



Municipality of  
Mamusha/Mamusa

## **Municipal Spatial Planning Support Programme in Kosovo**

# **Mamusha Municipal Development Plan Strategic Environmental Assessment (SEA) Report**

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2012**

*Implemented by:*  
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## Table of Contents

Table of Contents .....	3
List of abbreviations .....	4
Non-Technical Summary .....	5
1. Background .....	6
1.1. SEA Methodology .....	6
1.2 Consultees .....	8
1.3 Time Frame .....	8
2. Summary of the elements of Mamusha MDP .....	8
3. International legislation, other plans, programmes, conventions and protocols .....	12
3.1. EU SEA Directive .....	12
3.2. Other EU Directives .....	13
3.3 EU 2020 Strategy .....	14
3.4. UN Millennium Development Goals .....	14
3.5. Spatial planning and SEA in Kosovo .....	15
3.5.1 Kosovo's background information .....	15
3.5.2. National legislative background .....	16
3. 6. Other relevant plans and programs .....	17
3.6.1. Kosovo Country Environmental Analysis. Cost Assessment of Environmental Degradation, Institutional Review and Public Environmental Expenditure Review .....	17
3.6.2. Governmental Strategy on Waste Management 2011 – 2020 .....	18
3.6.3. Governmental strategy and action plan for biodiversity 2011 -2020 .....	19
3.6.4. Sustainable Energy Options for Kosovo. An analysis of resource availability and cost .....	19
3.6.5. Spatial Plan of Kosovo 2010-2020+ .....	20
4. Baseline environmental information .....	21
4.1. Population .....	22
4.2. Biodiversity, flora and fauna .....	24
4.3. Land use .....	25
4.4. Natural disasters .....	29
4.5. Water .....	31
4.6. Air and climate .....	32
4.7. Soil .....	32
4.8. Identified data gaps .....	33
5. Key environmental issues related to Mamusha's MDP .....	34
6. Environmental objectives, indicators and targets .....	36
7. Evaluation of the environmental impacts of the MDP .....	38
7.1 Assessment of environmental alternatives .....	40
7.2 Mitigation measures .....	42
7.3 Conclusion .....	43
8. Monitoring .....	44
References .....	45
Annexes .....	47

## 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
SOE	Socially Owned Enterprise
TIKA	Turkish International Cooperation and Development Agency
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

## Non-Technical Summary

Current strategic environmental assessment report is prepared as a conclusive document of the SEA process for Mamuşa/Mamushë/Mamuša municipality municipal development plan. It is the main output of SEA and outlines the findings of the assessment process. The MDP is a statutory document prepared on behalf of Mamuşa/Mamushë/Mamuša local authorities with the support provided by the UN-Habitat Kosovo. It is also required by law that perspective environmental impacts from the MDP are to be assessed during the strategic environmental assessment process. 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 SEA is to ensure that environmental consequences are identified and assessed during preparation and before the adoption of certain plans and programmes“. Municipal development plans are among the documents with statutory requirement to conduct SEA. Therefore 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. Therefore the assessment procedure started at the early stage of the plan preparation in January 2012. Prior to the assessment itself the methodology and the literature review were composed. The first stage of the assessment was the scoping process with the outcome of the scoping report. Scoping was followed by the assessment process of all the MDP chapters, the SEA process was concluded by the preparation of the SEA report draft in November 2012. The consultation and publication procedures of the MDP and SEA report were scheduled to take place in December 2012. The general aim of the SEA process was to organize it as openly as possible and to involve all the necessary stakeholders. In addition to the legally required public review /consultation process there were involvement activities in the scoping phase of the SEA. At the late stage of the scoping report preparation the public discussion was held in Mamuşa/Mamushë/Mamuša to introduce the essence and the first outcomes of the SEA process as well as to work together in indentifying suitable SEO's, targets and indicators for Mamuşa/Mamushë/Mamuša. The process included close cooperation with Mamuşa/Mamushë/Mamuša's local authorities – they were important sources of the environmental information. In addition to that capacity building trainings and discussions were held with municipal staff. The fact that the SEA is new and rather complex issue makes it challenging to attract wider public to be actively involved in the process. 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. Scoping report included the preliminary analysis of relevant other plans and programs from various governance levels (international, national, local, sub-local) and collection of environmental baseline data. According to collected information there were a number of most challenging environmental issues highlighted such as balanced land use, sustainable agriculture and pollution problems. Within the scoping phase of the SEA three environmental alternatives were chosen to be further analyzed during the assessment stage – zero scenario/do-nothing scenario, full implementation of the MDP integrated/preferred scenario and the combined (integrated scenario with additional elements) scenario. The list of environmental objectives, targets and indicators (SEO's) was also prepared during the scoping phase in order to predict impacts, and describe and monitor change of Mamuşa/Mamushë/Mamuša's MDP on the environment. During the assessment phase it was evaluated how the enforcement of Mamuşa/Mamushë/Mamuša municipal development plan would influence the environmental

situation and what aspects should be considered while the plan is going to be implemented to minimize the potential environmental risks. The main development potential of Mamuşa/Mamushë/Mamuša is identified to be the ongoing agricultural land use. Therefore the balanced land use and sustainable agriculture are the key factors to preserve and improve the environmental and living quality in Mamuşa/Mamushë/Mamuša. It could be evaluated that the current MDP effectively addresses this aspect and proposes adequate division of the land resources between agricultural, natural and settlement areas. The spatial framework of the plan aims to preserve the high quality soils for the agriculture. At the same time it is trying to meet the requirements of growing population by densification and moderate expansion. This way the plan safeguards the balanced land use patterns as well as avoids and mitigates potential negative environmental effects. While the land use issue could and is to be handled locally the other complex and vital environmental problem – pollution – need both local and national attention. Mamuşa/Mamushë/Mamuša mainly witnesses non-point pollution sources from agriculture (fertilizers, pesticides), solid waste (mainly domestic) and wastewater (mainly domestic) and they threaten both the quality of soil and water resources and have indirect impact on biodiversity loss and overall environmental degradation. The plan foresees some measures to address these problems (promotion on composting, wastewater treatment plan, transit station for waste), but in order for effective solving of the problems there is a need for national/international coordination mechanisms and financing.

The general conclusion of the SEA is that the development plan is directed into the improvement of current situation, economical as well as environmental. The plan's activities and components do not include any major negative environmental impacts. On the contrary, it is analyzed that if the current plan is not going to be implemented it is likely that the environmental situation is going to keep deteriorating. The composed environmental matrix reflects that only few of the implementation projects could have minor or moderate negative environmental impacts. These are mainly construction projects to improve Mamuşa/Mamushë/Mamuša's social and technical infrastructure and if proposed mitigation measures are to be implemented, they do not pose significant threat to environment.

## **1. BACKGROUND**

### **1.1 SEA METHODOLOGY**

"SEA as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision-making on par with economic and social considerations" (Sadler & Verheem, 1996) is a complex tool and should be used with appropriate adaption and suitable methodology for the particular plan or programme the SEA addresses. During the years SEA has been implemented in Europe and elsewhere and it has been used to assess environmental impacts of various plans and programmes in very different environmental and governmental conditions. Therefore the set of possible methods and tools is wide.

SEA is a process for evaluating at the earliest appropriate stage, the environmental impact, and consequences, of policies, plan or programmes initiatives. The purpose of the SEA is to ensure that the environmental consequences of plans or programmes are assessed during their preparation and before they are finally adopted. It also gives the public and other interested parties an opportunity to comment and to be kept informed of decisions and how they were made. SEA is

often defined using the definition by Therivel as “the formal, systematic and comprehensive process of evaluating the effects of a proposed policy, plan or programme or its alternatives, including the written report on the findings of that evaluation, and using the findings in publicly accountable decision making” (Therivel et al 1992).

The European Directive on SEA (2001/42/EC, further described in Chapter 3.1) 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 of certain PP's are identified and assessed during their preparation and before their adoption. Certain plans and programmes prepared by statutory bodies and which are likely to have a significant impact on the environment will now require an SEA to be carried out, where the preparation of such plans and programmes is started after that date“.

As in the case of Mamuşa/Mamushë/Mamuša's MDP there is no need to determine whether this plan is a subject of SEA the current methodology does not include further analysis concerning screening procedures. Therefore the main stages of the current SEA procedure are:

- scoping. A scoping process is to establish the content of the SEA, the relevant criteria for assessment (environmental objectives, targets indicators and the environmental alternatives). These are set out in a scoping report. 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. In the case of Mamuşa/Mamushë/Mamuša MDP SEA, a separate scoping report (Annex 1) was prepared.

- collecting baseline data. According to the OECD (2006) “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”.

- identification of alternatives, 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 be prioritized and their relevance analyzed

- 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.

- reporting. The Environmental/SEA Report is the key output of the SEA process 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, to provide information about the consultation procedures and to suggest further measures to monitor the implementation of the plan. Further provisions on which information must be provided concerning these effects are given in the Annexes of the abovementioned legal acts.

## **1.2 CONSULTEES**

In order to safeguard the achievement of its 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:

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

## **1.3 TIME FRAME**

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. The process of the Mamuşa/Mamushë/Mamuša's MDP preparation started in 2010 and the SEA started in early 2012, with the composition of the literature review (Annex 2), methodology (Annex 3), preliminary comments to the first chapters of MDP and the scoping report. The scoping report was introduced to and discussed with relevant stakeholders during the public workshop in June 2012. In addition to that three interactive training sessions were held with relevant stakeholders (municipal staff, UN-Habitat) to share and exchange knowledge and experiences about SEA process. As the processes of the MDP composition and the SEA went on in parallel. The chapters of the MDP were reviewed and environmentally assessed shortly after they were drafted and therefore the first MDP draft (finalized in October 2012) already included several suggestions from the SEA expert. The SEA report draft was finalized shortly after the first MDP draft.

## **2. SUMMARY OF THE ELEMENTS OF MAMUŞA/MAMUSHË/MAMUŠA MDP**

As the municipality of Mamuşa/Mamushë/Mamuša as an independent administrative unit has been established rather recently (became Pilot Municipality in 2005, full status gained at 2008) there are not many planning documents present for the area. In 2009 Local Development Strategy was drafted for Mamuşa/Mamushë/Mamuša, but it does not include any spatial components. Therefore the currently assessed MDP is the first spatial planning document for the municipality. It is required by law and in the case of Mamuşa/Mamushë/Mamuša was prepared in the co-operation of Mamuşa/Mamushë/Mamuša Municipal staff and UN-Habitat Kosovo.



The MDP of Mamuşa/Mamushë/Mamuša is structured into six chapters, the first chapter (municipal profile) thoroughly describes the current situation in the area, covering a great variety of different fields and sectors – economy, natural resources, education, culture etc, the second chapter has a strategic character and it includes a vision, development principles and targets. Based on the two first chapters, the third – spatial development framework – provides spatial reflections and relevant analysis of the possible development alternatives for Mamuşa/Mamushë/Mamuša. The fourth chapter provides necessary implementation strategies and actions in order to bring MDP's principles to be implemented in other planning documents, administrative procedures and local development. The fifth chapter offers provisions for plan's implementation and sixth provides space regulation elements.

The objective of Mamuşa/Mamushë/Mamuša MDP is to identify the long term goals of economic, social and spatial development for the entire territory of the municipality. The MDP covers multiple policy fields such as housing, roads and transport, infrastructure, public spaces and facilities, cultural heritage, agriculture and forestry, rural development and inter-municipal cooperation. The MDP contains the future vision for development that prioritizes projects for public purposes.

The strategic chapter sets a vision statement for Mamuşa/Mamushë/Mamuša municipality as follows: Mamuşa/Mamushë/Mamuša Municipality – developed based on agricultural resources and with ability to create alternative resources, with qualitative public services, adequate infrastructure and safe and clean living environment. The vision together with general principles of development are directed to the improvement of natural and living environment, promoting good governance and cooperation, stable economy and sustainable development. The long term development goals are divided into 5 thematic fields: demography and socio-economic situation (1), economic development (2), infrastructure and public services (3), land use, housing and settlement (4), environment, areas prone to risks and degradation and cultural heritage (5) and human and institutional capacities in spatial planning field (6). Within every field goals and objectives are listed.

The framework proposes two spatial development scenarios - Linear Scenario and Concentrated Scenario, it describes them and identifies relevant advantages and disadvantages for both scenarios. An integrated scenario is also worked out where components of both linear and concentrated scenario are combined, this scenario is suggested to be an appropriate structure for future development in Mamuşa/Mamushë/Mamuša. The common characteristics of all the proposed scenarios are in accordance with the strategic vision and objectives of the MDP as the agricultural land is protected from the housing and industry and reserved for solely agricultural use.



Strategic Environmental Assessment for Mamuşa/Mamushë/Mamuša  
Municipal Development Plan 2013 - 2023

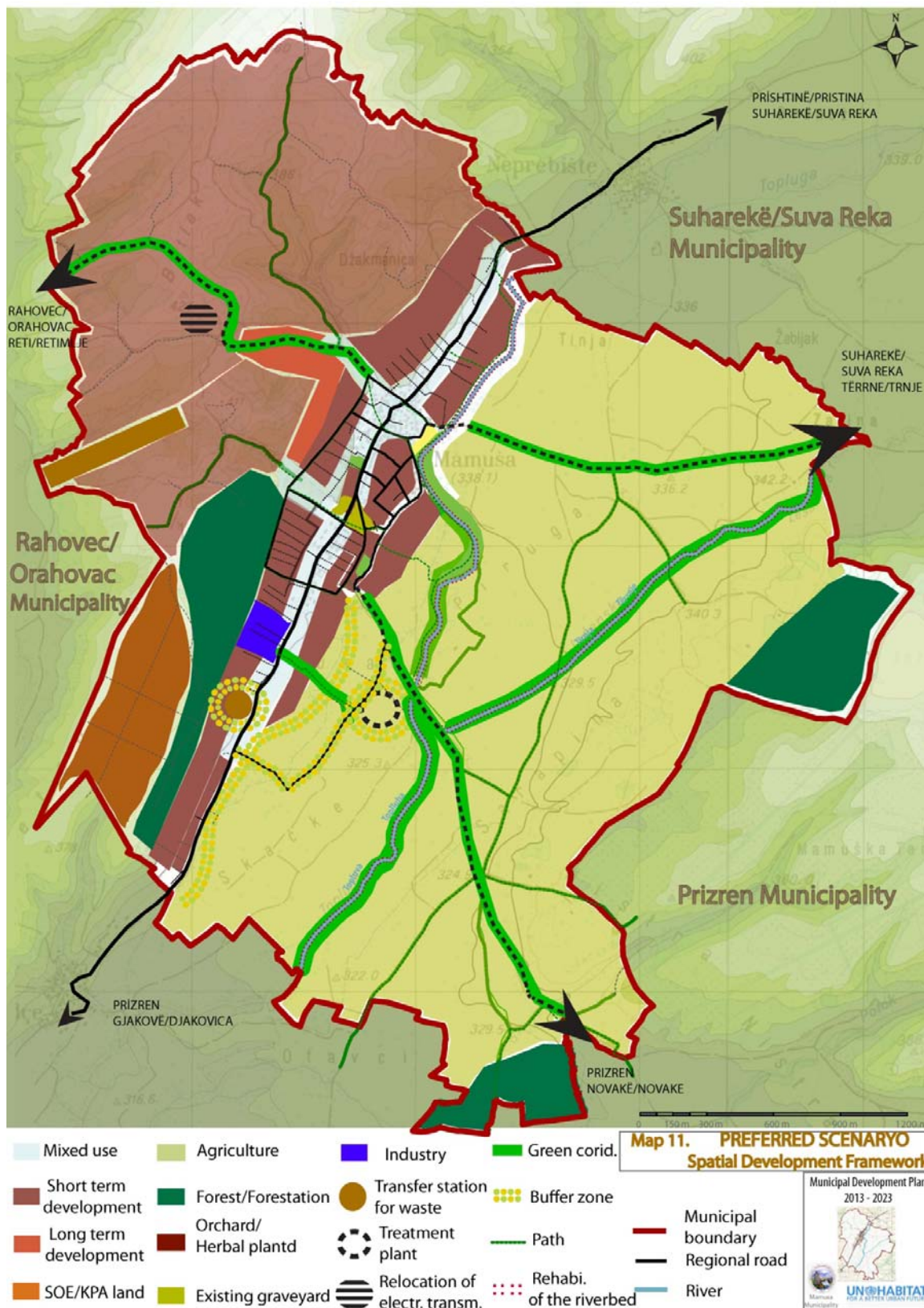


Figure 1. Preferred scenario of the MDP of Mamuşa/Mamushë/Mamuša

The last phases of the MDP are reflected at the fourth and fifth chapter, which include implementation strategies, actions and provisions and sixth that include elements for settlement regulation. All of them are derived of the strategic chapter and follow the structure of the 5 abovementioned strategic fields. For the each field a set of implementation projects/programmes are proposed according to the field's strategy and goals. In order to ease the implementation this chapter provides characteristics such as priority, time-frame, financing, responsible institutions and monitoring indicators for each of the projects. Finally a wide range of implementation provisions are provided by the last chapter of the MDP. There are guidance on municipal development plan interpretation issues during the drafting of regulatory and other plans, conditions set by local government on issues relevant to development and land use in the municipality and mitigation measures to prevent environmental and social degradation listed and analyzed in order to provide knowledge-base support for further decision making during the MDP implementation.

The municipality will use the MDP to negotiate with different stakeholders such as ministries and private investors for the strategic implementation of the municipal projects. The MDP indicates future land use zoning within the municipal territory for land development, preservation or restriction particularly in rural areas. The MDP also provides basic guidelines for infrastructure, bulk, height and layout for a new development. All applications seeking consent (planning application) shall refer to the MDP policies and be consistent with the nature of the plan. In practice, there are precious natural resources such as rivers, forests, hill terrains and mountains which shall be preserved adequately through construction zone restrictions. Fertile agricultural land and forests are also key resources for the municipality, to be preserved for the benefit of the local rural economy as well as the landscape value.

One of the main strengths and values of the evaluated MDP is it's implementation-oriented nature, it provides justified and analytical basis for Mamusha's further development until 2023 for all relevant stakeholders – local administration, community, entrepreneurs and potential investors and partners. It includes spatial framework as an effective input for lower lever planning documents and preservation of natural and agricultural values, and implementation suggestions for further planning, programming and budgeting.

### **3. INTERNATIONAL LEGISLATION, OTHER PLANS, PROGRAMMES, CONVENTIONS AND PROTOCOLS**

As Mamuşa/Mamushë/Mamuša municipality became an independent local authority in 2005 by at first becoming a Pilot Municipality and in 2008 as a totally independent one (before 1999, Mamuşa/Mamushë/Mamuša as a village belonged to the Municipality of Prizren) there are very few local level development strategies and other relevant documents. The only spatial before the current MDP are the planning documents developed by the Prizren Municipality where it included Mamusha as a village. The only document drafted for Municipality of Mamuşa/Mamushë/Mamuša is Local Development Strategy in 2009, which does not include any spatial component. Therefore this chapter only includes the overview and analysis of the national and international documents.

#### **3.1 EU SEA DIRECTIVE**

The legislative basis of the SEA in European Union is the Council Directive 2001/42/EC on assessment of the effects of certain plans and programmes on the environment (SEA Directive), it was adopted in 2001. The principles of the directive are integrated into the member states' legislation in addition to that several EU candidate countries and possible candidate countries

have adopted the principles of this directive into their legislation. Since 2010 the below-mentioned principles of the directive are integrated into Kosovo's legislation as well. 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“.

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.

### **3.2 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 4). 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 Mamusha's MDP is the Water Framework Directive (came into force in December 2000) as this directive addresses one of the most intriguing environmental issue in Mamuşa/Mamushë/Mamuša – the quality of water bodies. 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



Mamuşa/Mamushë/Mamuša by 2015, the taken approach in Mamuşa/Mamushë/Mamuša 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/Mamuşa/Mamushë/Mamuša 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 (awareness raising, management plan and waste transit station) the effective implementation of the recycling and re-using systems need national coordinative mechanisms from national governance level.

### **3.3 EU 2020 STRATEGY**

In addition to abovementioned EU legislative documents the EU 2020 strategy with it's 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 exists, 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.

### **3.4 UN MILLENIUM DEVELOPMENT GOALS**

UN has an active role in Kosovo's 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

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

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;
- 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 Mamusha’s 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 and buffer zones along the rivers 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 Mamuşa/Mamushë/Mamuša.

### **3.5 SPATIAL PLANNING AND SEA IN KOSOVO**

#### **3.5.1 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-

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

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.

### **3.5.2 National legislative background**

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

On September 2003 the new LoSP was approved and amended on November 2008 (Amending LoSP, 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 LoSP 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 (UDP), Urban Regulatory Plans (URP). 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 MESP which „in accordance with the LoSP 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 Kosovo's two-level planning system local governance level have the significant role in implementing the planning principles and requirements set by the LoSP. 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 the 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 report 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 reviewed and agreed by MESP. 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.

## **3.6 OTHER RELEVANT PLANS AND PROGRAMS**

### **3.6.1 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 . 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. It is 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 €158 million 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“. Another significant environmental issues in Kosovo further analyzed and evaluated within the review are water quality, solid waste, forest/land resources and mining/manufacturing energy.

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

The strategy was prepared and issued by the MESP in 2011 and stated to be the first waste management strategy in Kosovo. The main objective of the Strategy 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. This 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 MDP. 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“.

### **3.6.3 Governmental strategy and action plan for biodiversity 2011 -2020**

Prepared by MESP during the period of 2009-2011. According to the document (Ministry of ..., 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.“

The 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. Although there are no designated biodiversity protection sites within Mamusha area the objectives of the strategy and action plan are followed within Mamusha MDP by protecting valuable landscapes and habitats (traditional agriculture, forest) and providing connectivity and protection for the aquatic habitats by suggesting buffers zones for river shores.

### **3.6.4 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 CO2 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“.

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

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. Regarding these spatial development concept and strategies, four action areas / regions are proposed in which Mamusha is seen as a sub-region of Prizren area (the center of the "Gardens of Kosovo"). The region is located at the south of Kosovo and is deployed for cultural tourism, agricultural industry and trade and services.

The 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). 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.

#### **4. BASELINE ENVIRONMENTAL INFORMATION**

The baseline data for Mamuşa/Mamushë/Mamuša municipality MDP is presented within the Municipal Profile (2011) which is the first phase of the MDP. Due to Mamuşa/Mamushë/Mamuša's administrative background – it was a pilot municipality since 2005 and independent municipality since 2008 – there were no systematic data gathering for that municipality and relevant data had to be collected and analyzed for the purpose of MDP. The main sources for data provided in Municipal Profile are statistics (Statistical Agency of Kosovo), municipal planning team and household survey conducted by UN-Habitat in 2010. The latter could be evaluated as a valuable source of accurate and up to date data (especially for example about the housing stock) which is also available in GIS format. In addition to that there are evaluations and estimates from the representatives of municipal administration to reflect the current situation in Mamuşa/Mamushë/Mamuša. Combined information from those data sources has formed a relatively adequate overview about the current situation in Mamuşa/Mamushë/Mamuša in all the relevant sectors. For the SEA purpose mainly the available data from the MDP is used, combined with some qualitative data elements collected during the SEA preparation process (meetings with municipal staff and other stakeholders). However, due to the lack of systematic environmental monitoring systems some specific pieces of data (water quality, biodiversity loss etc) were not accessible and the relevant impacts had to be assessed on evaluative basis.

The Municipality of Mamuşa/Mamushë/Mamuša is located in the southern region of Kosovo. It borders in the south-east Municipality of Prizren, in north-east Municipality of Suhareka/Suharekë/Suva Reka, and north-west Municipality of Rahovca/Rahovec/Orahovac.

Strategic Environmental Assessment for Mamuşa/Mamushë/Mamuša  
Municipal Development Plan 2013 - 2023

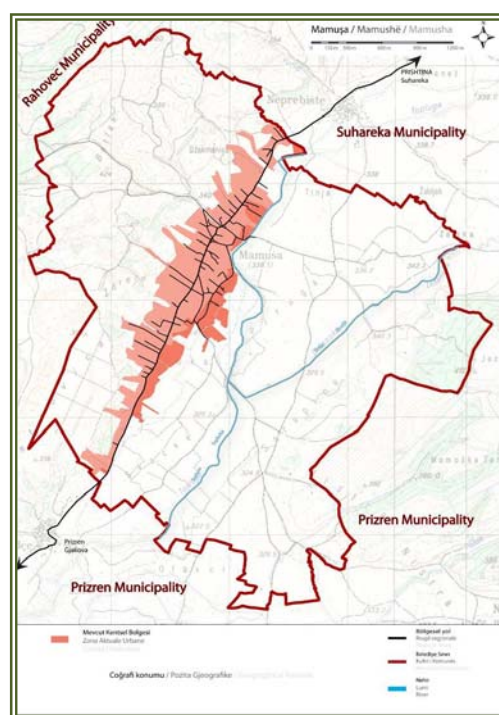


Figure 2. Location of Mamusha in Kosovo (MDP map)  
map)

Figure 3. Geographical position of Mamusha (MDP  
map)



#### 4.1 POPULATION

Municipality includes one settlement with 9 neighborhoods, according to the Kosovo Census of 2011 performed by Statistical Office of Kosovo Mamuşa/Mamushë/Mamuša municipality has 5507 inhabitants, consisting of Turkish (majority of 93%) , Albanians and RAEs. The total area of Mamusha municipality territory is 10.94 km<sup>2</sup>, giving a population density of 503.4 inhabitants / km<sup>2</sup>. This figure shows that the population density in Mamuşa/Mamushë/Mamuša is higher than the average density of Kosovo, which is 177. 4 inhabitants/km<sup>2</sup>. The data obtained by census of 2011 shows that Mamuşa/Mamushë/Mamuša is dominated by a young population, with 22% of the citizens aged between 0 - 9 , followed by 21 % aged between 10-19, 18% aged between 20-29, 16% aged between 30-39, 10% aged between 40 – 49, 6% aged between 50-59, and the rest 6.0 % over 60 years old. According to the MDP the 51% of the municipal population are male and 49% are female.

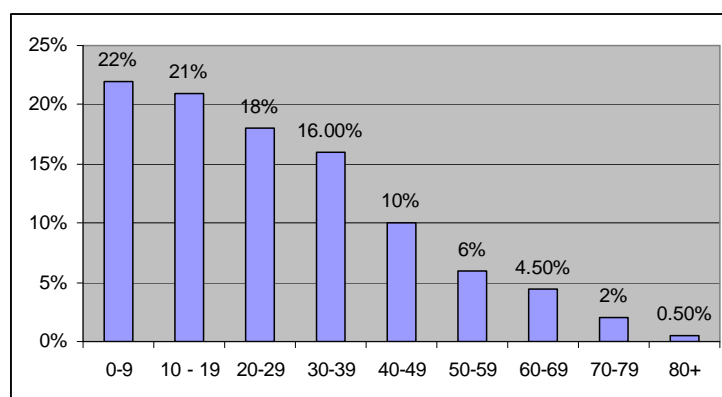


Table 1. Municipal age structure

According to the table presented below Mamuşa/Mamushë/Mamuša has 566 households were more than 40% of households have 10 + members. A fact to be underlined is that around 21% of the households in Mamuşa/Mamushë/Mamuša fall under the KHS figure (average Kosovo Household Size (KHS) which is 5.85 members) and that it is an increasing trend.

The Census of 2011 shows that Mamuşa/Mamushë/Mamuša Municipality has 481 residential buildings with a total of 510 housing units. Regarding the type of the building the 98 % of individual houses in Mamusha are of detached type and mainly are modern houses, surrounded by yard space used for other purposes such as agriculture, livestock and storage. The average size on foot for a housing unit is 123 m<sup>2</sup>. In Mamusha still there is no collective housing.

In Mamuşa/Mamushë/Mamuša 90% of the housing units consist of one family. Mamuşa/Mamushë/Mamuša is a rural municipality 98 % of residential buildings in Mamusha municipality mainly are houses of detached type which are surrounded by yard used for other purposes such as agriculture, livestock and storage. The characteristic of the municipality is that buildings with at least one residential dwelling are mainly up to the three floors, where according to the Kosovo Census

2011, 10.6% of buildings have 1 floor, 71.8 % of buildings have 2 floors, and 16.6% of buildings have 3 floors. The majority of buildings are constructed by strong construction materials.

Mamuşa/Mamushë/Mamuša municipality is characterized with high unemployment rate, according to the MDP the total number of of the working age population 15 until 64 years old is **3440**, the number of economically active<sup>3</sup> population is **1216**, out of which 97% is employed, 1.1% used to work but now is unemployed, 0.7% unemployed and never worked, 0.9% unemployed, waiting to start the job, while the number of economically inactive<sup>4</sup> is **2224** respectively 65% of total working age population.

#### 4.2 BIODIVERSITY, FLORA AND FAUNA

Municipality of Mamuşa/Mamushë/Mamuša lies in the Dukagjini plain in southern Kosovo. Mamuşa/Mamushë/Mamuša is comprised mainly by flat terrain, where the agricultural products grow, while in northwest there are two hills Maçovina and Tiçanlik, where the vineyards are planted and one in the Southeast where the scrub/forest grow. The highest point of municipality is Golubrade, at 460 m and the lowest point is at 320 m, located in the south.

The largest part of the municipality is comprised by the soil of the sandy loamy alluvium type which is expanded in flat area of the municipality located in south and southeast, which is ideal soil for agriculture. Brownised smonista is expanded in the hilly areas located in northwest. Eroded smonista expanded in the flat area and mountainous area of the municipality located in northwest and center, loamy alluvium type expanded in flat and mountainous area located in southeast and southwest, and in small quantity by the soil of reddish brown leached soil on reddish sediment in south and southeast of the Municipality.

The forest in the Eastern part of the municipality consists of oak (*Quercus sessiflora*) in the canopy layer and of Juniper (*Juniperus ssp*), Hawthorn (*Crateagus spp*) and different kinds of Cherries (*Prunus ssp*) in the shrub layer. The floor is scars in vegetation as the oak trees' canopy are dense. At the field visit different types of grass and mosses were found. The oaks are multi-stemmed as the oaks are coppiced about every thirty year, according to the owner. The poles are used for firewood. The coppice system is an excellent system for producing firewood, but for biodiversity reasons it is better to let the trees grow old and die. As the trees ages, gets bigger, have more bark and rot-holes it becomes an increasingly more important microhabitat for different organisms. Therefore, it is important to allow a few trees to become old. The fauna in the forest consists of birds, insects, turtles, crickets etc. According to the owner of the land, wolfs habits the forest

The biodiversity is rich along the rivers and the dirt roads to the agricultural fields as the vegetation is lush and the layers are many, which also creates a great habitat for different animals, insects, vertebrates etc. The canopy comprises mainly of Poplars (*Populus ssp*), Willows (*Salix ssp*) and Acacia (*Acacia ssp*) along the rivers and of different kinds of Cherries, (*Prunus ssp*), Hornbeam (*Carpinus betulus*), Acacia, Poplar along the dirt roads. The shrub layer along the dirt roads consists of Roses, Clematis , Black Raspberry (*Rubus Occidentalis*) and the herbaceous floor comprises of Common Mullein (*Verbascum thapsus*), Cranesbills (*Geranium ssp*), Forget-me not (*Myosotis ramosissima*), Hawkbit (*Leontodon ssp.*), St John's wort (*Hypericum perforatum*) etc

In the former abandoned socially owned enterprise land, northeast of the settlement, grapes are growing wildly. As the land has not been cultivated for a long time, the succession of plants has started. Apart from the grapes, Juniper and Roses are growing. The ground floor consists of Wild

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<sup>3</sup> Persons of both genders of particular age, that provide labour force in labour market for production activities (who have passed the production border of the system), during the specified reference period. This includes all persons that fulfils the criteria to be part of employee (employee or self employed) or unemployed.

<sup>4</sup> Persons that are not considered employed or unemployed during observed period , such as full time pupils, students, housekeepers, pensioners, persons in compulsory military services, etc.



Cranberry (*Vaccinium vitis-idaea*), Clover (*Trifolium*), Timotej (*Phleum pratense*) and Field Bindweed (*Convolvulac eae.*). In the ravines Oaks (*Quercus sessiflora*) are dominant, but there are also some Acacia, Wild Pear (*Pyrus sylvestris*), Wild Plums (*Prunus domestica*), different kinds of Maples (*Acer ssp*) and Wild Privet (*Ligustrum vulgare*) growing. In the municipality different types of fauna are found, such as bees, bunny, fox, wolf, snakes, insects, frogs, turtles, birds etc.

The general overview about the biodiversity, flora and fauna is adequate the existing species and their habitats are listed. However, the data about species and their habitats are descriptive and does not include spatial component – the locations are not reflected cartographically. In order to constantly monitor the state of biodiversity in the future there is a need to locate and map the current habitats. This kind of spatial database would also help to identify the areas threatened by the fragmentation and provide necessary connectivity measures accordingly.

### **4.3 LAND USE**

Mamuşa/Mamushë/Mamuša municipality is a municipality of rural character that has only one settlement composed of nine neighborhoods. Through the municipality two rivers flow. Toplluha is the larger tributary, flowing into the Drini Bardhë River and the smaller river is Tërnya. The linear settlement is located on the slopes, in the centre of the municipality, along a narrow and winding road. The river Toplluha borders the central part of Mamusha settlement. The structure of the municipality's current land use is shown at the scheme below, whereas the light blue area marks the urban settlement, beige natural/agricultural areas and green the forest.

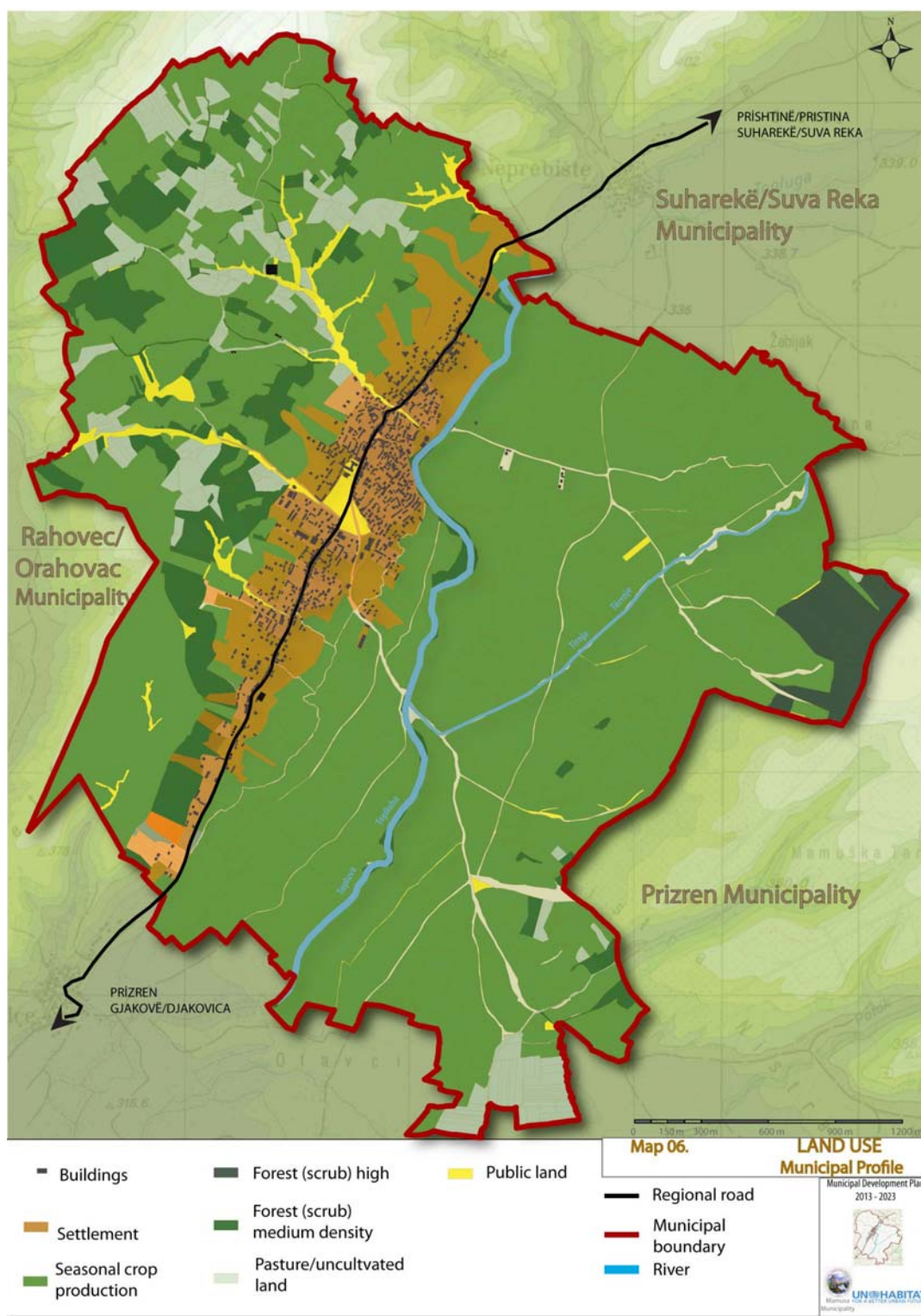


Figure 4. Land use types of Mamusha

According to the MESP/ Further Support to Land Use Project - EULUP data the municipal territory is composed of five categories of land (category 1, 2, 3, 4 and 5)<sup>5</sup> and is used for cultivation of different crops such as tomatoes, cucumbers, cabbage, spinach, melon, water melon, and others in small quantities.

Mamusha is made up of good quality agricultural land, which is highly suitable for vegetable crop production. Mamuşa/Mamushë/Mamuša's tomato production quality and quantity has increased significantly over recent years, with many local farmers privately investing in the use of (greenhouses). Greenhouses provide an indoor environment for the crops, resistant to most weather conditions. Other crops grown seasonally in the municipality include cucumber, cabbage, melon, watermelon, peppers, (in spring) and spinach, onions and lettuce (in winter). In Mamusha only 203 households are keeping livestock which are generally kept only for subsistence needs. About 92% of families own cattle and cows, the 26% own poultry, 6% own beehives and 3.4 % sheep and goats.

Cows are mostly kept for milking purposes. This milk covers individual family needs. Sheep are sold for their meat in the local regional markets. Numbers of sheep were high before 1999, however after the war the competition from imported meat, limited availability for export markets, along with the lack of mass vehicle transportation all lead to an effective block of this industry in Mamuşa/Mamushë/Mamuša. Most of the land is privately owned with the most significant exception of former SOE land at the southwest part of the municipality, the average size of land parcels is 1.43 ha. The parcel structure is illustrated at the scheme below.

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<sup>5</sup> Further Support to Land Use Project – EULUP, managed by ECLO and implemented by the consortium comprising of GFA Consulting Group GmbH (lead), BVVG of Germany, and DLG of the Netherlands





Figure 5. Parcel structure of Mamusha Municipality

#### 4.4 NATURAL DISASTERS

According to the Ministry of Environment and Spatial Planning / EULUP<sup>6</sup> the erosion rate in Mamuşa/Mamushë/Mamuša is major part low, but there are parts that are affected by moderate and low rate, due to the fact that it lies on flat area<sup>7</sup> (*see figure 6*). The erosion of moderate and high rate occurs in forest and mountainous areas as a result of deforestation by wood cutting. In order to prevent this phenomenon should be stopped the wood cutting, organized the reforestation, etc. According to the Spatial Plan of Kosovo 2010 – 2020, the territory of Kosovo presents a quite active terrain as far as the seismic tectonic aspect concern. Mamuşa/Mamushë/Mamuša. municipality is situated on category VII MCS ( Mercalli – Cancani – Sieberg ) zone. The last earthquake that happened near Mamuşa/Mamushë/Mamuša. of 3.0 Richter scale is the earthquake of February 2011 with epicenter in nearby Prizren municipality ( Vermica village).

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<sup>6</sup> Source: Ministry of Environment and Spatial Planning / Further Support to Land Use Project – EULUP, managed by ECLO and implemented by the consortium comprising of GFA Consulting Group GmbH (lead), BVVG of Germany, and DLG of the Netherlands, 2010 – 2012

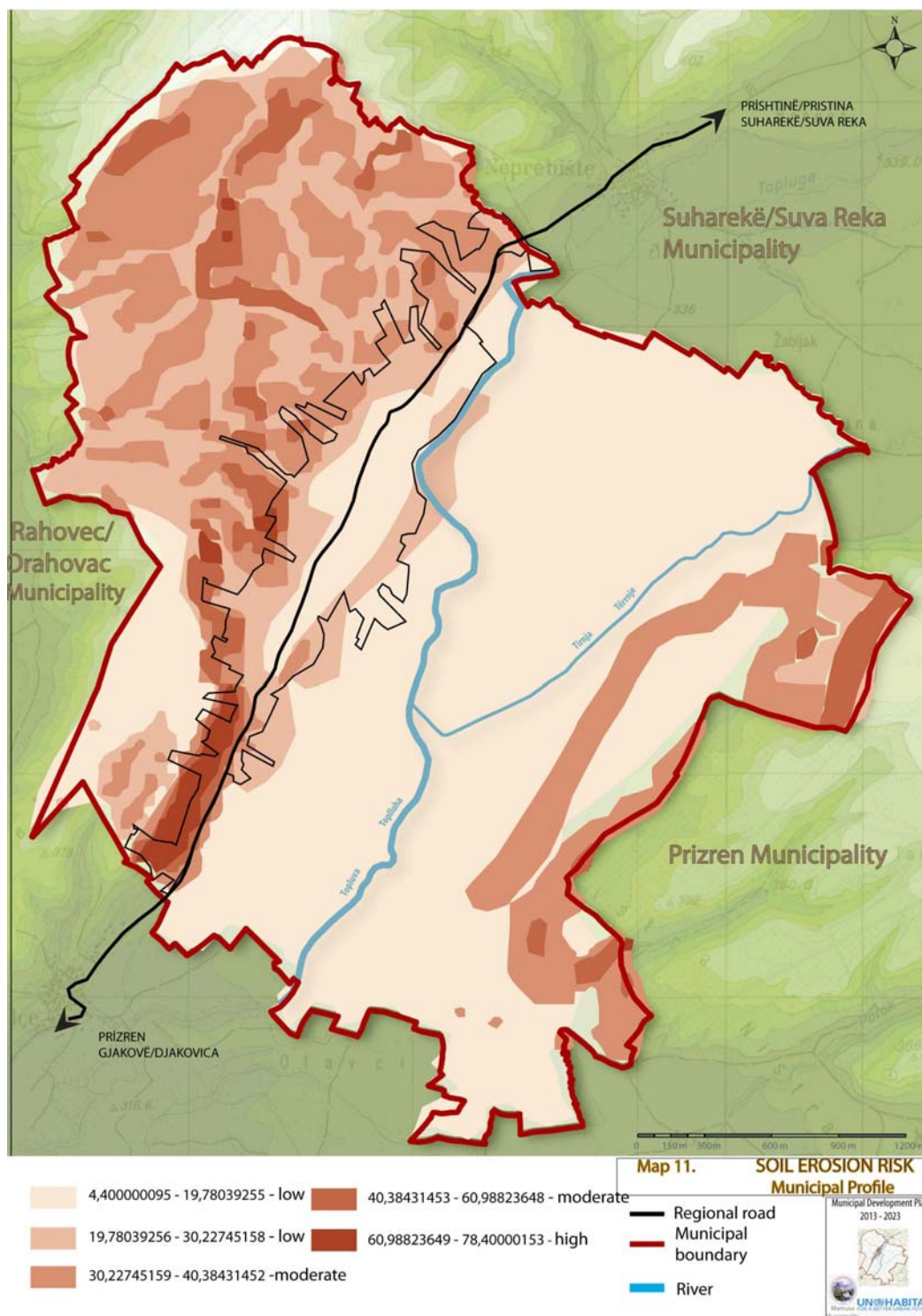


Figure 6. Soil erosion risks



#### 4.5 WATER

Two rivers run through the Municipality of Mamuşa/Mamushë/Mamuša, “Toplluha” and “Trrnja”. Toplluha River, with a length of 4 kms begins in Shkoza of Malishevo, while Trrnja River with a length of 2.5 kms begins in Sallagrazhde – Suhareka. Water quality of these rivers is low and is subsequently not used for drinking or irrigation within Mamusha Municipality.

The water resources in Mamuşa/Mamushë/Mamuša. Municipality are plentiful. Mamuşa/Mamushë/Mamuša. is supplied with drinking water from two reservoirs located in north-west part of the municipality. The reservoirs are supplied with water from two sources which are located in east-west part of Mamuşa/Mamushë/Mamuša.. The reservoirs hold 300 000 Litres and 150 000 Litres. The water supply network was funded by TIKa in 2005 and supplies all buildings in Mamuşa/Mamushë/Mamuša. with drinking water. According to municipal officers, the amount of water answers the needs of people in Mamuşa/Mamushë/Mamuša.. The reservoirs are supplied with water by pumps which are working with electricity. According to the chemical test done on 17.03.2010 quality of water in reservoirs meets appropriate standards.

As Mamusha has a problem with regular electricity supply, cuts to electricity affect water supply. Another water resource is wells in each house but these are not in any network or connected to each other. The consumption from wells is not controlled from any authority. Further, there are four traditional fountains (springs) located in the municipality's east. These public fountains are used by farmers in the surrounding area.

There is around 1500 m of sewage network in Mamuşa/Mamushë/Mamuša., made up of two segments. There is no operating treatment and one segment of the network is discharged to surface water – the junction of Toplluha River and Trrnje, which pollutes both water sources. This is of serious concern. The other segment is connected to Medvec (village in Prizren Municipality) sewage system. Due to insufficient dimensions of sewage pipes, there is need for improvement of the network itself.

Since 2012 the water and sewage network were under the supervision and management of Regional Water Company “Hidroregjioni Jugor” based in Prizren/Prizren/Prizren, however there is still a problem with fee payment because of high costs.

As a result of poor quality roads, there is no proper rain water drainage except in the recently laid periphery roads which were funded by European Union (around 2.5 km). All quantity of collected water is discharged in Toplluha River. The main/regional road also has no rain water drainage system, and this should be addressed in further phases.

In the Municipality water pollution sources are solid waste, waste waters, pesticides and artificial fertilizers. By throwing solid wastes people unconsciously cause water pollution as cause soil pollution. One part of the population that does not pay a fee to the waste company throws waste on empty areas and in river Toplluha. This causes river pollution, decrease of water quality and deterioration of nature. Discharge of waste water into the river greatly affects it. Another source of water pollution is waste water deriving from the households which have no access (about 4,6 % have no access and for 36% of buildings there is no data). The pesticides used in agriculture pollute underground water.

As there is no regular monitoring system of the water quality in the rivers of Toplluha and Trrnje the exact rate of the pollution is not known. It could be estimated that the untreated sewage cause the high rate of nutrient pollution (nitrogen and phosphorus) and it affects biochemical

oxygen demand (BOD). The pollution from the extensive agricultural use of land in Mamuşa/Mamushë/Mamuša 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.

#### **4.6 AIR AND CLIMATE**

In Mamuşa/Mamushë/Mamuša there is no the monitoring system for air quality. The air is polluted by fuel types used by people for heating during the winter season. The air is significantly affected due to the use of poor quality fuel types and improper incineration techniques. After incineration the pollutants produced by incineration are mixed with air and affect environment as well as people living there. In Mamuşa/Mamushë/Mamuša the mostly used fuel type is fire wood and in few cases coal, both of those energy ways to provide energy supply can not be considered to be sustainable and include high CO<sup>2</sup> emission rates. Additional sources of air pollution are traffic and dust. The latter is mainly caused by unpaved roads during dry periods.

The general outcomes of the climate change affects occur in Kosovo as well as in Mamuşa/Mamushë/Mamuša this can be seen by temperature rising, decrease of precipitation, flooding and droughts. The climate change affects directly the sectors of development and the life of residents. Mamuşa/Mamushë/Mamuša municipality mainly contributes into climate change by using firewood for heating and diesel generators for electricity. The main reasons for those activities are the inadequate level of supply with electricity, frequent power cuts, lack of central heating and the use of vehicles (both regular and agricultural).

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 Mamuşa/Mamushë/Mamuša 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.

#### **4.7 SOIL**

One of the most important factors of soil pollution is population growth. The population growth increases demands for consumption that leads to solid waste production. Due to the decay of remained solid wastes the quality of soil decreases, this is seen very often in Mamuşa/Mamushë/Mamuša. About 77% of population throws solid waste on empty areas and rivers, because they do not pay fee to the collection company. Another source of pollution is pesticides and artificial fertilizers used in agriculture. Excessive use of pesticides and fertilizers increase the toxic substances in soil which causes deterioration of its structure. In Mamuşa/Mamushë/Mamuša 100% of farmers use pesticides and artificial fertilizers in production. Similarly to water and air quality issues the current state of the soil pollution can be described on evaluative basis only, because there is no quantitative data available about the soil quality characteristics. As the soil quality is one of the main assets for Mamuşa/Mamushë/Mamuša's current and potential economic development (agriculture) the main characteristics of the soil quality (nitrogen, phosphorus, potassium, sulphur etc) should be measured with adequate regularity.



## **4.8 IDENTIFIED GAPS**

### **Population**

According to the Municipal Profile, the number of population is taken from the Kosovo Census 2011. the number of population<sup>5</sup>. The latter is used further in Municipal Profile (estimating population density etc), as it is estimated to be more accurate. For the population density only a general number for the whole municipality is provided for further planning processes and SEA this indicator for different zones would be useful, especially to evaluate the actual load from the inhabitant to the urban area, the use of resources, the need for infrastructure. As the economic welfare might turn into an important factor about the population ability to approve and implement sustainable lifestyle (as in certain cases this kind of behavior includes costs) a poverty rate is an important indicator, in this case the relevant data from different sources (World Bank, local social welfare department) differs.

### **Quantitative environmental data**

The main major data gap that can be identified in the case of Mamuşa/Mamushë/Mamuša is 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. There is no evidence if the quality of the drinking water is regularly monitored - only on quote to the measurement with general evaluation to meet the standards was included. As the Municipal Profile presents the wide usage of the wells, a further information is needed how these are distributed geographically and about the water sources and quality in order to evaluate their impact to the underground water resources and possible pollution threats.

The data about sewage reveals that there suppose to be no data about 35,8% buildings. However it was estimated by the representatives of local authorities that the sections without data are likely to be covered with water supply and sewage collection possibilities. There is now specific data about the effects and essence of the pollution caused by the lacking treatment of sewage – in order to have a clear overview about the extent and the essence of the problem the numeric data should be collected to reflect the sewage water and rivers' water quality indicators. The underground water sources are evaluated to be rich– to safeguard their sustainable use in the future an adequate data is needed.

The air quality issue is also described very generally and based on estimations as like for the water quality monitoring system there are no air quality monitoring system to collect clear evidence are there or are there not specific issues concerning air quality which have to be addressed within MDP and SEA processes. 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 stated 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 derive 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

## **Key environmental issues related to Mamusha's MDP**

While analyzing the possible environmental impacts of Mamuşa/Mamushë/Mamuša's current situation and MDP, there are three main subject fields which need special consideration in order to provide sustainable solutions for balanced and successful development of the municipality.

Balanced land use – an effective and functional balance between agricultural, natural and settlement areas is essential for the sustainable development of Mamuşa/Mamushë/Mamuša. Due to the historical and administrative background the development of human settlement in Mamuşa/Mamushë/Mamuša has not been based on up-to-date spatial planning processes. As a result there are informal settlements situated in the areas which are not suitable for that purpose both due to the environmental and economic reasons and the threat to valuable agricultural/natural areas. As there are a large amount of high-quality agricultural land within Mamuşa/Mamushë/Mamuša, which (agriculture) also serves as the main field of local economy and provides majority of the local inhabitant's incomes the key issue is to find balance between economy/agriculture, urban settlement living quality and environment. Finding the balance especially important and therefore challenging as there are close linkages between those subject fields as through spatial planning process local authorities are dedicated to provided high living quality – both both natural and artificial for their citizens which includes also ability to support themselves. In Mamuşa/Mamushë/Mamuša's case both agricultural and settled areas are used by local inhabitants (there are no evidence of external agricultural enterprises etc using the agricultural land resources in Mamuşa/Mamushë/Mamuša) therefore the balanced zoning of those land-use areas is particularly important. In the other hand the activities in both of those zones can include threats to natural resources – expanding agricultural/urban areas to natural ones, pollution from the agriculture (fertilizers) and by the solid waste and wastewater. There is a need for the proper distribution of the different zones in order to provide high living quality for citizens, conditions for the biodiversity protection and sustainable economical (agriculture, industry, services) use.

Sustainable agriculture – Mamusha has a historical agricultural background and the MDP foresees the agricultural use of land to become more intense in order to provide economical sustainability and competitiveness for the municipality. Therefore the threats of intense agriculture have to be addressed. Still, it has to be taken into account that in the situation where the majority of rural areas in Kosovo and Mamusha are affected by the recent transition period between the former centrally planned economy and a free market economy and the un-employment rate is relatively high in rural areas, too strict and rapid environmental restrictions would not be effectively implemented as the agricultural activities provide the significant source of income. Still, the area

has good potential to develop into region with sustainable agriculture as there is a tradition to organize agricultural activities by rather small family farms and the usage of common resources for livelihood and agriculture. 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)’. Although there is no evidence that the agricultural activities in Mamusha include major soil improvement by adjusting the hydrological conditions of the soil, the risk of causing a disturbance in hydrological conditions has to be taken into account while planning and implementing agricultural activities.

Reduction/Avoidance of pollution – soil and water pollution both from agriculture, solid waste and wastewater are currently two of the main environmental concerns in Mamusha. Therefore there is a need of measures to improve current situation and to set up conditions to avoid further pollution. In addition to the usage of land resources very extensive agricultural activities might involve pollution risks from fertilizers, special attention should be paid to the fact that within the agricultural areas in Mamusha two rivers are situated as the agriculture has a major role in eutrophication of surface water. According to the MDP an excess of nitrogen can be seen at some locations, indicator plants such as Cow Parsley (*Anthiscus sylvestris*) and Stinging Nettle (*Urtica dioica*).

As Mamusha is facing a challenge to solve a situation with illegal solid waste dumping a possible impacts of setting up a proper solid waste management system should also be considered, such as:

- health and environmental impacts of accumulated uncollected waste and clandestine disposal sites
- health and environmental impacts of solid waste facilities, including transfer, composting and landfill facilities
- air emissions from waste collection and transfer vehicles
- special handling and disposal of hazardous wastes.

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 Mamusha 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 Mamusha the solid waste should be located into the landfill outside of the municipal borders 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.

The collection of solid waste is one of the biggest problems in Mamusha. There are two unmanaged informal dumpsites in the town which results in environmental degradation. Improper disposal in these areas pollutes ground water and burning waste can result in toxic chemicals being released into the atmosphere. Location of dumpsites in low lying natural water course terrain, introduces potential for increased spreading of pollution and waste during flooding instances, towards the settlement, posing risks to health.

Formal collection of solid waste in Mamusha is managed by private company I&S. According to company 150 households are paying fees for services while others are choosing to dump their waste illegally or do not pay the service. Their performance depends on the collection rate of payment by the citizens for this service. Following the company's reports, the level of fees collected is estimated at 23 %. Amount of waste produced per capita is 300 kg/year. There is no solid waste classification and recycling in Mamusha. The collecting point for Mamusha Municipality is in Landovice, receiving 15 ton/month.

The main factor that causes degradation is solid waste. Usually the degradation is caused by solid waste thrown on empty lands, and in to rivers. 23 % of Mamusha population gives the waste to the relevant company in charge for waste collection, whereas the 77% of population throw waste into rivers, etc. To address the identified environmental issues during the implementation of the MDP current SEA report proposes a set of environmental objectives to meet during the MDP period.

## 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 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<sup>2</sup> 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<sup>2</sup> 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 Mamusha/Kosovo at the moment a lot of indicators and targets are to the extent of the improvement of a particular environmental condition.

Area	Objective	Target	Indicator
<b>Water</b>	To increase the quality of drinking water	30%	Improved (%) water quality of the central water system
	To diversify the drinking water sources	2	Number of new drinking water sources
	Ensure access to sewage system, treatment of waste water	50%	Percentage of wastewater treated properly; quality of treated wastewater
<b>Land use</b>	Preservation of the arable land	90%	Hectares/percentage of the arable land preserved from housing/industry etc
	Avoiding informal settlement areas	80%	Decreased (%) amount of hectares/square meters of areas with informal housing
	Improvement of the quality of housing areas by provision of qualitative open spaces and social services	Qualitative indicator	Improved living quality
<b>Agriculture</b>	Re-activation of vineyards	70%	the hectares/percentage of re-activated vineyards
	Reduce the pollution to soil and water from the fertilizers	50%	the extent of unpolluted soil
<b>Waste</b>	Elimination of illegal waste dumping sites	80%	percentage of illegal waste dumping sites eliminated or turned into waste transit stations
	Setting up a solid waste collection and treatment system	50%	Increased share (%) of households included into proper solid waste collection and treatment system
<b>Landscape</b>	Providing conditions for biodiversity preservation	Qualitative indicator	Increased number of habitats, preservation of current habitats
	Integration of ecological networks in municipality	10%	the extent/percentage of ecological network's elements (green corridors, protected core areas, buffer zones)
<b>Energy</b>	Provide alternative energy (solar,	20%	the percentage from the total energy

	wind)		use
<b>Transport</b>	Setting conditions for sustainable transport, safe pedestrian/cycling roads	2km	the length of new or renovated pedestrian/cycling roads

## 6. EVALUATION OF THE ENVIRONMENTAL IMPACTS OF THE MDP

The strategic chapter sets a vision statement for Mamuşa/Mamushë/Mamuša municipality as follows:

Mamuşa/Mamushë/Mamuša Municipality – developed based on agricultural resources and with ability to create alternative resources, with qualitative public services, adequate infrastructure and safe and clean living environment.

The vision together with general principles of development are directed to the improvement of natural and living environment, promoting good governance and cooperation, stable economy and sustainable development and therefore no significant negative impacts could not be identified if those principles will be implemented with activities fore seen in MDP. The long term development goals are divided into 6 thematic fields: demography and socio-economic situation (1), economic development (2), infrastructure and public services (3), land use, housing and settlement (4), environment, areas prone to risks and degradation and cultural heritage (5), human and institutional capacities in spatial planning field (5). Within every field goals and objectives are listed. From the abovementioned fields the objectives from the second field – economic development mainly based on agriculture and related industries - could have the most significant environmental impacts if not implemented sustainably. Objectives within the third field (infrastructure/public services) are mainly directed to sustainability and improvement of the current situation and have therefore hold a potential for rather positive environmental impacts, for example construction of pedestrian roads, promotion of non-motorized transportation, wastewater treatment, solid waste treatment. The objectives within the field 4 are mainly concentrated in awareness rising on spatial planning, protection and rational use of the land.

The objectives within the field 5 are mainly concentrated in solving the current environmental problems and mitigating the impacts from economic development. Therefore the implementation of those objectives should not have significant negative environmental impacts. The implementation of the objectives within the field 5 does not have any direct impacts on environment as they have solely administrative essence, but the indirect impacts are rather positive as with increased capacities of municipal staff, up-to-date information database and the working system for issuing the building permits the basis for improved and sustainable decision-making processes are established.

The framework proposes two spatial development scenarios - Linear Scenario and Concentrated Scenario, it describes the scenarios and identifies relevant advantages and disadvantages. An integrated scenario is also worked out where components of both linear and concentrated scenario are combined, this scenario is suggested to be an appropriate structure for future development in Mamusha. The common characteristic of all proposed scenario is an accordance with the strategic vision and objectives as the agricultural land is protected from the housing and industry and reserved for solely agricultural use.



Linear scenario – as all other scenarios, it reserves the southeast area of the municipality for agricultural use (except an existing forest area). The environmental impact of agricultural use does not depend only on the geographical extent of an area but rather on the intensity of farming and specific agricultural activities. For Mamuša/Mamushë/Mamuša's case it is mainly tomato growing, both open-land and greenhouse based. In order to mitigate the impacts of extensive crop-growing relevant agri-environmental measures have to be worked out and implemented efficiently in order to safeguard a long-term and sustainable use of the soil. As the agricultural area includes two rivers, an impact of agricultural activities on water quality is also relevant, especially a pollution risk by use of fertilizers. In this scenario no special zones are foreseen to buffer the agricultural areas from the urban areas or river corridors, although rehabilitation is mentioned in the description. Another important activity foreseen in linear scenario is a settlement extension planned in the western part of the municipality. The new and extensive urban area has mainly negative environmental impact as it would cover an area with natural characteristics and include an additional pressure to the ecosystem services when inhabited fully. From the environmental perspective the strengths of the linear scenario are the concentrated placement of industrial areas and the extent of the forested areas, the latter also form a buffer zone between existing residential area and the SOE area dedicated to industrial use.

Concentrated scenario – the concentrated scenario does not foresee any completely new and extensive urban areas to be created at the current natural areas, the development of urban areas is planned by the densification of current urban zone. From the perspective that more natural areas are therefore preserved it has mainly positive environmental impact and in case of this kind of approach the utility services (solid waste management, wastewater treatment etc) which contribute into the environmental quality can be organized more effectively. On the other hand, taken into consideration current demographic situation (young and growing population) the absence of additional urban area might lead to illegal/unplanned housing to vulnerable areas. The fact no designated industrial areas are not reflected within the concentrated scenario will have positive environmental impact as such, but might lead to the situation where in the vital need for industrial activities the might be located without proper and thorough planning procedures.

Preferred scenario – the scenario foresees the provision of housing area in the western part of the municipality, but it is significantly smaller than the one in linear scenario and the integrated scenario also encourages the densification of current urban areas as suggested in concentrated scenario. This approach is likely to meet municipality's housing development needs without affecting large natural areas. The areas in southeastern part of municipality are reserved for agricultural use as in other scenarios. There are three forestation zones (zone C) and for development of the agricultural industry, viticulture, arboriculture and cultivation of herbal plants (zone D). The strong side of the integrated scenario is providing a green corridor alongside river, although it does not provide any particular connectivity between other natural areas within the municipality. In order to concentrate the possible negative environmental impacts and combine possible mitigation measures the industrial location concretely in southern part of the municipality together with solid waste transit station.

The MDP suggests the integrated scenario to be a recommended land use scenario for Mamuša/Mamushë/Mamuša and it could be evaluated that the reasonable balance between environmental and economic interests is found with that scenario.

From the strategic and spatial framework chapters the final, implementation parts of the MDP are derived. The character, strength, time-scale and the scope of the possible environmental impacts from the provided actions/projects are reflected at the environmental matrix (Annex 5). The matrix reflects that there are no projects/actions with major negative environmental impact. Weak/moderate short-term negative impact is evaluated to occur if projects include construction activities as there is a need to use of resources (i.e. mineral resources for construction materials). If the facilities are built bearing in mind sustainability and energy efficiency issues no long-term impacts could be predicted. Most of the project/actions have neutral or weak positive environmental impact, the latter is implied for the different planning/programming activities as the planning itself does not cause the planned improvement to take place. The environmental potential (and stronger environmental impacts) is to actualize when those plans/programmes will be carried out. The implementation chapters effectively address the area's main environmental issues as they propose relevant project with strong positive environmental impact to improve the living and natural quality of Mamuşa/Mamushë/Mamuša. Namely, the projects of expansion and rehabilitation of the sewage network, the construction of wastewater treatment plant and green corridor establishment are evaluated to have the strongest positive environmental impact. In addition to the specific projects the content and the structure of the implementation chapters (including spatial framework) with clear indications of the time frame, finances and responsible bodies will likely to improve the living quality and natural condition of the municipality as the document is practically oriented and provides solid and sustainable basis for further decision-making.

## **6.1 ASSESSMENT OF ENVIRONMENTAL ALTERNATIVES**

The consideration of alternatives is an essential element of the SEA process, in Mamuşa/Mamushë/Mamuša's MDP case, the planning document itself consists different spatial development scenarios, from which, the preferred scenario (integrated scenario) is identified as the most suitable for the municipalities further development. Within the SEA process and the current SEA report all the spatial development scenarios proposed by MDP were analyzed above , but in addition to that special attention is to be paid on the following environmental alternatives (selected, identified and discussed during the scoping phase of the SEA):

- do-nothing alternative. 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.
- preferred alternative in MDP (the integrated scenario), the positive and negative aspects of the integrated scenario will be described and analyzed, the possible future developments of trends within this scenario are to be predicted
- combined alternative (elements of integrated and linear scenario from the MDP, additional elements), a combined alternative with elements from the MDP's integrated and linear scenario as well as additional elements (buffer zones, concentrated industrial areas).

As the environmental assessment of the MDP chapters was performed in parallel of the composition of the draft chapters the preliminary assessment of the MDP scenarios was conducted shortly after the spatial framework chapter was drafted. The first draft on the spatial development chapter was suggested to improve according to same characteristics which were included into the description of the third environmental scenario. As they were approved,



accepted and integrated into the full draft on the MDP there were no major differences between the second and the third environmental scenario anymore as the most of the following environmental assessment suggestions were effectively included into preferred MDP scenario:

- one concentrated industrial zone (as in linear scenario within SOE land with proper forested buffer zone) would likely have smoother environmental impact than two separately placed ones. The buffer zones (100m according to the descriptive chapter) from natural/residential areas and other mitigation measures could be created more efficiently and the costs of providing necessary infrastructure are likely to be lower;
- the preliminary location or alternative locations for solid waste transit station should be suggested within the MDP, as this site selection should be in accordance with other spatial developments and consider public opinion, health and safety, hauling distance, accessibility, climate, drainage and economics. One option is to suggest this site into the industrial zone as the production of (hazardous) waste from industry could be predicted and the accessibility issues could be addressed together;
- the rivers Toplluha and Trrnja are situated within extensively used agricultural area, the rehabilitation of rivers and creating a fraction of the green corridor along the Toplluha river is foreseen in the MDP. In order to provide more connectivity, enhance the preservation of biodiversity (riverbeds are proven to be with high biodiversity potential as the edge-effect occurs) and mitigate the impacts of agricultural use the natural buffer zone in all extent of riverbeds within Mamusha as wide as 25 meters (in addition to the mandatory zone 5/15m required by Kosovo Water Law article 47) from the boundary of water could be established and reflected in the scenario map;
- the energy chapter only addresses the issue of electricity, the suggestions concerning energy efficiency measures (both concerning heating residential houses and perceptively greenhouses) should be analysed or recommended to address within UDP;
- the MDP allows the up-to three-storey high buildings into all proposed planning units, and the minimum level of two storeys is set for zones A,B and C. The arrangement for the zones A,B and C allows effective densification and is in accordance of current housing trends present in Mamushas urban area. As the zone D is a new proposed housing areas bordered with natural/agricultural zones a slightly less housing density could be considered (the height of 1-2 storeys). This way a new housing area performs as an transition zone between urban centre and rural zone and includes less impact on environmental utilities and by different urban space character provides alternative/higher living quality. The more specific spatial requirements for urban areas (height limits, minimum size of land plot, green zones etc) should be addressed within the UDP;
- the requested future use of the SOE area should be marked more clearly or the suggested alternatives prioritized.

The possible impacts of the do-nothing scenario: under the do-nothing scenario which would result if no strategically planned development activities would take place, Mamuşa/Mamushë/Mamuša would maintain its current physical, environmental and socio-economic characteristics. Development would be limited and mostly market dependent. Future investment by Mamuşa/Mamushë/Mamuša 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 Mamuşa/Mamushë/Mamuša 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 accidents. A larger extent of urbanized land results in a loss of agricultural, recreational and natural lands. The central settlement 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 MDP of Mamuşa/Mamushë/Mamuša 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.

preferred alternative in MDP (the integrated scenario) In order to use the existing infrastructure and to use rationally the land the concept encourages densification where is possible, also is provided the space for future housing, while the social infrastructure and administration will remain in town's center, mixed use will be developed alongside the existing urban area in particular alongside the roads. UN-Habitat (2012) states that „mixed land use policies shorten the distance to jobs. Transport to employment centers, either formal or informal, may be costly and can impose a heavy toll on households getting minimum wages. Adopting mixed-used zoning standards will tend to bring together jobs and services and thus reduce the need to commute’. The scenario includes the densification of the current settlement, according to UN-Habitat (2012) „high-density helps to reach economies of scale both in trunk infrastructure and in treatment plants such as those that treat sewage. The lower costs per household can be passed on to residents and the smaller debt load helps to ensure fiscal stability. Higher density can enable a city to introduce district heating and cooling systems because they service more customers“. The concept recommends creation of the natural buffer zones between the industrial area and residential area, buffer zone along side the river bed in order to mitigate the impact of agricultural activities to the river biodiversity, as well as pedestrian paths in order to create a connectivity between different areas of the municipality. Additionally the concept suggests the transit location for solid waste or recycling center in location where the industry will be developed. The environmental strengths and advantages of the scenario are the forestation as a measure to prevent the erosion, rational use of land through infill and densification as well as mixed uses, encouraged use of non motorized transport means and increased opportunities for providing good public transport. The MDP states the scenario to be the preferred on to establish a base for the further spatial development of the municipality. As this scenario within the final draft of the MDP is already amended with the additional features from the third environmental scenario.

## **6.2 MITIGATION MEASURES**

The objective and the purpose of the mitigation measures are to avoid or to decrease any potential negative impact on environment. The selection of the most suitable mitigation measures in an on-going process during the whole period of development and it is should be carried out in the close co-operation of all the relevant stakeholders (decision-makers, experts, investors, local inhabitants, NGO-s). The suitable mitigation measure has to be the best one among possible alternatives, considering economic aspects as well.

Although major negative impacts were not identified during the assessment phase, there is still a need to avoid or minimize the potential negative effects some or the MDP activities might have:

- while planning and establishing new industrial areas, settlement expansions or infrastructure there is a need to find a balance between socio-economic and environmental interest by planning green corridors, buffer zones, promotion and implementation of sustainable energy solutions etc, during the development activities them maximum amount of existing greenery should be preserved, in Mamusha special attention have to paid on forested areas;
- management of existing forest resources have to be particularly sustainable to ensure the preservation of the forest biodiversity and the long-term economic benefits sustainable forest management;
- while planning and establishing recreational facilities the suitable activities need to be selected according to the area's capacities; the mobility of the visitors should be appropriately channeled (by footpaths, parking lots, toilets, resting spots) in order to increase the exploitation of the valuable landscapes and natural areas (i.e. river corridors in Mamusha) by the proposed management plans.
- while planning and establishing industrial areas there is a need to reserve space of sanitary and buffer zones and not to locate inappropriate (high noise level, massive buildings, intense transportation) industrial facilities in the close proximity to settlements and areas with high natural/scenic value
- while planning and establishing public buildings the energy efficiency principles should be effectively implemented to ensure sustainable building as well as further maintenance. In addition to the direct positive impact from sustainable buildings public sector has an exemplary role to promote energy efficient construction and maintenance solutions for private sector as well.

### **6.3 CONCLUSION**

The strategic environmental assessment process for Mamusha Municipality Development plan covers wide range of scopes from global (Millenium Development Goals) to very local (local settlement expansion, protection of traditional agricultural land-use). Although planned and implemented locally the plan is going to have it's share in contributing into Kosovo's, Europe's and world's efforts on tackling a complex set of environmental challenges such as climate change, biodiversity loss and pollution. Mamusha Municipal authorities together with plan composers and included stakeholders have faced this challenge successfully and the prepared planning document creates a good basis for further sustainable development corresponding well with upper level plans and programmes. Being the first spatial planning document for the recently established municipality it gives a direction for the further spatial planning developments. Therefore the facts that the plan was composed in a participatory way and it has a very realistic and implementation-oriented create a good basis for the further effective implementation of the plan. As this is evident from the MDP itself and the current SEA that the current situation needs both economic and environmental improvements the implementation potential is a crucial characteristic of the plan. The strategic, spatial and implementation parts of the planning document are based on collected data (i.e. household survey) and adequate analysis. Sustainability issues are included as a priority policies into the area's strategy - objectives, implementation provisions derived accordingly.

As the development plan is generally directed into the improvement of current situation, economical as well as environmental, it is can be concluded according to the environmental

matrix, that the implementation of this plan would not include any significant negative environmental impacts. It addresses basically adequately the main environmental challenges faced in Mamusha, such as: balanced land use, sustainable agriculture and pollution problems. In order to implement the development effectively in line with sustainability principles the current SEA report proposes a set of environmental objectives, indicators and targets, which are derived from the MDP and are in accordance with modern sustainable development principles and upper level plans and programmes. These objectives should be implemented, monitored and corrected (of found possible and necessary) in parallel with current MDP.

During the scoping phase of the current SEA it was proposed that three environmental scenarios should be assessed and analyzed during the SEA process. As the planning and SEA procedures were carried out in parallel, the main characteristics (environmental situation improvement suggestions, mitigation measures) were already included into the preferred scenario within the MDP. Therefore the amended MDP scenario was re-evaluated within the current SEA report and it was found that it meets the criteria preliminarily included into the third environmental alternative. Therefore it could be concluded that it is in accordance with sustainability principles if the preferred scenario of the MDP is going to be implemented together with proposed mitigation measures and ongoing monitoring process.

## **7. MONITORING**

As part of the Strategic Environmental Assessment process, measures envisaged for monitoring the likely significant effects of implementing Mamusha 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 (Mamusha Municipality) to assess the changes at the natural environment during the implementation of Mamusha Municipal Development plan. 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 6. They have been derived from knowledge of the existing environmental issues within Mamusha 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 Mamusha MDP itself. 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 Mamusha area 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 attentions should be paid to the implementation projects if the assessment matrix in Annex 5 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) Mamusha MDP Scoping Report
- 2) Mamusha MDP Literature Review
- 3) Mamusha MDP Methodology
- 4) List of the EU legislative documents on environmental matters relevant in Kosovo
- 5) Environmental matrix