**



Source: State Road Administration

The general public perception of a good road is one that provides a smooth / comfortable ride. Obviously the perception of “smooth” is somewhat subjective. In order to give the ride quality of a road a more quantitative component, a measurement system called “International Roughness Index” (IRI) is used. The IRI is an index based on the measurement of road roughness. Using varying measurement techniques the condition of a road ranges from an value of <4 equivalent to “good”, 4 to 6 “fair”, 6 to 8 “poor”, and >8 “bad”. The numbers reflect the measured conditions while the terms used give an indication of qualitative condition.

In the cycle of maintaining a road, however, these measurements also provide guidance on when to carry out what type of maintenance activity. For example a road with an IRI of 3 or 4 requires limited intervention, while a road with an IRI of 5 or 6 requires a rehabilitation or pavement overlay. It should also be understood that each road “cycles” through roughness stages implying that even in the best maintained road network there is a certain percentage of “poor” roads.

When the participants of the first RSWG were asked about their impression of local roads in their region, they described it as: “not satisfactory”, “uncomfortable”, “lacking of safety”, “slow”, “high vehicle costs”, “poorly controlled and maintained”.

In following up to what led to these conditions the participants stated the following reasons:

- Lack of finance;
- Infrequent maintenance;
- Lack of suitable modern equipment;
- Poor design;
- Poor construction quality and materials;
- Poor / zero maintenance planning;
- Low technological standards;
- Seasonal extremes;
- Land-use / agriculture impact;
- Increasing loadings.

### **Typical damages to local roads**

Given the reasons stated above typical damages can be found on local roads, which include:

- Potholing;
- Other surface deformations, such as cracking, rutting, ravelling;
- Inadequate drainage;
- Former paved road disintegrating to gravel;
- Bridges and culverts not cleaned resulting in temporary flooding after heavy rains;
- Deformation of road bed by overloaded vehicles.

The deterioration of local roads has led to situations where former all-weather roads have declined to a condition where they cannot be used year round. After even medium rainfall events several “local” roads become impassable, cutting off the only access



to localities. This comes with consequences such as children not being able to attend school or having no access in case of emergency.

Examples of typical damages to local roads are shown in the following figure below.

**Figure 2-10: Damage to local roads**



*Source: Project “Modernization of Local Public Services in the Republic of Moldova”*

#### 2.6.5 Existing road users

Roads in the Republic of Moldova are important for their users due to the absence of viable alternatives and thus perform an important task. According to official (NBS) data, roads account for at least 96% of passengers using public transport in the Republic of Moldova. The figure reduces for passenger kilometres because of the impact of air travel. Nevertheless, 73% of passenger kilometres are by road even allowing for the lack of private car travel data.

Workshop participants from DR South identified the purpose of local and regional roads in their communities as the provision of transport of goods and passengers, tourism, connection of public institutions, multimodal connectivity, connection localities-region, as well as to sport, business, health care and agriculture facilities.

## Vehicle Fleet

The table below provides an overview of the vehicle fleet in the Republic of Moldova, broken down by development region and type of vehicle. As can be noted, the totals of the regions do not add up to the country total, as Chisinau municipality and ATU Gagauzia are not included in the table.

**Table 2-6: Number of vehicles by type and region, January 2014**

Type	Total country	DR North	DR Centre	DR South
Motorcycle	32,731	9,173	10,126	7,225
Passenger car	478,418	118,967	105,607	56,693
Trucks	165,292	42,916	46,702	19,570
Bus	21,344	4,800	4,522	2,392
Trailer	46,229	11,806	13,128	9,288
Semi-trailer	14,568	3,434	3,122	1,474
Tractor	33,727	8,670	9,641	9,938
Other	2,215	331	533	377
<b>Total</b>	<b>794,524</b>	<b>200,097</b>	<b>193,381</b>	<b>106,957</b>
Population, persons	3,557,634	994,844	1,060,409	536,008

Source: Centre for State Information Resources "Registru"

## Car ownership rate

Private car ownership rate / motorization rate in the DRS is about 10.5 passenger cars per 100 inhabitants which is less than half of Chisinau municipality where it is around 23 passenger cars per 100 inhabitants. The national average (excluding Transnistria for which car ownership data is incomplete) is almost 14 passenger cars per 100 inhabitants. This is low by international standards, with, for example, the level of ownership in Romania reaching 20 passenger cars per 100 inhabitants while in some EU member states it is as high as 60 passenger cars per 100 inhabitants.

Of the three development regions, DRS has higher car ownership than DRC, but lower than DRN. All but two rayons in DRS have car ownership rates of at least 10 passenger cars per 100 inhabitants. The lowest value within the region is for Cantemir rayon with 8.3 passenger cars per 100 inhabitants. The highest is 11.9 cars per 100 inhabitants for Taraclia.

In spite of low car ownership figures by international standards, the private car may play a disproportionately large role in comparison to the number of cars available in remote areas without a regular bus connection. Some settlements are many kilometres from the main road and hence from bus stops, its inhabitants having to walk or catch a ride with someone driving in the same direction.

## Bus, minibus and taxi services

For many Moldovans, given the low car ownership figures (see above) road travel consists of bus, minibus travel, use of taxis – formal and informal – and walking.

Interurban bus services are provided on a regular basis by six major intercity bus stations in Chisinau municipality and 37 rayon bus stations within the country. Currently,



about 3,000 national and about 200 international routes are registered. More than 21,000 buses and minibuses are registered, of which 2,392 are registered in the DR South. At the same time, there are 181 bus and minibus stops, 32 bus and minibus routes and 35 rail stops in the region.

More than 95% of minibuses involved in passenger transportation are more than 10 years old, and were often imported and registered as goods vehicles. These vehicles were retrofitted with seats and used in passenger transportation. This poses a severe safety risk to the travelling public.

The decision-making authority is represented by the Road Transport Development Department within MTRI, which proposes tariff rates to be approved by Government. The department's activity is also focused on passenger transportation policy and continuous overall monitoring of public road transport.

### **Other road users**

In addition to the above discussed motor vehicle road users, there are a number of categories of other users that depend on roads. These may be, for example, agricultural users (tractors and horse drawn carts), cyclists and pedestrians. These users, especially in an environment where private car ownership is low, are significant road users which have little impact on the road themselves.

However, most of these users, especially pedestrians and cyclists, are also considered to be "vulnerable traffic participants" that are disproportionately affected by traffic safety issues.

## **2.7 Social and gender issues**

This section provides an overview of some issues on gender in transport, as well as related transport projects. The issue of taking account of gender in transport is a fairly recent one in all countries. As we know the systematic and continuous promotion of equal opportunities and gender is also a relatively new concern for the Republic of Moldova. The national legal framework affirms the equality between women and men and does not contain discriminatory rules. However, in regards to participation in economic and social life, there are often inequalities in practice.

As described in the World Bank's document "A toolkit for making Road Infrastructure Projects Gender responsive", for example, the travels of men are often centred on employment; thus, they tend to value speed, reliability, and road safety. On the other hand, women tend to engage more in non-work, off-peak travel, visiting a more diverse set of locations using more complex trip patterns or engage in trip chains. This means that when they travel, they tend to have multiple purposes and multiple destinations within one "trip", such as shops, market, schools, health centres, and childcare facilities. Hence, unlike men, women tend to value flexibility over time savings in their travel choices. Therefore, women require low-cost, reliable, consumer-friendly, flexible, door-to-door service with many route options to meet their needs.

Unequal opportunity in the transport sector is determined by different factors related to prejudice and negative stereotypes, to gender roles in the family and society, lack of attractiveness of activities in urban and rural area, etc. as follows:

- Role of household chores, mainly carried out by women: women not only have to take care of domestic chores, children, elderly relatives and the sick, but also participate in productive activity;

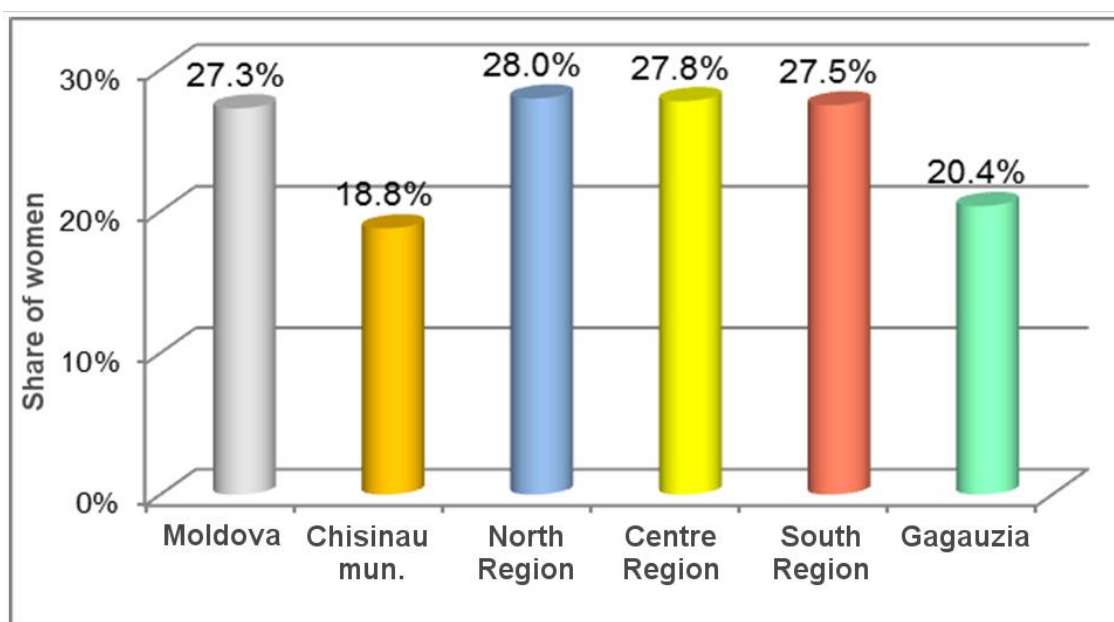
- Some of the constraints that Moldovan women face in the economy are linked to cultural traditions and prejudice;
- Owning or using vehicles / holding a driving license: Leaving aside the question of whether female driving licence holders actually own a vehicle and drive, there are significantly less female drivers in comparison to male drivers in the Republic of Moldova (see Table 2-7 below). It can be assumed that public transportation is more important for women than for men;
- Unequal participation in decision-making (see Figure 2-11).

**Table 2-7: Number of male and female drivers by class of license, January 2014**

Main categories of driving license	Type of vehicle	Gender		Total number of drivers
		Male	Female	
B	Cars	286,111	190,882	476,993
B,C	Cars and trucks	123,914	1,933	125,847
A,B,C	Motorcycles, cars and trucks	79,889	688	80,577
A,B	Motorcycles and cars	69,066	10,509	79,575
	Total	558,980	204,012	762,992

Source: Centre for State Information Resources "Registru"

**Figure 2-11: Share of women in local and municipal councils formed<sup>33</sup>**



Source: Project "Modernization of Local Public Services in the Republic of Moldova"

As the transport sector is one of key enablers of economic growth and transition, hereafter some important reasons are highlighted for making road infrastructures more gender responsive:

<sup>33</sup> After the 2011 local elections

- Improving road conditions to increase mobility, accessibility of basic services (clinics and hospitals, market, schools, employment, etc.), and safety (i.e. prevention of accidents and flooding) etc.;
- Equal participation and opportunity in decision making bodies including in road structures;
- The availability of areas for walking and intermediate modes of transport in addition to areas for motorised vehicles will enable women to perform their multiple roles and, therefore, satisfy their practical gender needs;
- Elimination of stereotypes and discouragement against women;
- Promotion of equal access of women and men to employment and basic services;
- Promote and increase participation of women in policy formulation, decision-making, planning, implementation, operation and maintenance activities in the infrastructure sector.

## 2.8 Road sector financing

The following section summarizes the currently available funding sources in the road sector, both for rehabilitation as well as road maintenance. In addition, rough cost estimates are given for works that might be needed in the RLR sector.

### 2.8.1 Road Fund

The Republic of Moldova has since 1996 an established Road Fund that collects money on the sale of fuel, as well as on vehicle registration fees and others. From 2009, onward the Road Fund (RF) increased considerably from MDL 249 million to MDL 1.22 billion in 2013. About 85% were allocated to maintenance and 15% for rehabilitation measures for the various classes of roads.

The table below summarizes the RF allocation over previous 6 years. It has to be noted that data on rehabilitation of local roads for 2013 is missing due to lack of available information.

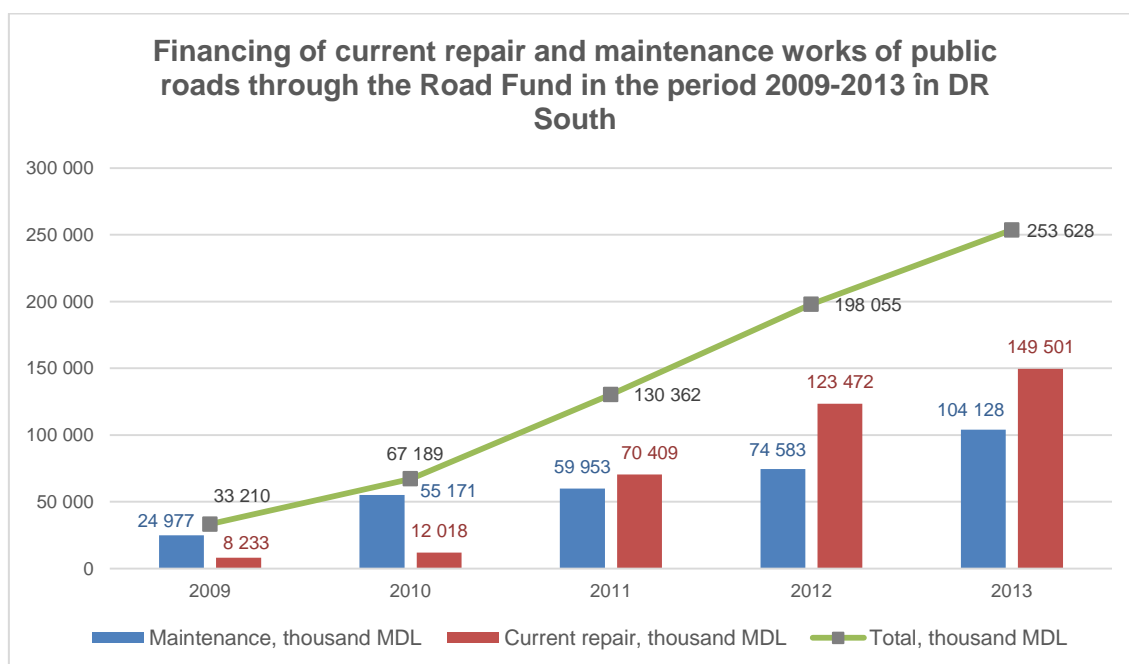
**Table 2-8: Dynamics of Road Fund financing period 2008 - 2013, million MDL**

Road Fund Year	Total	Maintenance		Rehabilitation	
		National	Local	National	Local
2008	195,000	81,800	28,800	44,200	35,200
2009	248,910	121,570	62,180	5,960	25,120
2010	582,980	252,780	124,870	61,570	31,370
2011	787,984	403,600	191,990	89,890	28,050
2012	1,033,300	579,129	287,733	54.65	28.92
2013	1,164,500	640,169	389,143	103,547	0

Source: Transport and Logistic Strategy

The government does not report allocations to roads by locality, nor is any planning of roadwork carried out on the basis of fixed allocations per geographic region. The allocations are based on needs as established.

The dynamics of the annual Road Fund distribution for financing of current repair and maintenance works of public roads in the DR South during the period 2009-2013, is presented in the bar chart below, showing a robust increasing trend of funding:

**Figure 2-12: Financing of current repair and maintenance works of public roads<sup>34</sup>**

Source: State Road Administration

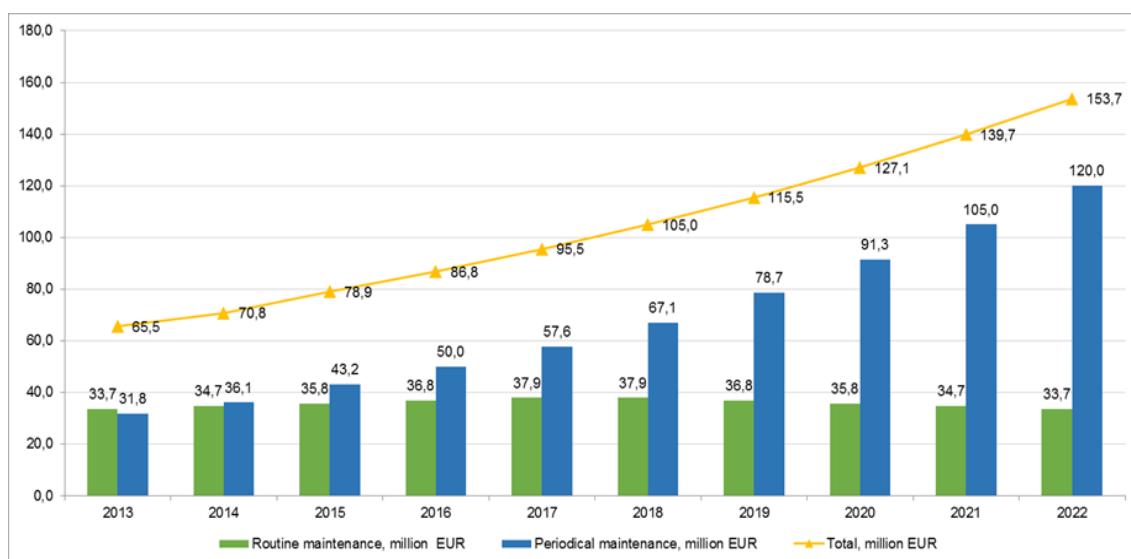
After years of underfunding the road sector has now access to substantial amounts of domestic funds that are predictable and continue to be adjusted to inflation. Therefore, if spending is carefully targeted, users of primary roads should notice a difference in quality, while the reduction in maintenance costs for existing roads due to savings should make funds available for local roads.

### 2.8.2 Future levels of road sector financing

During the recent years progress has been made in the rehabilitation of the priority national road network for which financing has been secured from the International Financial Institutions (IFIs) such as EBRD, EIB, MCC and the EC. In addition, the current and projected funds for road maintenance have been increased considerably, from the inadequate levels of the 15 years through 2009 to a more realistic level in 2014. In accordance with the Transport and Logistic Strategy, the road maintenance funding will have to be further increased to stay on the projected path to long term sustainability for road maintenance in the Republic of Moldova and is shown in the Figure 2-13 below.

As can be seen from the graph, the road maintenance financing both for national and local roads (9,353 km) is expected to increase from EUR 71 million in 2014 to EUR 127 million equivalent in 2020.

<sup>34</sup> In DRS during the period 2009-2013

**Figure 2-13: TLS projected fund allocation for road maintenance for years 2013-2022<sup>35</sup>**

Source: *Transport and Logistics Strategy*

### 2.8.3 National Fund for Regional Development

The National Fund for Regional Development, as a distinct part of the State Budget, is managed by the MRDC and was established for financing and implementation of projects and programs for regional development included in the Single Programming Document (SPD). The SPD is a short-term (3 years) governmental programming document drafted on the basis of regional development strategies and regional operational plans that includes priority programs and projects for regional development. The SPD 2013-2015 envisages in total 62 infrastructure projects for the three DR, out of which a total of 16 for DR South, including 7 specifically for roads.

The implementation of the regional operation plans (short-term - 3 years) and regional development strategies (medium-term - 7 years) are carried out by Regional Development Agencies directly subordinated to MRDC.

The approval, promotion and coordination at the national level of objective for regional development are undertaken by the National Coordination Council for Regional Development. It also establishes and monitors the implementation of criteria, priorities and procedures for financial resources allocated from the NFRD.

### 2.8.4 Other financing

#### Local Public Administrations

Individual rayons receive 50% of vehicle registration tax for vehicles registered in its jurisdiction. LPA 1 and LPA 2 can use the allocated money for the maintenance and repair of local roads.

<sup>35</sup> The periodic maintenance amounts are also planned to compensate for accumulated maintenance funding gap, which leads to significant damage of the road network, thus these amounts will also include repairs/rehabilitation of roads where scheduled periodic maintenance has been postponed and road conditions have further deteriorated, hence gradually closing the periodic maintenance gap to reach sustainable road maintenance

## External Financing

In the recent past several external International Financial Institutions (IFIs) have approved grants and loans for the rehabilitation of road projects in the Republic of Moldova. Most recent examples are the loans issued by EBRD and EIB for the rehabilitation of major portions of the magistral and republican road network.

### 2.8.5 Financing of maintenance work

As mentioned, road works in the Republic of Moldova are financed in accordance with the Road Fund Law No 720-XIII of 02.02.96 and Regulation on Establishment and Use of Road Fund No 893-XIII of 26.06.96. The annual amount of funds for road repairs and maintenance of public roads is approved by the Parliament of the Republic of Moldova. The use of these funds follows a work program developed by the MTRI. According to SRA, currently the basis for medium and long term planning is the Transport and Logistics Strategy (TLS) approved by the Government Decision No. 827 on 28.10.2013. Budget planning is conducted based on overall network condition, as well as intervals between two consequent repairs (capital and periodic). Funds are allocated by rayon for repairs and maintenance of the road network and based on the length of road in given rayon.

Works are defined in accordance with "Departmental instructions of classifying and defining reconstruction, repair and maintenance works on public roads of the Republic of Moldova, financed from Road Fund", and approved by MTRI ordinance, No. 01/226 of 18.08.1999. Please see Annex 1 for further information.

### 2.8.6 Implementation of road projects

There is an extensive process to take even a simple road project from its inception to actual implementation, requiring up to 13 different approval steps with associated stamps and signatures. In addition, there are no clear and strict requirements for the content of feasibility studies though generally, the chapters cover "Route plan; Longitudinal profile; Pavement; Drainage system; Bridges; Cost estimates (Basic bill of quantity); Economic efficiency calculation; Environment". The process is represented schematically in Annex 2 to this Program.

As already described in the Legal Framework chapter under the headline "Environmental Legislation" there are substantial environmental protection requirements to be met under the national legislation even in the case of relatively small projects.

## 2.9 Key issues and risks in the development of regional and local roads

The outcome of the current process as supported by the preparation of the Regional Sector Programs is aimed at a clear and transparent methodology for selection of regional and local road projects. Furthermore, the process is expected to result in the development of a number of projects that will be proposed for financing by IFIs and other financial sources following competitive tenders.

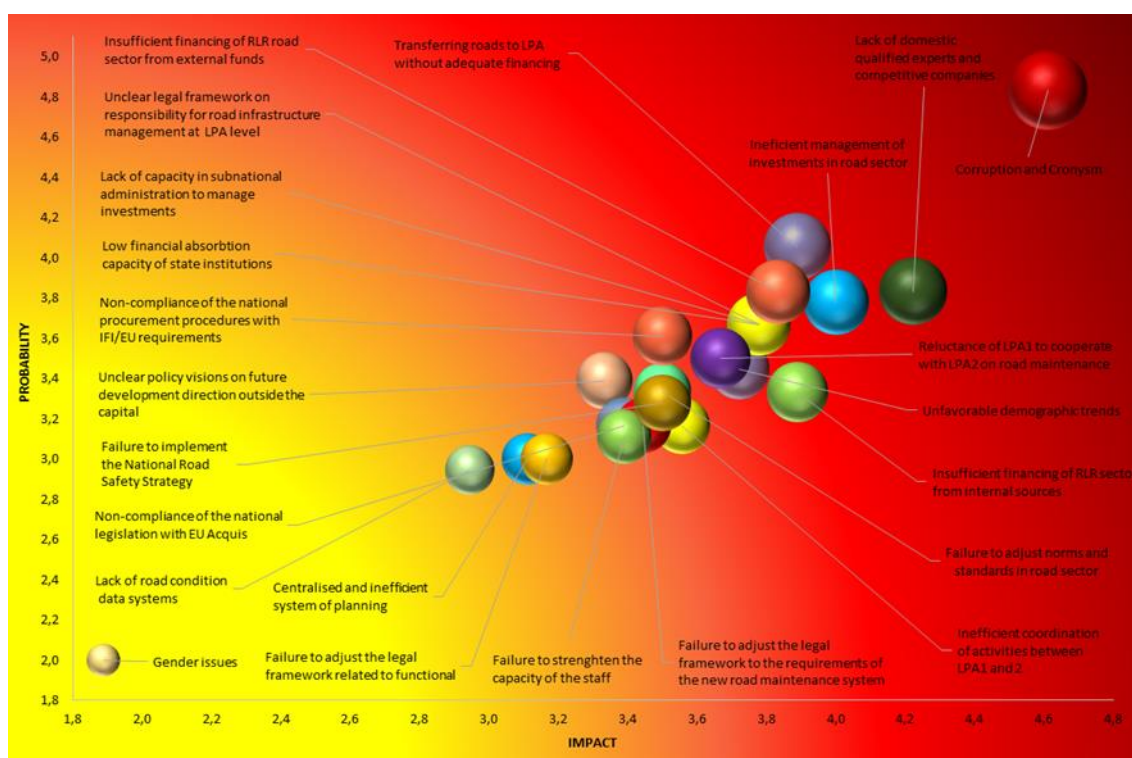
In order to assess potential risks to achieve in RLR sector, a risk assessment was carried out with the RSWGs. In total, the RSWGs accepted and assessed 23 sector specific risks, split into four main categories:

- Policy and legal;
- Institutional;
- Financial;
- Economic and social.

The internal risks were considered at the level of RDAs, LPAs, population etc., as well as the external risks referring to the national (sector ministries and higher) and international levels. Annex 7 presents more details on the risk assessment.

A quantitative risk assessment was carried out based on calculations of two components of risk: the magnitude of the potential loss (impact, 1 – low, 5 – high), and the probability that the loss will occur (1 – low, 5 – high). A summary sector risk assessment chart is shown in the figure below.

**Figure 2-14: Summary of the RLR sector development risk assessment**



Source: Project "Modernization of Local Public Services in the Republic of Moldova"

As shown in the figure above, the highest risks in RLR sector are associated with lack of domestic qualified experts and competitive companies for carrying out road rehabilitation projects, financed by IFIs. The corruption and cronyism is another major constraint that has an adverse impact on contracts price, timing and quality of works.

The RLR sector is also facing a constant issue related to management of road sector investments by state institutions resulting in delays in planning / financial procedures, duplication of activities, unwanted competition between ministries and between local public administrations.

The main constraint and risk in achieving the national, sectorial and regional objectives in RLR sector is related to limited volume of internal and external investments in RLR sector.

In the context of decentralization, some important local roads will be reclassified as regional roads and the remainder will be transferred to LPA 2. The potential risk with high probability of occurrence is associated with unwillingness to transfer the respective roads together with appropriate amount of financial resources that may result in future

road investments at LPA level being unsustainable both from institutional and financial perspectives.

The lack of a clear legal framework on responsibility for road infrastructure at the LPA level is another issue that, if not solved, some roads would end up being neglected due to lack of clarity of who is really responsible for their maintenance.

In addition, a key risk to the possible financing by IFIs will be the inability of LPAs to demonstrate the effective administration of funds to operate, maintain and rehabilitate roads. Strengthening LPAs capacity is important to ensure the sustainability of investments.

A further risk is the fact that, the scale of the task to repair the priority local roads is of great magnitude. Even if finances were not a limiting factor, there is currently not enough capacity in the construction sector to carry out such a large reconstruction program.



### **3 Vision and objectives for RLR sector development**

This Chapter describes the vision and objectives that were identified based on the existing legal, strategic, and policy guidance as well as the input from the participants of the RSWG.

#### **3.1 Future policy directions**

##### **Strategic Policy outline of the Government of Moldova**

The Republic of Moldova ratified the Association Agreement (AA) with the European Union (EU) on 2 July 2014. The Association Agreement means a significant step forward in the direction of European Integration and has significant implications for the economy. In addition to the AA, there is the Deep and Comprehensive Free Trade Agreement, which promises unrestricted duty free access to the EU market, subject to compliance with standards in force.

The AA has the potential to transform the Moldovan economy if enterprises are able to access their potential markets in such way that they can compete against imports and are strong enough to compete in key export markets. The Government underlined the importance of connectivity in the Transport and Logistics Strategy by stating that:

- The share of agricultural employment in the economy will continue to be significant, but a gradual industrialisation may take place along the development corridor, mainly based on manufacturing for assembly elsewhere;
- The transport services sector will gradually gain importance as an economic factor.

In addition to the economic dimension of road infrastructure, there is a large social component to the provision of road connectivity. Year around, all weather connectivity is important for large parts of the population, even those that are not economically active, in order to avoid or reduce social isolation.

With the approval of the Transport and Logistics Strategy, the Government of the Republic of Moldova has reaffirmed its commitment to the provision of adequate infrastructure to the population by stating that:

- The population of the Republic of Moldova has the right to adequate infrastructure on the entire territory of the country;
- The transport system, in its entirety, should benefit all segments of society, independent of the transport mode.

The Government has reiterated this commitment by outlining in its 2014 Action Plan the commitment to rehabilitate 700 km of local road and to improve access to schools and hospitals in towns and cities from adjacent localities to reduce the possible impact of school and hospital rationalisation which is ongoing and provide better access to market for the agriculture sector.

In addition, as road safety in the Republic of Moldova has been found in need of improvement, the Government made the commitment to aim for a specific target by indicating that:

- Transport safety, across all modes shall be improved so as to meet at least the level of the new EU Member-States by 2022.

Furthermore, as described in Chapter 2 above, both the National and Regional Development Strategy recognise the importance of roads in the context of regional development. Without setting too specific targets, each of these documents recognises the need to improve regional and local roads to boost development.

Thus, it is clear that the Government of Moldova is committed to provide safe road infrastructure at all levels in order to support both economic development and social inclusion.

### **Principles underlying the Program**

In the guiding documents are outlined some limitations and conditions that shape what can be done in terms of road infrastructure investment and under which condition these investments can take place. These are expressed in the TLS as the following core principles:

- Legal, institutional and regulatory reform shall precede capital expenditure to ensure that investments are sustainable and achieve their envisaged return for society;
- Infrastructure projects shall be subject to environmental legislation in force;
- In case of capital investments in infrastructure, their feasibility costs should be taken into account;
- Investments in maintaining the existing infrastructure has priority over new infrastructure investments.

The Government provides additional clarity about its intentions in the document “European Integration: Freedom, Democracy, Welfare” that lays out a framework for Moldovan governing policies for 2011-2014. In particular it outlines that in the area of local roads, it is important that there is focus on:

- Ensuring sustainability of medium-term capital investments and contribute to building financial capacities of local authorities, mainly in order to maintain the local road networks.

Thus, in principle no new infrastructure should be constructed and before any investment is made, it is necessary to ensure that legal, institutional and financial deficiencies are addressed to ensure that long term sustainability of the investment is provided for.

The principles described above are considered in the sector planning and programming process, as well in the projects’ identification and implementation phases, ensuring an appropriate framework for developing the Program’s activities.

### **3.2 Vision**

An important aspect of this Program is that it should reflect the views and needs of stakeholders at LPA level. These stakeholders are, for practical reasons represented by the Regional Sector Working Groups (RSWG) and it is therefore important that their vision is taken into consideration during the preparation process of the RLR RSP.

Such a vision for RLR sector was formulated in a participatory process by the RSWG of DR South at the Workshop held in July 2014. During the vision development exercise, the strategic directions and objectives of the sector at the national and regional levels as well as the three dimensions of sustainability (economic, social and environmental) were taken into account. Subsequently, the following vision declaration was formulated by RSWG from DR South:

“The RLR network will become a modern and sustainable road infrastructure that will ensure an efficient transport system, safety and comfortable traffic conditions contributing to economic development of the region having a minimum adverse impact on the environment”.

This declaration emphasises the utmost importance of an efficient road infrastructure at the regional and local level that entails reduced vehicle operation costs, time savings by travellers and freight, reduction in road accidents, better connectivity within and between the regions, facilitation of access to schools, health centres and administrative institutions, market etc., contributing to economic development of the region with less harmful impact to the environment.

### 3.3 Objectives and targets at the national level

Roads are essential for the movement of goods and people in a modern society. As described earlier, the Republic of Moldova is served by a sufficient amount of road infrastructure. However, the condition of the roads is a key challenge. Roads in good condition will ensure access to market, health and educational facilities and other services and therefore lead possibly to increased regional development. In addition, bad roads cost additional money to those that have to use them through longer travel times as well as the wear and tear on the vehicles as outlined in the analysis provided by the National Development Strategy and the view of stakeholders discussed above. Therefore, the overall objective of this Program is as follows:

- To provide sustainable, safe and cost effective year around road connectivity in the regions, in order to support their development and to increase the welfare of the population.

In addition to the objective of providing year around access, improvement of road safety, the Government of the Republic of Moldova has indicated its commitment in Resolution 64/255 of the UN General Assembly “Decade of Action for Road Safety 2011-2020” to reduce the number of deaths caused by road accidents per million population by 50%, from 120 in 2010 to 60 by year 2020.

The review of the legal, strategic, and policy framework presented in Chapter 2 led together with the input of stakeholders to the following list of identified problems and specific objectives to be addressed on the national level. The table below presents the objectives established in the sector strategic documents, relevant for the implementation of the Program of RLR sector development at the regional level.

**Table 3-1: Objectives at the national level**

Problems	Specific objectives	Timeframe for implementation	Source
Insufficient funding for the repair and maintenance of local roads	Proper repair and maintenance of local roads	2022	TLS
The need to develop continuously the management	Continue the implementation of the Action Plan implementing the reform of	2017	TLS

Problems	Specific objectives	Timeframe for implementation	Source
capacity of the public roads maintenance system	the public roads maintenance system		
Number of road accidents is very high in Moldova	Reduce the number of road accidents	2020	NSRS
The system of planning the local roads repair works is centralized and inefficient	Increase the efficiency of the system of planning the local roads repair works	2018	TLS

### 3.4 Objectives and targets at the regional level

Based on the overall objective and the vision discussed above, it is possible to formulate the specific objective for the RLR Regional Sector Program. Key to this is the need to ensure sustainability of the investment, which includes providing for the proper maintenance of the road infrastructure once it has been constructed or rehabilitated.

In accordance with cost estimates presented in Annex 6 and current funding levels, Republic of Moldova can afford to rehabilitate and maintain approximately 1,250 km of local road over its entire life cycle, in the short to midterm (up to 2020). The rehabilitation costs of 1,250 km of RLR are estimated at 175 million EUR or 29 million EUR per year over a six-year horizon. This quantity may be higher or lower, depending on the cost of maintenance. More cost-effective maintenance will increase this volume, possibly by as much as 25%. For comparison, the TLS and NDS “Moldova 2020” set a target of rehabilitation of the entire network of 6,000 km of local roads, which would cost approximately 1 billion EUR. Other objectives and actions from the TLS and NDS “Moldova 2020” would need to be carried out in parallel in order to achieve this target. In addition, institutional capacity at the local and regional level in particular will need to be greatly improved to manage a program of this magnitude.

The first target of the RLR program is to rehabilitate and ensure a full maintenance cycle on approximately 250 km of roads in the DR South by 2020.

Through the rehabilitation of 250 km of RLR in DRS, approximately 20% of the country-wide target will be achieved in the short to midterm. This compares to 550 km for DRC and 450 km for DRN. Total costs in the DRS are estimated at 35 million EUR over the six-year period, or approximately 6 million EUR per year.

The quantitative target above is the result of the financial constraint, though effective spending of the available financial resources is dependent on the existence of institutions that are able to effectively plan, contract and supervise both routine and periodic maintenance. Currently, these institutions are insufficiently developed at LPA level.

Therefore, the second Program target is to put into place the institutional capacity (staff, systems) at LPA level to maintain roads under their administration.

Finally, the Government is committed to improving road safety in the Republic of Moldova and a specific target of reducing the number of road fatalities by half by the year 2020 has been set. To achieve this target, more than improvement in the roads will be needed, but local and regional roads can play an important part due to the fact that these are the places where many vehicle – pedestrian / cyclist conflicts occur.

The third Program target is to integrate safety in design, operation and maintenance of local roads and a road should have, after it has been reconstructed, at least an iRAP star rating of 3.

## 4 RLR sector development directions in the DRS

The aim of this RSP is to contribute significantly to the identification and implementation of RLR projects in DRS. In order to determine the amount and length of possible projects in the region, an understanding needs to be reached on the type of improvements as well as the associated costs.

The following section presents information on cost for typical improvements in the sector. Because it is envisioned that certain roads to be rehabilitated will cross regional borders, cost information is further presented for Development Regions North, Centre and South.

### 4.1 Cost of the works in the RLR sector

In order to assess financing needs, an estimate is made in the following section of the costs of various road improvement options. These cost estimates in turn are then used to estimate possible financing needs.

#### 4.1.1 Regional and local road cost estimates

Generally construction costs of roads vary widely depending on road classification, standards, structures, location and availability of construction materials.

Due to a lack of technical data in terms of actual road conditions and required construction works, three “scenarios” were identified and cost items were compiled in a catalogue for further consideration. The scenarios hereunder focus on technical aspects only and do not refer to specific road categories or priorities. Wherever roads cross villages, safety requirements prevail and will dominate the necessary construction works, independent of the road conditions before and after the village. For illustration purposes a report about a field visit conducted on 28<sup>th</sup> May 2014 is presented in Annex 5.

The following scenarios capture the possible conditions to be found on RLR and define subsequent improvement options. Depending on the works identified and the need for detailed engineering studies, additional cost for design efforts will have to be added. Annex 6 presents further detail on cost by units and items. Cost estimates are based primarily on data received from local engineering companies as well as an international contractor currently active in the Republic of Moldova.

### Scenario 1

The road section remains in the present condition and only minor repair or maintenance works will be done. This scenario might apply to gravel roads as well as paved roads. Works cover:

- Repair gravel roads;
- Partial repair of asphalt roads, sealing of cracks and patching of potholes;
- Trench cleaning.

**Table 4-1: Scenario 1 – cost estimates**

Gravel road		
Rehabilitation and/or repair of 1 km crushed stone pavement and placing a new 10 cm layer of graded sand and crushed stone material, including shoulders and on average one culvert and five signs per km.		
Northern region	Central region	Southern region

EUR 19,800/km	EUR 19,900/km	EUR 26,000/km
<b>Average costs: 22,000 EUR per km</b>		

<b>Paved road</b>		
Rehabilitation and/or repair of 1 km asphalt pavement with sealing of cracks, patching potholes repair of curb stones, including shoulders and five signs.		
Northern region	Central region	Southern region
EUR 68,600/km	EUR 70,100/km	EUR 72,800/km
EUR 76,500/km with culverts	EUR 79,000/km with culverts	EUR 82,100/km with culverts
<b>Average costs: EUR 75,000 per km</b>		

Source: Project "Modernization of Local Public Services in the Republic of Moldova"

## Scenario 2

Scenario 2 covers necessary rehabilitation works for keeping the road section in the present type (gravel or asphalt) but improves the road condition significantly. The works to be performed are:

- Replacing the top 20 cm of gravel with improved material by adding new gravel and new mix design;
- Placing a 4-6 cm overlay on existing asphalt pavement;
- Replacing asphalt pavement by using the present one as part of the aggregates.

**Table 4-2: Scenario 2 – cost estimates**

<b>Gravel road</b>		
Construction of 1 km new crushed stone pavement by removal of existing stone layer and placing a new 15 cm sand layer plus a 26 cm layer of graded crushed stone material, including shoulders and one culvert on average and five signs.		
Northern region	Central region	Southern region
EUR 76,200/km	EUR 88,000/km	EUR 90,000/km
<b>Average costs: 85,000 EUR per km</b>		
<b>Paved road</b>		
Alternative 1: Rehabilitation of 1 km asphalt pavement with sealing of cracks, patching potholes, repair of curb stones, placing a new 6 cm asphalt layer on top, including shoulders and five signs.		
Northern region	Central region	Southern region
EUR 153,900/km	EUR 145,700/km	EUR 152,000/km
EUR 161,800/km with culverts	EUR 154,700/km with culverts	EUR 161,300/km with culverts
Alternative 2: Rehabilitation of 1 km asphalt/gravel pavement with sealing of cracks, patching potholes, repair of curb stones, placing a new asphalt layer on top with 5cm levelling course, 6 cm base course and 4 cm wearing course, including shoulders, one culvert and five signs.		
Northern region	Central region	Southern region
EUR 242,000/km	EUR 185,100/km	EUR 218,500/km
Alternative 3: Rehabilitation of 1 km asphalt/gravel pavement by placing 10 cm drainage sand, 26 cm crushed stone layer, 6 cm base course and 4 cm wearing course, including shoulders, one culvert and five signs.		
Northern region	Central region	Southern region
EUR 219,700/km	EUR 184,600/km	EUR 206,700/km
<b>Average costs alternative 1: EUR 155,000 per km</b>		
<b>Average costs alternative 2: EUR 215,000 per km</b>		
<b>Average costs alternative 3: EUR 207,000 per km</b>		
<b>Average costs overall: EUR 192,000 per km</b>		

Source: Project "Modernization of Local Public Services in the Republic of Moldova"

### Scenario 3

Scenario 3 refers to an overall road rehabilitation and upgrade on paved road conditions. This scenario will result in new road sections with revised and redesigned alignment, pavement, drainage and road inventory in accordance with international standards.

**Table 4-3: Scenario 3 – cost estimates**

Gravel road		
Construction of 1 km new gravel road with shoulders, culverts and signs, including earthworks.		
Northern region EUR 77,600/km	Central region EUR 85,700/km	Southern region EUR 86,900/km
<b>Average costs: EUR 83,000 per km</b>		

Paved road		
Construction of 1 km new asphalt road with shoulders, culverts and signs, including earthworks.		
Northern region EUR 268,700/km	Central region EUR 234,800/km	Southern region EUR 257,400/km
<b>Average costs: EUR 254,000 per km</b>		

Source: Project “Modernization of Local Public Services in the Republic of Moldova”

Depending on the existing road conditions and the related technical requirements for improvement and also depending on the anticipated future road standards the costs per kilometre vary between EUR 22,000 and EUR 254,000. The costs of EUR 22,000/km are comparable to costs for routine maintenance works on gravel roads and the maximum costs of EUR 254,000/km are required for full rehabilitation and/or upgrading of asphalt roads with new and improved alignments.

#### 4.1.2 Operating and maintenance costs

The World Bank commissioned Draft Report: “Finance and Management of Local Roads in Moldova” of 5<sup>th</sup> May 2014 estimates operational and maintenance cost for regional and local roads. The WB report sources the National Development Strategy (Moldova 2020) and the Transport and Logistics Strategy. Based on previous work in the Republic of Moldova, the following costs are quoted in Table 4-4.

**Table 4-4: Estimate of cost of routine and periodic maintenance in the Republic of Moldova**

Type of Road Surface	Length in km	Routine Maintenance EUR/km/yr	Routine Maintenance EUR/yr	Periodic Maintenance EUR/km/yr	PM freq/yr	Periodic Maintenance EUR/yr	Combined EUR/yr
Concrete	42	2,300.00	96,600.00	77,000.00	5	646,800.00	743,400.00
Asphalt	2,393	3,150.00	7,537,950.00	77,000.00	5	36,852,200.00	44,390,150.00
Bitumen	343	3,150.00	1,080,450.00	77,000.00	5	5,282,200.00	6,362,650.00
Gravel	2,721	4,300.00	11,700,300.00	38,500.00	3	34,919,500.00	46,619,800.00
Earth	517	3,850.00	1,990,450.00	38,500.00	3	6,634,833.33	8,625,283.33
<b>Total</b>	<b>6,016</b>					<b>Total</b>	<b>106,741,283.33</b>
						<b>Per km</b>	<b>17,742.90</b>

Source: the World Bank

The report concludes that in order to maintain the entire local road network under SRA inventory an amount of EUR 106 million would be needed annually. Recent figures from the MTRI indicate that about EUR 20.5 million or EUR 3,400 per km were spent in 2013 on local road maintenance from the road fund for the entire network of about 6,000 km.

## **4.2 Institutional capacity development in the road sector**

The development of institutional capacities described in Chapter 2 is based on the provisions of the current legislation. The National Decentralization Strategy approved by the Parliament of the Republic of Moldova on 5th of April 2012 is one of the main acts determining the national mechanisms in the area of decentralization and ensuring a genuine local autonomy for local public administration authorities.

Foremost, the Strategy emphasizes that asset ownership and control should be clear, and the funds for maintaining assets should be correlated to the assets. In addition, services must be delivered at the lowest possible level of administration.

Furthermore, the Strategy envisages some form of territorial administrative reform, reducing the number of units in order to increase their potential to provide services. In addition, it foresees cooperation mechanisms between local public administrations in the field of service delivery as appropriate.

The Strategy also recognises the need for capacity development to enhance the capacities to deliver services at LPA level as part of the decentralisation process.

On the other hand, the Ministry of Transport and Road Infrastructure is currently promoting a policy to address the current situation related to regional and local roads by reclassifying some key roads to national level (regional roads of national importance), while transferring the remaining to the LPA 2. No decisions are yet made and this creates some uncertainty.

Notwithstanding the uncertainty, it is necessary to move forward by addressing some of the key institutional weaknesses that have been identified in Chapter 2. In summary, these weaknesses are:

- Small contracts, resulting in higher than necessary prices due to absence of competition;
- Lack of management capacity to contract and supervise routine maintenance activities;
- An overall lack of funding to finance maintenance.

### **4.2.1 Proposed actions**

Higher than necessary prices due to small contracts appear to be interlinked with a shortage of funds. Better efficiency will reduce the shortage of funds, though it will not eliminate the shortage. As noted in the previous chapter, an inter-rayonal cooperation, possibly facilitated by RDAs, may address the issue of small contracts.

However, the legality and practicality of both options needs to be assessed before an informed decision on a future approach can be made. Therefore, it is recommended that:

- An assessment of the legality of either option is carried out from the perspective of public financial management, public procurement and legislation governing LPA administrative relations;



- Based on the assessment, discussion should be held between central and LPA level authorities, and between LPAs as to what solution may be preferred by all stakeholders;
- Agree on a future approach to maintenance of LPA roads.

Furthermore, in line with issues related to ownership and control, it is important that this was discussed and clarified in an earlier chapter. This means that at the earliest, a full inventory of all local roads under LPA is prepared and ownership and responsibility, which do not necessarily have to be in the same hands, are properly registered. Thus, it is necessary to:

- Carry out an inventory of all LPA road infrastructure;
- Agree and assign ownership and responsibility for each road to ensure that all infrastructure is covered by a responsible authority;
- Remove any legal obstacle to the proposed solution through amendments in legislation as appropriate.

Finally, based on the agreed assignment of tasks to RDAs and LPAs and the type of responsibilities assigned, it will be necessary to carry out a full institutional capacity assessment with the aim to establish training needs for staff.

Based on the established training needs, a training program must be developed and implemented to ensure the desired level of institutional capacity.

A major risk to any institutional development program has been highlighted in the National Decentralization Strategy. The small territorial administrative units do not provide a career perspective to the well-educated. This, in combination with low salaries in comparison with the private sector may lead to high staff turnover, which in turn will negatively affect the institutional capacity. This staff turnover may undo earlier progress.

#### 4.2.2 Proposed institutional set-up for RSP implementation

As introduced in Chapter 2 institutional arrangements on the national level are well developed and working. However, on the local and regional level, certain deficits exist, particularly:

- Discrepancy in relation to the responsibility for local roads administration. LPAs indicated gap between legal provisions and practical situation on ownership and responsibility for roads administration at the local level. While the Road Law states that local roads are the responsibility of LPAs, in practice they are under administration of the SRA. This legal contradiction creates some uncertainty and needs to be removed;
- Insufficient capacity for local roads management. LPAs are relatively small and have often only one or two persons that are responsible for roads in the rayon;
- Insufficient financing for local roads. LPAs mostly rely on the half of the 50% of the road user tax that they receive in accordance with the law. Unsurprisingly, even those that have additional own funding indicate that there is a significant shortfall of financial resources for road maintenance;
- Insufficient capacity in planning maintenance activities. LPAs do not have a clear maintenance plan, but routine maintenance is subject to availability of funds and

decided upon on an ad hoc basis, often involving the road maintenance company in the process of decision making;

- Insufficient competition in public procurement. Contracts are generally small, as little as from less than MDL 100,000 to a few hundred thousand MDL. Contracts are to be awarded on the basis of a competitive bidding process, though there are often insufficient bidders, or the bidders are the same in all tenders. Generally, it is believed that the limited competition caused by small and short contracts is responsible for the relative high cost of routine maintenance in the Republic of Moldova;
- Lack of inter-rayonal cooperation. LPAs would be prepared to work together to obtain lower prices, but currently there is no clear mechanism as to how this could be achieved within the financial legal framework.

Given the current situation a mechanism should be established that brings together the need of LPA 2 for sufficient resource allocation and the implementation of a planning and programming process supported by MRDC, MTRI and SRA.

The role of the LPA 2 would be to identify project proposals based on the RSP corridors, provide needed information and coordinate the proposal through the RDA. Implementation (procurement, contract supervision) of agreed upon projects should also be carried out by the LPA 2.

Figure 4-5 below presents the five key elements for a more efficient delivery of local public services.

**Table 4-5: Model of efficient local public services**



Source: Project "Modernization of Local Public Services in the Republic of Moldova"

Accordingly, the design and delivery of efficient local public services in the RLR sector rest on five pillars. First, integrated local planning and programming is essential to match the national strategies and action plans for transportation with local needs and targets. Second, overcoming the significant barriers to coherent transportation planning at the local level requires improvement in the cooperation between LPAs to define priority road corridors and transportation cells and ensure they are maintained. Third, investments are clearly needed to address the past neglect and slow pace of rehabilitation investments, as well as to provide reliable road infrastructure to ensure comfortable access to a variety of services. Fourth, increasing capacities of LPAs and service providers to plan, prioritise and maintain road infrastructure is essential to attracting financing. Indeed, the World Bank and other IFIs and donors have stated that future maintenance of roads is a precondition for their financing of road rehabilitation. Finally, public mobilisation and raising awareness are essential to the success of any planning effort and implementation of large-scale projects, as well as ensuring that RLR investments reflect local priorities.

## 5 Short to medium term planning: Possible Projects

### 5.1 Methodological approach<sup>36</sup>

The following section describes the methodological approach to develop Regional Sector Programs and identify Possible Project Concepts in the Regional and Local Roads Sector.

#### 5.1.1 Context and road network considerations

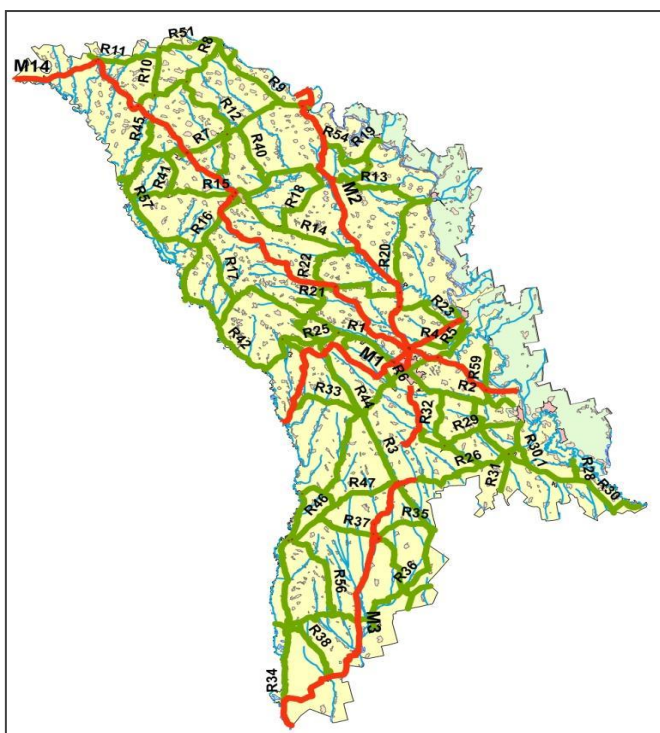
The Republic of Moldova is equipped with sufficient road infrastructure, but the condition of most roads is poor. Given the limited resources available for rehabilitation and regular maintenance, a way has to be found to identify those projects that ensure the most effective expenditure.

The following describes the methodological approach to the identification of priority regional and local road corridors as an integral part of the RSP.

The main aspect of the method is to establish a realistic, transparent and repeatable process for the identification of priority corridors and subsequent project identification.

Roads and streets serve as part of a network of roads through which traffic moves. Within the Republic of Moldova, the national roads (magistral and republican, see Figure 5–1) connect the capital and major cities with each other and international borders, serving long -distance trips.

**Figure 5-1: National road network**

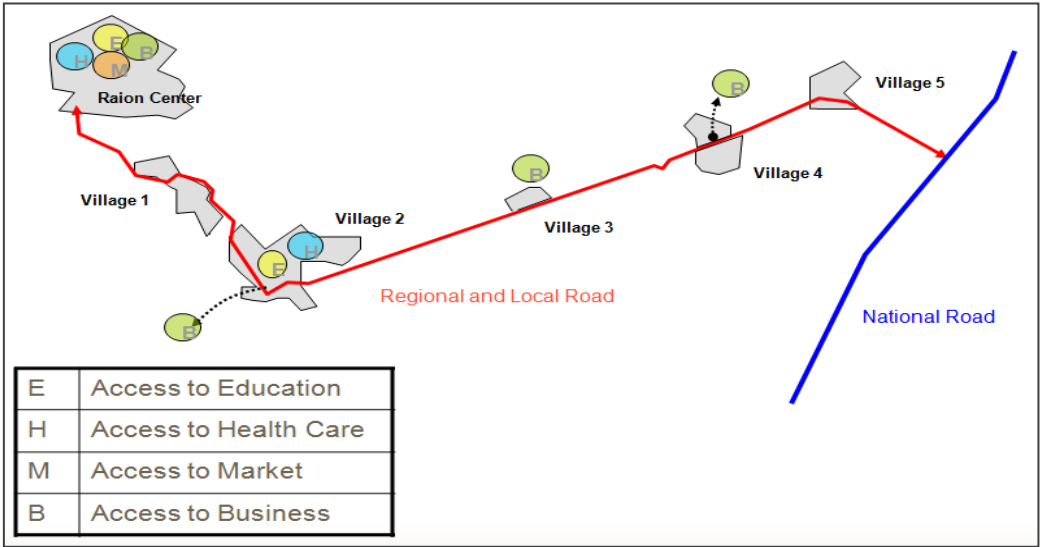


Source: Project “Modernization of Local Public Services in the Republic of Moldova”

<sup>36</sup> Description of the methodological approach to develop Regional Sector Programs and Possible Project Concepts in the Regional and Local Roads Sector

Regional and local roads connect villages and smaller towns with each other as well as to the national roads. In addition, regional and local roads provide access to services for the rural population, such as access to market, education, or health care facilities (see Figure 5–2).

**Figure 5-2: Connection of regional and local roads to national roads**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

The Government of the Republic of Moldova is currently carrying out a large program to rehabilitate national roads, which is illustrated in Figure 5–3.

**Figure 5-3: National road network rehabilitation program**

No.	Drum	Finanțare	Lungime km	Cost mil. EUR	Perioada de Executare
<b>1. Contracte în derulare</b>					
1.1.	M2 Chișinău-Soroca	BERD	28,6	13,6	2011-2013
1.2.	M2 Chișinău-Soroca	BEI	16,3	4,8	2011-2013
1.3.	R3 Chișinău-Hîncești	BEI	8	8,7	2011-2012
1.4.	R14 Bălți-Sărăteni	CE NIF	19	9,6	2011-2013
1.5.	R14 Bălți-Sărăteni	CE MSG	4,7	2,5	2011-2013
1.6.	M2 Chișinău-Soroca	BEI	20,5	9,2	2012-2013
1.7.	M3 Chișinău-Giurgiulești	BERD	26	11,9	2012-2014
1.8.	M3 Chișinău-Giurgiulești	BERD	28,4	12,7	2012-2014
1.9.	M2 Chișinău-Soroca	MCC	24,2	21,3	2012-2014
1.10.	M2 Chișinău-Soroca	MCC	20,6	19,1	2012-2014
1.11.	M2 Chișinău-Soroca	MCC	23,2	14,9	2012-2014
1.12.	M2 Chișinău-Soroca	MCC	24,5	20,5	2012-2014
<b>Subtotal</b>			<b>244</b>	<b>148,8</b>	
<b>2. Contracte în curs de achiziție</b>					
2.1.	R1 Chișinău-Ungheni	BEI	17,6	25	2013-2015
2.2.	R1 Chișinău-Ungheni	BEI	44,2	35	2013-2015
2.3.	R1 Chișinău-Ungheni	CE NIF	7,8	10	2013-2015
2.4.	M3 Chișinău-Giurgiulești	BERD	31,2	25	2013-2015
2.5.	R1 Chișinău-Ungheni	BERD	22	19	2014-2015
2.6.	R33 Hîncești-Lăpușna	BERD	37,2	23	2014-2015
<b>Subtotal</b>			<b>160</b>	<b>137</b>	
<b>3. Contracte cu finanțare din acordurile financiare semnate în iunie 2013</b>					
3.1.	M3 Slobozia-Mare bypass	BERD	20,5	23,65	2014-2016
3.2.	R14 Bălți-Sărăteni	BERD	35,4	39,22	2014-2016
3.3.	R9 Soroca-Arionest	BERD	31	16,86	2014-2016
3.4.	R34 Hîncești-Leova	BERD	83	56,8	2015-2016
3.5.	R16 Bălți-Fălești-Sculeni	BEI	54,7	37,7	2014-2016
3.6.	R6 Chișinău bypass	BEI	6,6	10,1	2014-2016
3.7.	M1 Chișinău bypass	BEI	8	17,2	2015-2016
3.8.	M21 Chișinău bypass	BEI	8,3	25,7	2015-2016
3.9.	M3 Porumbeni-Cimișlia	BEI	26,2	38	2014-2016
3.10.	M3 Comrat bypass	EIB	18	17	2014-2016
3.11.	R1 Bahmut bypass	CE NIF	5,7	6,1	2014-2015
3.12.	M3 Vulcanesti bypass	CE NIF	8,6	9	2014-2015
<b>Subtotal</b>			<b>306</b>	<b>297,33</b>	
<b>Din care planificate a fi licitate în septembrie 2013</b>					
3.2.	R14 Bălți-Sărăteni	BERD	35,4	39,22	2014-2016
3.6.	R6 Chișinău bypass	BEI	6,6	10,1	2014-2016
3.11.	R1 Bahmut bypass	CE NIF	5,7	6,1	2014-2015
3.12.	M3 Vulcanesti bypass	CE NIF	8,6	9	2014-2015
<b>4. Contracte cu finanțare neidentificată</b>					
4.1.	R13 Bălți-Gura Camencii		40	33,5	
4.2.	R34 Cantemir-Cahul		41,8	27,6	
4.3.	R3 Hîncești-Cimișlia		38,8	24	
<b>Subtotal</b>			<b>120,6</b>	<b>85,1</b>	
<b>TOTAL</b>			<b>830,6</b>	<b>668,23</b>	



Source: Ministry of Transport and Road Infrastructure

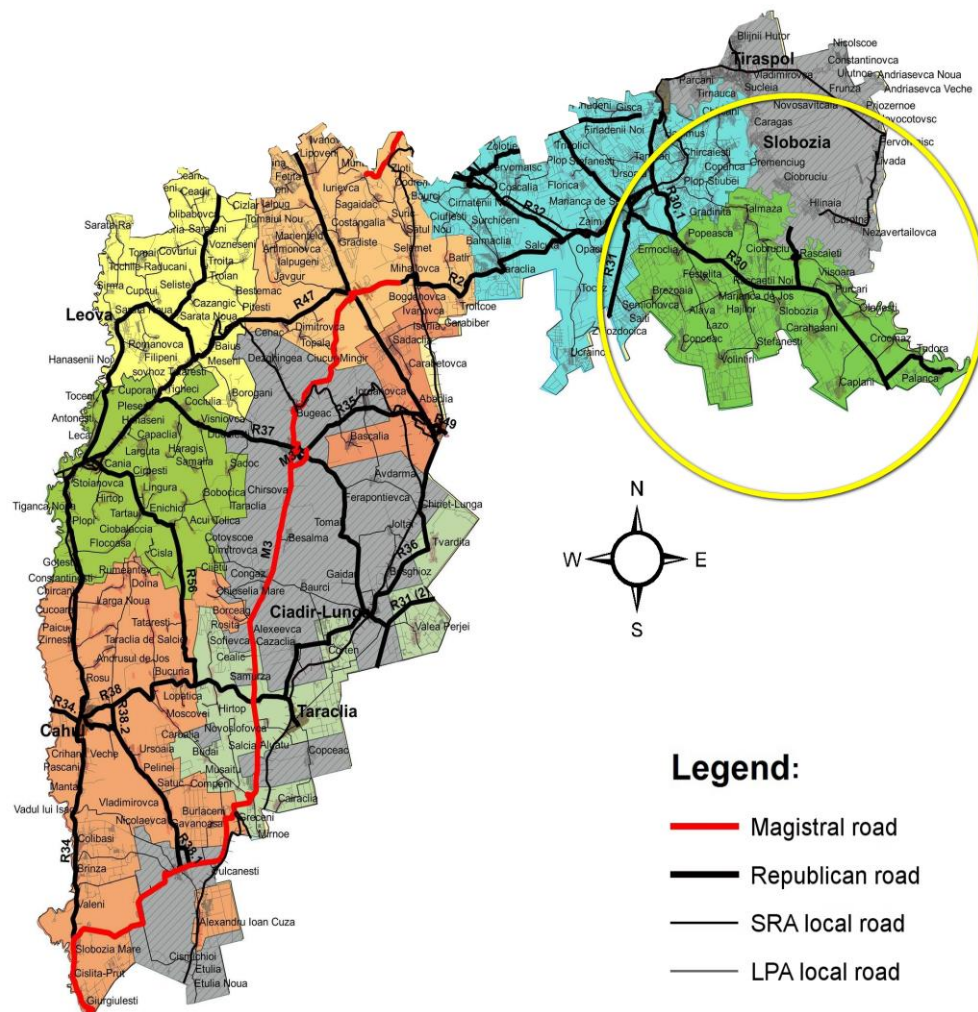
### 5.1.2 Regional and local connectivity

Though the long distance network is very important for the overall development of the country, it is not suited to support development in the regions. The national road network forms, however, cells within which regional and local roads provide connectivity.

The yellow circle on Figure 5–4 provides an example of a cell as identified.



**Figure 5-4: National roads forming a cell**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

Regional and local roads provide connectivity within these cells. These roads provide connections to and from localities, access to hospitals, for example, but also to the main administrative centres.

Regardless of their status or ownership, these connections are very important for local residents due to the year-round, all-weather access they have to provide.

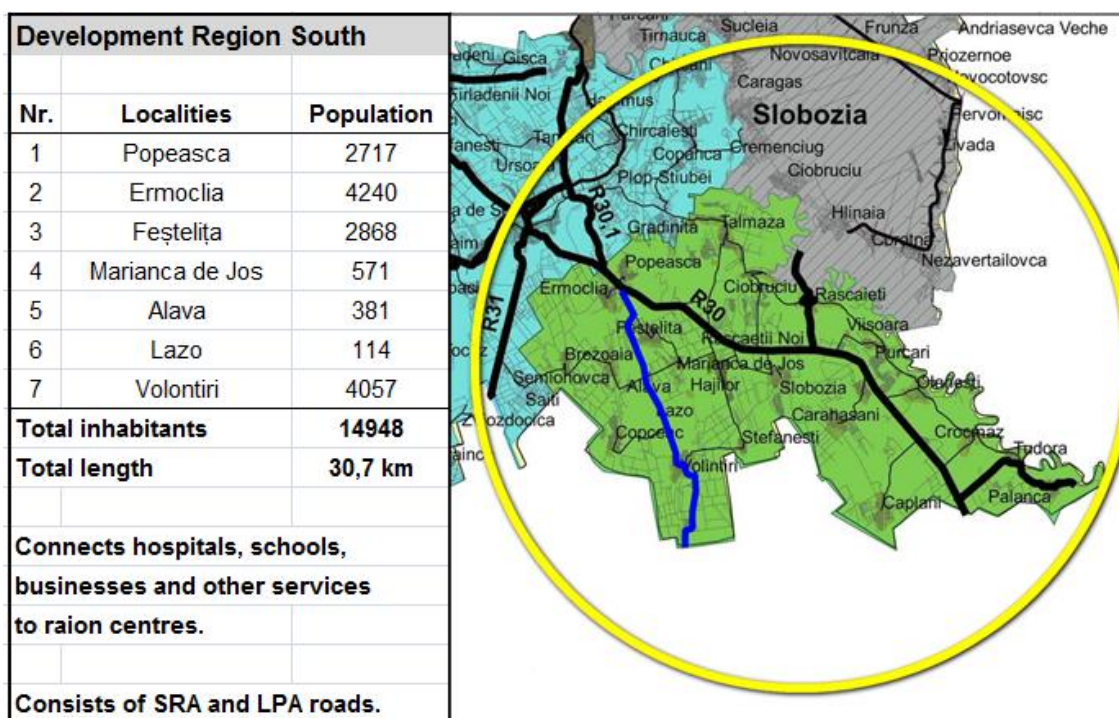
Other examples of important facilities to which regional and local roads may need to connect are schools, bus and rail stations and administrative buildings.

In addition, there may be important commercial enterprises that rely on roads to carry out their business.

As it is neither financially nor physically possible to improve all regional and local roads across the country at the same time, it is important to identify roads that create corridors to the key facilities that residents need to be able to access year-round under all weather conditions. Identification of these corridors will help to outline a network of priority regional and local roads that will ensure that maximum value for money is achieved when investments are made.

Figure 5–5 provides an example of a possible “priority corridor” in the earlier identified cell. The corridor connects some six villages to a rayonal centre, serves over 10,000 residents and provides accessibility to rail infrastructure, hospitals and other services. As can be noted, the corridor connects a number of localities to magistral and republican roads. Furthermore, there are some localities that are not precisely on this corridor but may be connected at low cost by short branches from the main corridor.

**Figure 5-5: Example of a cell with an identified main local corridor**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

To achieve maximum impact, the example corridor has been identified without regard to either rayon border or ownership / control of the road. For users it should not matter who owns or controls the road, or in which rayon it is located, as long as it connects the origin with desired destination.

### 5.1.3 Basis for the methodology

The above-presented methodological approach is based on the provisions of the existing National Development Strategy “Moldova 2020”, the Transport and Logistics Strategy and the Regional Development Strategies, of which the key provisions are:

- As a landlocked country, the Republic of Moldova needs to be connected to the international road network;
- International and long distance connectivity is provided by the national transport network: magistral and republican roads;
- There is currently a large road rehabilitation program being carried out on the national road system;
- Local and regional connectivity needs to be provided by a network of roads, which in turn are connected to the national road network;



- The national roads divide the territory of the Republic of Moldova into “cells” within each of which local and regional connectivity has to be provided;
- The local and regional roads of significance are intended to support the socio-economic development of the regions;
- Lacking the resources to rehabilitate the entire regional and local road network, an identification of priority regional and local roads should be carried out to establish a framework for effective expenditure of resources.

Furthermore, stakeholder feedback received during the workshops indicated that:

- Significant improvement of regional and local roads is required;
- There is a lack of capacity and resources for repair and maintenance of regional and local roads;
- Therefore, there is a need strictly to prioritise expenditure to achieve the most cost-effective solutions in support of regional development.

This methodological approach to arrive at a Regional Sector Program as well as Possible Project Concepts comprises two stages:

**In the first stage**, a network of cells as well as priority regional and local roads have been identified at the workshops by RSWG members and discussed and endorsed by the RDAs, MRDC, MTRI, and SRA and other stakeholders;

**In the second stage**, Possible Project Concepts along the priority corridors will be identified in a participatory manner. The stakeholders including LPAs will be supported through facilitation of this process by the RDAs, backed up in technical matters by the experts in the respective field as needed. This two-stage approach has the following strengths:

- It allows for a more coherent identification of projects which will aid in regional development;
- Takes into consideration the definition of “regional roads” from Moldovan Road Law, and therefore being in line with the provisions of the Ministry of Transport (MTRI);
- The selection process is not constrained by the requirement to include a minimum number of sections / projects per rayon that could produce too many candidate projects;
- Projects will be identified cross-rayonal and cross-regional;
- It will set the stage for the continuous improvement of local connectivity and provide a focus for the future efforts of the MRDC (National Regional Development Fund), MTRI and SRA;
- Allows for further donor involvement by creating a rolling priority program for rehabilitation of local roads.

The second stage provides the following:

- It follows the methodology used by other project sectors within the MRDC / MLPS in terms of stakeholder involvement;

- It gives the responsibility of initial selection to stakeholders and LPAs with the subsequent qualification process involving a dialogue between them and stakeholders.

The above described methodology provides a clear and consistent method for the identification of cells and priority corridors in the cells. This method is consistent with the strategies currently in force and takes into consideration the views of stakeholders. Furthermore, the process can easily be understood by all stakeholders and can be replicated at any time in the future.

#### 5.1.4 Criteria for identification of cells

As outlined earlier the identified cells form the framework in which regional and local road connectivity shall be developed and each cell:

- Should be bordered by the national roads and, in certain cases, by the state border;
- Larger cells are preferable as opposed to smaller to avoid fragmentation;
- Cells should have comparable sizes.

The following table presents the number of cells identified in Development Region South.

**Table 5-1: Number of identified cells in DRS**

Intraregional cell	Cross regional cell	Total cells DRC	Total cells 3 DR
4	3	7	21

#### 5.1.5 Criteria for regional and local road priority corridors

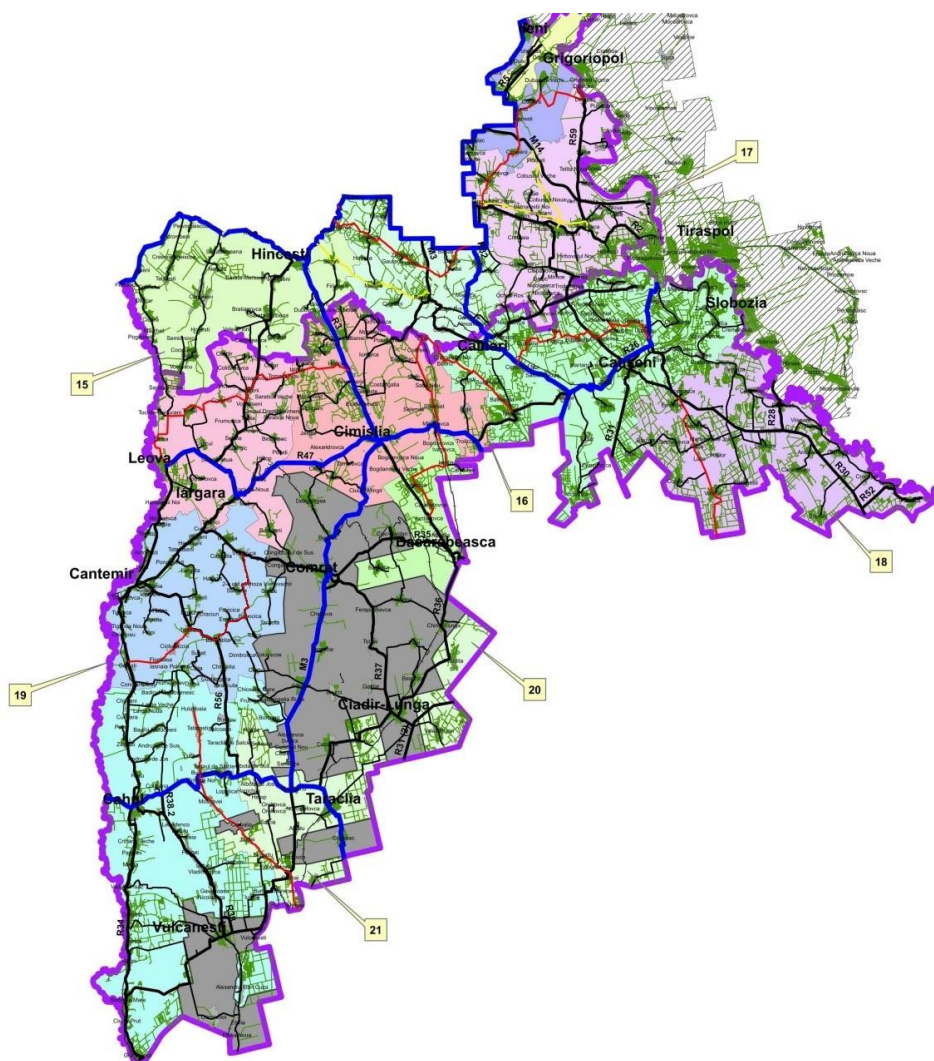
Given the provisions of existing guidance documents and strategies, as well as input received during the initial workshops the following criteria for the identification of the regional and local priority corridors has been accepted by the RDAs and stakeholders:

- Regional and local roads should connect to important locations and infrastructure and to rayon centres and towns;
- According to the discussions of the previous workshops such important locations and infrastructure include:
  - Public institutions, (schools, hospitals, clinics, administrative authorities);
  - Emergency services;
  - Economic infrastructure;
  - Sports infrastructure;
  - Tourism infrastructure;
  - Access to other modes of transport;
  - Connection to branches of the Exceptional Situations Department;
  - Connection to businesses (Free Economic Zones, industrial parks, business incubators etc.).
- Must start or end at a magistral or republican road - to extend the connectivity provided by the national road network;

- Must connect localities with two or more rayons or a minimum of four localities within one rayon: to maximise local and regional connectivity (Road Law);
- Must substantially shorten existing travel journeys (New road sections only);
- Must connect to multiple important locations and infrastructure in support of regional development.

The initially identified priority corridors have been transposed in the Geographic Information System (GIS) and information on the alignments, such as length of each corridor have been obtained based on GIS calculations. Figure 5-6 presents a map outlining the identified cells and priority corridors. Table 5-2 lists key characteristics of the priority corridors.

**Figure 5-6: Map of cells and regional and local road priority corridors in DRS**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

Note: The priority corridors have been refined after that by using the GIS system, the length and other data will be a subject to change. The length and other features can be determined with certainty only through a detailed topographic surveying.

**Table 5-2: Overview of identified regional and local road priority corridors in DR South**

DR South (estimates)								
Main corridors	Alternative corridors	Corridor length (Estimated)	Localities connected	Rural population connected (census 2004)			% of total rural population from DRS (census 2004)	Persons served per km (estimated)
				Women	Men	Total		
7	0	270.6 km	72	52,896	51,387	104,283	25.8%	385 pers./km

Source: Project "Modernization of Local Public Services in the Republic of Moldova"

Note: The priority corridors have been refined after that by using the GIS system, the length and other data will be a subject to change. The length and other features can be determined with certainty only through a detailed topographic surveying.

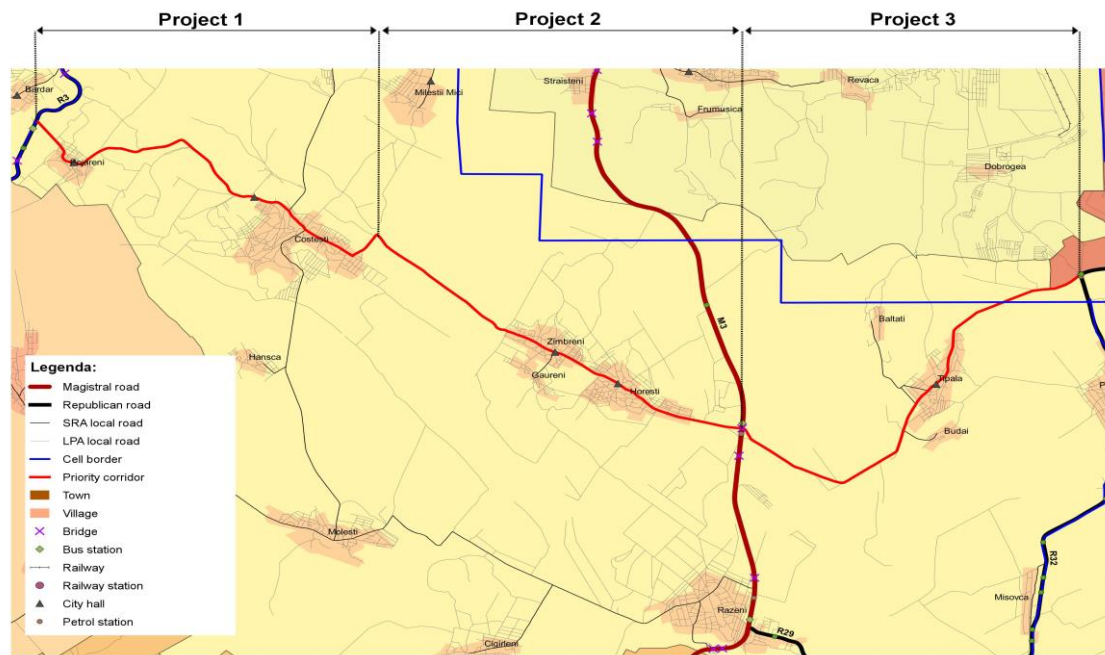
For each of the identified regional and local road priority corridors a project fiche has been prepared and is presented in Annex 3. Each fiche reports information on the number of localities served, access provided to social, health, and educational services, the corridor length and its composition and other criteria.

## 5.2 Framework and criteria for Possible Project Concept identification

Individual project concepts along the priority corridors will be identified in a participatory manner. The identified priority corridors of regional and local roads serve as the basis for the elaboration of Possible Project Concepts (PPC).

Once the priority regional and local road corridors have been approved, the next step is to identify possible project concepts on these corridors. Project identification fiches in accordance with a particular template will be provided (see Annex 4 for the required data collection template). In order to avoid a highly fragmented collection of short road sections the minimum length of a proposed project should be at least 10 km in length. Figure 5-7 presents an example how one corridor might be split into several PPCs.

**Figure 5-7: Split of example corridor in individual project sections**



Source: Project “Modernization of Local Public Services in the Republic of Moldova”

Another proposed option is to consider a corridor as a PPC, applying the same process and criteria as described below.

Identified and submitted PPCs will be evaluated and rated based on the following criteria:

- Project length more than 10 km;
- Number of connection to localities;
- Number of connection to school(s);
- Number of connection to hospital(s);
- Number of connection to businesses;
- Access to tourist attractions;
- Access to national border;
- Connection to branches of the Exceptional Situations Department;
- Connection to businesses (Free Economic Zones, industrial parks, business incubators etc.);
- Road surface condition;
- Terrain type (flat/rolling/mountainous);
- Cost of rehabilitation per km of road;
- Persons served per km of road;
- Cost per person served;
- Existing and future traffic and traffic composition;
- Level of environmental assessment requirement;
- Others as identified with RDAs and LPAs.

Each road section will be awarded points in relation to each of these criteria to identify the strongest candidates. These, in turn, will be presented by the applicant in map form and discussed with the RDAs and LPA 2, MRDC, MTRI, SRA. In particular, a comparison will be required with the on-going local roads program carried out by SRA to avoid overlap and generate synergies when possible.

During the process of screening and prioritization, the information provided in the fiches will be verified on the ground to ensure that the priority does not dramatically change or a project turns out to be non-viable when looked at in more detail. This will be done by means of site visits on the basis of the fiches provided. Annex 4: Project concept data collection template provides the data collection template and provides further information on data items needed and how they will be collected.

### 5.2.1 Outline of multi-criteria analysis

Information for each project concept is collected and entered in a database which will be used to carry out a Multi-Criteria Analysis (MCA). Multi-criteria analysis is a tool to prioritize projects according to such criteria as: regional connectivity, access to services (health, medical), regional development, road condition, gender issues and others. The following table provides an example of a prioritization mechanism for submitted possible project concepts. A project will receive points in regards to what extent it will address a particular criteria. If a project connects 1 school it will receive 1 point, if it connects to 2 schools it will receive 2 points (see Table 5-3). In this way, projects that fulfil most criteria will receive a higher summary score; the score in turn will then be used to create a priority ranking of projects. Table 5-4 presents a simplified example of project prioritization.

It has to be understood that the MCA works as an iterative process that will be further refined with stakeholder input and according to the data collected for each individual PPC.

**Table 5-3: Example of possible prioritization criteria**

	Criteria	Points		
		1	2	3
		(1 point)	(2 points)	(3 points)
1	Persons/km served	>50/km	>100/km	>200/km -
2	Cost per person served	TBD	TBD	TBD
3	Connects localities	2 localities	4 localities	6 localities
4	Connects school(s)	1 school	2 schools	3 schools -
5	Connects to hospital(s)	1 hospital	2 hospitals	2+hospitals
6	Connects to business(es)	low	medium	high
7	Cost of investment per km	<EUR 300,000/km	EUR 200-300,000/km	< EUR 200,000/km
8	Road surface condition	all weather	-	not all weather
9	Current Traffic	< 100 vpd	100-200 vpd	200-400 vpd
10	Access to tourist attraction(s)	-	-	yes
11	Access to national border	-	-	yes
12	Environmental assessment	high	medium	low

Source: Project "Modernization of Local Public Services in the Republic of Moldova"

**Table 5-4: Example of simplified possible prioritization of projects**

	Reg. Development	Access to School	Access to Health Care	Access to business	Summary Score	Priority
Project Concept 1	2	3	1	2	8	High
Project Concept 2	1	1	1	1	4	Medium
Project Concept 3	0	0	1	1	2	Low

Source: Project “Modernization of Local Public Services in the Republic of Moldova”

### 5.2.2 RED economic model

In order to attract external financial support for the implementation of possible projects it is of great importance to determine the economic benefit of the identified projects. The following section describes the method to be used.

The Road Economic Decision Model (RED) is a spread sheet based economic analysis model designed to assess roads with low, variable traffic volumes and variable, often poor, road surface quality. It has been developed by the World Bank on the same principles as HDM-4 (another economic analysis model, used on high traffic roads) but with the emphasis on ease of use and much less demanding data requirements. It is also suitable for use in connection with other, non-economic, methods of road project evaluation. These characteristics make it the most appropriate tool for the purpose of this Program.

## 5.3 Conclusions and summary

The above presented methodology allows establishing a planning and programming process for RLR that is transparent and repeatable. Given the extensive number and length of RLRs in the region a process has to be established that focuses the limited resources and most effective expenditure. The identification of priority corridors is a beginning point to structure the expenditure in a transparent and participatory manner. A further advantage of the proposed process, method and criteria is, once established; further refinement of methodology and process can be undertaken on regular intervals. This might apply to refinement of selection criteria as well as giving varying weights to particular criteria that are more “important” than others.

In addition, the proposed method is flexible in terms of financing, not only does it allow for various financiers to fund an entire corridor, or sections thereof, but it also will give the LPAs a certain degree of certainty in their planning, as well as potential expansion of an identified corridor.

The system of priority corridors can lead to the establishment of a project portfolio that can be presented to the various international donors and financial institutions.

## 6 Action Plan

The Action Plan including specific activities and measures was prepared in order to achieve the objectives of the RLR RSP and it was jointly discussed with the stakeholders involved in the Program. These activities and measures are necessary to further facilitate the implementation of projects in the RLR sector and to ensure sustainable development of the sector at regional level.

The activities and measures proposed in the Action Plan of the RSP are defined at the national, regional and local level and envisage a harmonious development of the RLR sector. The actions at the national level were taken over from the main strategic sector documents approved by the Government of the Republic of Moldova. In regard to actions at the regional and local level, these were identified during the planning process, assessment of mid-term sector development needs, based on the information received from the workshops, as well as through discussions with the stakeholders.

For each specific national and regional objective, the Action Plan covers the desired outcomes, actions to be taken, mentions the responsible institutions and other involved parties, establishes the terms for accomplishing the corresponding actions, as well as describes the products and progress indicators.

### 6.1 National level

On a national level the Action Plan is defined by the Transport and Logistics Strategy (TLS) including its associated action plan, and by the National Strategy for Road Safety 2011-2020 (NSRS). The actions envisaged in the plan aim to address the following deficiencies:

- Insufficient funding for the repair and maintenance of local roads;
- High number of road accidents;
- The need to develop continuously the management capacity of the public roads maintenance system;
- The centralized and inefficient system of planning local roads repair works.

The activities proposed in the Action Plan at the national level reflect the objectives established in the strategic sector documents, relevant for the successful implementation of the specific regional objectives. For this purpose, an increased coordination between the actors at the national and regional level is recommended.

**Table 6-1: Action Plan at the national level**

National level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
<b>Specific objective 1:</b> Proper repair and maintenance of local roads (TLS)						
1.1. Proper repair and maintenance works of local roads	1.1.1. Identify and implement projects for local roads repair	2022	MTRI	LPA 2 MRDC RDA	Available resources allocated, in a prioritized manner, to the most feasible projects of local roads repair	6,008 km of local roads are classified as in good condition (IRI 2-4). The average vehicle operating costs on the entire network of roads reduced: from the current 2.88



National level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
					The users' road expenses decreased to competitive levels	MDL/km (0.18 EUR/km) to 2.72 MDL/km (0.17 EUR/km) for cars from 12.8 MDL/km (0.8 EUR/km) to 11.2 MDL/km (0.7 EUR/km) for trucks
	1.1.2. Preserve the results obtained from the repair of the local roads by maintaining them appropriately	2022	MTRI	LPA 2 MRDC RDA	Good condition and proper maintenance of local roads ensured	6,008 km of local roads are maintained accordingly by 2021  The average travel speed increased by 20 km/h, to reach 70 km/h
<b>Specific objective 2:</b> Continue the implementation of the Action Plan implementing the reform of the public roads maintenance system (TLS)						
2.1. The provisions of the Action Plan implementing the reform of the public roads maintenance system continuously implemented	2.1.1. Adjust the legal and regulatory framework and technical standards to the requirements of the new maintenance system	2016	MTRI	MRDC	Enhanced performance of the public roads maintenance system	Legal and regulatory framework and standards adjusted to the requirements of the new maintenance system
	2.1.2. Implement modern technologies for road maintenance and procure the necessary equipment	2017	MTRI	SRA, S.A. Drumuri	Enhanced roads maintenance, using modern technologies	Modern technologies for road maintenance implemented and enterprises endowed with the necessary equipment
	2.1.3. Implement new road maintenance contracts in line with the best international practices	2016	MTRI	SRA, S.A. Drumuri	Roads maintained in accordance with the level of maintenance of the new classification	Multi-annual maintenance contracts implemented
	2.1.4. Ensure the implementation of the routine road maintenance work through a public competition	2017	MTRI	SRA, S.A. Drumuri	Transparent and responsible use of funds	Public tenders for routine road maintenance works implemented
	2.1.5. Strengthen the capacity and managerial training of the staff involved in road maintenance	2016	MTRI	MRDC	Strengthened capacity of the staff involved in road maintenance	Enhanced company management
	2.1.6. Implement the roads maintenance management system	2017	MTRI	MRDC	Road maintenance works planned	Decentralized roads maintenance management system implemented

National level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
Specific objective 3: Reduce the number of road accidents (NSRS)						
3.1. Improved road safety conditions and reduced number of accidents	3.1.1. Implement the provisions of the National Strategy for Road Safety	2020	MTRI	MoIA MoEd MoH MoITC LPA	Total number of accidents reduced	The number of road accidents resulting in fatalities under 250 in 2020
	3.1.2. Include road safety enhancement in road projects	2015	MTRI	SRA MRDC LPA		Number of road accidents resulting in injuries under 1,500 in 2020
	3.1.3. Include road safety enhancement in road maintenance activities	2017	MTRI	SRA MRDC LPA		Number of accidents per 10 million vehicles/km under 6 in 2020
	3.1.4. Carry out campaigns on road safety, drivers' behaviour and law enforcement programs	2020	MTRI	MoIA MoEd MoH MoITC LPA		Enhanced traffic discipline
Specific objective 4: Increase the efficiency of the system of planning the local roads repair works (TLS)						
4.1. Increase the efficiency of the system of planning the local roads repair works	4.1.1. Revise and adjust current legislation	2015-2016	MTRI	MRDC	Legislation adjusted to sector needs	Planning of local roads repair works facilitated by legal provisions
	4.1.2. Decentralize the local roads administration by:  transforming some important local roads in regional roads; transmitting the local roads, which are still on the balance sheet of SRA to LPA 2, making sure that sources are allocated from the Road Fund for their repair and maintenance, ensuring the transfer of capacities for a more efficient management of local roads.	2018	MTRI	LPA 2	More efficient management of local roads	Decentralized system of local roads management

## 6.2 Regional and local level

The Action Plan at the regional and local level envisages specific objectives, actions and measures which were established considering the sectorial objectives and activities for their accomplishment from the strategic national documents.

The measures described in the Action Plan at the regional level aim to address the following deficiencies:

- General lack of data on the road network under LPA inventory;
- Overall poor condition of RLR;
- LPA 2 lack financing to maintain RLR;
- Environmental and social aspects are insufficiently addressed in RLR sector;
- Gender considerations are insufficiently addressed in RLR sector;
- Discrepancies between legal provisions and practical situation regarding ownership and responsibility for road administration at the regional and local level;
- Insufficient communication between SRA and LPA 2, responsibility and tasks not clearly defined;
- Insufficient capacity of LPA 2 for planning, programming, implementing projects and maintaining RLR;
- Deficiencies in ensuring continuity of RLR sector planning at regional level.

**Table 6-2: Action Plan at the regional and local level**

Regional and local level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
<b>Specific objective 1:</b> Rehabilitation and ensuring a full maintenance cycle on approximately 250 km of roads in the DR South by 2020						
1.1. Improve base data for planning and programming of RLR, establish and apply RAMS	1.1.1. Collect base data and map existing roads	2018	LPA 2	SRA	Updated maps and base data containing information on road network  RAMS created and applied	RAMS created and existing maps updated to include roads under LPA ownership
1.2. RAMS complemented with data regarding progress achieved in RLR rehabilitation	1.2.1. Complement base data and maps with information regarding progress in RLR rehabilitation	2020	LPA 2	SRA	RAMS complemented and updated	Base data and existing maps expanded to include updated information about rehabilitated roads
1.3. Rehabilitation of RLR planned correspondingly	1.3.1. Identification of RLR corridors	2014-2015	LPA 2	RDA MRDC MTRI	RLR corridors identified	250 km of identified corridors are assessed in DR South
	1.3.2. Identification and development of Possible Project Concepts	2015	LPA 2	RDA MRDC MTRI	EUR 90 Mio worth of projects identified in three DR	For 130 km – 140 km road projects identified and assessed in DR South
	1.3.3. Development of Viable Project Concepts	2015	LPA 2	RDA MRDC, MTRI	EUR 60 Mio worth of projects identified in three DR	For 80 km – 90 km of road projects feasibility assessment prepared in DR South

Regional and local level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
	1.3.4. Finalization of project documentation	2015	LPA 2	RDA MRDC MTRI	EUR 40 Mio worth of projects identified in three DR	For 50 km – 60 km road projects in DR South, preliminary design, and cost estimates prepared
1.4. Ensure sufficient financing for RLR rehabilitation and maintenance	1.4.1. Connecting resources for RLR rehabilitation and maintenance to the major necessities as a result of transferring roads	2018	MTRI	LPA 2	Sufficient funds allocated	EUR 3,000 per km annually allocated for RLR maintenance  A program of EUR 4 Mio per year established to fund rehabilitation of RLR roads in DR South
	1.4.2. Establishing and maintaining permanent dialog with donors for attracting funds in RLR	2015-2020	MRDC	MTRI RDA LPA 2	Additional funds allocated	Donors are involved in financing RLR rehabilitation projects
1.5. Increase environmental and social safeguard measures in RLR sector	1.5.1. Environmental and Social Impact Assessment (ESIA) for RLR	2015	LPA 2	RDA	ESIA for RLR projects realized	ESIA for RLR projects approved
	1.5.2. Incorporate standard Environmental and Social Monitoring Plan for each RLR project	2015-2020	LPA 2	RDA	Environmental and social aspects incorporated in RLR project implementation	Each major RLR project tendered with Environmental and Social Monitoring Plan
	1.5.3. Monitor adherence to environmental and social safeguard provisions	2015-2020	LPA 2	RDA	Environmental and social aspects adhered to	Implementation of environmental and social provisions is ensured
1.6. Increase awareness of and include gender considerations in the RLR sector	1.6.1. Incorporate gender aspects in the planning, programming and maintenance of road projects	2015-2020	LPA 2	RDA	Gender aspects incorporated	Gender considerations incorporated in planning, programming and maintenance documents
<b>Specific objective 2:</b> Ensuring institutional capacity (staff, systems) at LPA level to maintain roads under their administration						
2.1. Transfer local roads from SRA ownership to LPA 2	2.1.1. Transfer local roads to LPA 2 ownership	2018	MTRI	SRA LPA 2	Local roads ownership transferred	LPA 2 overtaking ownership and responsibility for local roads administration
2.2. Increase cooperation and coordination between SRA and LPA 2	2.2.1. Setting up of a unit within SRA with specific responsibility for regional roads; (according to WB recommendation, report from March 2014)	2016	SRA	LPA 2	Increased cooperation and coordination between SRA and LPA 2	Unit for RLR sector established within SRA
	2.2.2. Establishment of regional road committees to provide a forum for an exchange of views and information on RLR issues (according to	2016	SRA	LPA 2 RDA	Increased cooperation and coordination between SRA, LPA 2 and RDC	Regional sector committees established in three DR

Regional and local level						
Desired outcomes	Actions	Time frame for implementation	Responsible authority	Involved parties	Products	Progress indicators
	WB recommendation, report from March 2014) within Regional Development Councils and facilitated by RDA					
2.3. Increase staff capacity of LPA 2 in planning, programming, implementing projects and maintaining RLR	2.3.1. Simultaneously with increased funding for RLR, complementing the institutions with additional resources of staff and carrying out training programs	2015-2018	LPA 2	MTRI MRDC	Increased capacity of LPA 2 to plan, program and operate RLR	One additional staff unit responsible for RLR created  Increased staff, technical training program elaborated and implemented
	2.3.2. Establishing the RLR planning and programming function within LPA 2					
	2.3.3. Envisage funds for staff capacity building as part of investment programs	2015-2020	LPA 2	RDA MTRI MRDC		
	2.3.4. Development of the maintenance and operational plan for RLR by each LPA 2	2018	LPA 2	RDA MTRI MRDC	RLR maintenance plan developed	3 – year RLR maintenance plan published
2.4. Reflect RSP in regional and local policy documents, monitor and evaluate RSP implementation	2.4.1. Review on an annual basis the implementation of the RSP for RLR and report to RDC	Annually to 2020	RDA	MRDC	Strategic documents of regional and local level are updated	RDS and ROP updated
	2.4.2. Reflecting RSP in local policy documents	Annually to 2020	LPA 2			RSP provisions integrated in local development plans
2.5. Update the RSP for RLR	2.4.3. On a 3-year cycle update the RSP for RLR	2020	RDA	MRDC LPA 2 MTRI		
Specific objective 3: Integration of safety in design, operation and maintenance of local roads and a road should have, after it has been reconstructed, at least an iRAP star rating of 3						
3.1. Reduce number of road accidents by enhancing road safety	3.1.1. Include road safety enhancement in road projects	2015	LPA 2	SRA RDA	Total number of road accidents reduced	Number of accidents per 10 million vehicles/km under 6 in 2020
	3.1.2. Include road safety enhancement in road maintenance activities	2017	LPA 2	SRA RDA		

### **6.3 RSP monitoring and evaluation**

The implementation of the Action Plan, incorporated in the regional and local policy documents, will be continuously monitored by the responsible institutions in accordance with the existing requirements.

During the monitoring process, the modality and efficiency of implementing actions envisaged at each level will be considered. A monitoring and evaluation plan will be prepared at the initial stage of the RSP implementation. The evaluation will be conducted based on the progress indicators registered in achieving the specific objectives, as well as of the outcomes resulting from the implementation of the Plan's actions.

The progress evaluation towards the achievement of the RSP will be conducted either in the mid-terms of implementation or at the end of the Program implementation.

## Annexes

Annex 1	Instructions of classifying and defining reconstruction, repair and maintenance works on public roads of the Republic of Moldova
Annex 2	Flowchart on the authorization of road works
Annex 3	Corridor fiche
Annex 4	Project concept data collection template
Annex 5	Findings of field visit
Annex 6	Cost estimates by units
Annex 7	Assessment of risks identified in the RLR sector

## **Annex 1**

Instructions of classifying and defining reconstruction, repair and maintenance works  
on public roads of the Republic of Moldova



## **Annex 1:** Instructions of classifying and defining reconstruction, repair and maintenance works on public roads of the Republic of Moldova

Works are defined according to “Departmental instructions of classifying and defining reconstruction, repair and maintenance works on public roads of the Republic of Moldova, financed from Road Fund”, approved by minister ordinance, No. 01/226 of 18 August 1999.

In summary the instructions define that:

**Reconstruction** is a set of works intended to improve the technical and operational characteristics of roads with bringing the existing road or separated sections into a higher technical category (higher level). Reconstruction works include: limited realignments, correction of longitudinal profile, bypass sections of localities, carriageway widening, bridges widening, reconstruction of intersections and junctions. Reconstruction works are carried out according to technical documentation prepared under methodology approved by MTRI of Republic of Moldova. Reconstruction works are analogous to construction works methodology. Reconstruction works are carried out based on feasibility justification with further design and cost estimation documentation.

Furthermore,

**Road capital repairs** and adjacent structures includes a set of activities which include replacement of worn structures or elements or replacing them with more durable and efficient elements, which will improve transportation and operational parameters of repaired elements, ensuring improved durability of pavement structures, bearing capacity, bridge clearance and overall dimensions in limits of design manual specifications for prescribed technical category of road and approved by technical documentation, with exception of total replacement of base layers and structures which have bigger asset lifecycle (capital foundations, engineering structures walls). Capital repair works are carried out completely for all elements and structures of road on all length of repaired section.

An example of such activities: improving bearing capacity, widening (not more than one lane), construction of modern pavement structure with existing pavement as a foundation; constructing new pavement on limited sections according to existing category of road.

**Medium repair** is considered a repair which is intended to compensate the pavement's surface course and maintaining initial operational characteristics of road and related structures. Usually repair works are carried out on limited sections of roads. Objective of medium repair is partial recovery of road wear, maintaining roughness level, correction of slope failures, water discharge system, consolidation structures, road furniture which is within the road section under repair. Medium repairs are established for specific sections according to annual condition report, taking in account pavement service life.

An example of such activities: total cleaning of ditches and side drains, repair of drainage structures, river bed correction under bridges, shoulder strengthening; surface bituminous treatment, recovering or execution of new surface layers for asphalt roads, ensuring the texture of surface course, correction of concrete slabs for concrete roads, entire profiling of earth roads, profiling of gravel roads, curvatures widening.

**Recurrent Repairs** are intended to prevent and retrieve small distresses, repair activity which is performed continuously during the year on all road length. Recurrent repairs are scheduled in the basis of summary indices by km of road.

Recurrent repairs are: eliminating the insignificant distresses, which may appear during operation of roadway, embankment, water discharge system, engineering structures, sustaining walls, road furniture, access roads, and passages as well as prophylactic activities during flooding.

**Road Maintenance during Spring, Summer and Autumn:** Maintenance is a set of activities to keep the roads clean continuously during the year. Maintenance works are planned by km of road.

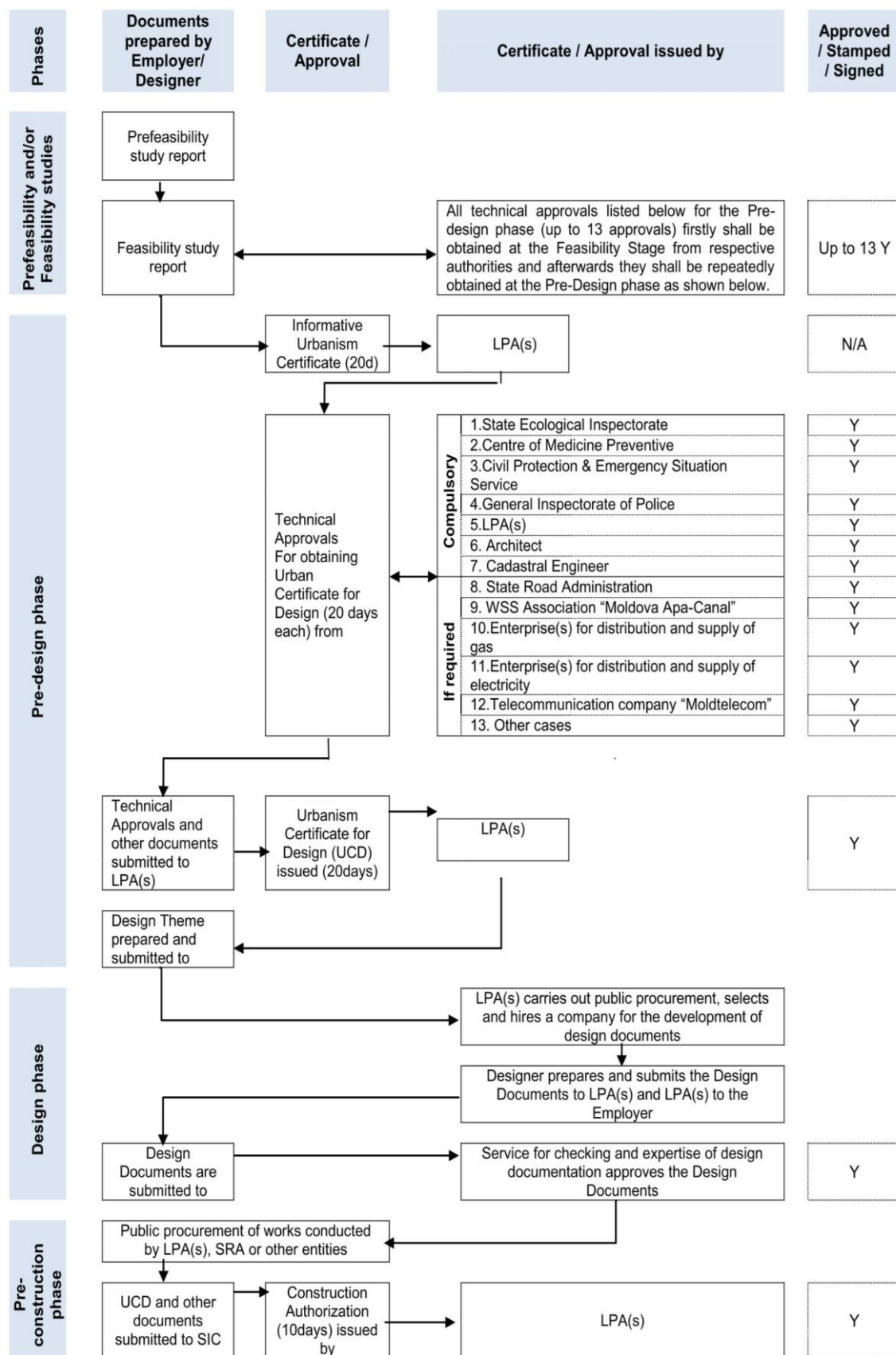
Examples of activities performed: slope correction without addition of materials, culvert cleaning of rubbish, snow, mud, ice, objects that prevent normal water discharge; activities for preventing water accumulation in embankments during snow melting, local remedy of engineering structures, grass cutting, bush cutting, regravelling, cleaning the asphalt from dust, mud, painting sign stands, poles, guardrails, bus stations, road marking, maintenance of road illumination, signalling, road furniture; carrying out traffic counts for maintenance department needs, road inventory.

**Winter Maintenance** – is ensuring continuity of traffic on public roads at normal speeds, maintaining road integrity by performing activities of snow removal and surface frost prevention.

## **Annex 2**

Flowchart on the authorization of road works

## Annex 2: Flowchart on the authorization of road works

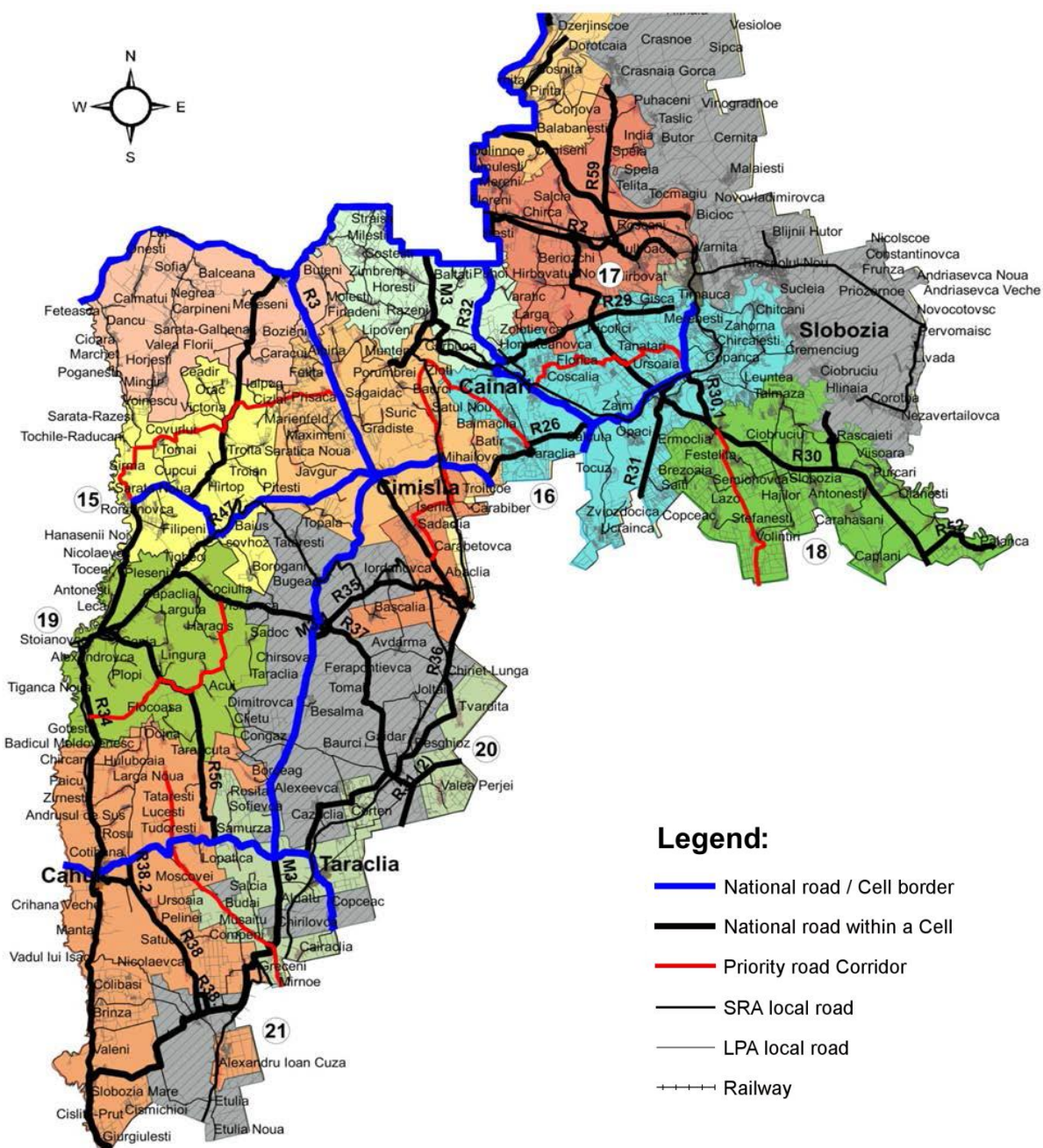


## **Annex 3**

### Corridor fiche

## Regional and Local Roads Corridors

## DEVELOPMENT REGION SOUTH



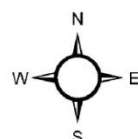


Cell Nr.				
<b>15</b>	<b>Corridor 20 – DR South</b>	<b>R34 – Sîrma – Tomai – Sărăteni – Hîrtop – R3</b>		<b>Total length (km): 57.2</b>

<b>Corridor includes:</b>	National roads (km):	5.7 (R34)	Streets (km):	2.7 (Leova)	Regional and local roads (km):	48.9
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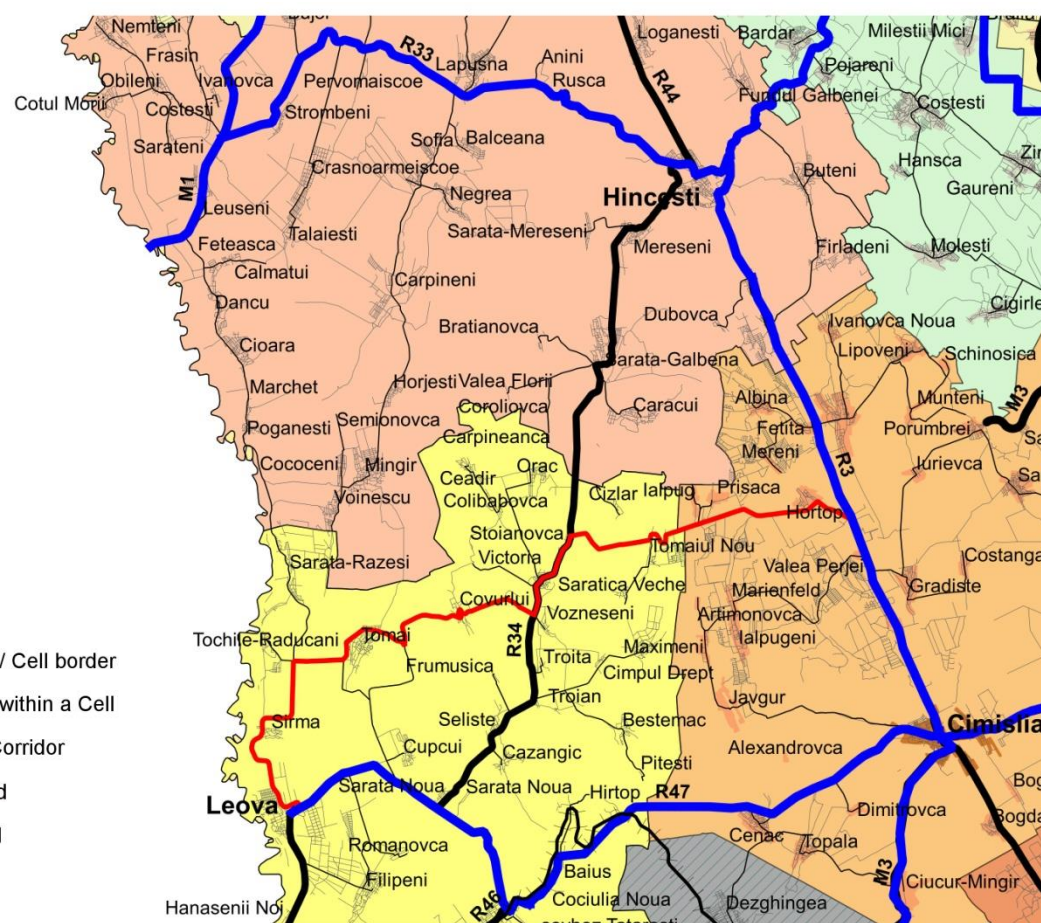
<b>Connected population, thousand pers., 2004 census:</b>	12,802	<b>Persons served per km:</b>	224
<b>Connected raions:</b>	Leova, Cimişlia		
<b>Connected towns:</b>	Leova (rayon centre)		
<b>Connected localities:</b>	(12) Leova - Sîrma - Tochile-Răducani - Tomai - Covurlui - Vozneseni - Sărăteni - Cneazevca - Tomaiul Nou - Ialpuș - Prisaca - Hîrtop		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	27
<b>Healthcare facilities (total):</b>	12
Hospitals:	2
Polyclinics, emergencies, asylums, etc.	10
<b>City halls:</b>	10
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	47
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	1
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	
<b>Tourist attractions:</b>	1
<b>Border-crossing points:</b>	
<b>Departments for Exceptional Situations:</b>	1
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	



### Legend:

- National road / Cell border
- National road within a Cell
- Priority road Corridor
- SRA local road
- LPA local road
- + + + + Railway

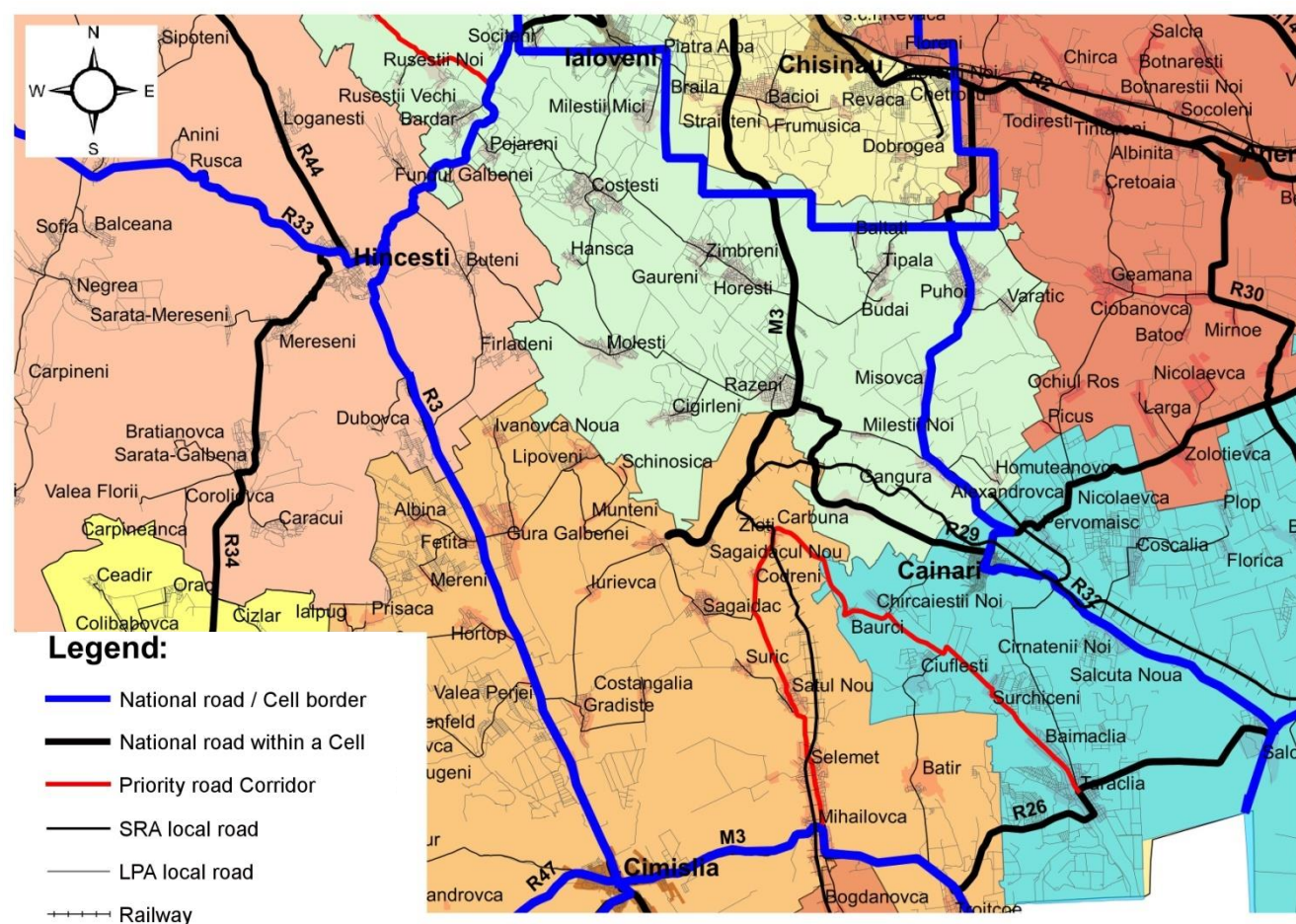


Cell Nr.				
<b>16</b>	<b>Corridor 21 – DR South</b>	<b>R26 – Mihailovca – Sagaidac – Ciuflești – Baimaclia – R26</b>	<b>Total length (km):</b>	<b>42.6</b>

<b>Corridor includes:</b>	National roads (km):		Streets (km):		Regional and local roads (km):	42.6
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<b>Connected population</b> , thousand pers., 2004 census:	23,231	<b>Persons served per km:</b>	545
<b>Connected raions:</b>	Cimișlia, Căușeni		
<b>Connected towns:</b>			
<b>Connected localities:</b>	(13) Mihailovca - Selemet - Satul Nou - Suric - Sagaidac - Codreni - Zloți - Baurci - Chircăieștii Noi - Ciuflești - Surchiceni - Baimaclia - Taraclia		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	22
<b>Healthcare facilities (total):</b>	10
Hospitals:	1
Polyclinics, emergencies, asylums, etc.	9
<b>City halls:</b>	7
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	40
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	2
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	3
<b>Tourist attractions:</b>	3
<b>Border-crossing points:</b>	
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	



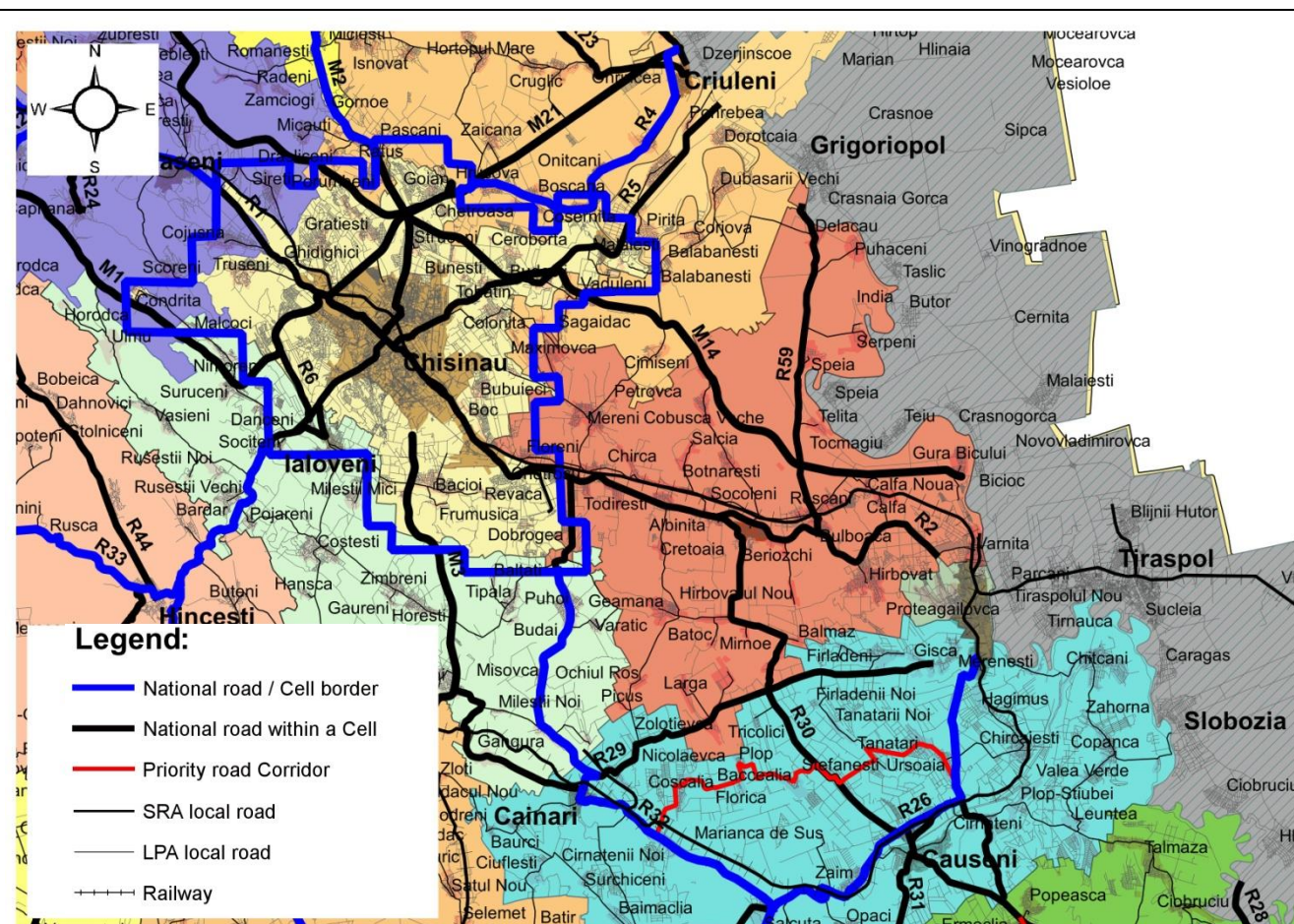


Cell Nr.				
<b>17</b>	<b>Corridor 22 – DR South</b>	<b>R32 – Cîrnăţenii Noi – Baccealia – Ursoaia – R26</b>	<b>Total length (km):</b>	<b>38.8</b>

<b>Corridor includes:</b>	National roads (km):	2.7 (R30)	Streets (km):		Regional and local roads (km):	36.1
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<b>Connected population, thousand pers., 2004 census:</b>	13,452	<b>Persons served per km:</b>	347
<b>Connected raions:</b>	Căuşeni		
<b>Connected towns:</b>			
<b>Connected localities:</b>	(11) Cîrnăţenii Noi - Coşcalia - Florica - Plop - Baccealia - Grigorevca - Ştefăneşti - Ursoaia Nouă - Tănătarii Noi - Tănătari - Ursoaia		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	13
<b>Healthcare facilities (total):</b> Hospitals:	7
Polyclinics, emergencies, asylums, etc.	7
<b>City halls:</b>	7
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	28
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	1
<b>Tourist attractions:</b>	2
<b>Border-crossing points:</b>	
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	

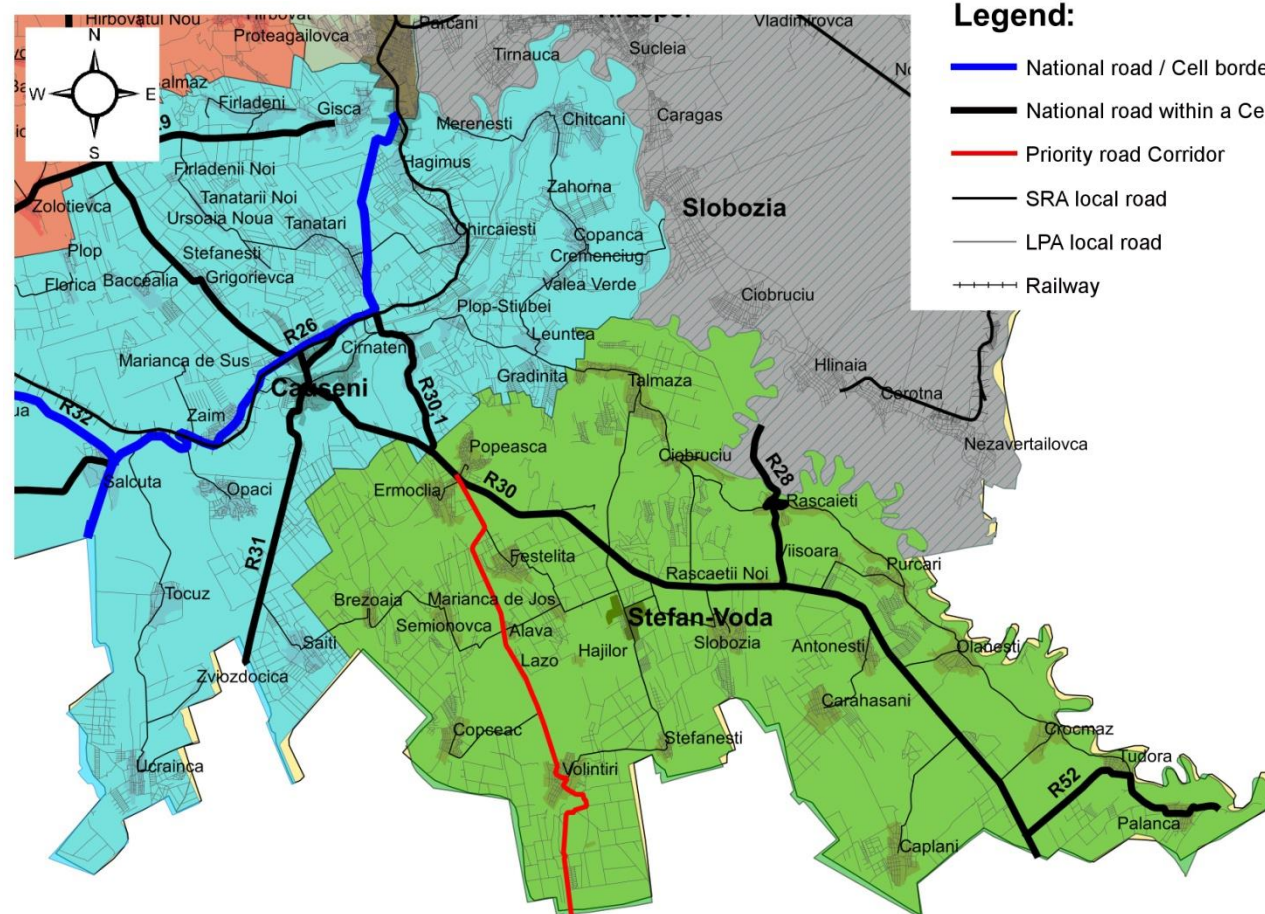


Cell Nr.				
<b>18</b>	<b>Corridor 23 – DR South</b>	<b>R30 – Ermoclia – Marianca de Jos – Voluntiri – L509</b>	<b>Total length (km):</b>	<b>30.7</b>

<b>Corridor includes:</b>	National roads (km):		Streets (km):		Regional and local roads (km):	30.7
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<b>Connected population, thousand pers., 2004 census:</b>	14,948	<b>Persons served per km:</b>	487
<b>Connected raions:</b>	Ștefan-Vodă		
<b>Connected towns:</b>			
<b>Connected localities:</b>	(7) Popeasca - Ermoclia - Feștelița - Marianca de Jos - Alava - Lazo - Voluntiri		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	13
<b>Healthcare facilities (total):</b> Hospitals:	7
Polyclinics, emergencies, asylums, etc.	7
<b>City halls:</b>	6
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	26
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	
<b>Tourist attractions:</b>	1
<b>Border-crossing points:</b>	1
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	



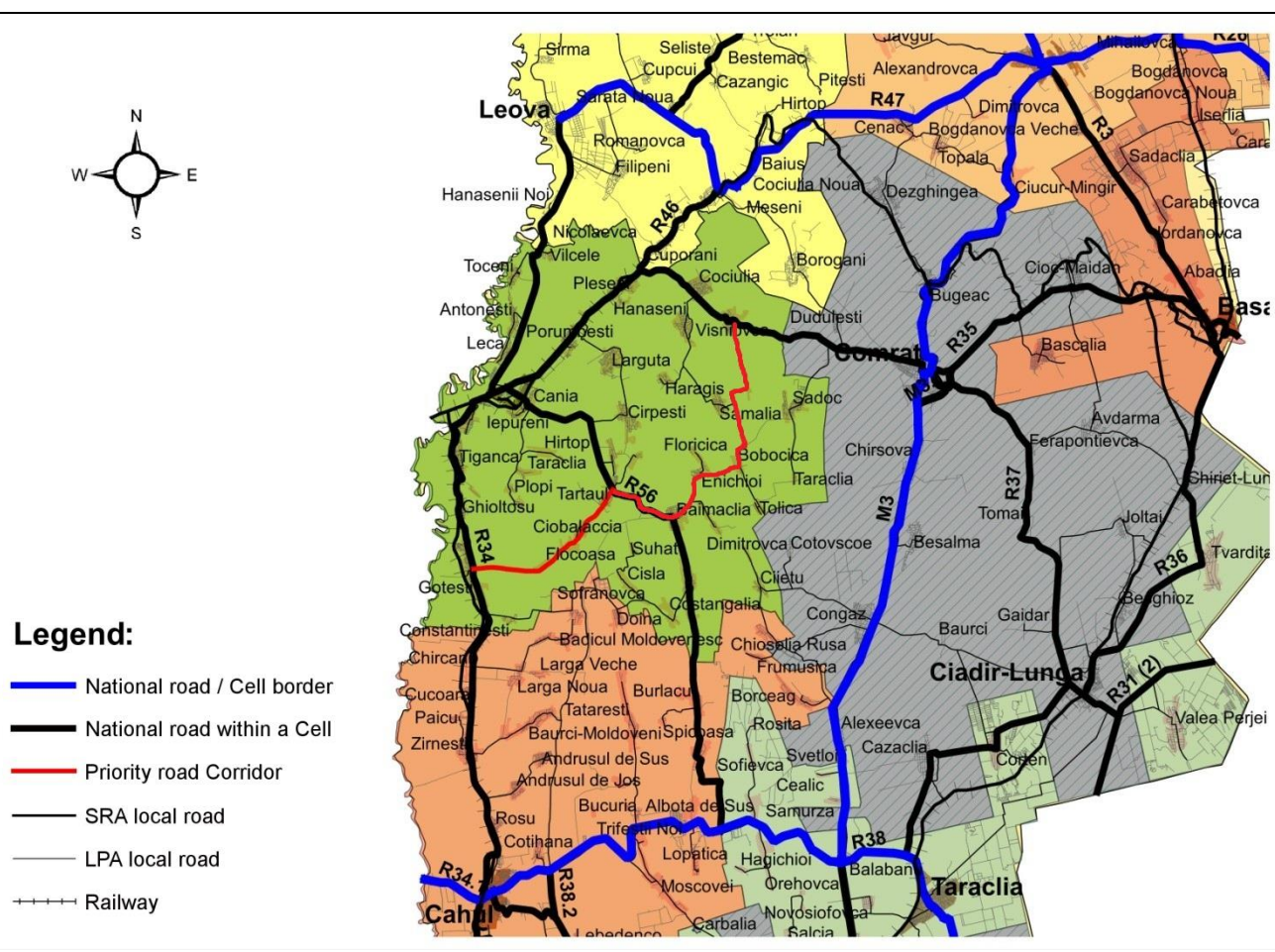


Cell Nr.				
<b>19</b>	<b>Corridor 24 – DR South</b>	<b>R34 – Ciobalaccia – Tartaul – R56 - Baimaclia – Enichioi – R37</b>	<b>Total length (km):</b>	<b>43.3</b>

<b>Corridor includes:</b>	National roads (km):	6.2 (R56)	Streets (km):		Regional and local roads (km):	37.1
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<b>Connected population, thousand pers., 2004 census:</b>	15,591	<b>Persons served per km:</b>	360
<b>Connected raions:</b>	Cantemir		
<b>Connected towns:</b>			
<b>Connected localities:</b>	(10) Gotești - Flocoasa - Ciobalaccia - Victorovca – Tartaul - Baimaclia – Enichioi – Bobocica – Șamalia - Vișniovca		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	21
<b>Healthcare facilities (total):</b> Hospitals:	11
Polyclinics, emergencies, asylums, etc.	11
<b>City halls:</b>	7
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	36
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	2
<b>Tourist attractions:</b>	4
<b>Border-crossing points:</b>	
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	

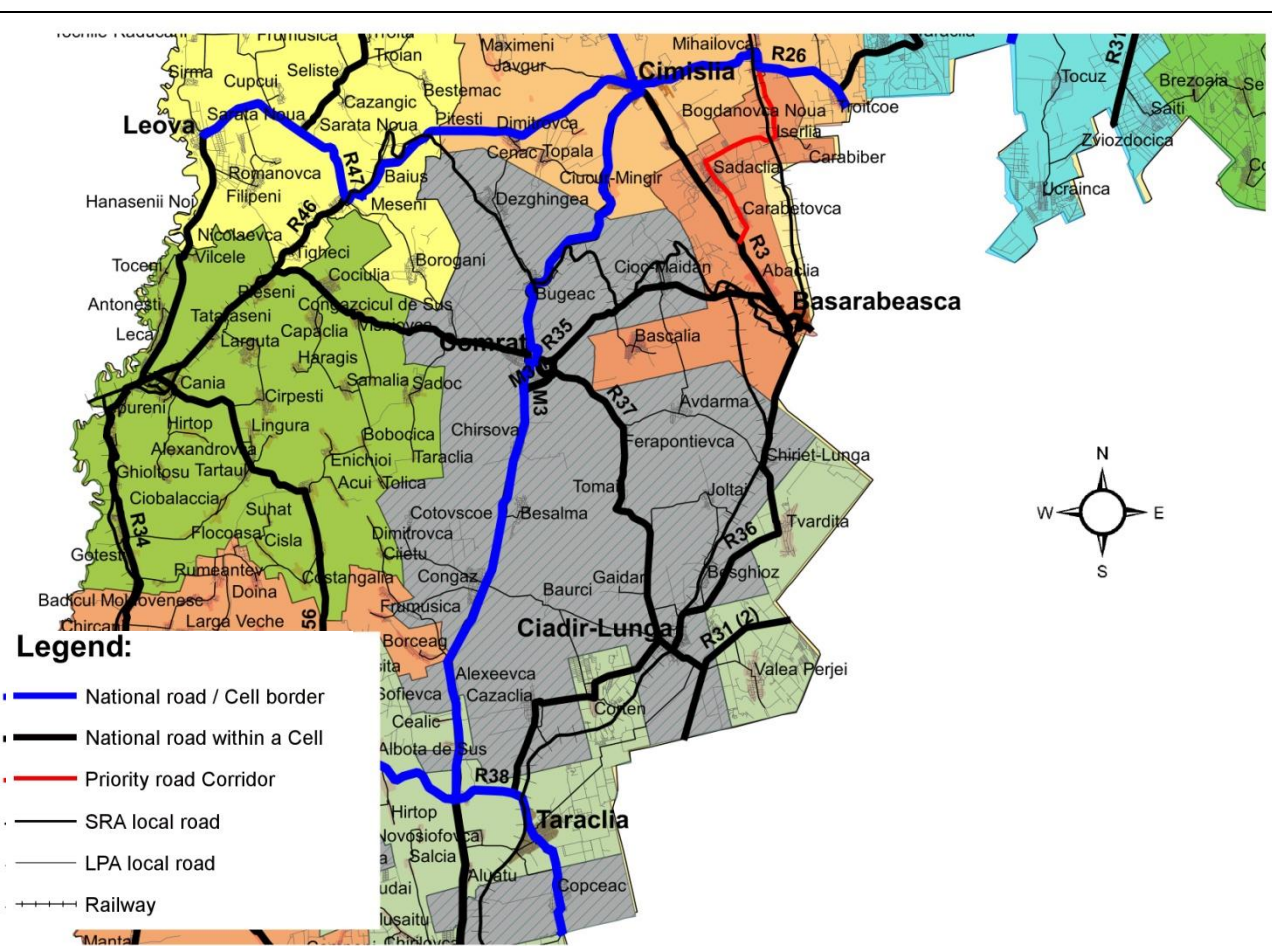


Cell Nr.				
<b>20</b>	<b>Corridor 25 – DR South</b>	<b>R26 – Mihailovca – Sadacليا – Iordanovca – R3</b>	<b>Total length (km):</b>	<b>22.4</b>

<b>Corridor includes:</b>	National roads (km):		Streets (km):		Regional and local roads (km):	22.4
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<b>Connected population, thousand pers., 2004 census:</b>	11,601	<b>Persons served per km:</b>	518
<b>Connected raions:</b>	Cimișlia, Basarabeasca		
<b>Connected towns:</b>			
<b>Connected localities:</b>	(6) Mihailovca - Ivanovca - Iserlia - Sadacليا - Carabetovca - Iordanovca		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b> Schools, colleges, kindergartens, other	12
<b>Healthcare facilities (total):</b> Hospitals:	6
Polyclinics, emergencies, asylums, etc.	6
<b>City halls:</b>	5
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b> Factories, farms, wineries, etc.	22
<b>Quarries:</b> Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	1
<b>Tourist attractions:</b>	2
<b>Border-crossing points:</b>	
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	



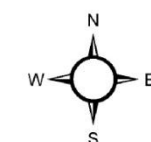


Cell Nr.				
<b>21</b>	<b>Corridor 26 – DR South</b>	<b>R38 – Moscovei – Budăi – Ciumai – Mirnoe – L672/L671</b>	<b>Total length (km):</b>	<b>35.6</b>

<b>Corridor includes:</b>	National roads (km):		Streets (km):		Regional and local roads (km):	35.6
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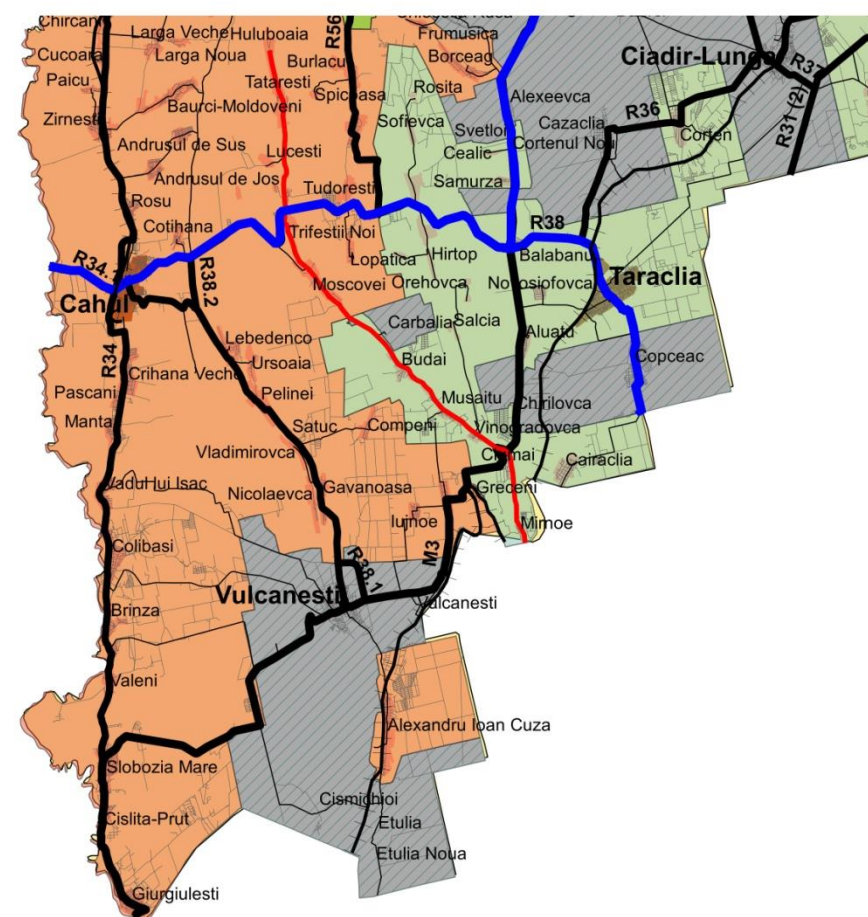
<b>Connected population</b> , thousand pers., 2004 census:	12,658	<b>Persons served per km:</b>	356
<b>Connected raions:</b>			
<b>Connected towns:</b>			
<b>Connected localities:</b>	(13) Huluboaia - Tătărești - Lucești - Bucuria - Trifeștii Noi - Moscovei - Dermengi - Carbalia - Budăi - Musaitu - Vinogradovca - Ciumai - Mirnoe		

SOCIAL INFRASTRUCTURE	
<b>Education institutions:</b>	18
Schools, colleges, kindergartens, other	
<b>Healthcare facilities (total):</b>	8
Hospitals:	
Polyclinics, emergencies, asylums, etc.	8
<b>City halls:</b>	9
BUSINESS INFRASTRUCTURE	
With more than 5 employees	
<b>Enterprises:</b>	20
Factories, farms, wineries, etc.	
<b>Quarries:</b>	
Gravel, sand, stone extraction, etc.	
<b>Free Economic Zones:</b>	
<b>Industrial Parks:</b>	
<b>Business Incubators:</b>	
OTHER INFRASTRUCTURE	
<b>Railway stations:</b>	1
<b>Tourist attractions:</b>	3
<b>Border-crossing points:</b>	1
<b>Departments for Exceptional Situations:</b>	
<b>Note:</b> Only the infrastructure in radius of 1 km from the Corridor is considered, including towns or localities at the start or end point of the Corridor	



### Legend:

- National road / Cell border
- National road within a Cell
- Priority road Corridor
- SRA local road
- LPA local road
- + + + + Railway



## **Annex 4**

### Project concept data collection template

**Annex 4: Project concept data collection template**

This project identification template aims at getting a sufficient overview of the proposed project concept – please measure where possible and estimate where necessary.

**Table 4-1: Project and survey information**

Date of survey		A potential project shall be part of the identified corridor and be of at least 10 km in length and shall have a logical start and end point i.e. end of village, at intersection etc;
Begin survey:		
End survey:		
Begin project (km 0):		
End project (km X):		
Road Name:		
Corridor:		
Cell nr:		

The applicant shall also identify and provide the full name of localities, schools, hospitals and medical clinics, businesses, tourist facilities connected to the road project and specify also if the road project provide access to national border. Only the locations within the limits of Area of Influence (AoI) of the road project shall be counted and outlined. The AoI is taken as an area of 1 km left and 1 km right along the road. The businesses with at least 5 employees shall be counted only. The applicant should also describe any other important facilities/services the road project connects to within the AoI, if any.

**Table 4-2: Accessibility assessment**

Criteria	Yes	No	Comment
Does project begins or end at National Road?			
Connects localities <sup>1</sup> ?			
Connects school(s)?			
Connects to hospital/clinics(s)?			
Connects to business(es) <sup>2</sup> ?			
Provides access to tourist attraction(s)?			
Provides access to national border?			
Passable all year around <sup>3</sup> ?			
Other <sup>4</sup>			

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<sup>1</sup> How many locations within 1 km left and right of project?

<sup>2</sup> Business is defined as having more than 5 employees within 1 km left or right of the project

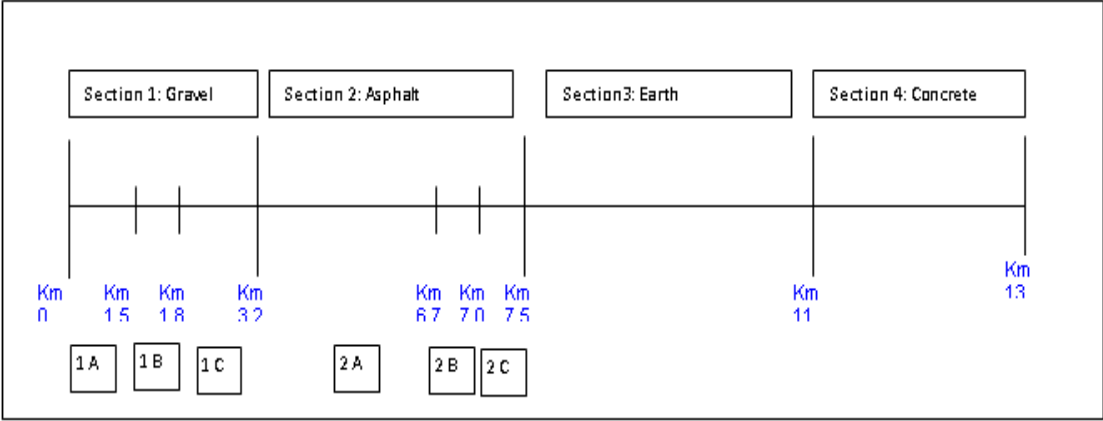
<sup>3</sup> Is the road passable all year around? Are there any sections that cannot be driven by regular car at any time of the year?

<sup>4</sup> Please list and describe any other important places/services the project connects

**Project sectioning**

Most projects will have a mix of surface types, as well as, varying conditions. Therefore it is very important to identify sections and subsections of the project. The graphic below presents an example of a possible sectioning. The type of pavement will generally define a section; subsections will define varying conditions within the section.

**Figure 4-1: Example sectioning**



The applicant shall also provide some general data on the road project condition outlined in the Field Questionnaires form. Since the collection of information on road condition requires a certain road engineering background, it is strongly recommended that the field survey to be conducted with the assistance of a road engineer, e.g. from a road maintenance enterprise S.A. “Drumuri” and with the assistance of representatives from the RDAs.



Table 4-3: Project assessment form

Section	Surface type	From km	To km	Width of carriage-way (m)	Width of shoulders (m)	Working ditches?	Bridge longer than 6 m or bridge or culvert less than 6 m	Passable year around?	Overall condition	Typical damage	Safe speed	Inside vil-lage?	Terrain	Bus stops?	Railroad crossing?	Rail sta-tions?

**Table 4-4: Project assessment form example**

Section	Surface type	From km	To km	Width of carriageway (m)	Width of shoulders (m)	Working ditches?	Bridge longer than 6 m	Bridge or culvert less than 6 m	Passable year around?	Overall condition	Typical damage	Safe speed	Inside village?	Terrain	Bus stops?	Railroad crossing?	Rail stations?
1 A	Gravel	0	1.5	6	2	Yes		2	Yes	Fair	Dust, lack of drainage, rutting	Btw 40 and 60 km /h	No	Flat	Km 1	No	
1 B	Gravel	1.5	1.8	8	0	No		1	Yes	Poor	Potholes - washed out deep ruts, dust, lack of drainage	Btw 20 and 40 km /h	No	Flat	No	No	
1 C	Gravel	1.8	3.2	6	1	Partial		3	Yes	Fair	Dust, lack of drainage	Btw 40 and 60 km /h	No	Flat	No	No	
2 A	Asphalt	3.2	6.7	6	Curb and sidewalk	Yes	1		Yes	Good	Some edge brake, cracking	More than 60 km/h	Yes	Flat	Km 4	Km 5	2
2 B	Asphalt	6.7	7.0	5	0.5	Yes		2	Yes	Poor	Severe cracking, potholes	Btw 20 and 40 km /h	No	Rolling	No	No	
2 C	Asphalt	7.0	7.5		1	Yes		4	Yes	Fair	Minor cracking /edge break	Btw 40 and 60 km /h	No	Hilly	No	No	1
3	Earth	7.5	11		0	No		4	No	Very poor	Lack of gravel surface/ not passable throughout year	Less than 20 km /h	No	Rolling	Km 8	No	
4	Concrete	11	13.5		1	Partial		2	Yes	Fair	damage to joints/slab edge break	Btw 40 and 60 km /h	No	Flat	Km 12	No	

Section: Identification of sections as presented in Figure 1-1

Surface type: What is the type of surface/pavement: earth, gravel, asphalt, concrete?

From km: Set the odometer in the survey vehicle to 0 at the start of the survey

To km: Record the odometer reading once surface or condition changes

Width of carriageway: Give an average of the width of the road

Width of shoulders: Is there a shoulder? And if yes, approximately how wide?

Working ditches: Are there ditches along the road section?

Bridge longer than 6 m: Are there bridges longer than 6 m?

Bridge or /culvert less than 6 m: If bridge less than 6 m count together with culvert

Passable year around?: Is the section passable at all conditions / year around?

Overall condition: Assess the condition based on Form II-A, II-B, II-C and II-D

Typical damage: List as detailed as possible the type of damages

Safe speed: See Table 1-5

Inside village: Indicate whether the section is within a village

Terrain: Is the terrain flat? some undulation = rolling, if defined hills = hilly

Bus stops: Indicate km of bust stops

Railroad crossing: List the km point road crosses RR

Rail stations: List number of railway stations within 1 km from the road

Photos: please provide digital pictures of the areas affected by fair, poor, and very poor distresses observed during the field survey. Please not the km of where the photos are taken.

The picture should be taken so as the area of distresses is visible across the whole width of the road surface.

(If available, it is advisable for taking picture to use a digital camera or mobile phone with GPS in order to identify later the exact position of the Location Reference Point).

**Table 4-5: Assessment of ride quality**

Rating	Quality	Description
1	Very good	Estimated comfortable / safe speed over 60 km/h
2	Good	Estimated comfortable / safe speed over 60 km/h
3	Fair	Estimated comfortable / safe speed between 40 and 60 km/h
4	Poor	Estimated comfortable / safe speed between 20 and 40 km/h
5	Very poor	Estimated comfortable / safe speed less than 20 km/h

### Assessment of traffic

During the conduct of the survey please record the number and type of vehicles you see:

- Vehicles that are driving the same direction as the survey vehicle or are passing the survey vehicle;
- Vehicles driving the opposite direction.



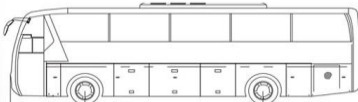


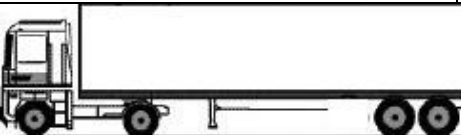



Please record the type of vehicles according to Form 1.

### Form 1: Assessment of traffic

Please indicate the number and type of vehicles that you have seen during the field visit (Please record the begin and end time of the survey, as well as starting and ending point).

- Begin date and time of vehicle counting;
- End date and time of vehicle counting.

**Table 4-6: Vehicle types**

Type of vehicle	Number in both directions		Comment
Car			
Minibus			
Large bus			
Light truck			2 axles with 4 or 6 wheels
Medium / heavy truck			3 axles
Articulated truck			3 axles
Motorcycle			
Bicycle			
Horse drawn card			

**Form II-A:** Example of asphalt pavement conditions

Asphalt      Good



No visible damage

Asphalt      Fair



Minor cracking / edge break

Asphalt      Poor



Cracking / rutting / potholes /  
edge break

Asphalt      Very poor



Significant loss of paved sur-  
face

**Form II-B:** Example of gravel pavement conditions

Gravel      Good



Good even gravel coverage

Gravel      Fair



Some rutting / gravel loss

Gravel      Poor



Serious rutting / gravel loss

Gravel      Very poor



Lack of gravel surface / not passable throughout year



**Form II-C:** Example of concrete pavement conditions

Concrete      Good



No visible damage

Concrete      Fair



Minor damage to joints

Concrete      Poor



Damage to joints / slab edge break

Concrete      Very poor



Serious damage to joints / slab edge break

**Form II-D:** Example of earth road surface conditions

Earth      Good



Good even earth cover

Earth      Fair



Some rutting / unevenness

Earth      Poor



Serious rutting / unevenness

Earth      Very poor



Very rough uneven surface /  
not passable throughout year



## **Annex 5**







### Findings of field visit





**Annex 5: Findings of field visit<sup>1</sup>**



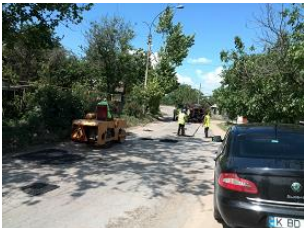

Date	Time	Purpose of visit	Participants	Visit object
May 28, 2014	09.00 – 16.30	Field visit of RLR team for the visual inspection of various types of local / secondary roads.	<ul style="list-style-type: none"> <li>Mr. Thomas Herz, International Team Advisor;</li> <li>Mr. Anton Angermeier, International Road Engineer;</li> <li>Mr. Grebencio, Team Manager;</li> <li>Mr. Ion Ciubotaru, Deputy Team Manager.</li> </ul>	Local roads from the Development Region Centre.

	Tasks / comments
Purpose	The purpose of the field visit was to carry out a visual inspection of various types of local / secondary roads in order to set out exemplary types of roads with different technical conditions.
Location	<p>The RLR team visited two possible priority road corridors in the DR Centre, both chosen at random from those with different types of pavement (e.g. gravel / asphalt concrete), as follows:</p> <ul style="list-style-type: none"> <li>Peresecina-Hirtopul Mare-Ohrincea-M21-Criuleni;</li> <li>R3-Pojoreni-Coststi-Zimbrest-Horesti-M3-Tipala-R32.</li> </ul>
Corridor 1	<p>The first visited corridor of some 33 km long is located in Criuleni and Orhei raions. The corridor overlaps to a great extent the local road L314 Peresecina-Hirtopul Mare-Ohrincea that is administered by the State Road Administration (SRA). It commences at M2 Chisinau-Soroca road, runs along the edge of Peresecina village and passes further through five villages, namely Isnovat, Hirtopul Mare, Izbeste, Cruglic, and Ohrincea. It also crosses one magistral road M21 Chisinau-Dubasari and ends near the Criulenti raion centre.</p> <p>Pavement types of the corridor:</p> <ul style="list-style-type: none"> <li>Km 0+000 – Km 2+140 asphalt concrete;</li> <li>Km 2+140 – Km 12+074 gravel;</li> <li>Km 12+074 – Km 13+570 asphalt concrete;</li> <li>Km 13+570 – Km 18+078 gravel;</li> <li>Km 18+078 – Km 23+470 asphalt concrete and further by crossing M21 road up to Criuleni town.</li> </ul> <p><b>Road condition</b></p> <p>The first section (km 0-2+140) that passes along the edge of the Peresecina village of asphalt pavement is in bad condition presenting various types of distresses at separate sub-sections such as potholes, longitudinal and transversal cracks, alligator cracks, edge breaking, rutting and settlements.</p> <p>The drainage of this section is in poor condition. There are places where drop-off of the shoulder is encountered. This causes the braking of pavement edges. In other places the elevation of shoulders is higher than the pavement so as the water cannot move away from the roadway. It infiltrates in the pavement causing thereby damages to the roadway.</p>

<sup>1</sup> Due the logistical and financial reasons and taking into account the bad condition of entire RLR network in the Republic of Moldova, for field visit only two corridors with different types of pavement have been randomly selected from DR.

	Tasks / comments
	<div data-bbox="459 255 807 501">  <p data-bbox="518 501 758 528"><b>Picture 1 – km 0+250</b></p> </div> <div data-bbox="874 255 1225 501">  <p data-bbox="925 501 1165 528"><b>Picture 2 – km 2+140</b></p> </div> <p data-bbox="411 560 1356 678">The second section (km 2+140 – 12+074) starts from the edge of Peresecina village and passes further near the Miclesti village. It has a gravel pavement of limestone. This section is in fair condition exhibiting a short section with rutting distresses. Otherwise the section has an adequate crown for water moving away from the roadway.</p> <div data-bbox="469 678 823 925">  <p data-bbox="518 925 758 952"><b>Picture 3 – km 2+140</b></p> </div> <div data-bbox="865 678 1219 925">  <p data-bbox="917 925 1165 952"><b>Picture 4 – km 12+740</b></p> </div> <p data-bbox="411 983 1356 1102">The next very short section (Km 12+074 -13+570) is of asphalt pavement. Having a fair to bad condition the road section presents many cracks in particular longitudinal ones running in the direction of traffic of up to 3-4 cm width, encountered mainly at the centre-line and wheel path.</p> <p data-bbox="411 1106 1356 1225">These distresses occurred predominantly due to inadequate bonding during construction, aging of the asphalt pavement and heavy loads of vehicles. At the beginning of this section a random disposal of an appreciable amount of soil on the embankment slope was observed proving uncontrolled and poor maintenance of slopes.</p> <p data-bbox="411 1229 1356 1285">Further, the gravel road section (Km 13+570 -18+078 Km 18+078 – 23+470 and further up to M21) that precedes Isnova village is in fair condition.</p> <p data-bbox="411 1290 1356 1435">During RLR field visit, on this section S.A."Drumuri-Criuleni" was undertaking maintenance works such as construction of side ditches for drainage improvement. Representatives of the maintenance enterprise stated that recently the surface of this section was improved by blading and adding new gravel / limestone. Hence, some rutting distresses were noticed at newly re-gravelled section showing substandard execution of works.</p> <div data-bbox="485 1451 887 1756">  <p data-bbox="558 1756 813 1783"><b>Picture 5 – km 12+740</b></p> </div> <div data-bbox="893 1451 1283 1756">  <p data-bbox="957 1756 1212 1783"><b>Picture 6 – km 14+370</b></p> </div> <p data-bbox="411 1845 1356 1989">The corridor further passes near Isnovat, through Hirtopul Mare, Isbiste, Cruglic and Ohrincea villages. Excluding the asphalt concrete section within Hirtopul Mare village, up to Isbiste village the road has a gravel surface. Being in fair to good condition it allows a car to develop a safe and comfortable speed of up to 60-70 km/hour. However, the dust control remains an issue of concern on this type of road without pavement.</p>

	Tasks / comments
	<div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;"><b>Picture 7 – km 14+370</b>      <b>Picture 8 – km 14+450</b></p> <p>Further the corridor has an asphalt concrete pavement running through Isbiste, Cruglic and Ohrincea village. The condition of this road section is fair to bad exhibiting pavement distresses such as alligator cracks, rutting, edge breaking etc.</p>
Corridor 2	<p>The second visited corridor of 22 km long is located in Ialoveni raion. The corridor entirely coincides with the local road R3-Pojareni-Tipala-R32 that is administered by the SRA. It commences at R3 Chisinau-Hincesti-Basarabeasca road, passes further through Pojareni, Costesti, Zimbreni and Horesti villages, than crosses M3 Chisinau-Giurgiulesti road, runs further through the Tipala village and concludes at the intersection with national road R32 R2-Puhoi-Cainari-Salcuta.</p> <p>Pavement types of the corridor:</p> <ul style="list-style-type: none"> <li>• Km 2+075 asphalt concrete;</li> <li>• Km 2+075 – Km 7+249 gravel;</li> <li>• Km 7+249 – Km 10+358 asphalt concrete;</li> <li>• Km 10+358 – Km 15+602 gravel;</li> <li>• Km 15+602 – Km 21+789 asphalt concrete;</li> <li>• Km 21+789 – Km 22+746 concrete;</li> <li>• Km 22+746 – Km 23+153 asphalt concrete;</li> <li>• Km 23+153 – Km 28+493 gravel;</li> <li>• Km 28+493 – Km 33+703 asphalt concrete;</li> <li>• Km 33+703 – Km 34+600 gravel.</li> </ul> <p>As can be seen, on this corridor the asphalt concrete pavement alternates with gravel surface.</p> <p>The first section of the corridor (0-2+075) made of asphalt pavement commences at R3 road, runs through the Pojareni village and concludes at the end of it. The road condition of this section varies from fair to bad.</p> <p>The next road section of gravel surface (km 2+075 – km 7+249) comprises the portion between Pojareni and Costesti villages. The beginning of this section exhibits poor drainage and road surface. Lack of adequate cross slope of roadway and no ditches resulted in potholes occurrence, water ponding on shoulders.</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;"><b>Picture 11 – km 2+075</b>      <b>Picture 12 – km 2+075</b></p> <p>The corridor further runs through Costesti village (Km 7+249 – Km 10+358). Covered with asphalt pavement this section has to a great extent a fair condition. From Costesti village up to Zimbreni villages (Km 10+358 – Km 15+602) the corridor is unpaved with an adequate gravel surface and good crown. Hence, the clouds of dust formed by vehicles on this road section still remains an issue of concern. It has an envi-</p>

	Tasks / comments
	<p>ronmental impact on the crops growing nearby the road, but also impairs visibility causing hazards to drivers.</p> <p>The next section passing through Zimbresti and Horesti villages and further close to the intersection with M3 road (15+602 – Km 21+789) has an asphalt pavement of fair to bad condition. The pavement presents distresses such as cracks, raveling and patches that are also deemed as defects no matter how well they have been executed.</p> <div data-bbox="525 436 839 672">  </div> <p data-bbox="555 674 825 698"><b>Picture 13 – km 16+350</b></p> <div data-bbox="904 436 1235 672">  </div> <p data-bbox="954 674 1224 698"><b>Picture 14 – km 16+350</b></p> <p>Further the corridor includes a short section of concrete pavement that crosses M3 road (Km 21+789 – Km 22+746) followed by another short section of asphalt pavement (Km 22+746 – Km 23+153).</p> <p>The next section of the corridor (Km 23+153 – Km 28+493) has a gravel surface up to the Tipala village. The fair to bad condition of this section allows a car to develop a safe and comfortable speed of up to 50 km/hour.</p> <p>Within the Tipala village and further up to Km 33+703 the corridor is paved with asphalt concrete. Passing through the village along the corridor, the RLR team encountered a road team from S.A. “Drumuri Ialoveni” which were carrying out pothole repair works.</p> <div data-bbox="549 1039 853 1265">  </div> <p data-bbox="572 1267 836 1321"><b>Picture 15 – the corridor through Tipala village</b></p> <div data-bbox="904 1039 1204 1265">  </div> <p data-bbox="922 1267 1185 1321"><b>Picture 16 – the corridor through Tipala village</b></p> <p>The last short section of the corridor ending at the national road R 32 has a gravel surface and fair condition.</p>

**Annex 6**

Cost estimates by units

## Annex 6: Cost estimates by units

An authoritative cost estimate relies first of all on scope of works and a detailed design. Presently such a project scope with design and specifications does not exist and consequently a cost estimate is very preliminary.

Unit cost from comparable projects is not available and the cost estimate will be based on very general figures that were obtained from two sources in Chisinau.

One source is ICS STRABAG SRL, an international contractor with physical presence and market knowledge in the Republic of Moldova and the other source is UNIVER-SCONS SRL, a local engineering firm with experience in local road projects. Both firms provided on request some general cost indicators.

**Table 6-1: Cost indications provided**

Cost type	Company (source of cost indication)	
	ICS STRABAG SRL	UNIVERSCONS SRL
Asphalt, mix & complete	80-100 € per 1,000kg	80-100 € per 1,000 kg
Binder 6cm	12-15 € per sq.m	31-40 € per sqm & 15cm(about 21-27€/sqm when 10cm) total thickness
Top layer 4cm	8-10 € per sq.m	
Crashed stone layer 10cm		2.90-3.70 € per sqm
Earthworks		
Cold recycling 20cm layer	80 € per sq.m	
Gravel road 20cm layer	50 € per sq.m	
Soil stabilization	8-10 € per sq.m	
Reinforced concrete		270 € per cbm
Rehabilitation of crashed stone pavement with new 10cm layer		20,000 € per km in central & northern region 26,000 € per km in southern region
Removal of crashed stone pavement, construction of new 40cm graded sand & stone layers		76,000 € per km in northern region 88,000 € per km in central region 90,000 € per km in southern region
Partial repair works of asphalt roads including cracks repair, potholes patching, curb stones, trenches, shoulders		90,000 € per km in northern & central region 95,000 € per km in southern region
Repair works of asphalt road with full new 6cm asphalt layer including culverts, trenches, shoulders		165,000 € per km in northern & central region 174,000 € per km in southern region
Full rehabilitation of asphalt pavement with 5cm levelling, 6cm base course, 4cm wearing course		185,000 € per km in central region 218,000 € per km in southern region 242,000 € per km in northern region
As above with 10cm sand and 26cm gravel as levelling layer		185,000 € per km in central region 207,000 € per km in southern region 220,000 € per km in northern region
New asphalt road including earthworks		235,000 € per km in central region 257,000 € per km in southern region 269,000 € per km in northern region
New gravel road including earthworks		78,000 € per km in northern region 86,000 € per km in southern & central region
Bridge repair (average 1 small bridge on 10km roads)		18,000 € for 1 span of 6m 46,000 € for a 3x6m bridge

## **Annex 7**

### Assessment of risks identified in the RLR sector



**Annex 7: Assessment of risk identified in the RLR sector**

No	Identified potential risk	Potential impact	Assessed risk occurrence probability (1 low - 5 high)	Assessed risk impact (1 low - 5 high)	Possible measure for risk mitigation
<b>Political and legal risks:</b>					
• External					
1.1	Lack of a policy vision or even absence thereof on the future direction of RLR sector development.	Misdirection of investments due to lack of a clear and unitary vision on the Government policies towards development of the country outside the capital.	3.4	3.3	Ensure the legal and institutional framework for road network planning, operation and maintenance. Develop a clear, transparent, coherent and repeatable mechanism for identification and prioritisation of road projects for future investment.
1.2	Centralized and inefficient system of planning of local roads repair works.	The occurrence of misperception from LPA that the main responsibility on road condition and required resources should be secured by central government. Efforts in identification and using necessary resources will not be made at the local level.	3.0	3.1	Decentralize the local roads administration by ensuring the transfer of finance and capacities for a more efficient management of local roads
1.3	Failure to adjust legal and regulatory framework related to functional classification of roads including adopting the list for regional roads.	Confusions and prevailing of unclear vision towards regional road network improvement and development.	3.0	3.2	Review, update and implement of legislation including adopting the list for regional roads – MTRI and MRDC.
1.4	Roads are transferred to LPA without transferring appropriate amount of financial resources.	Lack of investments in road sector at the LPA level.	4.1	3.9	Transmit the local roads to the balance sheet of local public authorities of level 2, making sure that appropriate amount of resources are allocated from the Road Fund for their repair and maintenance. Training and capacity building of local staff dealing with local road financial management.
1.5	Non-compliance of the national legislation with EU Acquis.	Failure to improve countries policy framework, attract investments, to increase private sector growths and to facilitate trade with EU and other European countries.	3.2	3.4	Review and align/approximate the national laws, rules and procedures to that of the EU Acquis.

No	Identified potential risk	Potential impact	Assessed risk occurrence probability (1 low - 5 high)	Assessed risk impact (1 low - 5 high)	Possible measure for risk mitigation
1.6	Use of outdated construction standards and laws.	Affecting the quality of projects by the obsolete design rules (i.e. oversized roads, overestimated investment and maintenance costs, etc.	3.3	3.5	Update of the standards and norms to best international practices – MTRI, MRDC, MoE.
1.7	Gap between provisions of legal framework and the current state of affairs on the ownership and for the management of roads at the local level.	Lack of clarity on ownership and responsibility of roads will lead to a deficient management and maintenance of roads at the local level.	3.7	3.8	Transfer ownership on local roads to LPA 2 and take over the responsibilities for the management by the LPA 2
1.8	Non-compliance of national procurement procedures with the IFI / EU requirements.	Failure to implement best practices on procurement process and procedures.	3.6	3.5	Review, update and implement of legislation – Public Procurement Agency, MTRI.
<b>Institutional risks:</b>					
• External					
2.1	Insufficient coordination of activities between ministries and local public authorities.	Duplication of efforts and investments from various ministries and subdivisions, low absorption capacity, poor quality of implemented projects.	3.2	3.6	Institutional reform – clear delineation of institutional responsibilities between public administrations.
2.2	Inefficient management of road sector investments by state institutions	Delays in planning / financial processes, duplication of activities /gaps left in infrastructure, unwanted competition between ministries and between local public authorities.	3.8	4.0	Institutional reform - clear delineation of institutional responsibilities between public administrations. Capacity building of staff involved in project implementation.
2.3	Failure to adjust the legal and regulatory framework and technical standards to the requirements of the new maintenance system	Failure to enhance performance of the public roads maintenance system.	3.2	3.4	Review and adjust the legal and regulatory framework and technical standards in accordance with the reform of road maintenance system' provisions.
• Internal					
2.4	Failure to strengthen the capacity and to provide managerial training of the staff involved in road maintenance	Low capacity of the staff involved in road maintenance leading to inefficient road maintenance management and	3.1	3.4	Strengthen the capacity and training of the staff involved in road maintenance in accordance with the reform of road maintenance system' provisions.

No	Identified potential risk	Potential impact	Assessed risk occurrence probability (1 low - 5 high)	Assessed risk impact (1 low - 5 high)	Possible measure for risk mitigation
		delivery of poor quality services			
2.5	Lack of capacity at LPA level to manage investment.	Inefficient road maintenance management and delivery of poor quality services	3.7	3.8	Set up of a unit within SRA with specific responsibility for RLR. Create an additional unit of staff responsible for RLR. Training and capacity building of the experts employed in management of local roads.
• Internal and external					
2.6	Failure to implement the National Road Safety Strategy	Increased number of traffic casualties. Failure to comply with the UN Resolution to reduce the number of deaths caused by road accidents per million population by 50% by 2020.	3.3	3.5	Include road safety enhancement in road projects and road maintenance activities. Carry out campaigns on road safety, drivers' behaviour and law enforcement programs.
2.7	Lack of domestic qualified experts and companies for carrying out road rehabilitation projects financed by IFIs using advanced technologies and optimized forms of contracts (FIDIC).	Failure of domestic road construction companies to compete with overseas companies in projects financed by IFIs and therefore missing the opportunities to acquire expertise so as to become competitive at the regional and international level.	3.8	4.2	Encourage the development of domestic contracting and sub-contracting. Training and capacity building of local staff involved in road rehabilitation and construction (including FIDIC Conditions of Contract).
2.8	Lack of road condition data systems at the local level.	Inefficient planning of the RLR services due to lack of consistent data regarding development of RLR sector.	2.9	2.9	Collection of basic data and mapping of the existing roads. Development and implementation of RAMS.
2.9	Reluctance of local authorities to aggregate and benefit from e.g. rayon based local road maintenance service.	Failure of LPA 1 to manage road maintenance and reluctance thereof to use services jointly with other localities.	3.4	3.7	Professional coordination of regional and local roads at the level of MRDC, RDAs and LPAs by adopting maintenance strategies to ensure technical solutions for each locality. Human resources motivation.
<b>Financial risks:</b>					
• External					
3.1	Insufficient financing of RLR sector from external funds – grants and	Failure in achieving the development objective to increase public investments	3.3	3.9	Improvement of the financial planning in RLR sector - MoF, MTRI, MRDC.

No	Identified potential risk	Potential impact	Assessed risk occurrence probability (1 low - 5 high)	Assessed risk impact (1 low - 5 high)	Possible measure for risk mitigation
	loans from donors and financing institutions	in road infrastructure for diminishing transport expenditure and increasing accessibility.			
3.2	Low financial absorption capacity of state institutions	Limited volume of external investments leading to delays or failure in achieving the national objectives.	3.7	3.7	Improvement of management and financial planning processes, institutional reform - transfer of investment implementation function to the MRDC (RDAs).
• Internal and external					
3.3	Insufficient financing of RLR sector from internal sources – Road Fund, NFRD, local budgets, etc.	Failure in achieving the development objective to increase public investments in road infrastructure for diminishing transport expenditure and increasing accessibility.	3.8	3.8	Improvement of the financial planning in RLR sector – MTRI, MRDC, RDAs, local authorities.
3.4	Corruption and Cronyism	Corruption and Cronyism result in contracts being awarded at inflated prices to affiliated companies, resulting in sub-standard performance without remedy.	4.8	4.6	Ensure transparency in procurement processes. Clear provisions for the use of independent supervising engineers during implementation of capital investment projects to sign off on performance. Use of measured contracts and performance based contracts with high levels of documented evidence of performance.
<b>Economic and social risks:</b>					
• External					
4.1	Unfavourable demographic trends	Provide road infrastructure services to depopulated areas having expensive road network.	3.5	3.7	Supporting regional economic revitalization and cohesion.
• Internal					
4.2	Gender issues	Various risks related to gender discrimination	2.0	1.9	Conducting the campaigns for population awareness - RDA, MoEd