

**UN HABITAT**  
FOR A BETTER URBAN FUTURE  
**Municipal Spatial Planning Support Programme in Kosovo**



Republic of Kosovo  
Municipality of Rahovec



**Rahovec Municipal Development Plan  
Strategic Environmental Assessment  
(SEA) Report (draft)**

**KOSOVO-ESTONIA  
2012**

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## List of abbreviations

|            |  |
|------------|--|
| EC         | European Commission  |
| EIA        | Environmental Impact Assessment                              |
| EU         | European Union   |
| GDP        | Gross Domestic Product                                       |
| KEAP       | Kosovo Environmental Action Plan                             |
| KES        | Kosovo's Environmental Strategy                              |
| KDSP       | Kosovo's Development Strategy and Plan                       |
| LoSP       | Law on Spatial Planning                                      |
| MDP        | Municipal Development Plan                                   |
| MESP       | Kosovo's Ministry of Environment and Spatial Planning        |
| OECD       | Organisation for Economic Co-operation and Development       |
| PP's       | Plans and Programmes   |
| REC        | Regional Environmental Center for Central and Eastern Europe |
| SEA        | Strategic Environmental Assessment                           |
| SEO        | Strategic Environmental Objectives                           |
| UN         | United Nations   |
| UNECE      | United Nations Economic Commission for Europe                |
| UN-Habitat | United Nations Human Settlements Programme                   |
| UNMIK      | United Nations Interim Administration Mission in Kosovo      |

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## Non-technical summary

The main aim of the current strategic environmental assessment (SEA) is to identify whether there are any likely or significant environmental impacts included in the implementation of Rahovec municipal development plan. It is oriented to support the decision making authorities to achieve the best possible planning solution and to work out such a strategic and spatial approach which most effectively avoids any negative environmental effects. The objective of the SEA is to explain, describe and evaluate the significant environmental impacts of the MDP implementation, provide alternative solutions and mitigation measures of negative impacts (if the latter occur). It is important to emphasize that the environmental impact could be considered significant if it is likely going to exceed area's environmental capacity, to cause irreversible changes in the environment compared to current situation or to pose a threat to human health and welfare, cultural heritage or assets. The assessment takes into consideration that environment consists all of the living space and is therefore an environment at the broader sense including economic, social, cultural and natural components.

The European Directive on SEA (2001/42/EC) was adopted into Kosovo's legislation by Kosovo's Law on Strategic Environmental Assessment in 2010. According to that law „the purpose of Law on SEA is to ensure that environmental consequences are identified and assessed during preparation and before the adoption of certain plans and programmes”, the law lists municipal development plans as ones with statutory requirement to conduct SEA (due to that fact the screening process to assess if the plan is a subject of SEA was not performed within current assessment). Kosovo's SEA legislation follows the general principle that the SEA process should be carried out in parallel with the assessed plan preparation process and it should be finalized prior to plan's approval in order to include necessary changes or corrections into the plan. Due to the fact that Rahovec MDP was almost fully prepared (not finally approved) before the SEA assignment started the current SEA process was carried out after Rahovec MDP preparation (before public review and final approval by the municipality), the process went on from June to December 2012. The strategic environmental assessment was performed in close co-operation with Rahovec municipality and other necessary stakeholders (i.e. companies responsible for solid waste management, water supply and sewage treatment). Various meetings and discussions held with municipality representatives were valuable means to gather necessary environmental information and feedback as well as inputs for the SEA. Two training sessions/workshops were held together with Prizren municipality representatives in order to provide possibilities and knowledge to attract wider public to be actively involved in the process of SEA. In order to make the environmental issues understandable and to urge wider public to participate in the SEA process there is a vital need to select suitable and effective communication and involvement measures.

The first phase of the current SEA was the scoping, which included the analysis of relevant other plans and programs from various governance levels (mainly international and national due to the lack of up to date local development documents) and collection of environmental baseline data. The collection of the necessary environmental information revealed some significant data gaps, especially the shortage of quantitative data about the characteristics and pollution rates of water, air and soil. Based on gathered information there were a number of issues highlighted at the scoping phase which are of concern and critical to sustainable development within Rahovec area, such as balance between environmental and socio-economic interests, random and unsustainable construction activities, pollution of surface waters, problems concerning the drinking water supply, sewage and wastewater network, solid waste, river and land degradation and air quality. Within the scoping phase of the SEA

three environmental alternatives were identified to be further analysed during the assessment stage: zero scenario/do-nothing scenario, full implementation of the MDP-scenario, environmentally improved conservative scenario.

The environmental objectives, targets and indicators were also prepared during the scoping phase in order to predict impacts, and to describe and monitor change of Rahovec MDP on the environment. They are mainly characterized by the aim to improve the current environmental situation in Rahovec. Although according to the common SEA methodologies the aim is to have most of the indicators and targets are measurable and they should be used to monitor the progress of achievement the set objectives periodically, in current case the lack of the monitoring systems caused the fact that the progress of achieving environmental objectives is mainly evaluative.

The strategic chapter or the MDP (II chapter) provides the vision and 7 strategic goals/principles, it could be evaluated that the strategic approach for the municipal development generally supports the sustainability principle and does not influence environment negatively. When it comes to finding synergy between environmental and economic objectives then it is evident that for further development there is a vital need for economic (including agriculture) development and infrastructure construction, but it is essential that during planning and implementing these activities a proper balance between economic and environmental interests (reasonable use on recourses, energy efficiency and biodiversity protection) will be found.

The spatial framework of the MDP proposes three alternative spatial scenarios – monocentric, linear and polycentric, out of them the latter is chosen to be the most suitable for Rahovec further development. From the economic development perspective the emphasis is on the agriculture, the main development perspectives are laid on the triangular connection between centre (Rahovec) and two sub-centers (Retkoc and Great Krushe). The main activities to support the development are agricultural activities such as vineyards, grape processing industry, food processing industry, but also trade, medical tourism industry and tourism.

To provide living space for the growing population of the municipality the MDP foresees the densification of current settlements as well as proposes a settlement expansion areas for all the centers. Expansion of settlements on the borders of the proposed areas minimizes conflicts between agricultural and construction line. It is more likely that proper infrastructure for water/wastewater will be provided and the waste collection system will be set up. In addition to designated settlement expansion areas the MDP (although not the spatial framework chapter, but the fourth, implementation strategies chapter) provides designated zones for various economic activities such as industry, trade and tourism. If there is a need for extensive forms of this kind of economic activities (possible negative impacts included) the approach of locating some designated zones is justified and helps to mitigate possible negative environmental impacts and saves valuable natural and agricultural land from uncontrolled developments. But in addition to functional zoning the mixed-use principle should be implemented during the development, as according to UN-Habitat (2012) it includes several social, economic, land and infrastructure benefits.

In order to improve the area's current socio-economic situation a MDP proposes several activities to set a solid basis of providing better public services and improving living quality (social and technical infrastructure objects). It describes the general principles of the development of social infrastructure (kindergartens, schools, social institutions), the specific location of the few new buildings are not identified, but this is stated the construction activities are to be avoided on the valuable agricultural land. For all the construction activities

it is important to mention that in order to mitigate possible negative environmental impacts during the construction itself and later maintenance it should be planned and implemented according to sustainability principles (managing construction waste properly, using sustainable materials, providing energy efficient solutions).

Both spatial framework and implementation chapters define a need to develop the transportation infrastructure, both construction and improvement projects are foreseen. Although these initiatives include short term negative environmental impact due to the need of natural resources (road construction/ improvement materials, use of machinery) this is outweighed with socio-economic impacts and the long term indirect positive environmental impacts caused by better road quality (enables to use more modern, low CO<sup>2</sup> emission cars, suitability for public transport). From the infrastructure perspective the MDP proposes further developments at the fields of electricity supply and street lightning, yet there is no evidence of promoting the alternative energy sources (solar, wind, hydro).

MDP proposes a group of measures and provisions to address challenges concerning drinking water supply and sewage treatment - as these activities address the need to avoid further major water losses and include most of the settlements' water consumption into the central systems (no uncontrolled use), these are mainly with positive environmental impact. However there is a further need to add an objective to reduce the average water consumption rate which is stated to be 200-250 litres per capita per day. This consumption rate can be considered to be rather high and there is a possibility and need to reduce it, in addition to leakage decrease the possible measures could be awareness raising campaigns for consumers, more effective irrigation measures and re-use of treated wastewater. The untreated wastewater problem as one of the main environmental issues in Rahovec are rather generally addressed in the MDP, although the main approaches and techniques are described, there is a need for a more comprehensive approach. As the issue is rather complex the MDP should state the need to compose the municipality's common water supply and sewage treatment plan, which proposes the suitable solutions and locations for the collection areas and treatment/pumping establishments for the particular area. If the central systems are proven not to be reasonable and effective, sustainable local solutions should be suggested – addition to septic biological purification systems as well. From the proposed two wastewater treatment options (local vs shared with Gjakova) the local approach should be prepared, as it provides more possibilities to adjust with local conditions, is more flexible, includes less pipes and allows wider range of purification techniques.

For the solid waste problem the MDP also provides a set of solutions. But additionally, when it comes to solving the illegal dumping and inadequate waste management system it is important to notice that this problem could not be solved on local governance level only. Landfill location and management system's need coordination from national authorities. Still, local solutions (such as waste transit stations) are proven to be effective and are worth implementing in Rahovec as well. In addition to the need to set up a functional collection, sorting and depositing system for domestic waste there is a need to process organic agricultural waste. Composting should be considered as a perspective measure to reduce/avoid both urban and agricultural waste with the potential to contribute into sustainable fertilizing.

The implementation activities of the MDP are directly derived from the strategic components and are further elaborated within the specific strategies (economic and infrastructure development), for every activity the indicative deadlines and costs are indicated together with relevant/decisive bodies and financing sources. The potential environmental impacts of all the

proposed projects are evaluated in the environmental matrix (Annex 3). Similarly to the strategic chapter it can be concluded that there are no activities with significantly strong negative environmental impact. If the moderate or weak negative impact could be predicted there is usually positive socio-economic impact also included, usually these are construction projects with very short term impacts which can be mitigated effectively. On the other hand the plan proposes various activities to improve the current environmental situation and proposes projects to solve problems (land degradation, solid waste collection, wastewater purification).

Although the current MDP does not have significant negative environmental impact the limited range of perspective impacts could be minimized with suitable mitigation measures, for example (partially already suggested by the MDP):

- the maximum amount of greenery should be preserved during the development activities in order to protect the adequate share of naturally-covered areas;
- the diverse and sustainable use of forest resources in order to safeguard the further profitability and biodiversity of the forests;
- to keep agricultural areas in active use and in order to preserve aesthetic and scenic landscape values the edge and un-used agricultural areas should be regularly mowed;
- if recreational activities are implied in natural areas, their bearing capacity have to be considered and the activities properly channeled in order to avoid rubbishing and over-exploitation;
- if industrial areas are planned and established adequate buffer and sanitary zones should be identified, noise levels should be measured and barriers provided if needed;
- to preserve and protect water resources for domestic and industrial use and irrigation, there is a need to introduce and implicate sustainable water technologies;
- prevention of illegal quarry operators, collection of environmental taxes and the prohibition of lime kilns for using plastic materials for baking;
- to protect quality agricultural land, municipal authorities should respect the building line that is defined in the concept stage, where all the settlements of the municipality have the directions towards which expansion cannot be developed due to soil quality and arable land;
- as due to the its background (climatic, geographical, economical) the area needs a significant amount of energy (cooling, heating, motorized transport, irrigation etc) the energy efficiency issues should be covered better – as a need to find alternative energy sources (solar, wind, hydro) as well as energy-efficient ways of public (private) transportation, building and infrastructure management;
- to further address the issue of sustainable use of resources (especially water and mineral resources) with the preliminary aim to set up proper monitoring systems (ie water consumption meters) and to reduce consumption of the water by adequate measures (decreasing the leakages, improvement of irrigation systems, re-use of wastewater);
- to further address the solid waste problems by proposing some more specific local solutions (ie the location or alternative locations of the waste transit stations);
- to locate green corridors to provide connectivity between natural areas (mainly forests) in order to avoid habitat fragmentation and biodiversity loss.

From the analyzed scenarios, the first one (do-nothing scenario) is evaluated to be not suitable as it lead to further deepening of current problems and planned improvement measures in MDP would not be implemented. The second (full MDP implementation scenario) and third (environmentally improved and conservative scenario) are both considered suitable for Rahovec, but the third one is suggested to be the preferred one as it foresees the inclusion of abovementioned further environmental suggestions into the MDP and its implementation. Furthermore it suggest to prioritize the wide range of implementation activities in order to



avoid situation when in the circumstances of limited resources the developments will occur randomly and unsustainably.

The general conclusion of the SEA states that the assessed municipal development plan serves a purpose to improve the current socio-economic and environmental situation and does not include any major negative environmental impacts. The fact that the assessed MDP had been prepared and will likely to be approved itself has therefore a positive environmental impact. This very comprehensive document with the collection and analysis of the current data and situation of the municipality will form a good analytical basis for further sustainable decision-making processes. The composed environmental matrix of the implementation projects reflects that only few of them could have minor or moderate negative environmental impacts, these are mainly construction projects to improve Rahovec social and technical infrastructure and if proposed mitigation measures are to be implemented, they do not pose significant threat to environment. Sustainability issue is included as a priority policy into the area's strategy - objectives, implementation provisions derived accordingly.

# 1. Introduction

## 1.1 Time frame and consultees

According to the Kosovo's national legislation the SEA shall be carried out during the preparation of a plan or programme and before its approval. Due to the fact that Rahovec MDP was prepared (not finally approved) before the Law on Strategic Environmental Assessment came into force this principle could not be fully met within the current SEA process. The preparation of Rahovec MDP started at 2011 and the final version was prepared in summer/autumn 2012. The SEA process started at June 2012 with preparative trainings and workshops to/with municipal counterparts. In September 2012 the evaluation process started with MDP review and additional data collection during the field visits (in September and October, meetings with stakeholders, meeting notes annexed, Annex 1), during the second field visit the scoping elements (identified environmental issues) were introduced to and discussed with municipal counterparts. After that the draft SEA report was prepared at mid November 2012 for consultation and public review processes.

In order to safeguard the achievement of it's objectives and follow the principles of effective involvement the draft SEA Report is to be introduced to and discussed with all relevant institutions such as:

- Rahovec Municipal administration;
- Rahovec relevant interest groups and general public;
- Kosovo's Ministry of Environment and Spatial Planning
- Kosovo Environment Protection Agency
- UN-Habitat Kosovo

## 2. International legislation, other plans, programmes, conventions and protocols

As Rahovec municipality operates in the conditions of rather new democracy in Kosovo, there are no modern planning documents on local level to set a framework for the MDP and/or SEA processes. Therefore both of the processes mainly rely on the relevant national and international documents (plans, programmes and legislation), which are described and analysed within current chapter.

### 2.1 EU SEA Directive

The Council Directive 2001/42/EC on assessment of the effects of certain plans and programmes on the environment (SEA Directive) was adopted on 27.06.2001. The SEA Directive applies to a wide range of public plans and programmes (e.g. on land use, transport, energy, waste, agriculture, etc). The SEA Directive does not refer to policies. The Directive (European Parliament..., 2001) states that „plans and programmes in the sense of the SEA Directive must be prepared or adopted by an authority (at national, regional or local level) and be required by legislative, regulatory or administrative provisions“.

An SEA is mandatory for plans/programmes which are listed at the Directive as follows:

- „are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/water management, telecommunications, tourism, town & country planning or land use and which set the framework for future development consent of projects listed in the EIA Directive;
- have been determined to require an assessment under the Habitats Directive“.

Broadly speaking, for the plans/programmes not included above, the Member States have to carry out a screening procedure to determine whether the plans/programmes are likely to have significant environmental effects. If there are significant effects, an SEA is needed. The screening procedure is based on criteria set out in Annex II of the Directive.

The SEA procedure can be summarized as follows: the SEA report is prepared in which the likely significant effects on the environment and the reasonable alternatives of the proposed plan or programme are identified. The public and the environmental authorities are informed and consulted on the draft plan or programme and the SEA report prepared. The SEA report and the results of the consultations are taken into account before adoption. Once the plan or programme is adopted, the environmental authorities and the public are informed and relevant information is made available to them. In order to identify unforeseen adverse effects at an early stage, significant environmental effects of the plan or programme are to be monitored.

## **2.2 Other EU Directives**

There are numerous other EU directives the SEA Directive has clear relations and which are relevant if environmental and sustainability issues are under the consideration (see list in Annex 2). According to Marsden (2008) „the SEA has close procedural links to the EIA Directive, especially as EA for listed sectors under the latter must set the framework for projects listed under the former. It also has close procedural links with the Habitats Directive, which is explicitly mentioned in the SEA directive. The Water Framework Directive, in common with the Habitats Directive contains its own requirements not just for the production of plans (and programmes) but also assessment, triggering the need for coordination procedures between the different laws“. One of the most relevant of them in the context of Rahovec MDP is the Water Framework Directive (came into force in December 2000) as this directive addresses one of the most intriguing environmental issue in Rahovec as well – the quality of water bodies (especially rivers). The general aim of the directive is to improve the qualitative and quantitative state (ecological and chemical status) of all water bodies. One of the approaches to achieve this aim is the production of River Basin Management Plans. Similarly to this directive the currently assessed MDP includes an objective to promote the management and treatment of waste water through adequate activities. The relevant activity to achieve that objective is the construction of the water treatment plant. Although this is not likely that the directive's objectives will be met in Kosovo or Rahovec by 2015, the taken approach in Rahovec is in accordance with directive's principles. As rivers are the most important surface water bodies in Kosovo the river basin district approach could be useful to face the pollution challenges in Kosovo/Rahovec as well (requires inter-municipal cooperation). The European Union legislative document to address another vital environmental issue – solid waste – is the Framework Directive on Waste (valid since 2008). One of the key concepts of this directive is the prevention of waste production – it emphasizes a need to reduce the amount of waste deposited at the landfill by the re-use and recycling. Due to the poor state of the waste collection and management system in Kosovo (a significant amount of solid waste is deposited into natural areas illegally and improperly) the first priority of the current MDP is to set up a functional system to collect the solid waste and deposit it properly. Although it foresees some measures to promote and implement the other priority

areas of the directive the effective implementation of the recycling and re-using systems need national coordinative mechanisms from national governance level.

## 2.3 EU 2020 Strategy

In addition to abovementioned EU legislative documents the EU 2020 strategy with its priorities, targets and flagship initiatives<sup>1</sup> is important policy document for both the EU itself but also for the neighboring regions, especially Western Balkans as the regional cooperation with this region has been identified as one of the policy priorities for EU. Within EU 2020 strategy (European Commission, 2010) the potential enlargement of EU with Western Balkans countries as identified as an external policy tool for growth and jobs. The priorities of the strategy are „smart, sustainable and inclusive growth“. There are seven flagship initiatives, out of which *resource efficient Europe* and *An industrial policy for the globalization era* are the ones directly connected with sustainability issues, but other initiatives such as *Digital agenda for Europe*, *Innovation Union*, *Youth on the move*, *An agenda for new skills and jobs* and *European platform against poverty*, could also, if implemented efficiently, contribute into sustainable growth principle. The strategy also includes measurable targets to achieve during the implementation period, there is no doubt that it is fully beneficial for both current and perspective member states to co-operate in order to achieve strategy's environmental targets such as 20% reduction of greenhouse gas emissions, 20% growth of the rate of energy from the renewables and energy efficiency. Therefore it is reasonable to integrate the direction of this targets into national, regional and local environmental strategies and action plan, strategic environmental assessment procedures included. The connections between the EU 2020 strategy and currently assessed MDP exist, but they are rather indirect. The approach and activities of the MDP effectively contribute into the most strategies' targets such as the reduction of poverty, social exclusion, unemployment rate and school drop-out rate. However it has to be noted that currently the energy efficiency issues are not particularly well covered with MDP.

## 2.4 UN Millennium Development Goals

UN has an active role in Kosovo' development, although Kosovo is not a member state, UN operates in Kosovo under the mandate of UNMIK mission in order to ensure conditions for the peaceful and normal life for all inhabitants of Kosovo and advance regional stability in the Western Balkans. The UN strategic goals were adopted in 2000, when world leaders gathered in New York to attend the Millennium Summit, the participants approved the UN Millennium Declaration (UN General Assembly, 2000) with a main general aim to reduce poverty with the deadline of 2015. This initiative have become known as Millennium Development Goals<sup>2</sup>. There are 7 goals with specific targets, one of the goals is dedicated to the environmental sustainability, in order to ensure that following targets are set:

- “integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources;
- reduce biodiversity loss, achieving, by 2010, a significant reduction on the rate of loss;

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<sup>1</sup> Further information about the strategy and its implementation progress can be found:  
[http://ec.europa.eu/europe2020/index\\_en.htm](http://ec.europa.eu/europe2020/index_en.htm)

<sup>2</sup> Further information about the goals and implementation progress can be found:  
<http://www.un.org/millenniumgoals/bkgd.shtml>

- halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation;
- by 2020, to have achieved a significant improvement in the lives of at least 100 slum dwellers“.

In Rahovec' case the most relevant are the targets about biodiversity loss and accession to drinking water and sanitation (including sewage). The MDP includes measures such as forest protection to preserve biodiversity as well as activities to improve the water supply and sewage system. In addition to goals connected to environmental issues the goals to address poverty and gender equality are relevant in Kosovo/Rahovec.

## ***2.5 Spatial planning and SEA in Kosovo***

### **2.5.1 Kosovo's background information**

The REC strategic environmental analysis of Kosovo (REC, 2008; 5, 8,18) describes Kosovo with „an area of 10,887 square kilometers. It covers an area of 1.1 million ha. About 430,000 ha are forested (39.1%) and 577,000 ha are classified as agricultural land (52%). Of the latter, 31% are pastures and about 69% is arable. It is a geographical basin, situated at an altitude of about 500 meters, surrounded by mountains, and divided by a central north/south ridge into two sub-regions of roughly equal size and population. It is a part of the South East European (or Balkan) region and borders Serbia to the North and East, Montenegro on the West, Albania on the South West, and FYR Macedonia on the South East.

There is a continental climate, recognized by temperature extremes and in winter thermal inversions occur frequently. The concentration of the local endemic species is located at the border of southwest Kosovo, northeast of Albania and northwest of FYR Macedonia, namely at Sar planina. This mountainous area is linked with Prokletije, Durmitor and the coastal Dinara mountains and represents the Balkan centre of endemic biodiversity. The territory of Kosovo has one national park (Sar planina Mt.), two regional parks, 11 nature reserves, 32 monuments of nature, etc. Nonetheless only one-half percent of its territory is under protection. Within this small space a huge diversity of both species and habitats exists. There are more than 2000 species of vascular flora in Sarplanina. This is about 26% of Balkan and 18 % of European flora. This wealth of species is an example of exceptional floristic richness. Analysis of the area-range shows that most numerous are the endemic (about 29 %) and sub-endemic taxa (about 10%), accounting for almost 40 % of endemic flora of Sarplanina. These figures place Sar planina at the very centre of European and global gene and species diversity. Kosovo is relatively rich in natural resources. It has one of the largest reserves of usable coal (lignite) in Europe, plus other minerals. Also it is hosting a very rich biodiversity, concentrated in the area around Sharr mountain in the South West of Kosovo“.

Although the sustainable growth principle is integrated into the Kosovo's Development Strategy and Plan (KDSP) the most important development activity concerning environmental matters could estimated to be Kosovo's Environmental Strategy (KES). It was adopted in 2004 by the Government of Kosovo. The Kosovo Environment and Climate Analysis prepared by School of Business, Economics and Law University of Gothenburg Department of Economics Environmental Economics Unit (2008) sets the strategies long term goals as follows:“ improvement of quality of life for people; rational and sustainable use of natural resources; and avoid harmful effect on the environment. KES has seven strategic areas: 1) air (including climate change and acidification); 2) water; 3) soil; 4) natural heritage; 5) biodiversity; 6) waste; and 7) risk and disaster management“. Related to climate change some of the priorities are to establish a coordinating body, monitor emissions of greenhouse gases,

and being active in international discussions on climate change. Climate change is thus mentioned in terms of mitigation rather than adaptation. The same is valid for the Kosovo Environmental Action Plan (KEAP), which was launched by MESP in May 2006 and approved in January 2007. It highlights that KEAP should assist in strengthening the future process of Kosovo's accession into the EU.

## **2.5.2 National legislative background**

### **Kosovo's Law on Spatial Planning**

On September 2003 the new Law on Spatial Planning was approved and amended on November 2008 (Amending Law on Spatial Planning, Law no. 03/L-106) which main goal according to Nushi (2011) „is to regulate all issues related with spatial and urban planning“. During the preparation of the current SEA the new draft Law on Spatial Planning was being prepared and consulted with stakeholders with a perspective to come into force at the very end of 2012. According to this legal act spatial planning should „follow the principles of protecting Kosovo's natural resources and advocating sustainable development, it also should promote an inclusive and participatory processes and should include all stakeholders and communities“. Promotion of harmonization with ongoing European spatial developments is also among the principles.

It is foreseen that professional expertise is integrated into the planning system by establishing the Committees of Planning Experts (local level) and Spatial Planning Council (national level). There are 2 levels of planning in Kosovo (national and local) and the types of plans are Spatial Plan of Kosovo, Spatial Plans for Special areas, Municipal Development Plans (MDP), Urban Development Plans, Urban Regulatory Plans. For all those types of plans public review and possibilities for public participation are obligatory. MDP as the most relevant type for current assignment is multi-sector plan for the whole territory of the municipality that determines the long-term goals for economic, social and spatial development. It should cover the period of at least 5 years and include a plan for development of urban areas and villages within the municipality. It should include a short summary of socio-economic and environmental impacts.

Nushi (2011) identifies the main institution in charge of implementing the above-mentioned law at national level to be the Ministry of Environment and Spatial Planning which „in accordance with the Law on Spatial Planning is responsible for the coordination of spatial planning in Kosovo and the proposal of spatial development policy proposal in the field of spatial planning. MESP is also responsible for drafting of relevant documents and reports on spatial planning, review and monitor all of planning documents throughout the territory“.

Within the Kosovo's two-level planning system local governance level have the significant role in implementing the planning principles and requirements set by the Law on Spatial planning. According to Tofaj et al (2010; 1137) „Kosovo municipalities play an important role on leading their communities, creating wealth and enforcing the local identity. The society needs to have a strong leadership that brings together all relevant stakeholders, community and business representatives, civil society and international organizations which can contribute in developing a strategy based on an overall vision. This is one of the crucial activities that municipalities are expected to conduct. It is interesting to note that under current circumstances the role of international agencies (such as UN-HABITAT) is larger than expected due to donor grants, to a point that it is consider a stakeholder in the process. Nonetheless, as time passes and the municipalities show increased levels of professional and

financial capacity, the role of international agencies will have to be reduced to only stimulate processes and projects. The experience in the past, pre-conflict planning (where most of assets were state owned) was that local government would facilitate and provide all these activities themselves. Whereas, contemporary strategic planning promotes the approach by which local government are expected to conduct most of its activities in partnership with private sector and international agencies, while consistently involving voices of community“.

#### Kosovo's Law on Strategic Environmental Assessment

This law emphasizes the importance of integration of environmental protection principles in the preparation, approval and realization of relevant plans and programmes if it is evident that the latter have significant environmental effects. The list of obligatory plans and programs is set within the law. Those plans cannot be approved or submitted to the legislative body for approval without SEA report. If it is deliberated that SEA is not required the relevant decision has to be in writing and should include its reasons. The SEA report identifies, describes and evaluates the likely significant effects on the environment of implementing the plan or programme and evaluates reasonable alternatives. Requirements are set in the law to provide access of the SEA documents for the consultation bodies and for the general public. The draft SEA documents is an object for the public debate. Special requirements for the cases of transboundary consultations are set within the law. Prior to the adoption, the SEA report has to be review and agreed by the Ministry. Procedures for informing about the adoption decisions, monitoring and supervising are also set. Law's Annexes contain the criteria for determining the likely significance of effects on environment and the necessary information to be provided in SEA reports as well the criteria for assessment of SEA reports.

## ***2.6 Other relevant plans and programs***

### **2.6.1 Kosovo Country Environmental Analysis. Cost Assessment of Environmental Degradation, Institutional Review and Public Environmental Expenditure Review**

A comprehensive and up-to-date analysis prepared by World Bank and was presented in June 2012. The objective of this analysis is to report on the state of the environment and the key environmental issues, and to estimate these issues' health and economic costs. Costs are measured as, for example, impacts on health (morbidity and early mortality), and are then expressed as annual economic damage costs in euros and as a share of gross domestic product (GDP). By assigning monetary values to environmental degradation, the analysis (World Bank, 2012) here achieves four main results: “it provides a useful mechanism to rank the relative social costs of various forms of degradation and provides a tool for prioritization of environmental problems. It offers policy makers an instrument to integrate the environment into economic decision making. It expresses the damage costs as a share of GDP, allowing for comparison with other economic indicators“. And it gives to different stakeholders a tool for discussing the importance of environmental protection in economic terms—useful in deciding on how to allocate scarce resources and to increase awareness of the “costs of doing nothing” about pressing environmental problems.

The annual cost of environmental degradation in Kosovo is estimated by the report (World Bank, 2012) „ at €123 million–€323 million in 2010, with a midpoint estimate of €221 million. This cost is equivalent to 2.9–7.7 percent of GDP, with the midpoint at 5.3 percent.

Costs are indications rather than precise figures, as data gaps are many, some data have not been recently updated – due to country's turbulent history- and not all impacts can be monetized. With annual costs of environmental degradation of €221 million, Kosovo faces serious social and economic impacts from poorly managed polluting activities and could make huge gains from remedial actions to protect and restore the quality of the environment. The cost of outdoor air pollution in urban areas, with the most significant health effects caused are evaluated to be the environmental issue with the highest impact - estimated damage costs ranging from €37 million to €158million per year (0.89-3.76 percent of GDP). Air pollution is estimated to cause 835 premature deaths, 310 new cases of chronic bronchitis, 600 hospital admissions and 11,600 emergency visits each year“. Other significant environmental issues in Kosovo further analysed and evaluated within the review are water quality, solid waste, forest/land resources and mining/manufacturing energy.

## **2.6.2 Governmental Strategy on Waste Management 2011 – 2020**

Strategy prepared and issued by the Ministry of Environment and Spatial Planning (MESP) in 2011 and stated to be the first waste management strategy in Kosovo. The main objective of the Strategy (MESP, 2011) is to „create measures, based on which the Republic of Kosovo would have to reduce the amount of waste that currently creates as well waste management in a sustainable manner“. The strategy sets guidelines and goals in the field of waste management for the period of ten years (2011-2020), in accordance with the legislation on waste management and economic opportunities. The focus is on reduction of waste generation, reduction of the amount of waste at source and reduction of the amount of waste to be disposed, development of infrastructure for the establishment of an integrated approach for waste management, reduction of risk from waste, contribution to increasing employment in the country and education of officials, experts and public. Strategy is a document that includes the central and local administrative levels and various governmental and non-governmental sectors in the field of water, mining, health, veterinary, spatial planning, construction etc. This document which is based on EU documents and directives shall bring positive results with the beginning of negotiations between the Republic of Kosovo and EU for membership and shall also prepare the country for the waste management sector. The document lists basic principles (polluter pays etc), analyses legal framework, and European trends and states vision and priorities. The strategy includes an overview of the current status of the waste management whereas the most significant aspects are very low awareness and the big difference on the rate of functioning waste collection systems between urban (90%) and rural (10%) areas. There is an overview about the relevant stakeholders and administrative structures. The strategy sets an objectives that 90% (in total) of municipal waste should be collected in 2020 and the current balance between treated waste and disposed waste (10/90) should be 40/60 by 2020. It is foreseen that by the year 2020, all citizens should benefit from organized collection of waste, percentage of municipal waste destined for further treatment and recycling. According to the strategy the network of facilities and equipment for municipal waste management should be defined in the Municipal Development Plan. According to the Strategy, „the total estimated investment to address the current problems and to fulfill the objectives amounts to 531 mil Euros. Out of this amount 10 million € are dedicated for general measures and waste reduction, 274 million € for municipal waste, 247 € for other types of waste having into consideration the construction waste, objects for mechanical-biological and thermal treatment of waste and other technical solutions for disposal of untreated waste as a final solution“.



### 2.6.3 Governmental strategy and action plan for biodiversity 2011 -2020

Prepared by MESP during the period of 2009-2011. According to the document (MESP, 2011) „in order to preserve biodiversity, halt habitat loss and met EU environmental legal standards the strategy sets a vision to ensure unique wealth of plants, animals and landscapes that would contribute to increase welfare for the people of Kosovo“. There are 4 strategic objectives:

**„Strategic Objective 1:** Development of legal and institutional framework in line with EU standards and its effective implementation.

**Strategic Objective 2:** Conservation, protection and improvement of state for plant and animal species, natural habitats and representative landscapes in natural balance.

**Strategic Objective 3:** Ensuring integrated protection of nature through cooperation with other sectors, sustainable use of biodiversity and equal sharing of benefits.

**Strategic Objective 4:** Promotion of effective education and communication for biodiversity.“

Strategy contains a long list of solutions or strategic objectives that need to address identified problems, possibilities, threatening and other issues. Some of these Strategic objectives are mentioned in general terms and are less or more like programs which request longer time periods for implementation. Identified activities within Action Plan will be implemented through specific projects, each activity will request a project which presents a application basis for financing or share of financial sources. It is claimed to be clear that a full list of Actions will request a long time period, maybe 10 or more years, for implementation. During the preparatory process, a lot of efforts were done to prioritize the list, considering the emergency, threatening, possibility, financing and success possibility. Serious efforts were done to resolve programs into specific actions within programs.

### 2.6.4 Sustainable Energy Options for Kosovo. An analysis of resource availability and cost

The analysis was prepared by Energy and Resources Group Goldman School of Public Policy Renewable and Appropriate Energy Laboratory University of California, Berkeley and presented in January 2012. This assessment (Kammen et al, 2012) „is an analytic treatment of the energy options that exist today and that can be created through investigation of new energy efficiency, renewable energy, and the wise use of fossil fuel resources. Key components of such a forward-looking energy plan for Kosovo, and arguably for the Balkans more widely, are: job creation and the support of indigenous industry; reduced exposure to energy supply and price risks through regional coordination and integration; and an energy mix that reduces human and environmental health risks and facilitates economic integration with the European Union“. The analysis provides a very comprehensive overview of the current state of electricity sector, where the downsides of the massive use of lignite/brown coal are described such as low efficiency and high rate of CO<sub>2</sub> emissions. Based on this analysis and using a simulation methods three scenarios are described and compared within the analysis – the business as usual scenario, baseline scenario and low-carbon scenario. The analysis (Kammen et al, 2012) states, that „the business as usual path, dominated by an expanded use of low-quality coal, is not the least-cost energy option for Kosovo given the social cost of thermal generation. The coal dominant energy path also burdens future generations with an energy mix that is neither environmentally sustainable nor is it a path that maximizes job creation. A low-carbon path exists for Kosovo that integrates aggressive energy efficiency deployment, use of both large and small-scale hydropower, solar, biomass and extensive use of wind energy while reducing human and ecological damage. This path whilst delivering 38% of the energy demand through renewable resources can also provide

almost 30% more jobs than a business as usual path and it does so at an estimated cost savings of 50% relative to a base-case scenario that includes a new coal power plant. To make the low-carbon path viable, two key commitments are vital: 1) to implement aggressive energy efficiency programs (and reducing technical losses) and enabling policies to do so; and 2) to explore and implement opportunities to make the hydropower capacity a resource year-round, and to develop wind or other renewable energy sources that can address peak energy demands, potentially utilizing wind and hydropower in concert, and/or to bring significant geothermal power into the energy mix“.

## **2.6.5 Spatial Plan of Kosovo 2010-2020+**

This plan poses one of the main strategic and spatial framework for Rahovec MDP. Spatial Plan of Kosovo 2010-2020+ is a document that promotes common interests of the residents of Kosovo, for an accelerated economic development, and simultaneously protecting resources, natural and cultural heritage. Compilation of the Spatial Plan supports spatial distribution of development, at the national, municipal and urban levels and also the drafting of the Overall Kosovo Development Strategy. The vision of Kosovo, according to the plan, is to ensure sustainable social and economic development, infrastructure and modern technology, education opportunities for all and qualified labor force, a country which respects environment, natural and cultural heritage of its own territory and neighbors, with an open society promoting diversity and idea exchange, having respect for the rights of others.

The basic spatial development concept, according to the Spatial Plan of Kosovo, is defined as nodal development concept with elements of the corridor. The concept of nodal development refers to the concentration of future development in the seven major centers of Kosovo, and the concept of corridors refers to spatial developments along the roads, which will be controlled strictly and will not be allowed on agricultural lands of the categories I to IV. Different than previous spatial plan, the Spatial Plan of Kosovo adds social development, conservation of cultural heritage among the main principles of spatial development strategy.

Spatial Plan of Kosovo 2010-2020+ additionally describes a general goal for the development of effective links within the urban, inter-urban with 5 other spaces and beyond it through the development of regional infrastructure (road, rail, TT's). Conservation of natural resources is one of the most important principles in the spatial plan of Kosovo considering the loss of quality agricultural land; high environmental pollution; irrational utilization of resources and uncontrolled settlement growth. Especially the consideration of cultural heritage in the newly enacted Spatial Plan of Kosovo 2010-2020+ is an important step for future development and conservation strategies of the country.

### 3. Summary of the elements of the plan under the assessment, Rahovec MDP

Municipality of Rahovec in cooperation of consultancy company started to draft the assessed Municipal Development plan in March 2010. The development plan is a document, which is drafted for municipality's territory for the next period of time until 2022. It is a process that is preceded by a realist and sustainable vision. It follows the legislative principle to be based on social, economic, environmental existing situation and it is an all-inclusive process, which is transparent with public involvement in decision making.

The plan is structured into 5 phases as follows:

- First phase – Profile preparation and the assessment of existing situation
- Second phase – Vision, Principles and Targets
- Third phase – Spatial Development framework
- Fourth phase – Strategies and actions for implementation
- Fifth phase –Provisions for implementation.

During MDP drafting, project structure was divided into four main areas:

1. Population, issues concerning society, habitation and settlements.
2. Environment, including cultural heritage, nature, landscapes etc.
3. Economic development, industry, tourism, recreation, trade and agriculture
4. Infrastructure – municipal transport, communications.

Gathering of data as a base for drafting the Municipal Development Plan is an essential element. During the drafting of municipal profile and also for the assessment of the existing situation, sources and various methods have been used to gather, systemize and analyze the necessary data. Gathering of data has been made by municipal structures of Rahovec and the company staff through a close cooperation between working groups. Sectors of Municipal Government have gathered data based on certain areas by being in compliance with company's requirements. All municipal sectors that had reports and their development projects of certain fields have been incorporated in the document of Municipality of Rahovec Development Plan.

The basic data for Municipal Development Plan drafting have been used from various sources:

- Official data from Municipal Government sectors – completion of work tools
- Data from municipal and regional offices of the Government of Kosovo (Labor and Employment Office, Social Welfare Office, ESK etc.)
- Data from various sectors of the Government of Republic of Kosovo
- Data from municipal public companies
- Detailed urban plan – drafted from Office for Urbanism, Prishtinë
- Cadastral parcels – municipal office for cadaster
- Topographic maps: 1:50 000, 1:25 000
- Ortho-photos (produced in 2004 and 2007) - municipal office for cadaster
- Field work ( company teams have visited all municipal settlements)

- GIS and GPS application
- Scientific literature

The first phase of the MDP consist the comprehensive overview and an analysis of the current municipal situation covering all the necessary sectors (relevant information for SEA purpose is presented in Chapter 4). In addition to the descriptions there is a SWOT analysis to identify municipal strengths, weaknesses, opportunities and threats on following fields: population, social status and settlements; environment and land use; economy and infrastructure. From the cross-analysis of the latter 11 challenges and are derived to address with the development plan:

1. Unsatisfactory level of administration
2. Absence of infrastructure and equipment in education and healthcare
3. High unemployment rate and poverty
4. Absence of secondary centers and of urban infrastructure
5. Pollution and environmental degradation
6. Degradation of environmental and cultural heritage
7. Loss of agricultural land as a consequence of uncontrolled development
8. Legislative aspect
9. Import/Export
10. Financial support aspect
11. Poor and insufficient infrastructure

Second phase of the MDP contains mainly strategic components. Firstly it describes relevant development directions for Rahovec from national spatial planning document “Kosovo Spatial Plan”. According to that plan Rahovec is located at the “yellow zone” of Kosovo with the following vision: Bridge for development of links between Kosovo and the region, functional network of powerful towns and dynamic villages, attractive to live and work in. By utilizing the capacity of infrastructure, its geographic position and abundant natural cultural and human assets, it will develop into a stable economic agro industrial, commercial, service and tourism area.

Taking into account local challenges and opportunities and national trends a vision of Rahovec development is proposed as follows: Municipality with an advance administrative system, positive trends in employment and reduction of poverty, advancing the educational and healthcare system, the planned development of settlements, with sustainable environmental development, protecting the valued of cultural heritage, with a stable economy, advancing viticulture and the production of vegetable and with a planned and modern infrastructure.

Additionally, second phase proposed 7 groups of strategic development goals to be implemented according to good governance and strategic priorities. The strategic development goals are:

- Functional and effective administration
- Steady decline in unemployment rates and poverty
- Advanced educational and healthcare system
- Development of settlement and planed constructions
- Environmental protection and rational use
- Developed economy
- Modern and planned infrastructure.

Out of the strategic principles the spatial and implementation chapters (III, IV and V) are derived. All of them are very comprehensive and form a solid basis for further sustainable decision making during the plan implementation period (until 2020). The spatial framework chapter includes following elements:

1. Key concepts of spatial development
2. Structure and spatial location for the development and organization of the future, which will address issues such as:
  - a) Economic development, regeneration, including tourism, recreation, trade and other economic activities.
  - b) Infrastructure - municipal transport, communications, etc.
  - c) Population, housing, settlements, social, heritage, etc.
  - d) Environment, including natural heritage and resources, landscapes, etc.
3. Marking of existing urban areas and proposed for the future and other areas outside the urban area.
4. Marking of important buildings, strategic projects or specific areas which have already been approved in the Spatial Plan.

The spatial framework chapter chooses the polycentric development scenario to be the most suitable spatial pattern for Rahovec (compared with monocentric and linear scenarios). Polycentric development is aimed at the distribution of activities within the settlement or several settlements, construction, rehabilitation and the provision of necessary infrastructure, transportation access, better access to social services and the creation of favorable conditions for work and recreation in all localities. Also aims to address the stagnation developments in interrupted mountain settlements through the provision of basic infrastructure and the use of local resources for further development. This approach is currently widely spread and is in accordance with the European Spatial Development Perspective (ESDP)<sup>3</sup>. It should help to find balance between rural and urban areas and to provide conditions for the rural areas more successfully to assimilated structural changes.

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<sup>3</sup> [http://ec.europa.eu/regional\\_policy/sources/docoffic/official/reports/pdf/sum\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf)

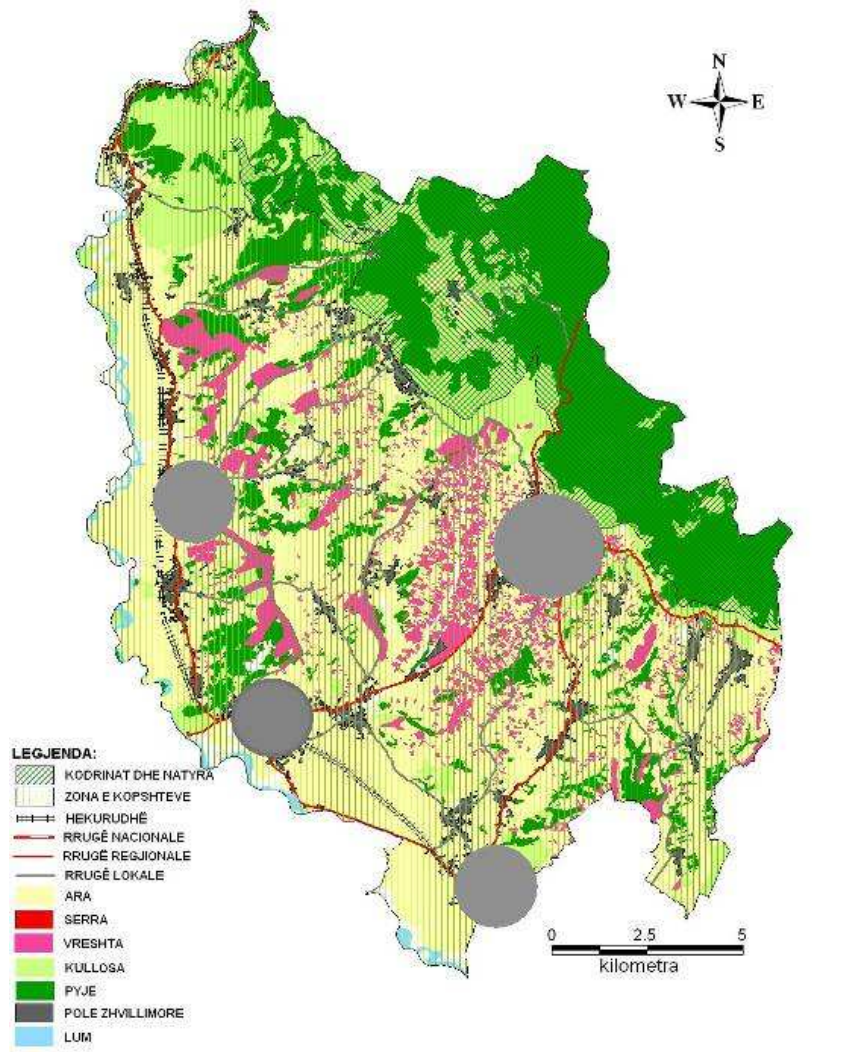


Figure 1. Polycentric Concept (Rahovec MDP).

The framework divides Rahovec area into two sub regions: a) south western area (gardens) and b) north eastern area (hills and nature) because there are many differences in terms of terrain morphology and other natural factors, but also in terms of economic, social, environmental, infrastructure and services. In addition to settlement structure (hierarchical systems of centers and sub-centers), there chapter analyses the further spatial structure of the municipality which addresses the all pre-identified challenges (environmental as well as socio-economic) of the area. Based on the population forecasts the settlement expansion ranges are mapped for every settlement. Expansion of settlements on the borders of the proposed areas minimizes conflicts between agricultural and construction line. With this proposal are fulfilled gaps land surfaces within the dwelling.



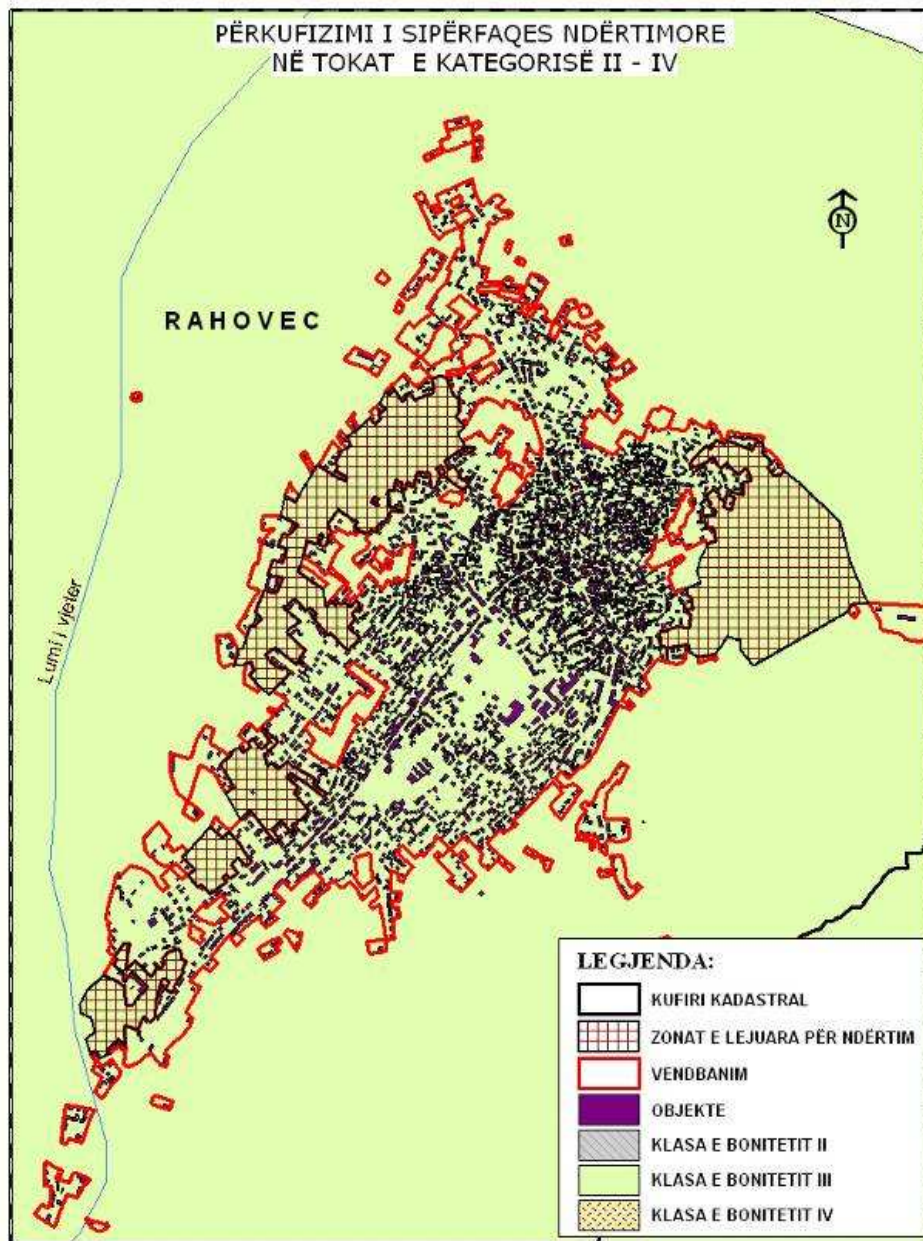


Figure 2. Build surfaces and allowed construction line of Rahovec town (MDP)

Finally the implementation phases propose the development strategy of the municipality where the strategic goals are elaborated further and a wide range of implementation projects are listed in order to achieve the strategic goals. For every project the preliminary timeline, responsible authority and financial perspective (range of cost and source) are set. This phase also have a spatial dimension by providing location for future economic developments (such as industry, trade, tourism etc).

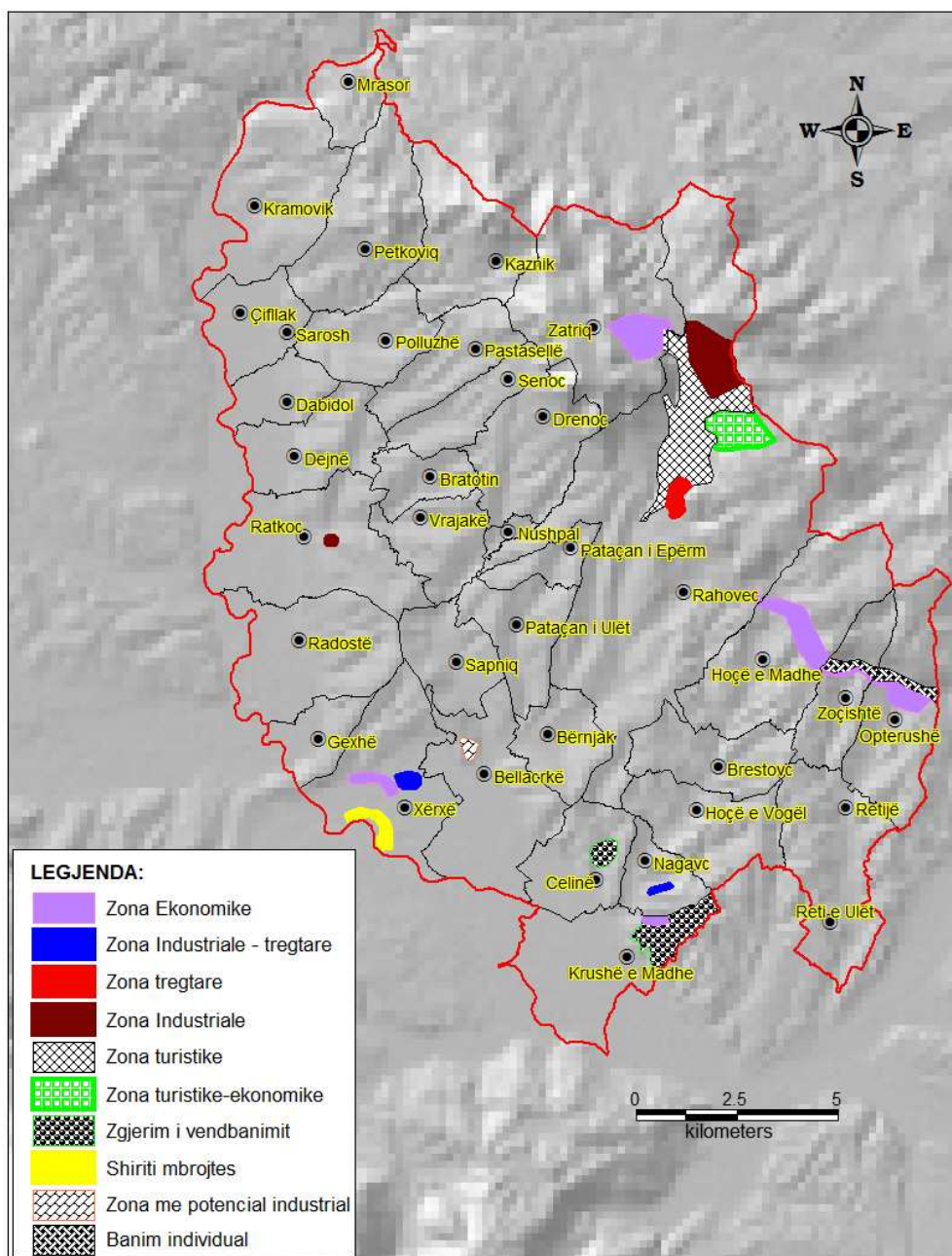


Figure 3. Economic development zones in Rahovec (MDP)

The final phase of the MDP consist implementation provisions – general provisions, responsible stakeholders, conditions for determining the destinations of surfaces, conditions for spatial organization, development of settlements, social development and effective administration and prevention measures against harmful impacts on the environment.



## **4. Baseline environmental information**

In order to predict and assess the possible environmental impacts the plan or program (currently Rahovec MDP) might have on the area's environment there is a need for sufficiently scoped and leveled environmental information. It is also needed to provide a foundation for evidence based assessment. For the current SEA the main source for environmental information was the MDP itself, mainly the first phase. However additional data was collected during the field trips and meetings with local stakeholders (Meeting minutes annexed, see Annex 1).

### **4.1 Location**

The territory of the municipality of Rahovec has a surface of 275.5 km<sup>2</sup>, which lies in the Prizren region and has a favorable geographical position. By North its bordered with the municipality of Klina with a border distance of 45 kilometers, by North Eastern it is bordered with the municipality of Malisheva with a border distance of 16 kilometers, by South Eastern with municipalities of Suhareka and Mamusha, by South it is bordered with municipality of Prizren with a border line of 25 kilometers, by West it is bordered with the municipality of Gjakova with a border distance of 28 kilometers, and it has a distance of 60 kilometers with Prishtina (Kosovo capital city). Strong communicative connection exists between municipalities and the Prizren-Pejë highway and railroad are located in the East of the municipality. The municipality territory lies in the latitude from 42° 30' to 42° 50' and in the longitude from 20° 21' to 20° 55'. In the municipality of Rahovec, settlements lie from 300m (Krusha e Madhe) to 920m (Zatriqi) above sea level.

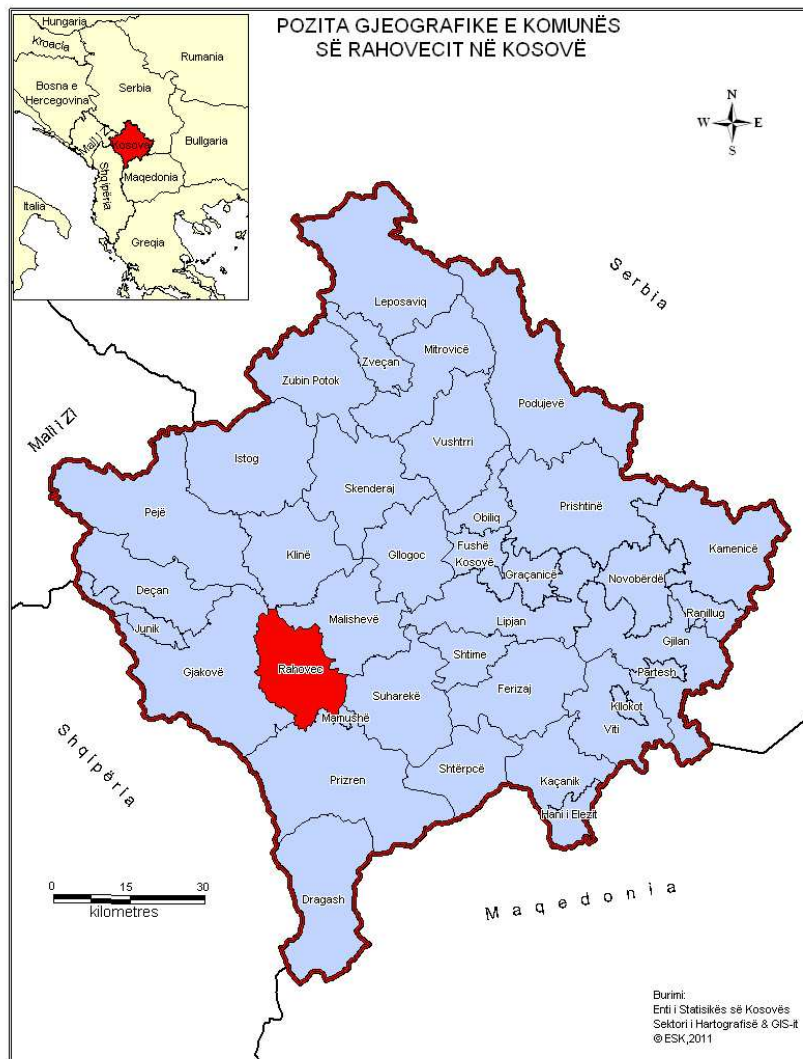


Figure 4. The location of the municipality in Kosovo.

## Geology

Geological formation has gone through different geological periods and there are two main phases of the geological formation of the ground in the municipality of Rahovec. Firstly, the Maritime period, when the Tetis sea existed in this area and the when lakes were formed in the wide areas if the south-eastern part of the Balkan peninsula that were connected with each other. And then the Continental period, which has existed in the early geological periods at the end of the Mesozoic era and the second which still exists under the conditions of the endogenic and external factors. Geological formations of the municipality of Rahovec belong to : Holocene, Pleistocene, Pliocene, Cretic and Jurassic. As for the seismicity, Kosovo is considered one of the active seismic zones, from which earthquakes of high level. Based on the seismic data from the past up to today, the territory of Kosovo but also of Rahovec, have been a part of a number of earthquakes which have mostly had a local character.

## 4.2 Climate

The most important factors that impact the climate of this region are: the favorable geographical

Position, the short distance from Adriatic sea (102 km to the delta of the Drini I Bardhe in the Adriatic), the medium height above sea-level (around 308 in the valley of river Drini I Bardhe and 1039 at the top of Zatriq, which means that the average is 550 m for the whole area of the municipality, the barrier of Shkoza mountain, Zatriqi and Kozniku, the growth of vegetation and animals (forests, fields, farms, etc.) In the municipality of Rahovec the average yearly temperature is 11.68 °C., the absolute maximum occurs in July at 38.5 °C, while the minimum is in February at -14.5 °C. Maximal precipitation in Rahovec is 1047.2 mm, while the minimal ones are 609.9mm. The average of precipitation is 707.7 mm. snowfalls are the largest in January. Days with snow in Rahover are approximately 15.7 days. Rahovec has the annual average of 19.7 days with fog, or 5.4%

## 4.3 Mineral resources

In the territory of the municipality of Rahovec has decorative stone reserves and minerals such as chromium, asbestos, nickel, cobalt, copper and stone coal (coal). Decorative stones: - located near village Drenovc, at a distance of 5.5 km from the town of Orahovac. Reserves are thought to be around 207,386 m<sup>3</sup>. Lezolitit layers are decorative surface, covered with humus layer of 0.5 m. Limestone: - found in garlic Dan, a country in the north-west of the town of Orahovac 8 km away. They lie in the form of blocks with thicknesses ranging from 0.3 to 2 meters, and 1.5 meters yes state the earth's surface. Red limestone represent more economic interest. Of limestone reserves thought to have a volume of 382,913 m<sup>3</sup>. Asbestos: asbestos lezolitit layers are concentrated in the vicinity of Rudin / Pastasel in the west of Orahovac, at a distance of 8 km. Based on research (made 4 drilling) is defined grazing area of 100,000 m<sup>2</sup> and thought that reserves reach a figure of 10,000,000 tons. This information is approximate and requires detailed geological research. Cobalt, nickel and copper: - In the vicinity of Red Rock are found layers of Nickel-Cobalt ores. Average composition of the ore according to research done years ago for the mineral in solid form (Nickel 0.18%, cobalt 0.13% and 2.73% Copper). The amount of reserves of this ore is not known. Chromium - thought to be found along the valley of the White Drin in an area about 60 km<sup>2</sup> respectively at locations Endurance, Gradisht, Valley prroit Rimnik, Shipi in Zadriq, Sharnica on Endurance, Drenovci, stone red, Kanzniku, etc.. Coal is found in localities of Great Hoca Krusa prroit Nagacit, Drinasi, etc.. To determine the amount of reserves and coal calorific qualities deep geological research should be made. Finally, according to the Municipality is possible to be found oil-bearing layers in the territory of the municipality. Their location is thought to be in village Kramovik and along rrjetjes of the White Drin to Krusha e Madhe. Although estimated amounts of main mineral resources are available and presented above, the uncontrolled mining activities and the absence of up-to date research of mineral resources cause a significant data gap.

## **4.4 Water resources**

In the municipality of Rahovec the hydrographic network is relatively dense. This represents the natural wealth of the municipality and it is one of the preconditions for the existence of flora and human activities. The hydrographic network of the municipality of Rahovec comprises several hundred sources, wells, flowing and stable springs as well as streams. Springs are important hydrographic forms. In the territory of Rahovec Municipality there are several hundred periodic and permanent springs. The large number of springs originate in the valleys of the streams and on the foot of mountains. Most springs are in the valley of Rimnik, Hoca and Apterusha River, ect. Of great economic importance are the resources that lie on slopes and river valleys, then the resources that appear in the tertiary hills. The extent of settlements is mainly along water flows and water resources as Orahovac, Velika Hoqa, Zaçishti, Apterusha, Zatriqi, Drenoc Senoci, Pastasella, Kramavik, other.

For current report only evaluative and indirect data was available about the local water resources, especially in terms of underground water resources. There was no data available about the amount, placement and ecological and chemical characteristics of underground water resources.

The absence of the precise and up-to date data is present about the overall water quality assessment. Therefore it could be only estimated that the untreated sewage cause the high rate of nutrient pollution (nitrogen and phosphorus) in local rivers and it affects biochemical oxygen demand (BOD) as well. The pollution from the extensive agricultural use of land in Rahovec is likely to be reflected in high rate of nutrient pollution (especially nitrogen) level as well. It is also likely that in addition to organic substances the groundwater is contaminated by the chemical elements from the pesticide-use. In order to accurately evaluate the current state of the pollution problem and monitor the success of the proposed measures to solve it the key indicators of the water quality should be measured on regular basis.

## **4.5 Biodiversity**

The diversity of natural monuments of botanical character, hydrological and geomorphologic character in the Municipality of Rahove and diverse natural landscapes that are spread in the municipality are considered natural heritage values. The total area of forest as on of the richest habitats is about 10,800 ha, where the private sector has about 1500ha and 9300 ha are of public property.

About 6065 ha of the total area of municipality is covered by forest, and 3205 ha of bare mountain area. Forest degradation is a phenomena as in any part of Kosovo, especially illegal logging, where about 2200 hectares of forest in the municipal data base result as degraded – damaged. Forest wealth stretches to the north - west of the municipality and forests in their diffusion also have other types that are kind of low shrubs. Sufficient surfaces are categorized as meadows and pastures, this allows the possibility to use them for the development of livestock and beekeeping activities. About 15% of the total territory is meadows and pastures or about 4208ha. It is a good base for development of farming activities, especially in mountainous areas. Forests, pastures, meadows, are very favorable economic basis for development of livestock and beekeeping.

In the hilly forests dominate many mixed species. Distinguished from deciduous trees such as Turkey Oak, and by about 80% oak, beech, hornbeam. More limited proliferation have other

types are as lonely as panties, lime (Tili kordata), ash, juniper, etc.. Other types are also present that are low, the type of shrubs, as: cornel, hawthorn, , hazel, in areas of high eagle fern.

Of herbaceous plants have different types, such as those that grow in the open without the presence of woods, and those that grow in forests. Here also grow tea plants known as mountain tea, kantarioni, chamomile, strawberries etc. Municipal flat space is covered with little woods, and usually grows willow in the river banks. Fauna is very rich with species that are not only characteristic of these spaces. In the woods live wolf, fox, rabbit, hedgehog, water snake etc Kinds of fish are plentiful, in White Drin River lives 18 species, while the most common are: catfish, jack, eel, carp, rainbow trout, etc.

## 4.6 Land use

According to the MDP over the half of the number of settlements lie in the flat area, while their expansion is made in an uncontrolled way and always in the expense of high category agricultural surfaces.

| Surface category    | Surface in ha | in %  |
|---------------------|---------------|-------|
| Forest              | 6933          | 25.3  |
| Agriculture         | 12020         | 43.8  |
| Built area          | 1311          | 4.8   |
| Graveyards          | 105           | 0.4   |
| Meadows             | 3956          | 14.4  |
| Grasses             | 252.5         | 0.9   |
| Not used            | 326.3         | 1.2   |
| Degradation         | 403.9         | 1.5   |
| Vineyards           | 2416          | 8.8   |
| Illegal dump fields | 24.3          | 0.09  |
| Total               | 27421.7       | 100.0 |

Figure 5. Land utilization in Rahovec (MDP).

**Agricultural areas** – are a good base for development of agricultural activities in agricultural areas with good land quality and good possibility for irrigation. Physical and natural factors distinguish this area from agricultural activities in cultivation of vegetables, cereals, crops, vineyards and fruit growing. The total area of agricultural land occupies about 12020ha or 43% of the total municipal territory. 90% of Rahovec municipality land used as arable land for agriculture, especially hilly land used as vineyard territories. Of the total arable land cca 14000 Ha, is covered by the irrigation system company in area of 3500/Ha.

The extension of the White Drin and its branches in the territory of the municipality are of vital importance for the population of this areas that is renowned for cultivation of vegetables not only in Kosovo but even wider.

**Vineyards** - With about 2416 ha, and processing capacities of grapes in wine and other alcoholic beverages distinguish the municipality of Rahovec in Kosovo and the region. Table grape is also cultivated. Natural and physical factors are favorable for cultivation of this crop. The extension of cultivated areas is primarily in hilly areas with exposition facing towards east. Grape quality is of high standard.

**Built-up areas** - with about 1313ha or 5% of the total area are built areas (residential facilities, auxiliary facilities, administrative, industrial, etc.). During the research in the field it

is also observed the phenomenon of expansion of various facilities in agricultural land of very high category and quality.

In terms of agricultural use it is important to mention the participation of erosive surfaces: areas that are exposed to light erosion take up an area of 6935 ha of the territory. The municipality of Rahovec is rich in freshwater sources. The proximity of rivers and streams is endangered from floods as a result of the natural and anthropological factors. Degradation of the river bank as a consequence of illegal mining of the sand from the river banks, and also from the agriculture fields around the river bank, directly exposes a threat from floods.

#### **4.7 Socio economic information, demography and settlement structure**

There are 71522 residents living in the municipality of Rahovec. It is known that there is a lack of information about population not only in the municipality of Rahovec but in a national level. In 2011, population registration has been realized, but the data from this registration is not yet processed and published. The population number is continuously and rather rapidly growing. Population density in the municipality of Rahovec is approximately 260 residents in 1 km<sup>2</sup> and it differs a lot within the municipal area. Density of habitation inside the constructed area in the rural settlements, is 50 residents per ha which is very high and is approximately equal with the density of many small cities of Kosovo.(see the table where it is presented the density of habitation in hectares for the constructed areas) While, in the single urban center, in Rahovec, the density of habitation is 85 residents per ha, there is a possibility of an increase in the future.

The population structure is characterized by the high number of young age groups (0-19 years) as the form 43,6 % of the total population. Male and female population is divided almost evenly ( 48,6 % female and 51,3 % male). Ethnically the majority (97%) of the population is Albanian.

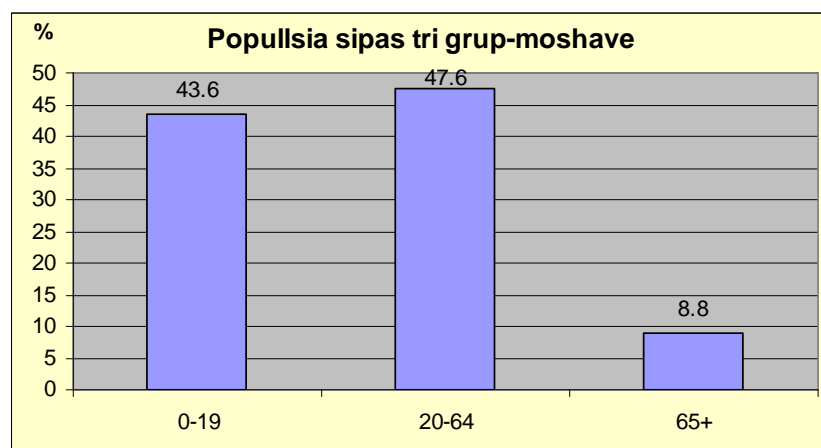


Figure 6. Population structure of Rahovec (MDP).

The number of members for the family economy varies from 7.7 members in rural settlements, to 6.3 members in the urban center. These parameters show a unfavorable situation of the life standard in comparison with more developed countries in which the average of the members in a family economy is 2 members. Based on these calculations, the needs of the municipality of Rahovec on housing facilities are greater when compared with more developed countries.

Settlements of the municipality of Rahovec can be categorized by demographic size into these groups:

- I. Small settlements with up to 500 residents.
- II. Medium settlements with 500-999 residents.
- III. Settlements of the size of 1000-1999 residents
- IV. Large rural settlements with 2.000-4999 residents.
- V. Urban settlements

Based on this categorization, in 2010, from a total of 36 settlements existing in municipality's territory, only 5 settlements belong to the group of small settlements with less than 500 residents and one settlement has become completely uninhabited.

The group of medium settlements with 500-999 residents consists of 10 settlements.

The group of settlements with 1000-1999 residents consists of 10 settlements and the group of large settlements with 2000-4999 residents consists of 8 settlements. The fifth category of settlements with over 5000 residents consists of two settlements: Rahoveci-municipal center and Krusha e Madhe with 5004 residents

Rahovec, as municipal center, lies at the foot of Opterushë Mountain, near the important routes that connect two most important cities in Kosovo, Prishtina and Prizren. Favorable position of the settlement has been attractive for habitation since antiquity.

In the municipality of Rahovec, 9 informal settlements have been identified, one of which is located in the urban center and the others are situated in the rural areas. These settlements are mainly populated by Roma, Ashkali, Egyptian and Albanian community. However the settlements are relatively small and their environmental situation does not significantly differ from the other settled areas (poor technical infrastructure).

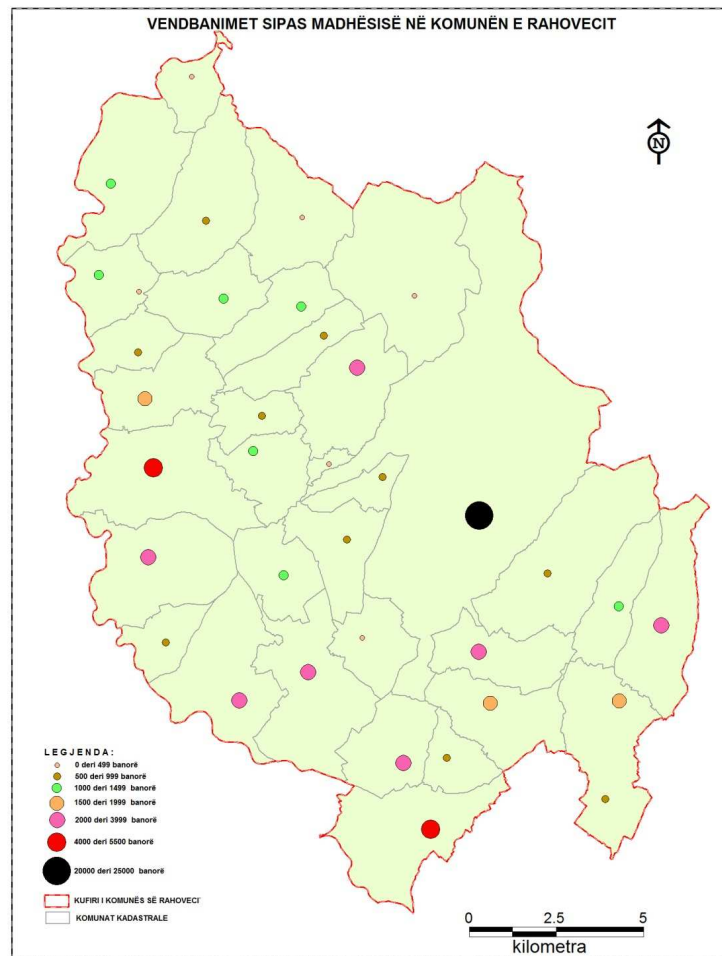


Figure 7. The location of different-sized settlements in Rahovec (MDP)

#### 4. 8 Economy and employment

Various researches have indicated that unemployment rate in the municipality of Rahovec is 23.39%. It is assessed that 80% of the unemployed people have been unemployed for more than 12 months. Caused by a variety of factors, poverty is widely spread in Kosovo. Various researches have indicated that over the half of the population live in a general poverty, while 13% of the population lives in extreme poverty.

Economic development in this municipality is mainly oriented in agriculture, viticulture and vegetable, trade, food industry, packaging industry, metal, construction and technical and technological. Municipality benefits from favorable characteristics graphic, climatic and agro-ecological, where ca 13,000 ha of arable land, of which 3,700 ha are under irrigation system.

The number of farmers in the municipality is 3699 (the number of families that have more than 0.50 Ha), while the economic situation appears quite heavy. Rahovec is the basis of the production of fruits and vegetables in Kosovo, while its rich past in wine production and its soil fertile agricultural, yes potentially significant development in the future. Rahovec is executor municipality was agricultural, as nearly two-thirds of the inhabitants of the municipality living in 35 villages. Rahovec municipality displays about 50% of the vineyard areas of Kosovo and processing capacity. In this municipality operate 1,000 private businesses, and their activity is manufacturing, industrial, service and commercial. There used to be number of social enterprises which have been privatized.



## 4.9 Technical infrastructure

Road network, transport, power supply Rahovec municipality is characterized with very good road traffic. Regional roads scope perpetrator was in the central and western part of the municipality has added importance this space. Overall total 297.6 km roads, as they are in this municipality by length, Main Road 6.2 km (2.1%), regional road 64.3 km (21.6%), local road 114 km (38.3%), 30.6 km urban road(10.3%) and uncategorized roads are a total of 82.5 km (27.7%). Referring to the analysis at the level of the municipality, are derived surfaces covered with roads and other associated activities according to their category. In the table below we present the extension of the road length in km and their surface ha.



Figure 8. Road network in Rahovec (MDP)

There is a railroad network located in the municipality but currently this not operational. Other than that public transport is locally organized through buses and other vehicles and is very well organized.

#### **4.10 Water/sewage and management**

In this municipality has not developed network supply drinking water, approximately 83% of the population have access to the collective water supply system. (Water and local). Rahovec central water supply system managed by the system "Radoniq" takes water from Lake Radoniq, and supplies 83% of the total population in the municipality. A significant part of the population of the municipality (about 17%) have local systems, which are not managed by "Radoniq". These systems take water from natural sources and underground drilling. Of these systems, based on the quantities of water that are currently available, the average daily per capita consumption is estimated to be approximately 200-250 liters per day. Despite this capacity, distribution system water losses are high enough level - about 57%. The main factors influencing this condition is estimated to be: obsolete water supply network, illegal connections etc.. As far as water quality and analysis made by Hidroistemi of Radoniq. Also, the water quality of local systems is not good, all this is due to non-chloral system and inefficient management of these water supplies.

To improve the situation in the whole zone is necessary to invest in;

- Rehabilitation of the water supply in the central urban area in order to reduce losses
- Expansion of the central water supply residence Qifllak, Polluzhë, Kramovik etc.
- Construction of a new reservoir to meet the requirements of the areas which extend over 550 m altitude;
- The installation of continuous disinfection system with chlorine gas,
- Increased water production
- Construction of local water supplies in areas where identified natural resources: Drenoc, Senoc, Pastasel, Kaznik, Petkovic etc..
- Management of the local water supply system of Radoniq "

**Sewage and wastewater network.-** In the municipality of Rahovec, drainage of waste water is much less developed, ie the system is widespread in urban areas and in some rural areas. Much of wastewater discharged without prior treatment in the White Drin river bed and in his branches. While the rest of the sewage flowing in open area at risk of the spread of infectious diseases. Only 74.46% of the municipality's population have access to collective sewage network, and 25.54% of the population of the municipality sewage spill so wild at various locations in the settlements where they live, or in the bed of streams and rivers.

Wastewater sewage system, the sewage situation and total lack of wastewater treatment in the municipality, leading to contamination of rivers, soil and underground water course, so the construction of wastewater treatment plant will 'eliminate all the risks and concerns.

As a short term solution, especially in the area of the gardens, the proposed construction of sewerage wastewater and septic tanks in areas of secondary centers in Greater Krushe settlements and Ratkoc. Sewerage network in these areas will summarize wastewater with large surface area settlements gardens. Also proposed network expansion in urban areas and secondary areas and building adequate septic tanks. In this regard special mesh built industrial zone waters and become their adequate treatment.

Gardens area proposed settlements to the individual and collective septic systems, depending on the spatial distribution of habitats and terrain features.

**Sewage storm water network.-** Building sewage systems separate from the technical aspect is easily feasible and does not require large investment and therefore economic aspect is sustainable.

The scope of the rivers in Rahovec Municipality is a big advantage for the organization of channeling storm water because the water is not require prior treatment and can be deposited anywhere in river flows.

**Waste Management** - In the municipality of Rahovec carries waste management service company for waste, Environment", operating unit in Rahovec, which the company performs services in urban areas. Based on the analysis, this service is still rather low, only 30% of the population in the municipality have access to this service, so to improve this situation it is necessary to measure this service lies at least in local community locations : Ratkoc, Xerxe Krushe e Madhe, Drenoc, Qifllak etc.. This will be accomplished by placing the containers, and garbage collection.

### **Identified data gaps**

As there are no regular and adequate environmental monitoring systems set up for Kosovo yet, the collection of the baseline environmental data does not cover adequately all the necessary information needs. For current SEA the main data gaps are caused by the absence of adequate quantitative data about the current state of environment, especially concerning water, soil and air quality. For example data about the consumption of drinking water is based on the estimation to meet the needs of the households. There is no numeric data provided about the daily/monthly rates of consumption to evaluate the sustainability of the drinking water provision as the population is increasing. As the soil quality is one of the main assets for Rahovec' current and potential economic development (agriculture, including viticulture) the main characteristics of the soil quality (nitrogen, phosphorus, potassium, sulphur etc) should be measured with adequate regularity. The lack of adequate and regular monitoring system applies for the air quality assessment as well – this kind of quantitative data was not accessible during current SEA. In order to assess the current state and the improvement of the air quality in Rahovec the key indicators such as nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>) and sulphur dioxide (SO<sub>2</sub>) should be measured on regular basis. There is no specific data about the evidence of pollution by cars, heating, burning waste in informal dumpsites. The latter as a source of pollution is mentioned but there is no data about relevant measurements.

The wood cutting is likely to be the problem, no specific numeric data is not available which would allow the evaluate the speed/and the extent of the loss of forest habitat and to propose relevant protection measures.

It is not likely that there will be necessary knowledge and resources to arrange the relevant environmental monitoring activities locally, as there is a wider need to collect, process and generalise data on Kosovo's nature, state of environment and the factors influencing it is reasonable to address this problem centrally.

## 5. SEA methodology and stages

### 5.1 Methodology

According to the legislation (both EU Directive<sup>4</sup> and Kosovo's national legislation<sup>5</sup>) special attention should be made to the screening part as at this stage the decision whether an SEA is appropriate and relevant in relation to the development of a plan or programme in the area under consideration have to be made. The legislative documents have thorough regulations how this deliberation have to be carried out. It is important to mention that neither the Directive nor the national legislation the term "plan or programme" is not further defined, therefore during the screening the characteristics and perspective impacts of the plans and programmes have to be pre-evaluated. A screening process should be followed by scoping – this process should establish the content of the SEA, the relevant criteria for assessment. These should be set out in a scoping report. It should be mentioned that the production of the scoping report as such is not required neither by the Directive nor by the national legislation in case of Kosovo. In some Member States it is a legal requirement that scoping reports are drawn up and/or published, but there are some without this kind of obligation. However, in practice, it seems that in many cases some kind of scoping document is produced on a voluntary basis. Collecting baseline data - SEA needs to be based on a thorough understanding of the potentially affected environment and social systems. This must involve more than a mere inventory, *e.g.* listing flora, fauna, landscape and urban environments. Particular attention should be paid to important ecological systems and services, their resilience and vulnerability, and significance for human well-being. Existing environmental protection measures and/or objectives set out in international, national or regional legislative instruments should also be reviewed. The baseline data should reflect the objectives and indicators identified in the "scoping report". For spatial plans, the baseline can usefully include the stock of natural assets including sensitive areas, critical habitats, and valued ecosystem components.

One of the core components of the SEA are the identification of alternatives and analysis of potential impacts. It is characteristic that the national legislations (including Kosovo's) do not provide for a distinct definition of "reasonable alternatives", but the definitions/choice of "reasonable alternatives" is left to a case-by-case assessment and decision. The alternatives chosen should be realistic. Part of the reason for studying alternatives, is to find ways of reducing or avoiding the significant adverse environmental effects of the proposed plan or programme. Within the process of predicting potential impacts both quantitative (the area of agricultural land/natural habitats lost by residential purposes) and qualitative (increased mobility of citizens) and direct and indirect, primary, secondary and higher order, short-, medium- and long-term; temporary and permanent (calculations, measurements etc) impact should be listed. In the evaluation phase those impacts should prioritized and their relevance analyzed. Further on the SEA process continues with enhancing opportunities, mitigating the negative impacts. It is important to focus on realizing the positive opportunities of the planned activities and minimizing any negative risks. The aim is to develop "win-win" situations where multiple, mutually reinforcing gains can strengthen the economic base, provide equitable conditions for all, and protect and enhance the environment. Where this is impossible, the trade-offs must be clearly documented to guide decision makers. A mitigation hierarchy should be followed for identified negative impacts: first avoid; second reduce; and third offset adverse impacts – using appropriate measures. Caution should be exercised if the analysis indicates a potential for major, irreversible, negative impacts on the environment.

<sup>4</sup> SEA Directive: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0042:EN:NOT>

<sup>5</sup> Kosovo's Law on Strategic Environmental Assessment: <http://www.kuvendikosoves.org/?cid=2,191,633>

The main output of the SEA process is the Environmental Report which will present information on the effects of the draft plan or programme. In the case of reporting the legislation (both the Directive and the Kosovo's national law) give the basic requirements for the environmental report. The tasks of the report are to identify, describe and evaluate the likely significant effects on the environment of the plan or programme and its reasonable alternatives. Further provisions on which information must be provided concerning these effects are given in the Annexes of the abovementioned legal acts. The SEA Report should be available for consultation at the same time as the draft plan. After consultation responses have been received, a statement must be made regarding how the SEA Report and consultation responses have been taken into account in the evolving plan. Within the Kosovo's Law on Strategic Environmental Assessment further recommendations are provided how to conduct the consultation and public debate. Monitoring of the significant environmental effects of implementing the plan allows any unforeseen adverse effects of the plan to be recognized and dealt with. Monitoring also enables future predictions to be made more accurately and provides baseline information for future plans. In Kosovo's case the national legislation does not set any specific requirements concerning monitoring and evaluation. The legislation neither specifies the methods of monitoring nor the bodies responsible for monitoring. In terms of the time and frequency of monitoring, the text of the SEA Directive/Kosovo's legislation is silent on this issue. The practices concerning monitoring and evaluation within EU Member States vary – in most cases, similarly to Kosovo's – no further legal requirements are made. But there are still some countries where national legislation stipulates a requirement that monitoring indicators shall be a formal part of the environmental report (Czech Republic, Lithuania, Romania, Spain, Slovenia, Slovakia, and Portugal).

## **5.2 Scoping phase of Rahovec MDP SEA**

As for the municipal development plan the SEA process is required by national legislation no screening was carried out during current SEA. As the current SEA process was carried out within unique circumstances whereas the plan/programme (Rahovec MDP) was already fully prepared when the SEA process started the possibilities to conduct scoping phase were limited. Therefore the process of scoping was included into the SEA report preparation, scoping process main elements were discussed with local stakeholders and the separate scoping report was not prepared. The scoping phase of the SEA highlights a number of issues which are of concern and are critical to sustainable development within Rahovec area.

## **5.3 Main environmental challenges of Rahovec area**

In the case of Rahovec one of the main and general challenge of development process is finding a proper balance between environmental and socio-economic interests and needs. As the current situation in Rahovec includes environmental, social and economic problems, the MDP needs to provide development directions and implementation provisions to address all of them. From the socio-economic perspective the most significant indicators of the area are high unemployment rate (estimated to be 23,39%). It is assessed that 80% of the unemployed people have been unemployed for more than 12 months. Additionally, according to the MDP, 12.35% of the population of this municipality lives with one dollar in a day per person, 69.57% of the population lives with two dollars in a day per person.

72.20% of the population lives in a general poverty, while 10.86% lives in extreme poverty. According to UNEP (2002) „poverty is among the major drivers of urban environmental degradation. Poverty is generally recognized as one of the most important causes of

vulnerability to environmental threats, on the basis that the poor tend to have much lower coping capacities, and therefore they bear a disproportionate burden of the impact of disasters, conflict, drought, desertification and pollution.“ Although there are no very big cities in Rahovec municipality the difference between urban and rural settlements is still present - developments are concentrated mainly in and around the urban center while rural areas in general, particularly in mountainous lack in economic and social development. The current land-use pattern of the Rahovec is illustrated on the Figure 9, where gray marks the settlements, orange stands for agricultural areas (including vineyards) and green for forests (dark shade) and pastures (light shade). Therefore the development activities dedicated to improve the socio-economic situation will have indirect long-term positive environmental impact as well, even though some negative impacts (need for natural resources) might occur.



Figure 9. Land-use of Rahovec municipality

Random and unsustainable construction activities - Rahovec faces a situation of increasing construction activities. The current situation is characterized by individual housing. There are only 13 buildings with 5 floors each, which occupy 0.5 ha of city's surface, or approximately 3% of the territory for habitation of the urban area of municipality of Rahovec. The general



number of housing facilities inside the municipality of Rahovec is 14288, from which, 10146 of the facilities or 71% are built in the rural area, while 4142 facilities or 29% are built in the urban area. The average density of the habitation in cadastral area of the city is 522 residents per square kilometer, while in the rural settlements the average density is 223 residents per square kilometer. Until recently, housing facilities have been built with a weak construction material: adobe and wood. In these recent decades, housing facilities have changed completely in shape and also in quality. The residential buildings are constructed in one or more floors and are built with durable building material such as: bricks, concrete and metal blocks. Without adequate legislative basis (relevant planning documents) the construction activities are located randomly and not necessarily the most suitable location (exploitation of the valuable agricultural and natural areas) and without proper urban structure. The random use of construction materials (no energy-efficiency aspects deliberated either) and unplanned locations of the developments are not setting a good basis for further high living quality as well as causes problems in establishing relevant technical infrastructure.

The lack of infrastructure such as sewage treatment facilities cause major (non point) pollution of surface waters in the rivers of Kosovo as well as in the municipality of Rahovec, is a consequence of discharge of untreated sewage and industrial waters and dumping of household waste in aquatic environments. These negative phenomena are expressed especially in lowland areas where human activity is present. Based on classification of water quality in the municipality of Rahovec there are three levels of contamination present. Discharge of sewage in river flows without prior treatment increases the degree of pollution of the river. On average each resident dismisses 16.46 m<sup>3</sup>/year of sewage. Based on demographic statistics the number of inhabitants in the municipality is 71,522 inhabitants (according to municipal data of 2010) then  $71,522 \times 16.46 = 1,177,255 \text{ m}^3/\text{year}$  wastewater or 34 liter/sec are discharged in rivers without counting industrial facilities. Sewage systems are not in place except for nine settlements unfortunately even in those settlements wastewater is discharge without prior treatment in clean environments (rivers). Rivers are the mostly attacked by pollution since dominates the logic that the mass of its water can and will carry away everything. Besides the chemical pollution of waters, where pollutants enter the water as liquid ingredients, physical pollution from waste is not diluted and spreads on the bed of the river. Solid wastes that is organic affects the biological pollution, since their decomposition creates conditions suitable for different living organisms and parasites that are harmful to human life, flora and fauna that stretches along the river. All these types of pollution reduce the population of the living world of natural waters. Citizens of municipality of supplied with drinking water in three forms:

1. central water supply system of Radoniq
2. Small local water systems
3. individual wells

Rahovec also faces some problems concerning the drinking water supply. These are followed the villages that the water system, especially during hot when in many cases drinking water misused for land irrigation. 83% of population Rahovec have access to of collective water supply system, while only 17% of population not have access to these systems. Radoniqi water system supplies water to 74500 inhabitants or 83% of the population in the Municipality. Average daily per capita Consumption is estimated to be approximately 200-250 liters per day.

As a comparison a household water used in is Spain 265 l/capita/day, followed by Norway (224 l/ capita/day), Netherlands (218 l/capita/day and France (164 l/capita/day). Lithuania, Estonia and Belgium with 85, 100 and 115 l/ capita/day, respectively<sup>6</sup>. The special characteristic of Rahovec area is a high need for irrigation water, which causes a problem of

<sup>6</sup> <http://www.eea.europa.eu/data-and-maps/indicators/water-use-in-urban-areas>

drinking water misuse during the summer months. Quality of drinking water from an aqueduct of Rahovec is controlled and it is in accordance with relevant standards. In addition to central supply system private wells are used in some rural settlements, they are shallow and water recourses are rather vulnerable and unprotected (7-8m depth and water column 2-3m). Sewage and wastewater network - in the municipality of Rahovec, drainage of waste water is much less developed, ie the system is widespread in urban areas and in some rural areas. Much of wastewater discharged without prior treatment in the White Drin river bed and in his branches. While the rest of the sewage flowing in open area at risk of the spread of infectious diseases. Only 74.46% of the municipality's population have access to collective sewage network, and 25.54% of the population of the municipality sewage spill so wild at various locations in the settlements where they live, or in the bed of streams and rivers. Wastewater sewage system, the sewage situation and total lack of wastewater treatment in the municipality leads to pollution of rivers, soil and underground water course. Such pollution poses a serious threat to the health of the population and for the environment as a whole. Possible construction of waste water processing plant would eliminate all the risks and concerns.

Another vital environmental issue in Rahovec is connected with solid waste, the problem is two-fold and includes an issue of inadequate solid waste management system and an issue of illegal dumping. These problems are evidently closely connected as the illegal dumping mostly occurs in localities where there is no organized garbage collection. According to the MDP 53,260 (ca 75%) residents have access to solid waste collection system. The rest of the population sheds waste wildly in different locations in settlements where they live, or in the bed's of streams and rivers. In Rahovec municipality waste management service is provided by the operational unit of "Ambienti" regional company branch in Rahovec. This company performs services in the urban area and based on analysis conducted for this service it is still relatively low because only urban areas have access to waste management 30% of the population in the municipality have access to this service.

This amount of waste that is not classified at collection is then transported to the regional dump field in Prizren (in Landovice). During 2011 some private operators have begun expansion in most of the settlements of the municipality of Rahovec in waste collection and management.

River and land degradation - according to municipal records the extraction of gravel has caused degradation of river beds, and consequently came up to change of the natural flow of the river, then pollution and destruction of the biosphere in the river bed and around it. Consequences of use of gravel in unplanned manner in river beds also cause flooding on agricultural lands. Land degradation is a phenomenon in the municipality of Rahovec in various forms: extraction of gravel along the banks of the White Drin River, quarries and dumping of residential and other solid waste in different parts of its territory. Legal and illegal operations of extraction of gravel have exploited the mineral recourse and caused damage to the agricultural land as well as water pollution and destruction of river habitat. Land surfaces that have degraded as a result of uncontrolled use of inert materials have severe environmental consequences.

Negative occurrence of damage and degradation of forest is illegal cutting of forests, which consequently increases the bare surfaces and initiates negative processes of erosion and flooding. Limited care for the forests has caused the appearance of diseases and insects as well as the decay in the formations of oak woods, etc..

Unclean environment and solid waste disposal are present in the settlements of the municipality where illegal landfills have emerged and have consequences for flora and fauna,



as well as the human environment. During field visits degradations are also observed near riverbanks and in different parts of the land.

Although the air quality of Rahovec municipality is not measured it can be evaluated that it is negatively influenced by industrial pollution quarry operators and vehicle traffic in urban areas and along the national highway Peja – Rahovec Prizren

## **5.4 Consideration of alternatives**

Article 5 of the SEA Directive specifies that the Environmental Report should consider ‘reasonable alternatives taking into account the objectives and geographical scope of the plan or programme’. The issue of alternatives is a critical function of the SEA process and is necessary to evaluate the likely environmental consequences of a range of alternative development strategies for the MDP area within the constraints imposed by environmental conditions.

For Rahovec MDP’s SEA three below-mentioned scenarios were analyzed:

0 scenario/do-nothing scenario. The socio-economic and environmental impacts will be analyzed in the context of not implementing the MDP, the positive and negative aspects of the current state of environment will be described and analyzed, the possible future developments of trends without interference are to be predicted. Although using a do-nothing scenario is to not be a reasonable alternative if the as preparation of the MDP is required by law, but a do-nothing scenario should be regarded as the benchmark against which the proposed MDP is assessed.

full implementation of the MDP- scenario. The main impacts of the full implementation of Rahovec MDP spatial development framework (polycentric spatial approach), implementation strategies, actions and provisions will considered as one of the scenarios taken into a account a very comprehensive and ambitious approach

conservative and sustainable scenario. The third scenario describes the situation where into the full implementation scenario proposed improvement suggestions and mitigation measures are integrated. It also draws attention to the risks that during the MDP period not all the proposed activities are not going to be implemented (financial, administrative or else obstacles).

In addition of describing and analysing the abovementioned scenarios there is a task which involves identifying the preferred alternative, based upon environmental grounds, and accurately describing the relevant grounds for this choice.

## **5.5 Environmental objectives, indicators and targets**

SEA uses a combination of objectives, targets and indicators to predict impacts, and describe and monitor change of proposed plans and programmes on the environment. Strategic Environmental Objectives (SEOs) and targets set aims and thresholds that should be taken into account when assessing the impact of proposed Plans and Programmes on the environment. Allied to the development of the SEO’s are environmental indicators and targets. Indicators facilitate the monitoring aspect of the SEA, while Targets provide a realistic and achievable target to which the local authority can work towards. Indicators are

used to illustrate and communicate impact in a simple and effective manner. Indicators can also be used to form the basis of a monitoring programme for the MDP.

**Environmental objectives** provide a benchmark “intention” against which the environmental effects of the plan can be tested. They are often be similar to measures contained in the MDP or derive from objectives that may exist. Examples of the environmental objectives: reduce noise and vibration in settlement areas, increase water quality in surface waters, reduce CO<sub>2</sub> emissions from transport or electricity generation, minimize impacts on designated habitats.

**Indicators** provide a means of measuring the progress toward achieving the environmental objective over time such as noise complaints received over a specified period of time, river/lake water quality, tons of CO<sub>2</sub> emitted per year, area of designated habitats.

**Targets** describe the desirable state in relation to each objective in quantifiable terms as follows: 50% reduction in noise complaints, meet targets required by phosphorous regulations, X tons of CO<sub>2</sub> emitted per year by 2020 or no significant impacts on populations of protected species. It is important that the indicators are measurable and targets are realistic and to ensure that either there are existing monitoring networks in place to measure the indicator, or that there are resources available to set up new monitoring networks. Quantitative targets and indicators are more useful than qualitative ones since they can generate tangible, real data and, as long as they are realistic, are easier to monitor. Nevertheless, qualitative indicators should not be discounted, as sometimes they are the only option available by which to measure performance.

The objectives, targets and indicators were proposed already at the scoping stage and discussed during the public workshop. Due to the fact that there is a lack of environmental monitoring systems in Rahovec/Kosovo at the moment a lot of indicators and targets are to evaluate the extent of the improvement of a particular environmental condition.

|   | Objective  | Target | Indicator   |
|---|--|--------|---|
| <b>1. To protect and preserve water resources and water quality by adequate sewage treatment and sustainable use of water resources</b> |  |        |   |
| <b>1.1</b>  | To increase the quality of drinking water                | 30%    | Improved (%) water quality of the central water system                        |
| <b>1.2</b>  | To diversify the drinking water sources                  | 2      | Number of new drinking water sources  |
| <b>1.3</b>  | Ensure access to sewage system, treatment of waste water | 50%    | Percentage of wastewater treated properly;<br>quality of treated wastewater   |
| <b>1.4</b>  | Decrease the water consumption                           | 10%    | The amount of centrally provided water consumed per capita per day            |
| <b>2. To maintain and improve the balanced and sustainable land-use patterns between settled, agricultural and natural areas</b>        |  |        |   |
| <b>2.1</b>  | Preservation of the arable land                          | 90%    | Hectares/percentage of the arable land preserved from housing/industry etc    |
| <b>2.2</b>  | Avoiding informal settlement areas                       | 80%    | Decreased (%) amount of hectares/square meters of areas with informal housing |

|  |   |                       |  |
|--|---|-----------------------|--|
| 2.3  | Improvement of the quality of housing areas by provision of qualitative open spaces and social services                           | Qualitative indicator | Improved living quality  |
| <b>3. To promote and implement the modes of sustainable agriculture</b>  |   |                       |  |
| 3.1  | Reduce the pollution to soil and water from the fertilizers   | 50%                   | the extent of unpolluted soil  |
| <b>4. To improve the waste management system by cleaning the illegal dumping sites and modernisation of waste management system</b>                  |   |                       |  |
| 4.1  | Elimination of illegal waste dumping sites  | 80%                   | percentage of illegal waste dumping sites eliminated or turned into waste transit stations                   |
| 4.2  | Improving a solid waste collection and treatment system   | 50%                   | Increased share (%) of households included into proper solid waste collection and treatment system           |
| 4.3  | Promoting and implementing recycling and sorting activities   | 15%                   | The percentage of solid waste recycled   |
| <b>5. To provide favourable conditions for biodiversity preservation by protecting valuable habitats and providing connectivity between habitats</b> |   |                       |  |
| 5.1  | Providing conditions for biodiversity preservation  | Qualitative indicator | Increased number of habitats, preservation of current habitats   |
| 5.2  | Integration of ecological networks in municipality  | 10%                   | the extent/percentage of ecological network's elements (green corridors, protected core areas, buffer zones) |
| <b>6. To introduce and implement energy efficiency measures into local development activities</b>  |   |                       |  |
| 6.1  | Provide alternative energy (solar, wind) solutions  | 20%                   | the percentage from the total energy use   |
| 6.2  | Improving conditions for sustainable transport, safe pedestrian/cycling roads   | Qualitative indicator |  |
| <b>7. To decrease level of environmental pollution</b>   |   |                       |  |
| 7.1  | Decrease the level of pollutants in groundwater sources   | 25%                   | The improvement percentage   |
| 7.2  | Decrease the level of air pollution   | 40%                   | The improvement percentage   |
| 7.3  | Decrease the level of soil pollution  | 40%                   | The improvement percentage   |
| <b>8. To raise environmental awareness of Rahovec citizens</b>   |   |                       |  |
| 8.1  | Environmental projects for pre-school and schoolchildren  | 10                    | Number of projects per year  |
| 8.2  | To raise coverage of environmental issues in local media  | Qualitative indicator |  |
| 8.3  | To organize campaigns to promote sustainable consumption modes of water, energy and other recourses among the citizens of Rahovec | 2                     | Number of campaigns per year   |

In order to evaluate the compatibility of the environmental objectives with the MDP long term development goals (listed in the MDP, chapter II.5) a compatibility matrix (Figure 10) was created. The matrix reflects that the first and second environmental objectives are currently most effectively supported by the MDP's goals, but for all other SEO's there are some goals they are compatible with. The MDP's goals which are the most compatible with SOE's are:

- goal Q5S1 - prevention of disposal of waste in water bodies and other environments;
- goal Q5S7 - protection and rational exploitation of forests;
- goal Q7S3 - access for the entire population in the sewage network;
- goal Q7S6 - waste collection and recycling.

Although the relationship between majority of the SEO's and MDP goals are neutral or positive there are a few inter-correlations which include possible conflicts. In order to prevent these conflicts to occur, following MDP goals should be implemented with particular care:

- goal Q2S4 - continued incentives for agricultural activities;
- goal Q4S2 – establishment of new secondary centers;
- goal Q6S1 – development of agriculture and agricultural production;
- goal Q6S2 – development of viticulture production and guaranteed placement in European and international markets.

The only MDP goal with strong conflict potential is goal Q5S4 which foresees the adjustment of riverbeds to prevent flooding. It is absolutely essential to deliberate these adjustment activities with utmost environmental care as the riverbeds hold a very strong biodiversity potential by acting as an edge area between hydrological and terrestrial habitats. On the other hand flood prevention is an effective tool to protect valuable agricultural land resource and it avoids harmful substances from the soil to end up in groundwater resources.

|       | SEA 1 | SEA 2 | SEA 3 | SEA 4 | SEA 5 | SEA 6 | SEA 7 | SEA 8 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Q1S1. | o     | o     | o     | o     | o     | o     | O     | +     |
| Q1S2. | o     | o     | o     | o     | o     | o     | O     | +     |
| Q1S3. | o     | +     | o     | +     | o     | o     | O     | O     |
| Q2S1. | o     | o     | o     | o     | o     | o     | O     | O     |
| Q2S2. | o     | o     | o     | o     | o     | o     | O     | O     |
| Q2S3. | o     | o     | o     | o     | o     | o     | O     | O     |
| Q2S4. | o     | +     | +     | o     | -     | o     | -     | O     |
| Q3S1. | o     | o     | o     | o     | o     | +     | O     | O     |
| Q3S2. | +     | o     | o     | o     | o     | o     | O     | O     |
| Q3S3. | o     | o     | o     | o     | o     | o     | O     | O     |
| Q4S1. | +     | +     | o     | o     | -     | o     | O     | O     |
| Q4S2. | +     | ++    | o     | o     | -     | o     | -     | O     |
| Q4S3. | +     | ++    | o     | o     | +     | o     | o     | O     |
| Q4S4. | +     | ++    | o     | +     | +     | o     | +     | O     |
| Q5S1. | +     | +     | o     | ++    | +     | o     | ++    | +     |
| Q5S2. | ++    | +     | +     | o     | +     | o     | ++    | +     |
| Q5S3. | +     | +     | +     | o     | +     | o     | +     | O     |
| Q5S4. | ++    | +     | +     | o     | --    | o     | o     | O     |
| Q5S5. | +     | +     | o     | o     | +     | o     | +     | O     |
| Q5S6. | +     | +     | o     | +     | +     | o     | +     | +     |
| Q5S7. | +     | ++    | o     | o     | ++    | o     | +     | +     |
| Q5S8. | +     | ++    | o     | o     | ++    | o     | +     | O     |
| Q6S1. | -     | +     | -     | o     | -     | o     | -     | O     |
| Q6S2. | -     | +     | -     | -     | -     | o     | -     | O     |

|               |    |   |   |    |   |   |    |   |
|---------------|----|---|---|----|---|---|----|---|
| <b>Q6S3.</b>  | -  | + | o | o  | + | o | o  | + |
| <b>Q7S1.</b>  | o  | + | o | +  | o | o | o  | O |
| <b>Q7S2.</b>  | ++ | + | + | o  | + | o | o  | + |
| <b>Q7S3.</b>  | ++ | + | o | o  | + | o | ++ | + |
| <b>Q7S4.</b>  | ++ | + | o | o  | o | o | +  | + |
| <b>Q7S5.</b>  | o  | + | o | o  | o | + | o  | O |
| <b>Q7S6.</b>  | +  | + | o | ++ | + | o | ++ | + |
| <b>Q7S7.</b>  | o  | + | o | o  | o | + | o  | O |
| <b>Q7S8.</b>  | +  | + | o | o  | o | + | +  | O |
| <b>Q7S9.</b>  | o  | + | o | o  | o | o | o  | + |
| <b>Q7S10.</b> | o  | + | o | o  | o | o | o  | O |

|    |                                   |
|----|-----------------------------------|
| ++ | <i>Very good compatibility</i>    |
| +  | <i>Good compatibility</i>         |
| O  | <i>Neutral relationship</i>       |
| -  | <i>Possible moderate conflict</i> |
| -- | <i>Possible strong conflict</i>   |

Figure 10. Compatibility matrix of SEA and MDP objectives

## 6. Environmental assessment of Rahovec MDP

The strategic chapter or the MDP (II chapter) provides the vision and 7 strategic goals/principles. Every goal includes a number (3-10) supportive objectives. The strategic chapter includes many components with strong positive environmental potential if implemented effectively such as all the ones proposed under the goal 5 **Environmental protection and rational use**: prevention and disposal of waste in water bodies and other environments, preventing the discharge of industrial wastewater into rivers and construction of the plant for wastewater treatment, undertake anti-erosion measures, adjustment of riverbeds to prevent flooding, rational use of gravel and quarries for sustainable development, protection and sustainable use of natural and cultural heritage, protection and rational exploitation of forests and reforestation of barren spaces and the creation of green belts. Additionally there are several other objectives under the goal of infrastructure development (goal 7) to address sustainability principles namely: improvement of water supply system and construction of irrigation system, access for the entire population in the sewage network, expansion of atmospheric water sewage system and waste collection/recycling. It is evident that the goal 4 (**Development of settlement and planned constructions**) and its objectives - functional connection with the urban center, establishment of new secondary centers, drafting of Urban Regulatory Plans and solutions for illegal constructions and informal settlements – are directed to the improvement of the situation in municipality and have an indirect positive impact on environment. Although no major negative environmental impact are not likely included in any of the strategic components of the MDP all of the goals are to be implemented with bearing sustainability principles, it is especially important when it comes to economy and infrastructure goals (goals 6 and 7) and their objectives. Although it is evident that for further development there is a vital need for economic (including agriculture) development and infrastructure construction, it is essential that during planning and implementing these activities a proper balance between economic and environmental interests (reasonable use on resources, energy efficiency and biodiversity protection) will be found.

Assessment of socio-economic and environmental impact of the proposed framework.

The framework proposes three alternative spatial scenarios – monocentric, linear and polycentric, out of them the latter is chosen to be the most suitable for Rahovec further development. The identified/created centers are to be formed hierarchical system with three levels: municipal center (Rahovec town), secondary centers (upgrading three existing centers Krushe e Madhe, Ratkoc and Xerxe) and local centers.

From the economic development perspective the emphasis is on the agriculture the main development perspectives are laid on the triangular connection between centre (Rahovec) and to sub-centers (Ratkoc and Great Krushe). The main activities to support the development are agricultural activities such as vineyards, grape processing industry, food processing industry, but also trade, medical tourism industry and tourism. The spatial framework neither foresees nor locates any specific objects to support the economic development. As the concept foresees the economic development mainly to lay on the municipal and secondary centers the specific locations of the particular establishments are to be identified within lower level planning documents.

The framework addresses the population/settlement planning perspective by firstly calculating the expected population by 2020, it is estimated to be 88 687 inhabitants. It is suggested that the total amount of land needed for further construction and development of settlements is about 120 hectares. Therefore in addition to densification of current settled areas it proposes a settlement expansion areas for all the proposed centers. Expansion of settlements on the borders of the proposed areas minimizes conflicts between agricultural and construction line. Additionally the limited development zones provide more effective urban (incl. Infrastructure) on lower planning level. It is more likely that proper infrastructure for water/wastewater will be provided and the waste collection system will be set up. In addition to designated settlement expansion areas the MDP (although not the spatial framework chapter, but the fourth, implementation strategies chapter) provides designated zones for various economic activities such as industry, trade and tourism. If there is a need for extensive forms of this kind of economic activities (possible negative impacts included) the approach of locating some designated zones is justified and helps to mitigate possible negative environmental impacts and saves valuable natural and agricultural land from uncontrolled developments. But in addition to that the mixed-use principle should be implemented during the development, as according to UN-Habitat (2012) it includes several benefits, such as:

- „- Social benefits, improving accessibility to services and urban amenities for a broader segment of the population, and increasing housing options for diverse household types. It enhances the perceived safety of an area by increasing the number of people on the street;
- Economic benefits, increasing the business potential of transactions and trade as collocation of activities attracts more potential customers during more hours of the day;
- Land and infrastructure benefits, reducing the overall demand for commuter travel, shortening average trip lengths and reducing car use altogether. In addition to minimizing road infrastructure requirements and reducing the amount of land allocated for parking, mixed land use also provides a greater base for using public transport and walking and biking.”

The framework also describes the goal of administrative decentralization whereas some of the public services for smaller villages are provided from the secondary centers. This approach (illustrated on the scheme below) are not likely to include any negative environmental impacts, on the contrary, it provides environmental solutions which are more local conditions led and flexible.

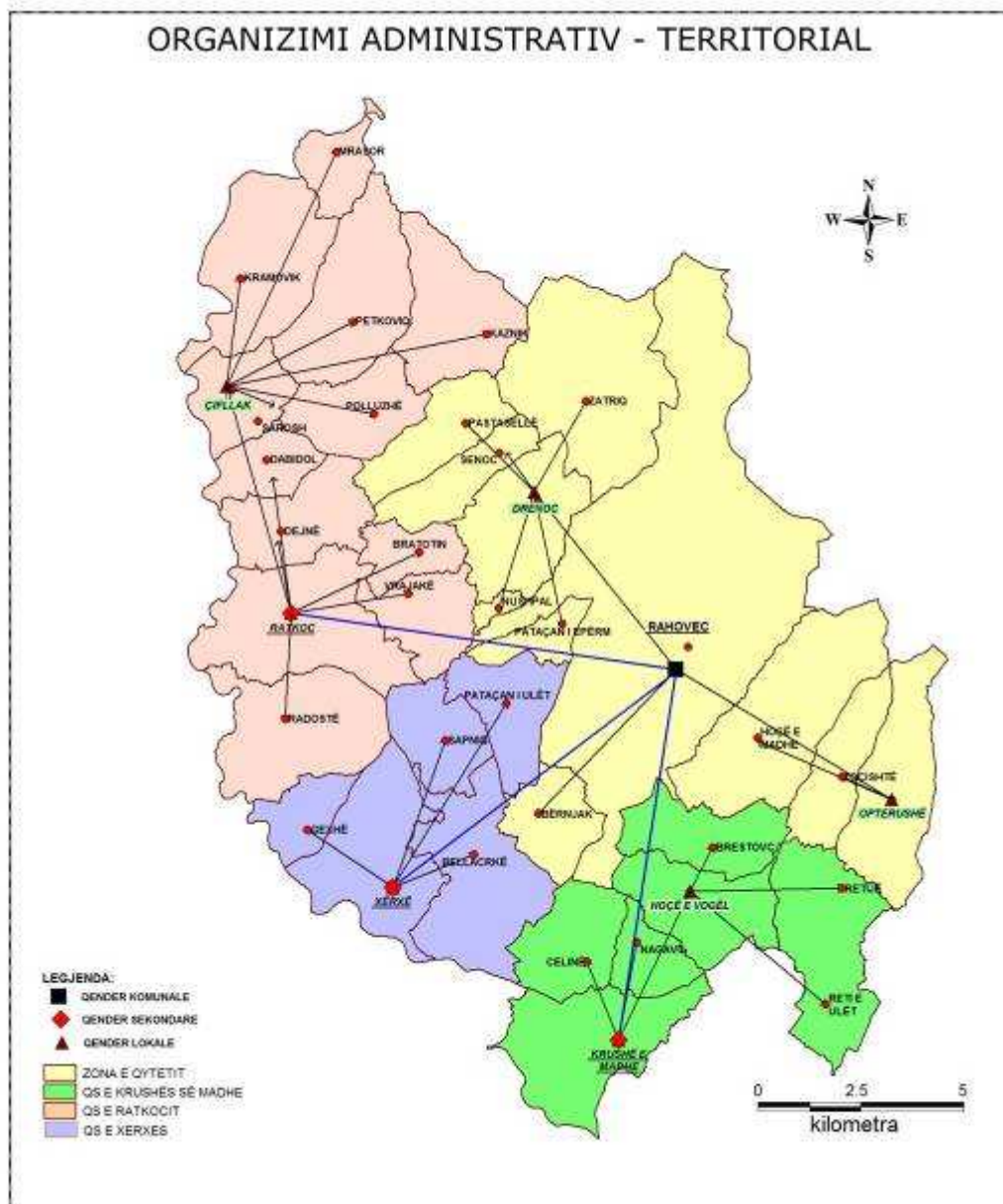


Figure 11. Settlement structure of the MDP

However for effective implementation of the settlement system there is a need provide effective coordination and support systems for secondary centers. While locating the attraction centers of the municipality there is a need to analyze the cross-border impacts, such as the fact that the Prizren town acts as vital centre for the whole region.

The chapter describes the general principles of the development of social infrastructure (kindergardens, schools, social institutions), the specific location of the few new buildings are not identified, but this is stated the construction activities are to be avoided on the valuable agricultural land. For all the construction activities it is important to mention that in order to mitigate possible negative environmental impacts during the construction itself and later maintenance it should be planned and implemented according to sustainability principles



(managing construction waste properly, using sustainable materials, providing energy efficient solutions).

Both spatial framework and implementation chapters list a need to develop the transportation infrastructure, both construction and improvement projects are foreseen. Although these initiatives include short term negative environmental impact due to the need of natural resources (road construction/ improvement materials, use of machinery) this is outweighed with socio-economic impacts and the long term indirect positive environmental impacts caused by better road quality (enables to use more modern, low CO<sup>2</sup> emission cars, suitability for public transport). From the infrastructure perspective the MDP proposes further developments at the fields of electricity supply and street lightning, yet there is no evidence of promoting the alternative energy sources (solar, wind, hydro). It is suggested that the need for integration these solutions should be clearly emphasized and possible resources evaluated and identified, especially for public infrastructure and buildings.

To address the water supply-related problems the following actions are proposed by the MDP:

- Rehabilitation of the water supply in the central urban area in order to reduce losses
- Expansion of the central water supply residence Qifllak, Polluzhë, Kramovik etc.
- Construction of a new reservoir to meet the requirements of the areas which extend over 550 m altitude;
- The installation of continuous disinfection system with chlorine gas,
- Increased water production
- Construction of local water supplies in areas where identified natural resources: Drenoc, Senoc, Pastasel, Kaznik, Petkovic etc..
- Management of the local water supply system of Radoniq.

As these activities address the need to avoid further major water losses and include most of the settlements' water consumption into the central systems (no uncontrolled use), these are mainly with positive environmental impact. However there is a further need to add an objective to reduce the average water consumption rate which is stated to be 200-250 litres per capita per day. This consumption rate can be considered to be rather high and there is a possibility and need to reduce it, in addition to leakage decrease the possible measures could be awareness raising campaigns for consumers, more effective irrigation measures and re-use of treated wastewater. The untreated wastewater problem as one of the main environmental issues in Rahoves are rather generally addressed in the MDP, although the main approaches and techniques are described, there is a need for a more comprehensive approach. As the issue is rather complex the MDP should state the need to compose the municipality's common water supply and sewage treatment plan, which proposes the suitable solutions and locations for the collection areas and treatment/pumping establishments for the particular area. If the central systems are proven not to be reasonable and effective, sustainable local solutions should be suggested – addition to septic biological purification systems as well. From the proposed two wastewater treatment options (local shared with Gjakova) the local approach should be prepared, as it provides more possibilities to adjust with local conditions, is more flexible, includes less pipes and allows wider range of purification techniques.

While some of the environmental issues are rather adequately addressed in the MDP (such as forest protection, land degradation and natural disasters prevention) there is a further need to elaborate the solid waste issue as one of the main environmental concerns of the area. By now the MDP (IV) proposes following solutions to the problem:

- Increase financing for technologies for waste collection
- Operationalisation of the recycling process



- Follow up in rehabilitation of illegal dump fields
- Construction of a new landfill of storage, processing and recycling of waste with the neighboring Municipality
- Take measures for the collection, storage and processing of municipal waste
- Providing Public-Private Partnership for waste processing and recycling
- Fiscal incentives for environmentally friendly behavior.

But additionally, when it comes to solving the illegal dumping problem and inadequate waste management system it is important to notice that this problem could not be solved on local governance level only. Landfill location and management system's need coordination from national authorities. Still, local solutions (such as waste transit stations) are proven to be effective and are worth implementing in Rahovec as well. According to UN-Habitat (2012) „the size and location of disposal sites determines costs and externalities. The cost advantage of constructing and operating large-scale landfills over small-scale landfills has resulted in a trend of regional landfills. Larger landfills can be more cost effective per ton but may have greater transport costs and adverse effects on property values than smaller landfills; they are also usually disliked by the community. Site location can minimize factors such as increased traffic, noise, unpleasant odors, environmental degradation and limited land utility, and buffer areas determine where sites should not be located. Measures such as providing spaces for sorting and recycling close to areas where waste is produced can help to reduce the size of a disposal site“. While setting up a solid waste treatment system one has to notice that the landfill/waste treatment transit station is not a facility easy to locate and it might not be welcomed by the local community because of the fear of odors, insects, rodents, gaseous emissions and water pollution that might result. As in case of Rahovec it is likely that the solid waste should be located into the landfill outside of the municipal borders (currently in Prizren) the main concern would be the collection of the solid waste from the households – in addition to abovementioned environmental impacts a social aspect has to be taken into consideration as well as there is still a need to further improve local inhabitant's habits to be included into the waste management system and pay for it.

Composting should be considered as a perspective measure to reduce/avoid both urban and agricultural waste with the potential to contribute into sustainable fertilizing, according to UN-Habitat (2012) „composting is an inexpensive process that can deal with half of urban waste making it a suitable option, especially for cities in developing countries. If it is part of an integrated waste management programme, composting favors recycling and helps reduce greenhouse gas (GHG)“.

The fourth phase of development plan for the municipality of Rahovec includes strategy, through which the vision will be realized for our future and will achieve the goals and objectives set forth during the planning process. The strategy includes measures and actions to be taken in future to achieve a more compact development and sustainable municipality of Rahovec. The activities are directly derived from the strategic components and are further elaborated within the specific strategies (economic and infrastructure development), for every activity the indicative deadlines and costs are indicated together with relevant/decisive bodies and financing sources. The potential environmental impacts of all the proposed projects are evaluated in the environmental matrix (Annex 3), whereas the nature (positive/negative/neutral), strength and the geographical scope of the impact is indicated. Similarly to the strategic chapter it can be concluded that there are no activities with significantly strong negative environmental impact.

If the moderate or weak negative impact could be predicted there is usually positive socio-economic impact also included, usually these are construction projects with very short term impacts which can be mitigated effectively. On the other hand the plan proposes various activities to improve the current environmental situation and proposes projects to solve problems (land degradation, solid waste collection, wastewater purification).

To further address the current environmental problems and to mitigate possible environmental threats from development perspectives of the MDP the fifth, implementation provisions, this chapter lists a set of relevant measures. The objective of the mitigation measures are to avoid or to decrease any potential negative effects on environment. The selection of most suitable mitigation measures is an ongoing activity during the whole development process and should be done in close co-operation of all stakeholders (decision makers, experts, private bodies and public). And although the current MDP does not have significant negative environmental impact the limited range of perspective impacts could be minimized with following measures (partially already suggested by the MDP):

- the maximum amount of greenery should be preserved during the development activities in order to protect the adequate share of naturally-covered areas;
- the diverse and sustainable use of forest resources in order to safeguard the further profitability and biodiversity of the forests;
- to keep agricultural areas in active use and in order to preserve aesthetic and scenic landscape values the edge and un-used agricultural areas should be regularly mowed;
- if recreational activities are implied in natural areas, their bearing capacity have to be considered and the activities properly channeled in order to avoid rubbishing and over-exploitation;
- if industrial areas are planned and established adequate buffer and sanitary zones should be identified, noise levels should be measured and barriers provided if needed;
- to preserve and protect water resources for domestic and industrial use and irrigation, there is a need to introduce and implicate sustainable water technologies;
- removal of all illegal waste landfills in the future;
- organization of a functional and highly efficient waste management system;
- involvement of professional companies for waste collection and transportation;
- functionalization of environmental inspectorate and undertaking of strict measures against illegal environmental actions;
- recurrent and focused controls along river streams in order to protect them from dumping waste;
- cooperation with the Ministry of Environment and Spatial Planning, and private donors to find the possibility of building the plant for wastewater treatment according to the standards and septic tanks (or other suitable purification modes)
- prevention of illegal quarry operators, collection of environmental taxes and the prohibition of lime kilns for using plastic materials for baking;
- protection of heritage includes several measures for the future, where the initially special attention should be paid towards the protection of existing heritage from eventual degradation to the realization of the projects envisaged in the strategy for the heritage area;
- cooperation with the Ministry of Agriculture, Forestry and Rural Development and other donors to develop forest management plans, and reforestation of bare surfaces;
- to protect quality agricultural land, municipal authorities should respect the building line that is defined in the concept stage, where all the settlements of the municipality have the directions towards which expansion cannot be developed due to soil quality and arable land.

In addition to the specific environmental measures the provisions to regulate settlement development and construction are safeguarding sustainable development by setting clear

regulations for further spatial planning documents, qualitative urban planning and for protection/preservation of valuable environmental and agricultural areas. This chapter does not include any additional provisions which might include negative environmental impacts. So it could be concluded the MDP adequately addresses the current environmental challenges and enhances socio-economic development without any significant negative environmental impacts. However, in order to improve the plan further, a set of suggestions are hereby provided:

- as due to the it's background (climatic, geographical, economical) the area needs a significant amount of energy (cooling, heating, motorized transport, irrigation etc) the energy efficiency issues should be covered better – as a need to find alternative energy sources (solar, wind, hydro) as well as energy-efficient ways of public (private) transportation, building and infrastructure management:
- to further address the issue of sustainable use of resources (especially water and mineral resources) with the preliminary aim to set up proper monitoring systems (ie water consumption meters) and to reduce consumption of the water by adequate measures (decreasing the leakages, improvement of irrigation systems, re-use of wastewater)
- to further analyze the alternatives to tackle the shortages in wastewater treatment systems. It is not likely that the solution with the one common wastewater treatment plant for the municipality (or even central, shared with neighboring municipality) is adequate both on environmental or economical terms. This issue should be addressed within the separate plan of programme in order to specifically locate the areas with the need of central treatment and to provide suitable treating facilities:
- in addition to limited designated zones the mixed use and densification in urban zones should be foreseen;
- to further address the solid waste problems by proposing some more specific local solutions (ie the location or alternative locations of the waste transit stations)
- to locate green corridors to provide connectivity between natural areas (mainly forests) in order to avoid habitat fragmentation and biodiversity loss. The areas with high biodiversity potential are hatched at the Figure below, as riverbeds are proven to have a high biodiversity potential the buffer zones of rivers are also marked as a potential elements of the municipality's green infrastructure.



Figure 12. Connected system of natural areas in Rahovec (green infrastructure)

## 6.1 Assessment of the environmental scenarios

Do-nothing scenario - under the do-nothing scenario which would result if no strategically planned development activities would take place, Rahovec would maintain its current physical, environmental and socio-economic characteristics. Development would be limited and mostly market dependent. Future investment by Rahovec Municipality and others (private, national, donors) would be absent where not provided by the development plan and Municipality's role as a pro-active influence in the area would be lost. Adopting the do-nothing scenario would mean that Rahovec would remain under-utilized with limited physical, social or economic enhancement. Other negative impacts associated with unregulated settlement expansion are generated by traffic congestion, noise pollution and traffic-related disturbances. A larger extent of urbanized land results in a loss of agricultural, recreational and natural lands.

The urban settlements will suffer with unplanned growth and development. On the other hand, the socio-economic and environmental situation of the rural areas could deteriorate significantly if the provision of public services and job opportunities decrease and proposed sustainability led projects are not going to be implemented. As in essence the Rahovec MDP is targeted to solve current environmental issues and to promote ongoing and sustainable development and it includes only a some construction project proposals which might (if not planned, prepared and implemented reasonably) include some weak and short term negative environmental impacts, the do-nothing scenario could not be considered as the preferred one.

Full-implementation of the MDP scenario – this scenario means that the spatial development concept of the polycentric approach will be implemented, in the sub-centers additional range of public services will be provided with the hope to safeguard the growth and development of the rural neighborhoods. A *hierarchical polycentric region* contains a system of different-level centers which are organized in a hierarchical structure. In this urban structure, one centre (Rahovec town) is dominating the others. This approach is currently widely spread and is in accordance with the European Spatial Development Perspective (ESDP)<sup>7</sup>. It should help to find balance between rural and urban areas and to provide conditions for the rural areas more successfully to assimilated structural changes. Unless managed properly, the urban growth will constitute a threat over the valuable natural and agricultural areas. To minimize that threat and to be targeted to balanced spatial development the poly-centric Development Concept is proposed by Rahovec MDP. If implemented properly, no significant negative impact could be foreseen as a result of the choice of that spatial concept. Additionally the MDP locates a number of dedicated areas for economic developments and proposes a set of projects to address current environmental and socio-economic challenges. Although neither of these plans does not include any significant negative environmental impacts, it is necessary to regularly monitor the implementation progress. If it is witnessed during the implementation period (from 2013 to 2020) that due to the various reasons (administrative, legal, financial) all the proposed projects could not be implemented, then there is a need to re-prioritize the implementation projects in the way that a sustainable development principles still remain. It could be concluded the full implementation scenario very comprehensively addresses the current socio-economic issues and adequately addresses the environmental issues and it can be considered as one of the suitable scenarios to proceed.

Conservative and sustainable scenario – in order to further address the environmental challenges and to mitigate possible negative environmental effects from the proposed implementation activities, the third scenario reflects the situation when the additional environmental assessment suggestions and mitigation measures (from Chapter 6) will be included into the MDP. Additionally, to take into account possible difficulties and obstacles to implement all the proposed activities and suggestions during the MDP period, this scenario suggests to prioritize the implementation actions for the whole period (additionally to the current time frame). So if the lack of various resources (administrative, legal, financial) might occur, the highly ranked projects will be improved, this way it is likely that the development will be still oriented to the direction of strategic aims (which are in satisfactory accordance of sustainability principles). Without clear priorities, in the situation of lacking resources, there might be a threat to rather randomly and without proper balance implement affordable activities and projects. As this scenario includes additional measures to safeguard the sustainable development of Rahovec municipality it is hereby suggested to consider that as a preferred scenario.

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<sup>7</sup> [http://ec.europa.eu/regional\\_policy/sources/docoffic/official/reports/pdf/sum\\_en.pdf](http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf)

## 7. Monitoring

As part of the Strategic Environmental Assessment process, measures envisaged for monitoring the likely significant effects of implementing Rahovec MDP is included in the SEA Report. The main purpose of the regular monitoring is to identify the possible negative effects of the MDP implementation as early as possible and to imply necessary means to prevent and/or mitigate the negative impacts.

The purpose of the monitoring suggestions is to provide support for the responsible authority (Rahovec Municipality) to assess the changes at the natural environment during the implementation of the MDP. During monitoring, there should be a possibility to find out if the strategic aims, implementation provisions etc of the plan caused the expected outcomes or improvements.

One essential component of SEA monitoring is to periodically observe the progress of achieving the environmental objectives, reaching the set targets. A list of environmental indicators and targets is provided in the Chapter 5.5. They have been derived from knowledge of the existing environmental issues within Rahovec municipal area and also from legislation, guidelines and other relevant documents. It is suggested that the monitoring will be conducted annually in tact with the monitoring process of the MDP itself. A special attention have to be paid on monitoring the implementation of the MDP goals with the possible moderate/strong conflict threat to environmental objectives according to compatibility analysis. During the preparation of the current SEA report the amount of quantitative environmental data (water, air, soil quality etc) was limited for Kosovo in general and for Rahovec as well. Therefore most of the targets reflect the improvement ratio (percentage) of the environmental conditions and the monitoring process of achieving the targets will be evaluative as well until the monitoring systems will be set up. It is also suggested that during the regular monitoring process the suitability and adequacy of the proposed indicators/objectives will be assessed and corrected if there will be a need and/or the possibility. If it occurs, that the monitoring results indicate the fulfillment of any targets, it should be deliberated if there is a need and necessity to raise the target. Until the monitoring systems for gathering the necessary environmental data (water pollution etc) have not been set up the monitoring of some environmental objectives should take place on evaluative basis, by evaluating the extent of influence a certain project (i.e. building the wastewater treatment facility) on the environment (water quality).

In addition to the monitoring of specific environmental objectives and targets by measuring the indicators the environmental aspects should be under consideration while evaluating the implementation progress of the plan itself. It allows to identify the real environmental impacts of the implemented projects and to propose additional mitigation measures of suggestions to correct the plan if necessary. A special attention should be paid to the implementation projects if the assessment matrix in Annex 3 have indicated that the project have either positive or negative environmental impact. In both cases the impact extent of the implemented project or activity should be measured or evaluated. In case there will be new projects or activities added into the plan during the it's monitoring, the perspective environmental and other impacts should be evaluated following the example of the matrix provided in the current report.



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## **Annexes**

- 1) Notes of the meetings with Rahovec municipal representatives and stakeholders
- 2) List of the EU legislative documents on environmental matters relevant in Kosovo
- 3) Environmental matrix