REPUBLIC OF ALBANIA · ALBANIAN ROAD AUTHORITY

PLANNING AND PREPARATION OF THE RESULTS-BASED ROAD MAINTENANCE AND SAFETY PROJECT (RRMSP)

Grant No. P13982 ·Contract No. 1

DRAFT ENVIRONMENTAL MANAGEMENT PLAN (EMP)

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Acronyms

ALL	Albanian Lek
ARA	Albanian Road Authority
ARAP	Abraviated Resettlement Action Plan
BAT	Best Available Techniques
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
ESFD	Environmental and Social Framework Document
ESMD	Environmental and Social Management Document
ESMF	Environmental and Social Management Framework
ESSD	Environmental and social Safeguard Document
ESIA	Environmental and Social Impact Assessment
EU	European Union
GOA	Government of Albania
IEE	Initial Environmental Examination
MOE	Ministry of Environment
MTI	Ministry of Transport and Infrastructure
NCL	National Center of Licensing
NEA	National Environmental Agency
NOs	Nitrogen Oxides
OP	Operational Procedure
OPRC	Output and Performance based Road Contracts
PAP	Project Affected People
PM	Particulate Matter
PR	Performance requirements
RAP	Resettlement Action Plan
RDR	Regional Directorate of Roads
RRMSP	Results based Road Maintenance and Safety Project
REA	Regional Environmental Agency
RRA	Regional Road Authority
WB	World Bank
WOCs	Volatile Organic Compounds

1 INTRODUCTION

The RRMS Project has been classified under WB policies as Category B, and, as such, requires an Environmental Management Framework (EMF) with sample Environmental Management Plans (EMPs), which are the subject of the present document. The EMPs will be developed for at least two types of activity that are anticipated under road maintenance/upgrading activities at this stage.

A set of proposed activities anticipated under road maintenance in this phase of the project have been identified and presented here. The objective is to set out the preparatory work which shall lead up to the production of the complete documentation to be included in the final Environmental and Social Safeguard Documents, taking into account Public Consultations(attendance sheet, official minutes, main conclusions) as well The EMF provides on the procedures for the preparation of EMPs by ARA (or ARA's consultants), and the cases when this is needed (cases where road maintenance or upgrading activities do not require a profound EIA study), such as the project in term. The EMPs required by WB guidelines will play an active role on environmental protection throughout the execution of reconstruction or maintenance works.

The assumed activities refer to the road section identified and agreed with ARA, namely the section Vidhas – Paper on National Road Sh7. This section is deemed meaningful as it embodies common features often encountered on the Albanian road national network, which may be subject to significant improvements in terms of service levels and user's safety, as explained below.

The road was surveyed by the Consultant during the site visit carried out in early June 2014.

The EMPs are prepared in accordance with the outlines defined in the EMF report, reconciling both the World Bank and the Albanian legal requirements and applying general outlines and standard EMP tables on mitigation measures and monitoring program.

As many roads of the Albanian network, the section under consideration is suffering damages caused by deterioration of road pavement, missing guardrails, insufficient lighting etc. Besides the road cross section is not suitable for a semi-urban crossing due to lack of proper accessibility for pedestrians or bikers. Such conditions have increased the risk for accidents, that sometime result to be fatal. This may be considered a typical situation where a proper planning and design of maintenance and upgrading could improve the situation in terms of both road service level and safety.

This document deals with potential impacts of the proposed project, considering significant positive and negative impacts, identifying any irreversible-unavoidable impacts, underlining possible data gaps and significant deficiencies on the impact prediction process. Mitigation measures are proposed to balance the potential impacts, together with a monitoring program, serving as an instrument for the evaluation of the efficiency of impact mitigation measures.

1.1 Public Consultation

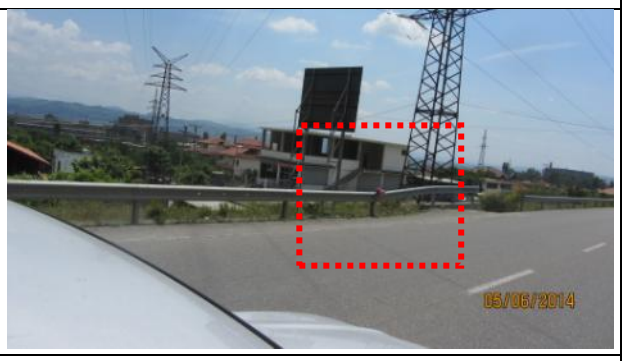
In parallel to the investigation work, public consultation activities shall be carried out. After a first consultation with decision maker authorities of ARA, Environmental Ministry, etc. public meetings will be held with local stakeholders and the community in vicinity of the road section under consideration.

The offices of Papri's Commune remains the most important formal source of information regarding socio-economic and environmental data. The consultant will explain to the interested parties the goal of the project, what are the most important positive and negative impacts related to the environment (air, land and water pollution)produced by maintenance and upgrading activities of the project, positive impacts such as an increased life security for the community, the main expected impacts on biodiversity and habitats, etc. Only one public hearing can be organized in order to address both environmental and social matters, so the consultant will also conduct all necessary actions to identify the possible Project Affected People (PAPs)and conduct the public consultations, and will include the results in the Annexes of the Environmental and Social Safeguard Documents. The Consultant and ARA will follow consultations with stakeholders and vulnerable groups likely to be affected by the project, as well as with local NGOs regarding the environmental and social aspects.

2 PROJECT DESCRIPTION

The study is focused on activities in the road section identified and agreed with ARA, that is the section Vidhas – Paper on National Road Sh7. This section is significant as it presents features often encountered on the Albanian road network. The segment under the study is 7.8 km long.

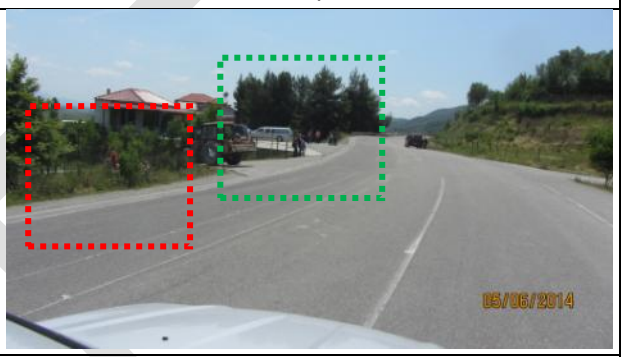
The road was surveyed during the site visit which the Consultant carried out during June2014. The road section under examination seems to be featured by the conflict between motorized and not-motorized road users, which is rather common on the Albanian road network (see green boxes in the following pictures). The main cause of this conflict appears to be the crossing of a typical urban context (with a number of vulnerable spots, such as schools, houses, etc.) with a road section that has a typical rural layout (absence of footpaths, 3.75 m lane width, 1.50 m un-paved shoulder width, absence of zebra crosses and lighting, etc.). This functional incompatibility has probably been the cause of several road accidents, the signs of which have been noted along the route (see red boxes in the following pictures). In this case, the underrating of environmental and social conditions, such as the existence of school and other civil and social settlements, led to a poor design, causing accidents and increasing risk for the local population as well as road users. In this area, approximately 20-30 yearly accidents have been registered, among which 2-3 with fatal consequences.

Site Visit Campaign SPEA-EGNATIA (June 5th 2014)	
	
Picture no.1 Paper direction	*Picture no.2 Paper direction*

Picture no.3 Paper direction

Picture no.4 Paper direction

Picture no.5 Paper direction



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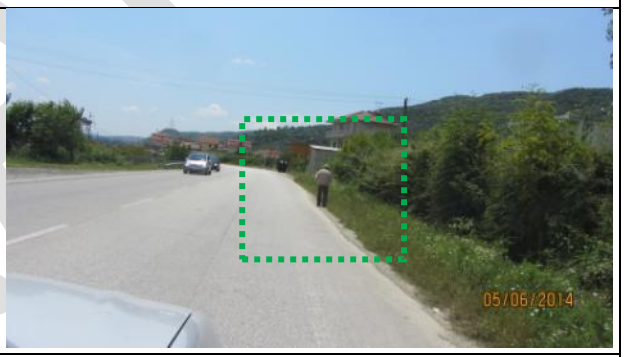

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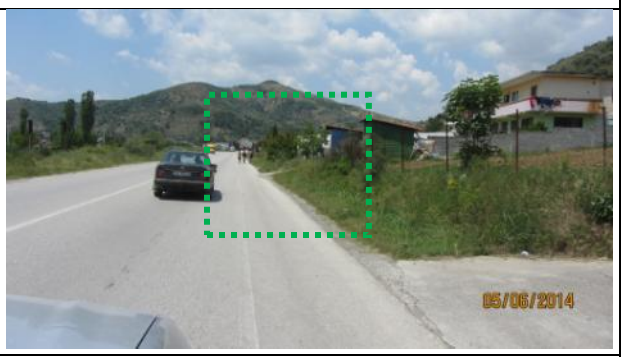

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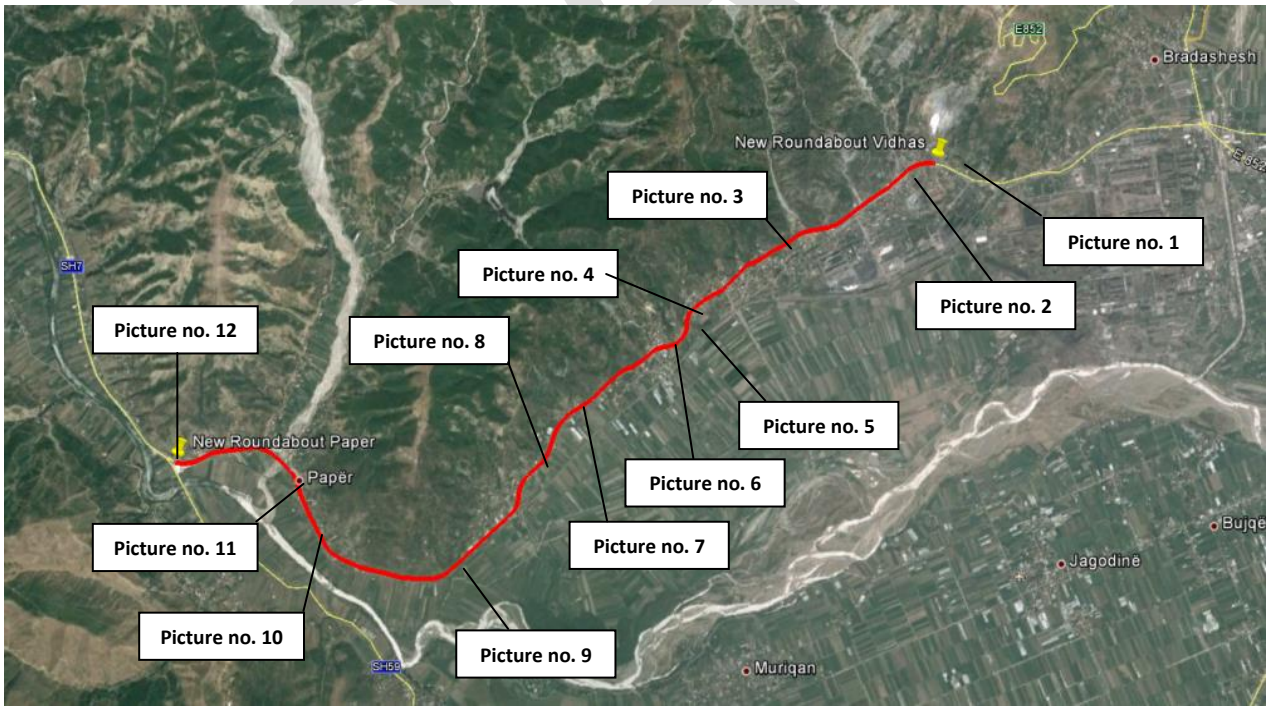

Figure 1 - Reference frame

2.1 Proposed Improvement interventions

The identification of the potential improvement interventions was driven by the following main purposes:

1. Reduce the vulnerability of not-motorized road users;
2. Induce a motorized users' behavior to comply with specific environment constraints (speed reduction, attention to side friction, etc.);
3. Identify a set of interventions that could be implemented both separately and together.

On the basis of the above considerations and taking also into account the current traffic volumes (5800 ADT with 7% of heavy vehicles), the proposed interventions are the following:

a) The construction of two new roundabouts at the section head points. As shown in the following pictures, this intervention will probably entail land acquisition.

b) The redefinition of the current cross section layout(2 X 3.75 m lanes + 2 X 1.50 m shoulders = 10.50 m total width) as follows: 2 X 3.00 m lanes + 2 X 0.50 m shoulders + 2 X 1.50 m footpaths = 10.00 m total width.

c) The provision of new lighting plants along the sub-section closed to the most vulnerable points (including the new roundabouts), and the revision of the overall signs and markings lay-out.

d) The construction of sidewalks and bike lane on both the carriageway

e) The provision of of pedestrian& cycling crossing

Figure 2–Location of the new roundabout in Paper

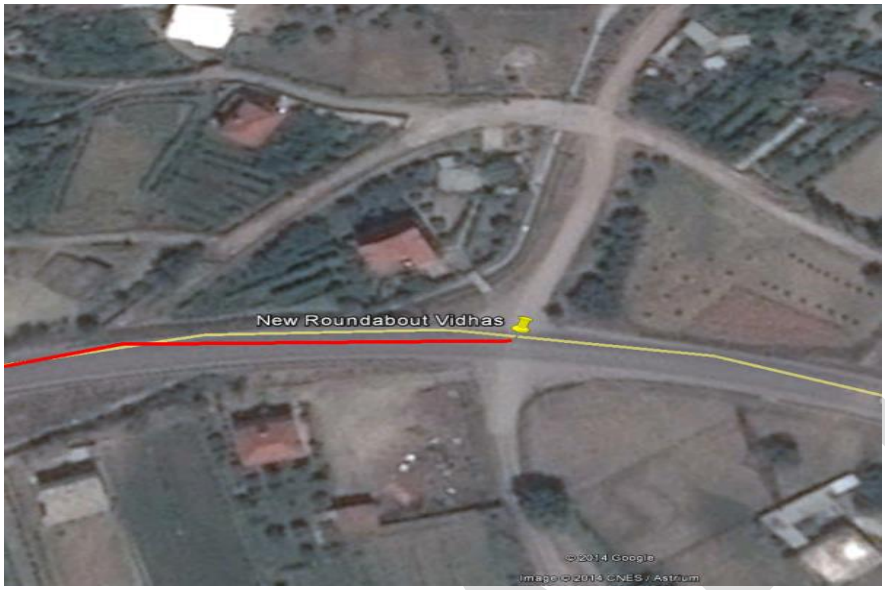

Figure 3–Location of the new roundabout in Vidhas

Figure 4 - Location of roundabout in Paper

Figure 5 - Location of roundabout in Vidhas

2.2 Environmental background of the site

Project Location

The site under study is part of the Paper Commune. Paper Commune is an important commune of Elbasani District.

Elbasani region is one of the 12 Regions of Albania with a surface of 3,278 km² and a population of 433,244 inhabitants. The Center of Elbasani Region is Elbasan. The city is situated at Elbasani field, at the western side of Shkumbini River flow, at an altitude of 120 m a.s.l. Elbasan Region is constituted by 4 districts; Districts of Elbasan, Gramsh, Librazhd and Peqin. Its morphology is represented by 60% fields, 30% hills and 10% mountains. The mountains sorruns the commune at North/East, East and South/East. The highest point of the District is Jeroshi Mountain, 1883 m. a.s.l. The hills are situated in the North/West, West and South/West of the Commune. Between the most important hills it can be mentioned the Dumrea, Sulova and Llixha hills. The fields are situated at the Commune's center. Among the most important flat areas can be mentioned the Elbasani, Cerriku and Gostima fields.

Paper commune is situated close to Elbasan, in its South/West. The village of Paper has been built parallel to Shkumbini River flow. On the hills it is situated the Paper stream, which discharges at Shkumbini River. Paper territory is constituted almost from flat territories.

The Road segment SH7 goes from a North/East to West direction, parallel to Shkumbini flow, crossing partly the Shkumbini valley. The segment SH7 is part of Elbasan- Peqin highway. In the East side, the Road crosses the Paper stream before it discharges at Shkumbini. The main part of the section passes through a populated area, while other sections cross agricultural lands. It should be mentioned that after the construction of the road, many buildings have been built in its surroundings. The road section

under consideration crosses the territories of the following villages: Paper, Derven, Vidhas and Bradashesh.

Biophysical data

The project site is situated in the central part of Albania. The Climate is Mediterranean Hilly Climate, with hot and dry summer and cold and wet winter. The area of Elbasan district, is part of the Mediterranean area and hilly sub-central Mediterranean area. The average air temperature varies from 6.7°C to23.4°C (January to July). The absolute minimum temperature has been recorded in January 1968, with 7.5°C. The maximum-absolute was registered in July 1988 and it was to 42°C. Annual amount of rainfall is 1148 mm.

The zone under study lies in the area at the right side of the flow of Shkumbini river, at an altitude of 120m above sea level. The hills create a natural green crown and very panoramic sight for the city. Elbasan district is bordering with Tirana in the North-west, with Peqin district in the West, with the district of Lushnja in South-West, with Kucova district in South, with Gramsh district in South-east and with the district of Librazhd in the East.

By a geo-morphological point of view, the road under study (Paper Vidhas SH7) is located in the Shkumbini Valley. These valleys from Rrogozhina to Elbasan become narrow, but do not follow always this order. In Peqin, Paper and Bradashesh the valley is large. The road is located on a the terrace deposits of the Shkumbini River, partially located at Neogenical, Paleogenical and Preluvial deposits.

Sites with specific value

Elbasan district is a very attractive area with great tourism potential, as there are many outdoor locations rich and diverse, with cold water, fresh air and beautiful environments, such as Spring of Horse, the area of Belshi with its lakes of karst origin. In this area we can mention the lakes of Seferani and Merhoi. Skalaberi Bysheku in the commune of Shushica is a picturesque site, famous for its cold water. At the same time this place is a historic site, where the confrontation between Albanian and Turkish forces in the century XV took place. The thermal baths of Gjinari, that have natural beauty and curative values, situated about 1300 m above sea level, Bukaniku Forest, the Labinoti source, and Krasta area are some of this region's natural attractions. All the above attractions make possible the provision of endless opportunities to enjoy green tourism and exploration of nature. The segment under the study is 12 km far from the nearest natural specific site or protected area (Belshi/Serafini lakes and Gradishta mountain).

The city of Elbasan is very rich in natural sites of interest as well, some of which are listed below:

Natural sites (geologic)

The Funnel of Kosovo, Dumre. It represents the karst funnel, formed in the permo-triasi bays. About 50 m diameter, with a depth around 30 m.

The Mountain of Gradishta, Belsh. Recognized and named as "the rock of Gradishta", represents the event remains in Gypsum karst of permo-triasi. 350 m high, several hundred meters long and about 100 m wide. On the ridge there are archaeological remains of a prehistoric settlement.

The cave of Graceni. Established in limestone of Crete, it has not yet been explored. The known length is about 20 m.

Natural sites (aquatic)

The lake of Seferani in Dumre. Karst lake formed in Gypsum, from the union of several karst funnels filled with water after the last block of clay. The surface is 87.5 ha, the average depth is 4.5 m, while the largest depth is 20.8 m, the length 2.05 km, width up to 500 m. Establishes a rich ecosystem of lake with various world-life. Seferan Cerrik-Belsh itinerary.

The lake of Dega, Dumre. Situated 160 m above sea level, this karst lake 1600 m long, about 300 m wide, 17.9 m deep, and 37.4 ha of surface It is the most beautiful in the Dumre area, characterized by a rich living world. Water temperatures goes from 7.8 to 8 degrees C. In up to 15 m depth, dissolves oxygen content in water in 1.5 mg / l. Below this depth, appears the sulphydric acid.

The thermal waters of Hibraj. About 200 m above the sea level. Resources are in temperatures around 400 C. It is for long used asa treatment of arthritis and rheumatism diseases. There are hotel facilities and medical services, improved in the last 10 years. An Oak forest is near this location, which is a monument of nature.

Natural Habitats

The oak-tree of Lleshani.
The birch-tree of Zavalina.
The pine-tree in the field of Kuqe.
The oak-tree of the Church, Gjinar.
The oak-trees of Pashtreshi.
The Black Mulberry of Joronishti.
The plane-trees of Byshekut.
The elm-tree of Zeleshnja.
The plane-tree of Bezistani.
The plane-tree of Vojvodës.
The plane-tree of Labinoti source.
The big ash-tree of Polisi.
The alluvial forest of Shushica

Surface waters

The area is characterized by abundance of surface running waters. Several streams are discharged at Shkumbini River. The waters have a seasonal nature, characterized by abundant waters in the winter and shoals in the summer. Shkumbini river is one of the biggest rivers of Albania; it is 181 km long with a basin of 2441 km^2 and average altitude of 753 m a.s.l. Its sources are in Valamare, in the mountains of Kamie rock. The river discharges its waters in the Adriatic Sea, north of Karavasta Lagoon/Divjaka Forest national park. Average flow of the river is 61,5 m^3/sec. Its waters transport about 5,8 ml tons sediments per year. Water temperatures varies from 6,3^oC in January to 22^oC in august. Water mineralization is about 317 mg/l.

Surface waters quality

Despite of changes on environmental policies of the country and region, Shkumbini still remains a polluted river. A big negative impact in such waters comes from the operation of metallurgic plants of Elbasan in the past, which discharged about 30-35 ml m^3/year of wastewaters contaminated by several pollutants and toxins. Also the city solid wastes were discharged or disposed in its valley. Nowadays the situation looks much better, but still contamination from waste water discharges happens every day. The water quality of Shkumbini River affects the waters of Karavasta Lagoon, which is a RAMSAR site. Air quality is supposed to be good, but road operations may increase dusts and gas discharges near the road axes.

Biodiversity

The study area, starting from Vidhas to Paper, is quite scarce from a biological point of view, because of the intensive use of land. Most of the road lies in an agricultural zone, which is intensively used for arable farming, mainly for crops. The project area landscape is marked by farm fence boundaries, farm infrastructures (such as farm houses), access roads, as well as local roads and regional roads. The area is generally densely populated.

Based on the Red book (Vangjeli, 1996) in the hills, about 500m far from the road, are identified 7 species of flowering plants or 2 % of total number of species of national conservation concern, protected by National Legislation. These species are presented in following table. According to IUCN categories, these species are presented as follows: Endangered (EN) 3 species and Vulnerable (VU) 4 species.

Table 2.1. Endangered and Threatened Plant Species of the Study Area

Nr.	Latin name	Family name	Albanian name	English name	Threat Degree (by IUCN)
1	*Hypericumperforatum*	Hypericaceae	Lulebasani	Perforate St. John's Wort	EN
2	*Juniperusoxycedrus*	Cupressaceae	Dëllinjë e kuqe	Prickly Juniper	VU
3	*Juniperuscommunis*	Cupressaceae	Dëllinjë e zezë	Common Juniper	VU
4	*Origanumvulgare*	Lamiaceae	Rigon	Wild Majoran	EN
5	*Quercus ilex*	Fagaceae	Ilqe	Holly	EN
6	*Salix fragilis*	Salicaceae	Shelgibrishtë	Crack Willow	VU
7	*Sambucusnigra*	Caprifoliaceae	Shtogizi	Common elder	VU

Vegetation and habitats

The natural vegetation in these areas is reduced due to agricultural activities. The study area supports a range of natural, semi-natural and artificial vegetation types and habitats. Semi-natural and artificial or

modified habitats, especially those intensively used for arable lands, constitute the majority of the habitats present, while natural habitats represented mostly by Macchia and degraded forests dominated by mixed deciduous oak. The following sections provide a description of the main vegetation types and habitats occurring inside the 2 km buffer areas along the road, listing key species and their distribution within the study area.

Salix alba and Populus alba galleries

The presence of Shkumbini river and Paper stream, aquatic habitats, freshwater marshes and riparian forests supporting high floral and faunal biodiversity give to the region a moderate importance. Patches or small areas of this habitat type we can found following the Shkumbini River flows. This very open vegetation, colonizing poorly stabilized alluvial deposits periodically flooded, is characterized by dominance of the *Salix alba, Alnus glutinosa*, *Platanus orientalis, Tamarix parviflora.* The accompanying flora include: *S. elaeagnos*, *S. purpurea*, *Populusnigra*, *Phragmitesaustralis, Typhalatifolia, Lythrumsalicaria, Menthaaquatica, Rubusulmifolius*, *Populus alba, Arum italicum*, *Hedera helix*, *Calamintha grandiflora,* etc. Among mosses, lichens, and ferns, *Pteridiumaquilinum*is oftenly abundant.

Figure 6 - Salix alba and Populus alba galleries of the Shkumbini River

The study area is characterized by numerous drainage and irrigation channels. The formation of reed-beds is more wide spread in these channels. High trunk helophytes, as: *Phragmites australis, Typha angustifolia, Scirpus lacustris,* participate in its basal composition. These are more frequently accompanied by the species: *Sparganium erectum, Alisma plantago-aquatica, Eleocharis palustris, Lythrum salicaria, Veronica anagallis-aquatica, Mentha aquatica.*

Salix alba and *Populus alba* galleries, although small and patchy is of more significance in terms of habitat, particularly for the fauna. These species-rich habitats add much to the botanical diversity of the site. Most of the species recorded are relatively frequent in stream/river habitat elsewhere in Albania. The value of the vegetation and habitats encountered within the site is generally medium.

Villages and urban peripheries

This type of habitat is characterized by herbaceous vegetation of *nitrophilous* character where it forms patches of characteristic physiognomy. Its main structural components are the nitrophilous species: *Urticadioica, Sambucusebulus, Chenopodium album, Cirsiumvulgare, Sonchusoleraceus, Marrubiumvulgare, Solanumnigrum, Urticapilulifera, Daturastramonium, Portulacaoleracea, Lepidiumlatifolium,* as well as the species: *Ballotanigra, Parietariaofficinalis, Marrubiumperegrinum, Chenopodiumbotrys, Cardariadraba* (Class Chenopodietea). These disturbed and species-poor areas are of little botanical interest.

Cultivated areas

Arable lands and their associated irrigation systems constitute the majority of the habitats present within the study area. The most important crops cultivated in these areas are Corn (*Miser*), Barley (*Hassell*) and Alfa (*Jonxhe*). Horticulture in the study area is mostly presented by olive trees, vineyards and other fruit trees. Weeds are a common element, and constitute a different scale vegetation of these cultivated areas. The participation of species: *Centaure acyanus, Agrostem magithago, Ranunculus arvensis, Papa verrhoeas, Buglos soidesarvensis, Legousia speculum-veneris, Scandix australis, Capsella bursa-pastoris*is more constant in winter cultivations. *Nitrophilous* elements as the species: *Polygonumarenaria, Amaranthushybridus, Atriplexpatula, Chamomillarecutita, Chenopodium vulvaria,* mainly participate in summer cultivations. Olive groves are one of the typical landscape units of the hilly areas. The abandoned terraces found on the line of hills tend are covered by anthropogenic vegetation characterized by the dominance of *Rubus ulmifolius, Dittrichi aviscosa* (invasive plant species), and the presence of a number of typical Mediterranean plants, such as *Pistacia lentiscus, Trifolium angustifolium, Brachypodium distachyum*. The abundance and permanence of *Thymus vulgaris* in the community, on the other hand, seems to be closely linked to long periods of heavy grazing. In generally the value of this habitats encountered within the road area is Low. The vegetation is dominated by common plant species typical of cultivated lands, with low plant species diversity and low value.

Arborescentmatoral with Laurusnobilis

Macchie or maquis is found fragmentary in the hilly areas. It is a dense, evergreen scrub, up to 2.5 m tall. It occurs mainly on acid soil in slightly damp places. The Macchie is representing a stage of degraded evergreen Mediterranean forest or old forests of *Quercus ilex*. Climax formation or old forests of *Quercus ilex*, is almost fully extinct in this area. The most important species who give the physiognomy to this formation are the evergreen shrubs such as *Arbutus unedo, Phillyreaangustifolia, Erica arborea, Juniperusoxycedrus, Spartiumjunceum, Cercissiliquastrum, Paliurusspina-christi, Pyrusamygdaliformis, Fraxinusornus, Cotinuscoggygria.Pistacialentiscus, Myrtuscommunis, Quercus ilex* adapted to grow for a long period in hot weather and lacking of rain. The dense structure of Macchie does not allow installation of a rich herbaceous flora. The major part of the herbaceous plants, are dried during the summer time. Among the herbaceous plants are found: *Euphorbia characias, Ruscusaculeatus, Asparagus acutifolius, Teucriumpolium, Cistusincanus, Cistussalviafolius, Bellisperennis, Smilax aspera, Dactylisglomerata, Arum italicum, Anemone hortensis, Cynodondactylon, Anthoxanthumodoratum, Briza maxima, Chrysopogongryllus, Poabulbosa, Micromeriajuliana, Cynosurusechinatus, Teucriumchamaedrys, Stachysofficinalis, Rubiaperegrina, Aspleniumadianthum-nigrum, Symphytumtuberosum, Dorycniumhirsutum, Cerinthe major etc.*Presently, along this belt and mostly in vicinity of the villages, there is a strong human impact: cuttings, intensive grazing, and

deforestations in some places with aim to profit arable land for cultivation of agricultural plants. Beside the above damages another factor with very big impact for these areas is caused by the erosion of the land. In some areas the soil is eroded so much as bed rock is almost visible.

Wildlife

The most of wildlife (animal species) are those related to degraded woodlands (mixed oaks) used for firewood and grazing, Mediterranean maquis, Pine trees plantations, grasslands, croplands, vineyards, olive groves, and abandoned agriculture areas. The road passes in parallel with Shkumbini river and crosses the Paper stream, which are important for aquatic life. The site is rarely used as feeding ground by red fox (*Vulpesvulpes*) and badger (*Melesmeles*). Small patches of oak forests, still present inside the study area, provide suitable habitats for a number of birds such as woodpeckers. Nevertheless its contamination level, Shkumbini River is an important habitat for animal species linked with running freshwater habitats, such as dragonflies, fish and amphibians (*Ranagraeca*, *R. dalmatina*, and *R. temporaria*), aquatic birds (*Alcedoatthis* and wagtails (fam. *Motacillidae*). This habitat is also important for the otter (*Lutra lutra*). Field surveys on aquatic life, especially otter survey, indicate that river biota of Paper stream river is still healthy, although is not found any otter species.

Fauna of Semi-natural recently abandoned agricultural areas

This habitat comprises arable lands and abandoned arable land turned into grasslands, located in the vicinity of the settlements in the non irrigated land situated in the gentle hillside villages. They support high bird species abundance; mostly passerines (order Passeriformes). In winter the open fields are used by flocks of finches in company of other small passerines. In summer, the open fields provide breeding grounds for *Coturnixcoturnix*. Hedges and various fruit trees of the open terrains are visited by *Erithacusrubecula, Miliariacalandra*, *Passer domesticus*, *Troglodytes troglodytes*, larks (*Alaudidae*) and many species of finches. The most characteristic mammal species are rodents, both mice and voles, such as *Musmacedonicus, Musdomesticus, Apodemussylvaticus, Microtusthomasi*, etc.

Fauna of Evergreen sclerophyllous scrubs – Maquis

Avifauna of the Mediterranean maquis found in the study area (Paper Commune) is that typical of northern Mediterranean and supports a wide range of bird species including many passerines (order *Passeriformes*). Scrublands provide an important wintering habitat for many bird species which breed at higher altitudes and move down to scrublands to escape bad weather. The most typical birds of such vegetation are S*ylvia atricapilla*, *Sylvia melanocephala*, *Emberizaspp*, *Cettiacetti* etc. During spring-summer seasons the maquis supports a range of species of birds, such as *Sylvia cantillans*, *Hippolaispallida*etc. During migration, Mediterranean shrubs are used as stop-over grounds for other species such as *Upupaepops*, *Meropsapiaster*, *Jynxtorquilla*, *Turdusmerula* etc.
A range of mammals also exploit the maquis habitat during different periods of the year. The tracks of the *Mustela nivalis*, *Mustela putorius*, *Vulpes vulpes* as well as different species of mice (*Apodemus flavicollis*, *Apodemus sylvaticus,Microtus thomasi,* and*Musmus culus)* are commonly observed during the field survey. Other species such as *Crocidurasuaveolens* and *Erinaceusconcolor* were also observed in this particular habitat. The habitat also supports a range of different species of bats (*Rhinolophus* sp., *Pipistrellus* sp. and *Myotis* sp.) which hunt insects over the maquis.

2.3 Socio-economical data

The population of Paper Commune consists of 9250 inhabitants (2430 families). The population structure is 4740 males and 4510 females. Paper commune is constituted by 13 villages. The commune surface is 80km^2. The population density is 116 inhabitants/km^2.

Economical Activities

The main economic activity of the community remains agriculture. 95% of the income is ensured from agriculture and only 5 % from other activities and services. A considerable amount of the local residents are subject to seasonal migration outside Albania. In the Paper Commune territory there is a ferro-chromium plant, a plant of metallic profiles, three plants for production of olive oil and one plant for production of construction bricks.

Land use and ownership

In general, the terraces of Shkumbin are used as agricultural areas and in such terraces there are several villages. Also the sites around the road under study are used as construction area (services, houses etc), and/or agricultural ones. Such developments are stimulated by the presence of the road. The road is under state ownership, but part of the areas where is proposed to build the roundabouts are owned by privates. Prior to road construction, the area was used as agricultural land. The compensation for the existing road has already been done in 2006. The total amount paid as the compensation for the segment Paper-Vidhas-Metallurgic Plant is for approximately 410 000 USD, divided between 20 owners.

Occupation and poverty

The main source of occupation is self employment, focused mainly in agriculture and service fields. The nucleus of agricultural industry remains of private nature, represented by small farms. The farm surfaces are about 1.5 ha per family and the agricultural lands are well fragmented. Those are considered the biggest obstacles for the small farm economy development. The yearly average income for family, from services and other activities like in commune offices etc is 270000 ALL/year/family (approximately 2700 USD/year/family). The yearly average income from agriculture is 150000 ALL/year/family (approx. 1500 USD/year/family). The population of the area results to be part of the poor communities of the country.

Infrastructure

The infrastructure network needs to be upgraded. The area has been and is part of the Albanian railway net. In the Paper commune a 13km railway is present. The railway is used for transport of people and goods. The construction of the Elbasan Peqin road, part of which is the road under study, has provided the community with a better accessibility to the surrounding areas, as well as in national scale. About 92km are communal and rural roads. From which 4km or 4.3% are paved with asphalt. 50% of the roads are paved with gravel or causey, and other 50% are totally not paved. The commune has one Minibus line for passenger transport from Paper to Elbasan. In the commune are operating also private transport operators of interurban (long distance) passengers transport. In the commune there are about 200 vehicles, 33 vans for transport of goods and passengers, 35 trucks and lorries, 43 tractors with wheels and 45 mini-tractors. There are approximately 20-30 yearly accidents,10% of which is with death consequences. In the Paper village there is a mini agricultural market and an industrial market.

Communication services are focused in postal services and telephony is mainly supported by private mobile telephony companies. Only 50% of the families of the considered area have access to fix telephone network.

Energy

The main source of energy used for heating is electricity. Also the firewood is used for heating in the villages. On the other side, about 80% of energy used for cooking comes from wood use, and 20% from gas or electricity. To be noted that an important number of inhabitants do not pay for the use of electrical energy.

Drinking water

Drinking water is only partially ensured by the existing net. Most of it is exploited by ground water sources and used for drinking, hygienic and irrigation purposes. In cases that the ground waters are not of the appropriate cleanness needed for drinking, the community is using the drinking water bought in the market. For more detail, refer to the section of the Environmental Quality of this report.

Waste Management

Waste Water

Only the villages of Balldre, Lugal and Ullishte are provided with waste water net. The other villages are using the "septic tanks". The tanks in most of the cases are not septic, but the sites and the sole of the tank are covered by pressed clay. A good part of the leakages runs to the ground levels of soils and waters. The remained is collected by private services hired for these activities.

Waste waters collected by waste water network or by auto bots are discharged in places defined by the commune, but not treated.

Solid Wastes

The solid wastes are collected by the commune, using a mobile container truck for collection of waste – garbage for about 70% of the village needs. Main solid wastes are those with communal origin, like remains of food, plastic bags, bottles, papers etc., which are collected in plastic bags and disposed in bins fixed in well defined place. The frequency of the cleaning of bins and places around is adequate with waste generation frequency.

Industrial wastes

Industrial wastes are those generated by industrial activities like Ferro-Chromium plant, Plant of Metallic profiles, three plants for Production of Olive Oil and one plant for Production of Bricks. All factories are managing the remains and wastes upon the requirements of the Regional Environmental Agency of Elbasan, well defined in their "Environmental Permits" for their activities.

Health and education

There is a high school in Paper village. In the commune there are also 4 medium (9 years) schools and 7 elementary schools. By the age groups point of view, it can be mentioned that the third age group (parents) has mainly the medium to elementary education level. The 60% of the new generation has the high school level of education. About 300 people have finished the university studies, 1/3 of which is employed. In the commune there are about 1650 pupils attending the elementary, medium and high schools. About 2-3 pupils per year are not attending the studies in education institutions.

The commune has not any hospital, but has a health center in Paper that serves for all commune. In the commune there are 4 inhabitants with HIV/Aids, 170 disabled people damaged/injured during the work, 233 inhabitants are incapable (tetraplegics 14, blinds 22, others 197). 1.2% of the children are with disabilities, and 8.27% of children lives in families supported by economical assistance.

3 LEGISLATIVE AND REGULATORY CONSIDERATION

The EMP is based on the pertinent Albanian legislation dealing with environmental impact assessment, protected areas, waste management, cultural heritage and other laws and bylaws with provisions that may be related to or govern the financed activities and WB requirements regarding EIA. The Republic of Albania has adopted a considerable number of environmental laws, which help to ensure a considerable progress towards the objective of converging to the EU legislation, in view of the Albania's overall goal of joining the European Union in the future.

Albania has also ratified several International agreements on the environment, which the project must comply with. All above legal requirements result in a complex set of rules and regulations that are applicable to the present project. For more details regarding legislative provisions, please refer to the EMF of the Project.

According to the Law on EIA the road segment and activities dealt with in this EMP are subject to preliminary EIA (as it is an upgrading activity, which might require some minor land acquisition when the detailed design is prepared).

Road improvement activities(categories)	Expected activities	Level of environmental study
Maintenance	Routine works in existing platform, to maintain the road in appropriate conditions.	Preliminary EIA and simple EMP
Rehabilitation	Bringing existing deteriorated roads (in existing platform) to previous/original condition	Preliminary EIA and simple EMP
Improvement	Most of the work is done on the existing platform. Additional land acquisition may be needed	Preliminary EIA, and WB EMP
Upgrading	Changing of road category (i.e. seasonal to all-weather, secondary to primary). Land acquisition is needed in most cases.	Preliminary EIA, and WB EMP (followed by profound EIA if needed – not applicable for financing by this project)
Widening works	Adding of additional road lanes in roads with 2 or less lanes, realignments, etc. in segments longer than 10km, which in most cases imply land acquisition.	Profound EIA – not applicable for financing by this project
New constructions	Construction of a new road (with one, two, or four lanes).	Profound EIA – not applicable for financing by this project

4 POSSIBLE ENVIRONMENTAL IMPACTS ASSOCIATED TO THE PROPOSED PROJECT ACTIVITIES

This chapter is focused on the identification of possible positive impacts, and characterization of negative ones due to the maintenance and upgrading works proposed for the selected section of Sh7 road.

4.1 Identification of positive impacts

In the identification of positive impacts has been considered the impact scale and significance. One of the most significant positive impacts is road safety of local inhabitants. Another important positive impact is the employment during maintenance and upgrading activities, together with the accessibility provided by the improvement of the road layout, lighting and signals.

An indirect positive impact will be the generation of jobs for other entities related to the construction materials and services, workers' demands, etc., which will affect the population almost in regional scale. Quarries in the surroundings and other entities trading or extracting raw materials will get a new market partner. In addition, the rural entities will offer their goods to fulfill the worker's demand on food, drinks, etc. Other positive impacts should be mentioned while considering the project management plan, when the mitigation measures will take place to control possible negative impacts by project development and to provide environmental quality through environmental compensation measures.

Table 4.1 Summarized expected Positive Impacts

Activities	Expected Impacts
Construction of sidewalks	• Provide the accessibility • Increase the life safety
Construction of Roundabouts	• Decrease the vehicles speed increasing the life safety
All maintenance and construction works	• Employment
Road maintenance	• Maintain the accessibility • Employment
Lighting	• Save the active life of the community in appropriate parameters • Increase the life safety
Improvement of signals	• Reduce accident risks • Increase life safety
Public consultation and stakeholder engagement	• Increase the community participation on decision making considering their opinions during maintenance and upgrade planning and implementation

4.2 Characterization of negative impacts

Pollution of Shkumbini River or Paper Stream may occur during maintenance and upgrading activities, by leakages in river and stream valleys, discharges/leakages in the bridges, and draining channels. Very important remains the pollution in ground waters, which in some cases is used from the community as drinking water. Damaging of green habitats will affect the visual potential of the existing landscape in both roundabout's areas. Pollution in running water valley or running water bodies (Shkumbini River and Paper Stream) will damage the fish population, which is a recreation and food potential, in some cases also used as irrigation sources. Damages may happen by channel clearance activities, where can be damaged water resistant species with specific status. Contamination may happen in the site, by mismanagement of solid wastes and leakages.
During the construction phase, problems can be created by traffic interruption or delays.

Considering the scarce quality of biological habitats on the site, important negative impacts are the socio-economic ones. As the project will take place in existing roads, the most important negative impacts can be considered the socio-economic impacts caused mainly by the construction of two roundabouts. In case of not adequate compensation and appropriate politics for employment being undertaken, the project will cause cumulative and no reversible impacts at local community, like poverty, unemployment, etc. Such issues can be accompanied with local grievances and the project implementation may be cancelled. On the other side, construction and operation of two roundabouts will increase life safety in this Sh7 segment, but slowing down the motorcar speeds, probably will increase the pollution by gas discharges and dust generation by road operation. Also an important negative impact is represented by land acquisition for the construction of the roundabouts. Considering small surfaces to be affected, can be underlined that an Abbreviated RAP can be considered as appropriate to evaluate the assets to be affected and their values, the number of subjects to be compensated, ways, the fund needed for compensation, and the time table of compensation.

The slowing down of the car speed due to roundabouts, may increase the level of discharges of several gases or increase the PM in the air, damaging human health:

- Diesel trucks generate particulate matter (PM10 and PM2.5), which can exacerbate asthma, cause heart disease, and lead to premature death. Diesel PM can damage DNA and cause cancer

- Nitrogen oxides can cause increased sensitivity to allergens. When nitrogen oxides combine with VOCs in the presence of sunlight, they form ground-level ozone. This ozone can cause difficulty breathing, exacerbate asthma and cause lung inflammation. Over time, untreated inflammation can result in permanent damage to the lungs

- Carbon monoxide can cause chest pain in people with heart problems, headaches, nausea, decreased mental alertness, and death at very high level.

- VOCs from vehicles include formaldehyde, acetaldehyde, acrolein, 1,3-butadiene, and benzene--all of these chemicals can cause cancer. People who live close to busy roads may be at higher risk for exposure to traffic pollutants. (A busy road is defined as having more than 10,000 vehicles drive on it each day).

Several health effects may be associated with exposure to high noise levels which consists in:

- Interference with communication like conversation, listening to music and interference with more intellectually demanding tasks;
- Sleep disturbances;
- Cardiovascular and physiological effects;
- Hearing damage;
- Psychological disturbances of various kinds;
- Effects of nuisance like aggressiveness, depression and irritability.

In the following table of impact evaluation (a checklist with screening criteria and evaluation matrix) are considered the phase of maintenance and upgrading as well as road operational phase.

Table 4.3 Screening criteria template related to Maintenance Activities performed on an Existing Road – Checklist matrix (to be used by ARA)

CRITERIA	YES	NO	Comments
Does the existing road have a valid operating permit, licenses, approvals etc.? If not, please explain. Permits to screen for include: - Construction Permit - Operational /Use Permit - Urbanistic Permit - Environmental Permit - Water Management Permit *If not, will the investment be used to correct this condition?*	Yes		
Does the existing road have or is awaiting (or is required by law to have) an environmental permit?		No	The low doesnt specify if a road maintenance requires an environmental permit
Is operation of the existing road mandated through special provisions of Albanian Environmental Regulations regarding protected areas or cultural heritage? If not, please explain.		No	
Are there any significant outstanding environmental fees, fines or penalties or any other environmental liabilities (e.g. pending legal proceedings involving environmental issues etc.) If so, please explain. *If so, will the investment be used to correct this condition?*		No	

Will the sub-project require procurement of substantial amounts of materials to be used – stone, aggregate, sand, asphalt or others that needs environmental permit?	Yes		Any kind of raw material to be used should be joined by the Environmental permit for its exploitation (ex. Permit for exploitation of open quarries, permits for exploitation of ground water etc.)
Will the subproject generate large quantities of construction waste that will need permission from the Commune to be disposed of?	Yes		The implementer should agree with local government on waste management ways and time/table, waste disposal etc.
Will the sub-project be located within or close to officially protected areas or areas under consideration by the Government for official protection status?		No	
Will the sub-project potentially impact areas of known significance to local, regional or national cultural heritage? (During the public consultation, the local population should be asked to provide information about any sites or structures which are not on any official list, but which they consider to be of significance and which they think should be protected)		No	
Does the project negatively affect community assets or activities?	Yes		To be defined by abbreviated RAP

Proposed Sub-project	Level of existing or expected impact (1=low, 2=medium, 3=high) [1)]	Comment
Will the sub-project cause changes in the drainage patterns of the road and the immediate surrounding areas?	1	Un important changes, from the status of last 5 years, by cleaning and reopening of the road draining channels
Will the project cause air, land and/or water pollution by dusts, noises and/or vibrations.	2	During construction and operation phases
Will the subproject include activities that will require sanding, paints, or other potentially hazardous materials that will need to be properly stored and contained?	1	Only sand and some paints for road signage, which normal storage doesn't represent any environmental threat
Doest the project create conditions for accidental pollution by leakages?	2	Accidental pollution by damaged cars or equipments, peint storages etc can happen and should be managed
Will the project affect any species or population with specific status?	1	No species with specific status are observed in the road channels and close surroundings, exclude the amphibians living in the draining channels
Does the project create problems on accessibility	2	During rehabilitation works, traffic delay is expected
Has the local population or any NGOs expressed concern about the sub-project environmental aspects or expressed opposition? Are expected public claims?	1	Small expropriation should be positively resolved by RAP
Is there any other aspect of the sub-project that would – through normal operations or under special conditions – cause a risk or have an impact on the environment, the population or could be considered as a nuisance?	1	Till this phase, are not found out any impact that cannot be managed and to be considered as a nuisance source.
Total of existing or expected impact value	11	
Level of EIA study	**Abbreviated EMP should be prepared**	

[1)] **Level of expected impact: 1 expresses the lowest negative impact, 2 the medium level, and 3 the highest one. In case that no impact is expected, please let the cell empty.**

In the maintenance operations, the impacts are much smaller than in rehabilitation-upgrading phase. Such impacts are related as well to the traffic interruption. In comparison with the impacts of traffic before maintenance-upgrading phase, the impacts after such measures seem lower. Most of the negative impacts are related to increase of dusts and gas discharges from the traffic, related to the reduction of motor vehicles speed. On the other side, such pollution effects is inconsiderable compared with life safety, that presently remains a big problem in this road.

4.3 Negative impacts that cannot be mitigated

The process of identification of impacts that cannot be mitigated considers both phases, maintenance and rehabilitation/upgrading activities. To avoid unuseful analyses, the consultant considers only the significant impacts. The impacts that cannot be mitigated, or can be slowly mitigated are listed as following:

- Probably, decrease of motorcar speed, will condition the increase of gas discharges, dusts and noises – can be partially mitigated

Nevertheless, should be underlined that the impacts mentioned above are not significant in comparison with road safety that will be enhanced by project activities.

5 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan, is the chapter that considers the finds and characterization of impacts, where is prepared the Environmental Mitigation Measures and Monitoring Program, as integral part of the detailed design document and implementation program.

5.1 Mitigation measures

The Environmental Mitigation Plan for maintenance and upgrading activities in Paper-Vidhas road section is an integral part of the EMP. The mitigation measures are separated into two parts, one for the management plan for maintenance and upgrading phase, and the second for the impacts that are encountered during operation phase.

Notification, Worker and Citizens Safety, are considered as very important issues to be considered in realizing the public awareness, community support, and traffic facilitation. General mitigation measures for construction and rehabilitation activities are considered also as very important. Water and land quality, waste management and traffic/road safety are taken into account for some general orientation of mitigation measures. All mitigation measures are in respect with Albanian construction and environmental legislation, and specifically with the Law No. 10 431, dated on 9.6.2011, 'On Environmental Protection".

Table 5.1 Mitigation measures

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	The overall worker safety, and risks of unauthorized access to construction site of inhabitants	• The inhabitants leaving close to road under upgrading or rehabilitation will be notified of the works, objectives and temporary expected negative impacts through appropriate communication; public meetings, etc. • All legally required permits will be acquired for construction and/or rehabilitation. Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. Including organization of transport to minimize impacts on neighborhood, and washing of vehicle tires to minimize spreading of debris on the roads. • Workers will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses etc). • Workers also will be contracted respecting Albanian legislation, and the developer should respect all hygienic and safety rules conditioned by Albanian legislation. Life insurance of workers etc will be provided by the employer. Technical security measures will be provided by the employer. • Emergency safety kit should be placed close to the working place for intervention in case of accidents. Emergency contacts and numbers should be clearly posted on site. • Appropriate warning signposting of the working sites, visual barriers etc., will be used to prevent accidents.	Provision of safety equipment, safety kits and signs is included in contractor operating costs		Contractor	Supervised by Supervision company or engineer	
Upgrading	Land acquisition for construction of roundabouts	• Prepare ARAP and implement fair compensation	To be defined by RAP		ARA	ARA/NGO/Paper Municipality	Compensation should be done before starting the implementation

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	Use of raw materials may pose an additional stress on the natural environment	• Use raw materials (sand, gravel, stone) only from suppliers that have valid licenses issued by the National Environmental Agency and/or Regional Environmental Agency of Elbasani.	No additional costs incurred		Contractor	Supervised by Supervision company or engineer	Exploitation of Natural resources
Maintenance/ upgrading	Noise generated during works may pose a threat or disturbance to the workers on site, animals and neighboring properties	• Construction noise will be limited to restricted times agreed to in the permit in respect with Albanian Environmental Legislation • During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed at station territory.	Covers for electric generators 200 EURO/unit		Contractor	Supervised by Supervision company or engineer	
Maintenance/ upgrading	Works done on roundabouts will permanently remove vegetation	• In case of unavoidable damage, re-plant same species on roundabout peripheries. • Ensure visually the same appearance as before works started.	Depends on plant species. Proper planning can ensure plants are replaced rather than new ones bought		Contractor	Supervised by Supervision company or engineer	Temporary decrease of green cover efficiency
Maintenance/ upgrading	Traffic disturbances and slow down	• Ensure local community is aware of any major transport requirements and disruptions to the regular traffic pattern. • Adequately manage traffic and use postings to warn others of possible congestion. • In any cases one road line will be kept free to permit toad operation	No additional costs incurred		Contractor	Supervised by Supervision company or engineer	

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	Dust emissions from the site may impact air quality and pose a health threat to workers and neighbors	• In case of disposal of dredged or excavated materials the debris shall be kept in controlled area and sprayed with water mist to reduce debris dust • During pneumatic drilling/compaction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site • The surrounding environment (at last one road line) shall be kept free of debris to minimize dust • There will be no open burning of construction / waste material at the site • There will be no excessive idling of construction vehicles at sites • All materials will be supplied/transported in a manner which minimizes dust – including covered truck loads or closed off truck loads, with dust suppressing measures through water spraying	Cost of 1 m3 of clean water on site: 40 Euro DCM on Tax of Drinking water, No. 203, dated on 08.05.1997		Contractor	Supervised by Supervision company or engineer	*All such measures will be in respect with DCM No. 435, dated 12.09.2002, "Concerning the Approval of the Norms for discharges in the air and the implementation of these Norms* *And the law 9774, date 12.07.2007, on evaluation and management of noises on environment*

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	Improper waste management may cause pollution of soil, surface and groundwater and pose a health risk	• Designated waste disposal areas will be allocated on site, including waste collection bins for smaller waste, and designated areas for bulkier waste • All waste, including construction debris and excavated materials will be regularly and timely transported off site and managed through an authorized agency or disposed of at a site that was officially designated by the local authorities – Elbasani Municipality or Paper Commune • Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities. • Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers. • The records of waste disposal will be maintained as proof for proper management as designed. • Whenever feasible the contractor will reuse and recycle appropriate and viable materials • Removed vegetation on roundabouts may best be composted on site, at a designated and managed area. • All oily wastes will be separately collected, in bins which are leak-proof, and will be handled over to the authorized management and disposal company, receipts for which shall be kept. • Ensure agreements will community and services (cafeterias etc) to use their toilets for worker needs	Cost of waste management – per 1 truck to the designated site in compilation with other site disposals 70 Euro/Year Local Tax One container (bin) for solid municipal waste 130 EURO One container for hospital wastes 20 euro		Contractor	Supervised by Supervision company or engineer ARA staff	All measures will be in respect with existing legislation regarding waste management

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	Construction works on site may impact the quality of surface waters of Shkumbini River, Paper Stream etc and subsequently ground water	• The site will establish appropriate water and sediment control measures such as e.g. silt fences to prevent water sediment from moving off site and causing excessive turbidity in the channel. • Collectors will be temporary adapted to avoid surface water dispersion in case of watering of sand or gravel to control the dusts • The approach to handling sanitary wastes and wastewater from working sites (installation or reconstruction) must be approved by the local authorities • Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies, and will be adequately collected and managed	Costs for collecting sanitary waters on site 1000 EURO Cost of plastic covers 50 EUR) Cost of barriers in collectors 50 EURO		Contractor	Supervised by Supervision company or engineer	DCM no. 177, date 31.03.2005 for environmental norms on liquid discharges and zoning of receiving environments
Maintenance/ upgrading	Improper material storage and use may cause pollution of air, soil or water	• Store all materials in original containers in adequate locations, which allow for leak-proof storage • Do not dispose of paint and other waste containers except through adequate handling procedures • Ensure workers are familiar with safety regulations and storage requirements for each product.	No additional costs incurred		Contractor	Supervised by Supervision company or engineer	

Issues upon phases and Mitigation measures

Phase	Issue	Mitigating Measure	Associated Costs: For installation	Associated Costs: For operation	Institutional Responsibility: Install	Institutional Responsibility: Operate	Comments (e.g. secondary impacts)
Maintenance/ upgrading	Flooding of lands in surroundings of the road by maximum rainfalls in atmospheric events	• Maintenance or restoration of draining system and related artifacts	Dredging and cleaning to be decided by the consultant/contractor (Approx cost 2 000 EURO)		Contractor	Supervised by Supervision company or engineer	
Maintenance/ upgrading	Accidents during construction works may cause unintentional damage to the local infrastructure or power supply net	• Ensure all adequate permits from local utilities have been obtained • Ensure familiarity with networks in the proximity of the site • In case of accidental disruption, immediately stop all works, notify proper authorities in Paper/Elbasani and emergency remediation of damaged network in line with the requirements of Law on civil emergencies No.8756, dated 26.3.2001	No additional costs incurred, potential delay in works		Contractor	Supervised by Supervision company or engineer	Temporary delay the Project implementation
Maintenance/ upgrading	Chance findings of archaeological or other artifacts during excavation works	• Ensure all works are stopped and that the relevant authorities are notified. Works can continue only after the relevant institutions have provided their guidance and clearance.	Not defined		Contractor	Supervised by Supervision company or engineer	
Maintenance/ upgrading	Not appropriate health and hygienic condition for working staff	• Ensure agreements will community and services (cafeterias etc) to use their toilets for worker needs	Not defined		Contractor	Supervised by Supervision company or engineer	

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Maintenance/ upgrading	Works in the road may pose a health risk to the workers due to uncontrolled releases of sewage and accidental leaks	• Ensure workers are equipped with protective equipment • Avoid direct contact with contaminated sites if they will be defined during the works	No additional costs incurred, contractor should have proper protection equipment		Contractor	Supervised by Supervision company or engineer	
The following mitigation measures are related to the operational phase of the road and serve as a guideline for the ARA to improve their performance with the respect to environmental protection.							
Operation	Outdated of signals and lighting	• Refresh the signal system periodically	To be defined by ARA			ARA	
Operation	Road damage or consuming of pavement	• Rehabilitate the road periodically	To be defined by ARA			ARA	
Operation	High level of air pollution	• Green barriers in road sites (using two belts, the first with evergreen, dens crown autochthon shrubs and the second with evergreen, dens crown and autochthon trees	To be defined			ARA	

Issues upon phases and Mitigation measures			Associated Costs		Institutional Responsibility		Comments (e.g. secondary impacts)
Phase	**Issue**	**Mitigating Measure**	**For installation**	**For operation**	**Install**	**Operate**	
Operation	Improper solid waste collection and management may pose a threat to soil and water quality	• Set up proper waste management procedures, including separation of waste into oily and hazardous waste, regular municipal and green waste which can be composted • Ensure sufficient waste collection bins are available on site and that regular collection of wastes is ensured	Costs of authorized waste collection per year 70 EURO			local waste collection utility	
Operation	Leaks and spills in road can pollute the surface water	• Have in place leak control action plan • Provide leak proof collectors of oily wastes or equipment which can drip oil • Ensure waste is adequately managed	No additional costs			ARA RDR	

Additional mitigation actions will be done after a detailed design will be finalized regarding Paper Vidhas Road SH7, rehabilitation/upgrading process. This additional mitigation plan should be approved by Regional Environmental Agency of Elbasani.

5.2 Monitoring Program

The environmental monitoring program will be focused on following elements:

- Respecting of Management Plan orientation
- Respecting of technical specifications
- Respecting of Albanian legislation for worker safety and health, insurance, etc.
- Safeguard of workers and inhabitants, and
- Discharge norms in environment.

Monitoring process will be focused on the working space and surrounding territories as well as in the roads that will be used for transport of materials from the sources to the working space, or from the working space to the disposal sites. Technical actions, environmental and safety specifications, as well as other procedures defined running the implementation can be checked or justified by the following table (5.2).

The monitoring table considers the parameter to be monitored, where will be monitored, how, when, and why will be monitored, the cost and monitoring responsibility.

The costs are given with approximate amounts considering present free market prices. Nevertheless, it is the interested party that selects the monitoring consultant, and involves it on the monitoring process only after approval by NEA/REA.

Additional monitoring action will be done after a detailed design will be finalized regarding Paper-Vidhas section's maintenance/upgrading process. This additional monitoring program should be approved by the Regional Environmental Agency of Elbasani.

Tabe 5.2 Environmental Monitoring Program

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
Before Maintenance/upgrading	Amount and time of compensation	At the PAPs at two roundabouts	RAP outputs and legal definition after grievances if any	Only once-Before implementation	To avoid community disclaims	Not additional cost	ARA, Implementing Agency
Before Maintenance/upgrading	The places to be used for disposal of working materials, garbage bins, hospital waste bins, office and emergency box etc	In sides of the Paper Vidhas road	Verification on maps or plans of detailed design	Only once-before implementation	To ensure that waste management and life safety instruments are already planned to be placed	Not additional cost	Detailled design consultant
Before Maintenance/upgrading	Is the community and decision makers informed and involved	In Paper Commune and expected affected villages	Meetings with interested parties	Once-before the implementation	To ensure that the community is well informed and decision makers involved	Not additional cost	ARA
During Maintenance/upgrading	Notification, Worker and community safety and health	On working sites	Maintain a log of neighbor notification, all permits obtained, supervisor will provide regular reports on EMP compliance, worker safety, and on possible complaints Appropriate signs will be inspected visually	Continuously during maintenance/upgrading works	To ensure works are conducted as per the utmost safety and environmental protection standards	Should be included in costs for supervisor, no additional measurement costs envisaged	Contractor to implement, Supervisor to review and report on
During Maintenance/upgrading	Air and Soil quality	On working sites and surrounding	Visually inspect dust generation and control. Inspect presence and if any smell	Continuously during construction works	To ensure works are conducted as per the utmost	Should be included in costs for supervisor, no	Contractor to implement, Supervisor to

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
		areas	is emitted from the septic tank on site. Visually inspect presence of clandestine waste on site and in surroundings. Visually inspect for leaks of oily materials. Keeps proof of waste being collected by authorized entity. Visually inspect signs of open burning of wastes.		safety and environmental protection standards	additional measurement costs envisaged	review and report on
During Maintenance/upgrading	Noise levels	On working site and surrounding areas	Ensure compliance with permit as per Albanian law. Measurements on complaints from neighbors.	Continuously during construction works	To ensure noise levels do not exceed permissible	Should be include d in costs for supervisor, no additional measurement costs envisaged – in case of complaints, set of noise measurement is approximately 500 Euro per sampling point.	Contractor to implement, Supervisor to review and report on
During Maintenance/upgrading	Water Quality	On construction site and surrounding areas	Visually and upon complaints of increased turbidity, waste materials in canals, spills or leaks.	Continuously during construction works	To ensure there is no pollution caused to the waters	Should be included in costs for supervisor, no additional measurement costs envisaged.	Contractor to implement, Supervisor to review and report on

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
						In case of public compliance measurements should be done with a cost of 500 Euro per sampling point	
During Maintenance/upgrading	Waste management	On working site and surrounding areas	Visually for separation of wastes, review receipts from the collection company, or notification from the commune on the proper site of the disposal	Continuously during construction works	To ensure there is no risk of environmental pollution caused by construction works	Should be included in costs for supervisor, no additional measurement costs envisaged	Contractor to implement, Supervisor to review and report on
During Maintenance/upgrading	Damage to vegetation in road sides	On road sides	Site log and visual inspection	Continuously during construction works	To ensure no damage to vegetation	Should be included in costs for supervisor, no additional measurement costs envisaged	Contractor to implement, Supervisor to review and report on
During Maintenance/upgrading	Storage of paint, oil or other hazardous materials	On road	Visually ensure proper storage, and no leaks or spills	Continuously during construction works	To minimize risks of pollution of hazardous materials	Should be include din costs for supervisor, no additional measurement costs envisaged	Contractor to implement, Supervisor to review and report on
During Maintenance/upgrading	Chance findings	On road	Through site log	Regularly through construction works	To ensure adequate management of chance findings	Should be included in costs for supervisor, no additional measurement costs	Contractor to implement, Supervisor to review and report on

Phase	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Cost (if not included in project budget)	Who (Is responsible for monitoring?)
						envisaged	
During operation	Road and artefacts conditions	On road	Visually	Continuously	To ensure proper working of the road	Not additional cost	ARA, Paper Commune
During operation	Road signals and lighting	On Road	Visually	Continuously	To ensure proper safety measures	Not additional cost	ARA Paper Commune
During operation	Pollution by discharges or leaks	On road	Visually, if needed monitoring	continuously	To ensure proper environmental quality	Not additional cost	REA of Elbasan, Paper Commune

5.3 EMP Implementation Responsibilities

There are a range of institutions that should be responsible for the implementation of the EMP. The first and most important one is the Albanian Road Authority (ARA). ARA is also responsible for the right and fair implementation of ARAP outputs. The ARA approves and informs the REA on selected monitoring consultants (if needed).

The REA of Elbasan and Paper commune are also responsible for the implementation of EMP. The REA of Elbasan is the responsible agency in case that ARA or contractor is not implementing properly the EMP. REA and NEA are responsible for the evaluation of the monitoring consultant, monitoring procedures, facilities, methodologies, chemical analyses, etc.

The Regional Directorate of Roads are responsible for the coordination of works, and have to provide information to ARA inspectors on work progress and quality of implementation.

The Paper Commune and local decision makers are responsible for participation in decision making processes of local stakeholders and other interested parties, like NGOs.

The consultant (sub-contractor) in case of private management of roads, is responsible for road and road artifacts quality, traffic supervision, monitoring process, and informs periodically, every season (every four months) the RDR and ARA on implementation of mitigation measures and monitoring program, through their selected consultants dealing with environmental matters.

5.4 Capacity Development and Training Needs

This subchapter is focused in capacity development of ARA regarding the performance of appropriate EIA reports, EMPs documentation, as it is required by funding agencies, Albanian Environmental authorities, and other decision makers in national and local level.

From the year 2009, MIT and ARA were focused to fulfill the right documentation and implement action plans for capacity building within ARA. This transformation was done into three phases, where was included the strategy, and then implementation, which was separated into two phases. This transformation action plan was planned to be finished at 2009.

The project implementation team within the ARA shall ensure that the adequate environmental instruments (EA or EMP) are included in the bidding documents for a given road segment.. As such, the environmental department/team of ARA shall work in close cooperation with the hired contractor to ensure that the contractor and workers have the appropriate understanding and knowledge related to the implementation of environmentally sound practices, as proposed in the EMP.
In case that training of the workers is necessary, the ARA team can provide guidance to the contractor, training their staff prior to start of any works on site.
All mis-compliances with the provisions of the Environmental Management Plan shall be noted by the site supervisor and also the ARA team during site visits and regular supervision of the site. The mis-compliances will be noted in a formal report and the contractor will be provided with the adequate mitigation measures, that will be monitored at all subsequent site visits and missions to site.
The capacity of the ARA team, as needed, will be strengthened by participating in the World Bank training on environmental safeguards, and also by developing stronger links with the Albanian environmental authorities.

6 PUBLIC CONSULTATION AND DISCLOSURE

The public consultation activity starts from the consultant and ARA environmental and RAP experts from the beginning of EMP preparation. The team joins their forces with RAP consultant, who starts working in the ESSD in a second phase. The consultant has several meetings and consultations with the representatives and experts of ARA and WB advisors. After getting the basic information, the consultant undertakes meetings with the representatives of Paper Municipality and all stakeholder that might be affected from the project. The consultant explains the project objectives and expected outputs, and the importance of the local community's participation. After having collected information regarding environmental and social issues, community's expectations, the consultant explains to the local people the steps to be followed for public consultation and the importance of their participation on public consultation/hearing process.

Subsequently to the revision of the first draft of the EMP, and fulfillment of the comments from ARA and WB advisor/supervisors, the consultant will assit ARA in preparing a summarized and not technical EMP in Albanian, that will be distributed to the public consultation stakeholders.

The following is a template for future steps.

Template

The Environmental Management Plan for the rehabilitation and upgrading activities in Vidhas-Paper road section, has been made available to the public through being placed in the Paper Commune with a designated contact person, and on the Web-site of the ARA: ……, as well as at Paper Municipality Web-site:…….. Several meetings and round tables have been held amongst the environmental consultant and community representatives, environmental experts of Elbasani, engineers, drivers using Paper Vidhas road, representatives of medias etc. Annex 1 summarizes the main fruitful minutes of meetings. The consultant and the interested stakeholders held an official public consultation meeting in the Paper Commune on …… Minutes of meeting and list of attendees is included in Annex 1.

The date and location of the public consultation was announced by "……." newspaper (see Annex 1), including the location and web-sites where the interested subjects can obtain and view the summarized management plan.

During the consultations meeting, the environmental consultant explained to the participants the importance of the investment, its focus, and the provisions and measures that would help mitigate any of the identified negative impacts from the project. After the presentation, the consultant has opened the session to questions and comments.

Some of the important issues raised were on:……..

Community representatives ……..

A very important issue was brought up from…….

The Environmental consultant, Mr. ……., has provided answers to suggestions and comments…….

The ARA representative Mr./Ms…….. gives clarification on ……

This section will be revised and completed when public consultations are carried out, and will provide information in the template.

7 REFERENCES

- Institutional Capacity Building and Transformation of the GRD into a public enterprise, General Roads Directorate, Albania, 2008.
- WB, Technical Paper, No. 376, Handbook on Roads and the Environment
- WB, OP 4.01, annex C, Environmental Management Plan
- WB group/UNEP/UNCDE, Pollution Prevention and Abatement Handbook, 1998, Toward Cleaner Production.
- WB, Operational Policies and Country Services, Disclosure Handbook, 2002
- EMPs for Dam Rehabilitation (13 dam of different reservoirs), CEIA/COWI, 2013, Ministry of Agriculture, Albania, WB/SIDA project.
- Guideline for Preparation of Environmental Management Plans, Department of Infrastructure, Planning and Natural Resources, Sidney, Australia 2004
- Summarized EMP for restoration of three drinking water pumping stations and three draining stations Environmental Management Plans, in Shkoder/Lezha Region, LAMP, Albania, 2011-2012, S.Sinojmeri
- Albanian Environmental Legislation

Annexes

8 ANNEX 1 – PUBLIC CONSULTATION RECORD

9 ANNEX 2 – ALBANIAN AIR QUALITY STANDARD

Albanian air quality standards for some pollutants (DCM, Nr.803, dt. 4.12.2003 "On air quality norms")

Criteria pollutant	Averaging time	Primary standards	Secondary standard
Carbon monoxide	24 hour average	2 mg/m^3	
	8 hour average	10 mg/m^3	
	1 hour average	40 mg/m^3	
Nitrogen dioxide	Annual (Arith. Mean)	60µg/m^3	Same as primary
	4 hour average		95 µg/m^3
	1 hour average	250 µg/m^3	
Sulphur dioxide	Annual (Arith. Mean)	60µg/m^3	35 µg/m^3
	24 hour average	120 µg/m^3	
	1 hour average		360 µg/m^3
Ozone	Annual (Arith. Mean)	none	65 µg/m^3
	8 hour average	120 µg/m^3	Same as primary
	1 hour average	230 µg/m^3	Same as primary
Particulate matter (PM10)	Annual (Arith. Mean)	60 µg/m^3	Same as primary
	24 hour average	150 µg/m^3	Same as primary
Particulate matter (PM2.5)	Annual (Arith. Mean)	15 µg/m^3	Same as primary
	24 hour average	66 µg/m^3	Same as primary
Lead	Annual (Arith. Mean)	1 µg/m^3	Same as primary
	24 hour average	1,5 µg/m^3	
Benzene	8 hour average	5 µg/m^3	Same as primary
Toluene	24 hour average	420 µg/m^3	Same as primary
Xilene	Annual (Arith. Mean)	1200 µg/m^3	none