

Project co-funded by the European Union and national funds of the participating countries



Deliverable. 4.5.3	Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht
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BIOPROSPECT: Conservation and sustainable capitalization of biodiversity in forested areas

Project title	Conservation and sustainable capitalization of biodiversity in forested areas (BIOPROSPECT)
Call identifier	Interreg V-B "Balkan-Mediterranean 2014-2020" Transnational Cooperation Programme
Project acronym	BIOPROSPECT
Starting date	June 14th, 2017
End date	January 15th, 2020
Funding scheme	European Regional Development Fund (ERDF), Pre-Accession Assistance (IPA) Fund / National Funds
Contract no.	BMP1/2.1/2336/2017
Deliverable no.	4.5.3
Partner	Municipality of Vrapchisht
Deliverable name	Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht
Work Package	V
Date	15.01.2020

BIOPROSPECT+ Consortium



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Deliverable Title

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VERSION HISTORY

Version	Completion date	Modifications
Version I	6 January 2020	
Version II	13 January 2020	
Final Version	15 January 2020	

ABBREVIATIONS

Term	Explanation
ES	Ecosystem services
MA	Millennium Ecosystem Assessment
TEEB	The Economics of Ecosystems and Biodiversity
WWF	World Wildlife Fund
CICES	Common International Classification of Ecosystem Services
CORINE	Coordination of information on the environment
CBD	Convention on Biological Diversity
PES	Payment for Ecosystem Services
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CBD	Convention on Biological Diversity
IUCN	International Union for Conservation of Nature
MAFWE	Ministry of Agriculture, Forestry and Water Economy
MoEPP	Ministry of Environment and Physical Planning
IPA	Instrument for Pre-accession Assistance
IPARD	Instrument for Pre-Accession assistance for rural development
IPCC	Intergovernmental Panel for Climate Change
C	Carbon
WWF	World Wildlife Fund
SDG	Sustainable Development Goals
LED	Local Economic Development
UNESCO	United Nation Educational, Scientific and Cultural Organization
EUNIS	European Nature Information Systems (for habitats)
EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment

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FOREWORD

The main aims of the project BIOPROSPECT in the Municipality of Vrapchisht are to explore and document the bioprospects of peri urban forest areas and the ways of their sustainable capitalization as a mean for wise management and conservation, to encourage cooperation partnership and networking among economic development planners and forested areas managers, to develop a cross border bioprospect assessment methodological framework and economical valuation model in order to achieve outcomes which benefit both economic development and conservation.

BIOPROSPECT Work Package 5 aims to mainstream biodiversity valuation into decision making and policy initiatives. Aims to integrate economic evaluation in operational management of forested areas and polity initiatives of Balkan Mediterranean area, including Municipality of Vrapchisht.

This report (deliverable D.4.5.3. in Work Package V) i.e. Action plan is coming like added value of the report on “Mapping and valuation of ecosystem services in peri-urban forests in Municipality of Vrapchisht” and serves as tool for protecting and enhancing the ecosystem services in Municipality of Vrapchisht. This concept gives a systematic determination of actions to be undertaken to promote ecosystem services in the municipality and integrate them within social, economic and environmental aspects of strategic policies adoption and measure to be undertaken in the future, on local and national level.

EXECUTIVE SUMMARY

Development of the document “Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht” is one of the last outcomes of the Project Conservation and sustainable capitalization of biodiversity in forested areas (BIOPROSPECT) in the frame of Interreg V-B "Balkan-Mediterranean 2014-2020" Transnational Cooperation Programme. The Action plan is coming like added value of the report for “Mapping and valuation of ecosystem services in peri-urban forests in Municipality of Vrapchisht” and serve as toll for protecting and enhancing the ecosystem services in Municipality of Vrapchisht. It is consisted of 8 chapters which are interconnected and dependent among themselves.

Chapter 1. In this Chapter is explained in detail the meaning, definition and understanding of ecosystem services looking as one concept. The concept of ecosystem services derives from the integration of environment and economy for clearer and more effective highlighting of the meaning of the environment for people’s life and economies in countries. The key idea behind the concept is that systematic determination of benefits and beneficiaries of ecological processes will promote the integration of social economic and environmental aspects in strategic policies adoption.

Chapter 2. Methods and Methodology were explained the methods for collection of data and the methodology how the Action Plan was developed. According to the general accepted methodology in frame of BIOPROSPECT Project a logical framework was developed. Therefore the activities were selected based on the logic flow. For this purpose the Action plan is consisted of the following activities: a) Description of the natural and man-made environment through the collection and reporting of data required for the specific area of interest – the Municipality of Vrapchisht; b) Aim and specific objectives of the Action plan; c) Description of actions proposed interventions per ecosystem service; and d) Valuation of the economic dimension of the project using BIOPROSEPT tools and comparative value assessment (existing – after the implementation of interventions

The role of Municipalities and capitalization of biodiversity and ecosystem services are explained and described in Chapter 3. Municipalities often find themselves struggling to reconcile numerous conflicting interests when it comes to the balancing conservation and urban growth. As the world's biodiversity increasingly comes under threat, including from urban expansion into natural areas, municipalities are recognizing that they have an important role to play in conserving and preserving threatened species and the habitat in which they exist. Municipalities’ responses can be particularly important when other state/national responses are inadequate.

Within this Chapter are explained the study area (Municipality of Vrapchisht), Description of the natural and man-made environment considering the Strategic Development Goals – explaining the habitats that are most relevant and can be found on the territory of the

study area - Municipality of Vrapchisht. Also, in Chapter 3 are mentioned the main goals and specific objectives of the Action plan.

The next part the Chapter 4 is describing the Institutional framework for biodiversity conservation. In this part were listed all polices (laws, bylaws, rulebook etc.) on national level and all international polices.

Action plan activities are explained in Chapter 5, which consists of the importance of the Action plan for the purposes of Municipality of Vrapchisht and giving description of all proposed activates for capitalization of ecosystem services.

The monitoring process is integrated in Chapter 6. In which is explained the monitoring process of the implementation of the Action plan activities. Monitoring should be the specific duty of two sectors in frame of Municipality of Vrapchisht, the Local Economic Development (LED or Локален Економски Развој (ЈЕР)) and the Sector for Environmental Protection (Животна Средина) which will take care of the monitoring process throughout the Action Plan's implementation.

Good tracking/recording system is the most important toll by which the Action plans' activities are monitored. The system should be comprehensive and available for all to use for measuring progress towards established targets. Maintaining a tracking/recording system enables the assessment of necessary steps, corrective actions, and identification of successes. Periodic review of the activities outlined in the Action Plan is critical to meet realization of Action plan goals.

The references and literature utilized for the purposes of the Action plan is listed in Chapter 7. While in Chapter 8 are located the Annexes.

1 ECOSYSTEM SERVICES

The concept of ecosystem services derives from the integration of environment and economy for clearer and more effective highlighting of the meaning of the environment for people's life and economies in countries. The key idea behind the concept is that systematic determination of benefits and beneficiaries of ecological processes will promote the integration of social economic and environmental aspects in strategic policies adoption. This approach is not a substitute for the concept of sustainable development, which is widely accepted and used in policies adoption, but is intended to upgrade it through stronger integration of environment and economy.

The 'ecosystem services' term can mean different things to different people. From one side this can be considered as an advantage, because it can engage people in new conversations about the importance of biodiversity and the environment. In this regard 'ecosystem services' might be thought of as a boundary object, that is, an idea that can be adapted to represent different perspectives while retaining some sense of continuity across these different viewpoints (Abson et al., 2014). On the other side the multi-faceted characteristic is a disadvantage once we come to measure and monitor these things called services: if we cannot agree what they are then people will not believe what is said about them or act on the evidence we collect. These problems of definition are amplified once we start to make a case for valuing or managing ecosystem services (Ojea et al., 2012). Conventional urban greening management primarily aims at enhancing amenity values (Pandit et al., 2013) and maintaining biodiversity (Llausàs and Roe, 2012), but growing interest has been focusing on carbon (C) management perspectives (Grimm et al., 2008) and other environmental ecosystem services in the priority area of nature-based solutions.

Ecosystem services (ES) are defined as benefits that humans obtain from ecosystem functions (De Groot et al., 2002), or as direct and indirect contributions from ecosystems to human well-being (TEEB 2010). Many types of ecosystems services have been identified and grouped into three (provisioning, regulating, and cultural services, Maes et al. 2016) or four categories (the former three, plus supporting services, TEEB 2010). Overall the most important thing is what we all already know what people are 'getting at', namely the importance that nature has for people. The significance lies in the facts if we want to understand how ecosystems provide benefits to people, we need a way in which the ecosystem services that can be analyzed.

Assessment of ecosystems is intended to identify the causes for the changes in ecosystems and consequences of such changes on human well-being. It has been considered that, in this way people, including decision-makers will treat biological diversity with seriousness. Millennium Ecosystems Assessment (Hassan et al. (2005) relies on the conceptual frame of the way in which ecosystem services affect human well-being and how is that influence conditioned by socio-economic factors.

The development of Common International Classification of Ecosystem Services (CICES) illustrates many of the issues involved, and the fact that we must probably think of

the creation of a classification system as a process rather than a design problem that can be solved in a single step. Considering that CICES was created through a participative and consultative process, for the purposes of the report the CICES classification was used. The ecosystem services according to the CICES are grouped into three main categories (see Diagram 1):

1. Provisioning: All nutritional, material and energetic outputs from living systems. In the proposed structure a distinction is made between provisioning and material outputs arising from biological or organic materials (biomass) and water. Materials can include genetic structures. The Division for energy makes a distinction between biomass based energy sources, where the organic material is consumed (e.g. fuel wood) and power provided to people by animals.

2. Regulating and Maintenance: All the ways in which living organisms can mediate or moderate the ambient environment that affects human performance. It therefore covers the degradation of wastes and toxic substances by exploiting living processes. Regulation and maintenance also covers the mediation of flows in solids, liquids and gases that affect people's performance. as well as the ways living organisms can regulate the physico-chemical and biological environment of people.

3. Cultural: All the non-material, and normally non-consumptive, outputs of ecosystems that affect physical and mental states of people. Cultural services are primarily regarded as the physical settings, locations or situations that give rise to changes in the physical or mental states of people, and whose character are fundamentally dependent on living processes; they can involve individual species, habitats and whole ecosystems. The settings can be semi-natural as well as natural settings (i.e. can include cultural landscapes) providing they are dependent on in situ living processes. In the classification we make the distinction between settings that support interactions that are used for physical activities such as hiking and angling, and intellectual or mental interactions involving analytical, symbolic and representational activities. Spiritual and religious settings are also recognized. The classification also covers the 'existence' and 'bequest' constructs that may arise from people's beliefs or understandings.

BIOTIC ecosystem outputs		
Section	Division	Group
Provisioning (Biotic)	Biomass	Cultivated terrestrial plants for nutrition, materials or energy
Provisioning (Biotic)	Biomass	Cultivated aquatic plants for nutrition, materials or energy
Provisioning (Biotic)	Biomass	Reared animals for nutrition, materials or energy
Provisioning (Biotic)	Biomass	Reared aquatic animals for nutrition, materials or energy
Provisioning (Biotic)	Biomass	Wild plants (terrestrial and aquatic) for nutrition, materials or energy
Provisioning (Biotic)	Biomass	Wild animals (terrestrial and aquatic) for nutrition, materials or energy
Provisioning (Biotic)	Genetic material from all biota (including seed, spore or gamete production)	Genetic material from plants, algae or fungi
Provisioning (Biotic)	Genetic material from all biota (including seed, spore or gamete production)	Genetic material from animals
Provisioning (Biotic)	Other types of provisioning service from biotic sources	Other
Provisioning (Abiotic)	Water	Surface water used for nutrition, materials or energy
Provisioning (Abiotic)	Water	Ground water for used for nutrition, materials or energy
Provisioning (Abiotic)	Water	Other aqueous ecosystem outputs
Regulation & Maintenance (Biotic)	Transformation of biochemical or physical inputs to ecosystems	Mediation of wastes or toxic substances of anthropogenic origin by living processes
Regulation & Maintenance (Biotic)	Transformation of biochemical or physical inputs to ecosystems	Mediation of nuisances of anthropogenic origin
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Regulation of baseline flows and extreme events
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Lifecycle maintenance, habitat and gene pool protection
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Pest and disease control
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Regulation of soil quality
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Water conditions
Regulation & Maintenance (Biotic)	Regulation of physical, chemical, biological conditions	Atmospheric composition and conditions
Regulation & Maintenance (Biotic)	Other types of regulation and maintenance service by living processes	Other
Cultural (Biotic)	Direct, in-situ and outdoor interactions with living systems that depend on presence in the environmental setting	Physical and experiential interactions with natural environment
Cultural (Biotic)	Direct, in-situ and outdoor interactions with living systems that depend on presence in the environmental setting	Intellectual and representative interactions with natural environment
Cultural (Biotic)	Indirect, remote, often indoor interactions with living systems that do not require presence in the environmental setting	Spiritual, symbolic and other interactions with natural environment
Cultural (Biotic)	Indirect, remote, often indoor interactions with living systems that do not require presence in the environmental setting	Other biotic characteristics that have a non-use value
Cultural (Biotic)	Other characteristics of living systems that have cultural significance	Other

Diagram 1: Categories of Ecosystem services (source: <https://cices.eu/>)

During the development of the CICES classification it was explicitly attempted to identify what are considered to be ‘final services’ influence in designing the all concept around the idea of a hierarchy, to accommodate the fact that people worked at different thematic as well as spatial scales. In order to define the “final ecosystem services” CICES describes them using a five-level hierarchical structure. Each level is progressively more detailed and specific. The way the system works can be illustrated for the contributions that ecosystems make to a cultivated crops such cereals: Section (e.g. Provisioning),

Division (e.g. Biomass), Group (e.g. Cultivated terrestrial plants for nutrition, materials or energy), Class (e.g. Cultivated terrestrial plants (including fungi, algae) grown for nutritional purposes), Class type (e.g. Cereals - The ecological contribution to the growth of cultivated, land-based crops that can be harvested and used as a raw material for the production of food).

Their relevance for human well-being is due to their impact on the following aspects: (1) safety, (2) basic materials for living, (3) health and (4) good social relations which altogether provide to the individual freedom to choose and act, i.e. a possibility to be able to achieve what the individual deems worth doing and existing.

Global Initiative under the name The Economics of Ecosystems and Biodiversity (TEEB) has particular contribution to knowledge enrichment and increase of public awareness of the importance of ecosystem services in the years following the publication of the Millennium Ecosystem Assessment.

This Initiative has developed its approach to identification and demonstration of economic value of ecosystems and biological diversity intended to decision-makers in both public and private sectors. It is believed that identification of economic or monetary value of ecosystem services will improve the valuation of biological diversity and ecosystem services in decision making.

Furthermore, demonstration of the value of ecosystem services in monetary units is an important tool for public awareness raising by spreading message to decision makers about the (relative) importance of ecosystems and biological diversity (de Groot et al. 2012). On the other hand, it should be born in mind that the estimates of economic value of market invaluable ecosystem goods and services reveal social costs and benefits which would otherwise remain hidden (Farber et al., 2006; Wilson & Carpenter, 1999).

Social and political challenges concerning integration of ecosystem services approach integration through institutionalization of effective and sustained system for management, monitoring and support of initiatives that will more accurately reflect the relevance of ecosystem services for human well-being (Daily and Matson 2008), are equally great. With this in mind, the Conference of the Parties to the Convention on Biological Diversity, by adopting the revised Strategic Plan for Biological Diversity for the period 2011-2020, attributed great importance to the integration of ecosystem services approach in sectoral and cross-sectoral plans at all governmental levels, but also wider in society.

2 METHODOLOGY AND METHODS

There is a need for one critical evaluation of the best available information for guiding decisions on complex public issues. The work being carried out till now with BIOPROSPECT project on mapping and assessment of the state of ecosystems and their services in municipality of Vrapchishte is important for the advancement of national biodiversity objectives, and also to inform the development and implementation of related policies, on water, climate, agriculture, forest, harmonization and adoption of UN strategic development goals and regional planning. Robust, reliable and comparable data are also important for the planning and implementation of individual projects. Although national activities on above mentioned are in initial phase, BIOPROSPECT project implemented in municipality of Vrapchishte has taken one step forward. Initially, a mapping and valuation of several ecosystem services in the study area has been done. Maps are useful for spatially explicit prioritization and problem identification, especially in relation to synergies and trade-offs among different ecosystem services, and between ecosystem services and biodiversity. Further, maps can be used as a communication tool to initiate discussions with stakeholders, visualizing the locations where valuable ecosystem services are produced or used and explaining the relevance of ecosystem services to the public in their territory.

Having an action plan on mainstreaming natural capital and ecosystem services into policy and decision making requires a better understanding of the complex decision-making processes of the private and public sector across different policy levels. A better understanding of ecosystem service production functions underpinned by biodiversity is also essential to link natural capital with human well-being and society. There is a need for an ambitious research agenda for policy support and decision making. To support policies in a more effective way, clear and specific definitions of the different ES including their appropriate units are needed so that they can be used for setting policy and management objectives as well as for natural capital accounting. In addition, knowledge gap needs to be addressed referring to ecosystems and their services for which additional data are required in order to map the complete spectrum of ecosystem services. Finally, state institutions representatives and relevant experts should argue on models to provide conceptual approaches to developing a methodological framework for mapping biophysical flows and social values coming from ecosystems, in identifying and distinguishing among ecosystem services indicators, and avoiding misunderstandings in decision-making that might arise based on varying results between studies.

The action plan will provide a detailed outline of the tasks required to accomplish a several goals. It breaks down the process into actionable steps based on a given timeline. This could apply to an employee who is trying to improve job performance, a project manager assigning action items to team members, or an organization implementing system-wide changes. The action plan support efficiency by assigning a time frame to individual steps in the process. It also makes it easy to track progress, keeping projects on schedule and on budget. And having a written plan of action provides accountability and a valuable reference

tool. Creating a comprehensive action plan can help ensure that desired outcomes are met in the most timely and effective manner possible.

PROJECT ACTION PLAN						
GOAL 1						
Write your goal statement here.						
ACTION STEP DESCRIPTIONS	PARTY / DEPT RESPONSIBLE	DATE TO BEGIN	DATE DUE	RESOURCES REQUIRED (staff, tech, etc.)	DESIRED OUTCOME	NOTES
GOAL 2						
Write your goal statement here.						
ACTION STEP DESCRIPTIONS	PARTY / DEPT RESPONSIBLE	DATE TO BEGIN	DATE DUE	RESOURCES REQUIRED (staff, tech, etc.)	DESIRED OUTCOME	NOTES
GOAL 3						
Write your goal statement here.						
ACTION STEP DESCRIPTIONS	PARTY / DEPT RESPONSIBLE	DATE TO BEGIN	DATE DUE	RESOURCES REQUIRED (staff, tech, etc.)	DESIRED OUTCOME	NOTES

Diagram 2: Example for an Action Plan with activities

For the purposes of the Action Plan each goal is presented and described according to the structure provided and presented in the Diagram 2. The important activities for development of the Action Plan are consisted of several parts. The logic flows of the activities are as follow:

- Description of the natural and man-made environment through the collection and reporting of data required for the specific area of interest – the Municipality of Vrapchisht;
- Aim and specific objectives of the Action plan;
- Description of actions proposed interventions per ecosystem service
- Valuation of the economic dimension of the project using BIOPROSEPT tools and comparative value assessment (existing –after the implementation of interventions
- The process for monitoring the implementation of the action plan

The list of the activities is defined in order for their execution and also in harmony with the relevant UN Strategic development goals and according to the BIOPROSPECT Project activities, goals and aims.

3 MUNICIPALITIES AND BIODIVERSITY CAPITALIZATION

Municipalities often find themselves struggling to reconcile numerous conflicting interests when it comes to the balancing conservation and urban growth. As the world's biodiversity increasingly comes under threat, including from urban expansion into natural areas, municipalities are recognizing that they have an important role to play in conserving and preserving threatened species and the habitat in which they exist. Municipalities' responses can be particularly important when other state/national responses are inadequate.

Biodiversity loss is a global problem, and international efforts have increasingly brought focus to its contours. Annual reports compiled by World Wildlife Fund (WWF) have highlighted the urgency of the situation. Recent findings have revealed that nearly half of the world's UNESCO-designated Natural World Heritage Sites are threatened by industrial activities and that half of the world's wildlife has already been lost. Urban development, and its encroachment upon species habitat, is one of the main drivers of this problem.

Traditional conservation efforts aimed at preserving habitats have sought to carve out spaces in which human activities, such as agriculture, development, and resource extraction, are prohibited or limited. Some states have entered into multi-lateral environmental agreements whose purpose is to commit states to doing just that. For example, the Aichi Biodiversity Targets, part of the Convention on Biological Diversity ("CBD"), commit signatory states to extending their respective coverage of protected areas to 17 per cent of national landmass and inland water, and 10 per cent of coastal and marine areas, by 2020.

Republic of North Macedonia has had ratified the CBD and has worked to implement its commitments through a variety of legislative and policy instruments. Some of the obligation has influenced the Ministry of Environment and Physical Planning to predict financial means as part of the Ministry budget for investment in natural conservation, including through the acquisition of land and the expansion of protected areas. While this recent promise of support will likely make a positive difference in future, the urgency of the situation has influence the Municipality of Vrapchisht to take action.

Although such large-scale conservation activities have traditionally remained the domain of national level (Ministeries) / governments, municipal governments around the world have increasingly found it necessary to undertake their own efforts. State-level governments are more likely to have the jurisdictional and financial resources required to effect large-scale conservation efforts, which often require the acquisition of large amounts of land. However, municipalities frequently experience the environmental impacts associated

with biodiversity loss up close. As such, when other levels of governments are sluggish in responding, it is often necessary for municipalities to spearhead conservation efforts.

For larger and richer municipalities, this can mean purchasing land both in and surrounding their municipal boundaries. New York City, for example, has purchased large tracts of natural territory in the Catskills, located in upstate New York. The City has recognized that this is a cheaper means of protecting sources of clean water than relying upon purification technology (Conniff R. 2018).

Often, municipalities use conservation easements, or similar instruments, to arrange with private landowners or would-be developers for the preservation of land that might otherwise be subject to development, agriculture, or other activities. A conservation easement is a legal agreement that restricts land uses on a given property. Because they are generally attached to the title of a property, conservation easements can work in perpetuity. Easements are often held and monitored by conservation bodies that are statutorily created governmental or not-for-profit organizations, land trusts, or municipalities. Many municipalities, however, are not in a position to acquire large tracts of land or are unable or unwilling to employ conservation easements. They may also be hesitant to cede ownership or control of lands to entities such as land trusts. So municipalities must often turn to alternate solutions.

Alternative municipal solutions are more likely to involve modification to existing human landscapes rather than creating or preserving habitat through the establishment of protected areas.

For example, rather than set aside, or restrict the use of, swaths of land, some municipalities establish, sponsor, or encourage small gardens designed to attract and sustain at-risk species. Such gardens or spaces can be set up on lands already in use, and so can be done without re-zoning or sacrificing existing uses. In recent years, such gardens, particularly those planted to attract threatened pollinators, such as bees or monarch butterflies, have proven popular in municipalities across North America. Municipalities can also engage in awareness-raising by "welcoming" species that have settled in the urban environment. Wild mountain lions living in parts of Los Angeles have become "urban folk heroes" with a fan base of followers on Facebook, for example. Awareness-raising can also be done by way of stewardship and more traditional education programs. This can include informing citizens about sensitive species they may encounter on their lands and incentivizing the creation or preservation of habitat.

Often smaller in scale, municipality's responses can and, increasingly, have become crucial to conservation efforts. When municipalities devise creative, flexible responses to biodiversity loss, the local and global impacts can be impressive.

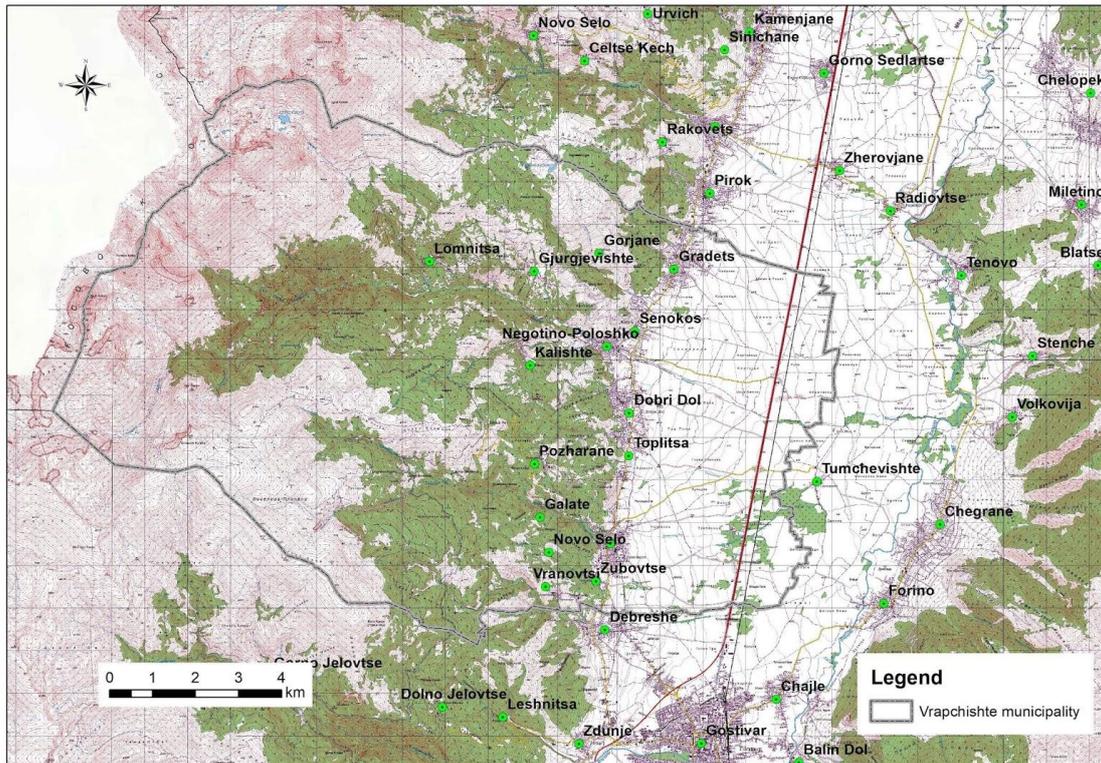
Therefore, the Municipality of Vrapchisht is small, young and not so rich municipality has recognized the importance of biodiversity and ecosystem services and decided to put more focus and effort on them. In this regard the Municipality of Vrapchisht has developed a report for Mapping and valuation of biodiversity services in peri-urban forests. In the report are mapped and evaluated twelve (12) ecosystem services. With this document the Municipality decided to create an Action Plan for capitalization of biodiversity services and

to promote the municipality as one of the most ecological municipalities in the Republic of North Macedonia that have Action Plan for capitalization of biodiversity services.

3.1 The study area - Municipality of Vrapchisht

The municipality of Vrapchisht is located in the north-western part of the Republic of Northern Macedonia, on the slopes of Shar Mountain at 580 meters above sea level and is a rural municipality to the north bordering the municipality of Bogovinje, to the east and southeast of the Municipality of Gostivar and Brvenica while to the west with municipality of Restelica (Republic of Kosovo).

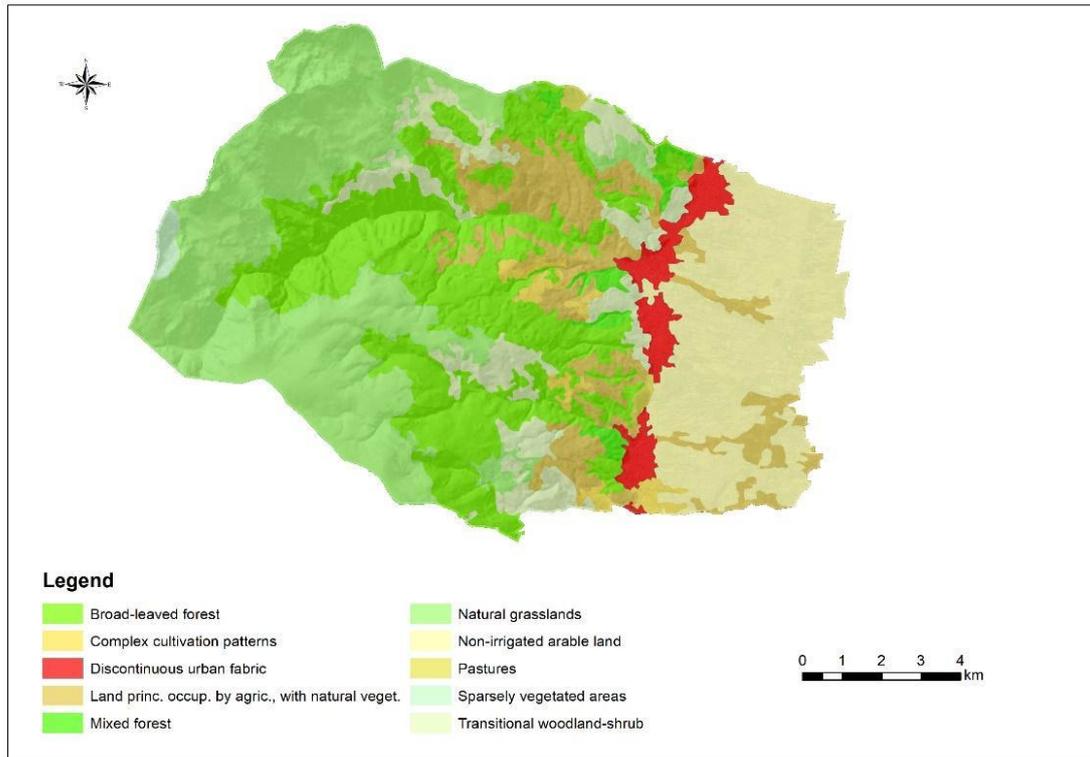
Polog planning region is situated in the northwest part of North Macedonia, with an area of 2,416 km². It covers the Polog valley, Mavrovo plateau, Bistra mountain range and the valley of the river Radika. On a state level, the Polog region is one of the eight regions, which is composed of the following nine municipalities: Tetovo, Gostivar, Mavrovo and Rostushe, Zhelino, Tearce, Bogovinje, Vrapchisht, Jegunovce and Brvenica. On this territory, there are 184 settlements in which 304,125 citizens live. From 304,125 citizens 18.4% are Macedonians, 73.2% Albanians, 5.7% Turks, 1.6% Romas, 0.01% Vlachs, 0.32% Serbs, Bosnians 0.08% and 0.66% are other nationalities. The region has great natural and artificial wealth. Polog planning region is rich in mineral resources that are found throughout its territory. Of great economic importance are the ore deposits of gray marble in Gostivar and dolomites in Jegunovce and Chajle. Other ores and minerals present in the region are: manganese, molybdenum, copper, arsenic, lead, chrome and marble.



Map 1: Study area, administrative borders

The Polog planning region is a tourist pearl which abounds in natural beauty, historical and cultural monuments. Tourism as an industry is not sufficiently developed in the Polog planning region, but there is a lot of unused potential that represent an opportunity for investments and with its exploitation to make the region one of the biggest tourist destinations in the country and in Europe. The already existing ski centers „Mavrovo“ and „Popova Shapka“ offer the possibility to upgrade the development of ski tourism and an opportunity for promotion and visit of other natural beauties that this region possesses.

Polog planning region has 170,310 ha of agricultural land of which 41,876 ha is arable land and 128,433 ha are pastures. Of the total arable land 30,565 ha are arable land and gardens, 10,244 has grassland, 1,023 ha of orchards and only 44 ha are vineyards. Most of the agricultural areas or even 75 percent in the Polog planning region are pastures; the remaining 25 percent is arable land. The region does not allow for intensive development of agricultural production, but it is known for products like Tetovo apple, Tetovo beans and cheese, which opens prospects for fostering and promoting products that would increase exports.



Map 2: Land cover/use Corine 2018

Wholesale and retail trade, as well as repair of motor vehicles and motorcycles, are sectors of activity that are most present in the Polog planning region, with a total of 1,611 business entities registered and 22 percent share in the total economy. The second sector is the processing industry with a total of 905 business entities registered and 12.4 percent economic participation, and the construction sector with 651 business entities and 8.9 percent share. With this information the most important economic sectors are selected, such as production of building materials, processing and production of finished wood products, food processing, processing of plastic, aluminum processing and manufacturing of textile products.

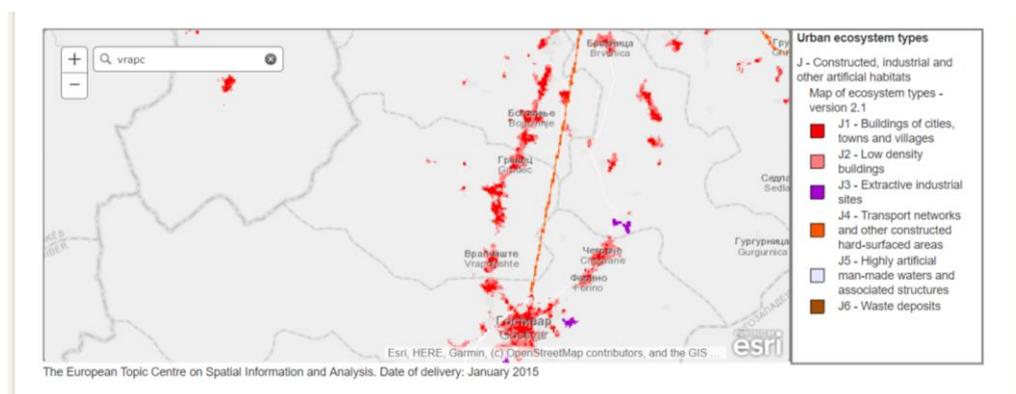
The level of education is at a growth rate, which is a kind of indicator that will be the reason for the development of industrial building construction. The agrarian structure is: most common pasture with 5336 ha, arable land with 4820 ha and 4686 ha of forests. The municipality consists of fifteen villages. The opportunity for the fastest local economic development in the municipality of Vrapchisht is seen in the construction of an industrial zone extending over 250 hectares, near the Gostivar-Tetovo highway. Although the area is not yet fully urbanized, the interest of both domestic and foreign investors is very high. So far, some 30 small and medium-sized enterprises have built facilities and the interest has doubled, but there is still uncertainty among investors seeking strong municipal guarantees for construction. There are a large number of young people educated at university level and

their numbers are constantly increasing. Almost every family has one member who has completed university education. In addition, there are many students studying at universities in Skopje, Bitola, Tetovo, Pristina, Belgrade, Sarajevo, Istanbul, Ankara, Eskisehir and other countries.

Today, the municipality of Vrapchisht has four primary schools and a high school (gymnasium), located in the village of Negotino and has 143 students and 14 classes. There are also four health stations in Vrapchisht, Gradec, Negotino and Dobridol. The municipality is associated with paved roads and the development of cultural and social life and all this gives Vrapchisht a nice view to present itself as a small modern town. The municipal building of the municipality is in the village. Vrapchishte is located between the cities of Tetovo and Gostivar, in the Shara Mountain valley in the northwestern part of the Republic of Northern Macedonia and includes much of the Polog valley. living where Albanians and other ethnicities live. It borders the municipalities of Bogovinje, Brvenica, Gostivar and the western part with the Republic of Kosovo. As a rural area it covers about 192 km², with a population of 28 210 inhabitants and is a multiethnic environment inhabited by: Albanians, Turks, Macedonians and others. As rural municipalities (former municipality of Vrapchisht and former municipalities of Negotino Polog) have been functioning since 1996, while in the third term of local authorities and unions, the Municipality of Vrapchisht was established as a joint and sole municipality in the entire territory of the former two municipalities of Vrapchisht and Negotino Polosko.

3.2 Description of the natural and man-made environment:

It will be done through the collection and reporting of data on main ecosystems required for the specific area of interest (municipality of Vrapchishte), mainly through public available data at State Statistical Office, regional planning region of Polog, relevant ministries public documents, projects, studies made for the area, Corine Land Cover (CLC) etc.



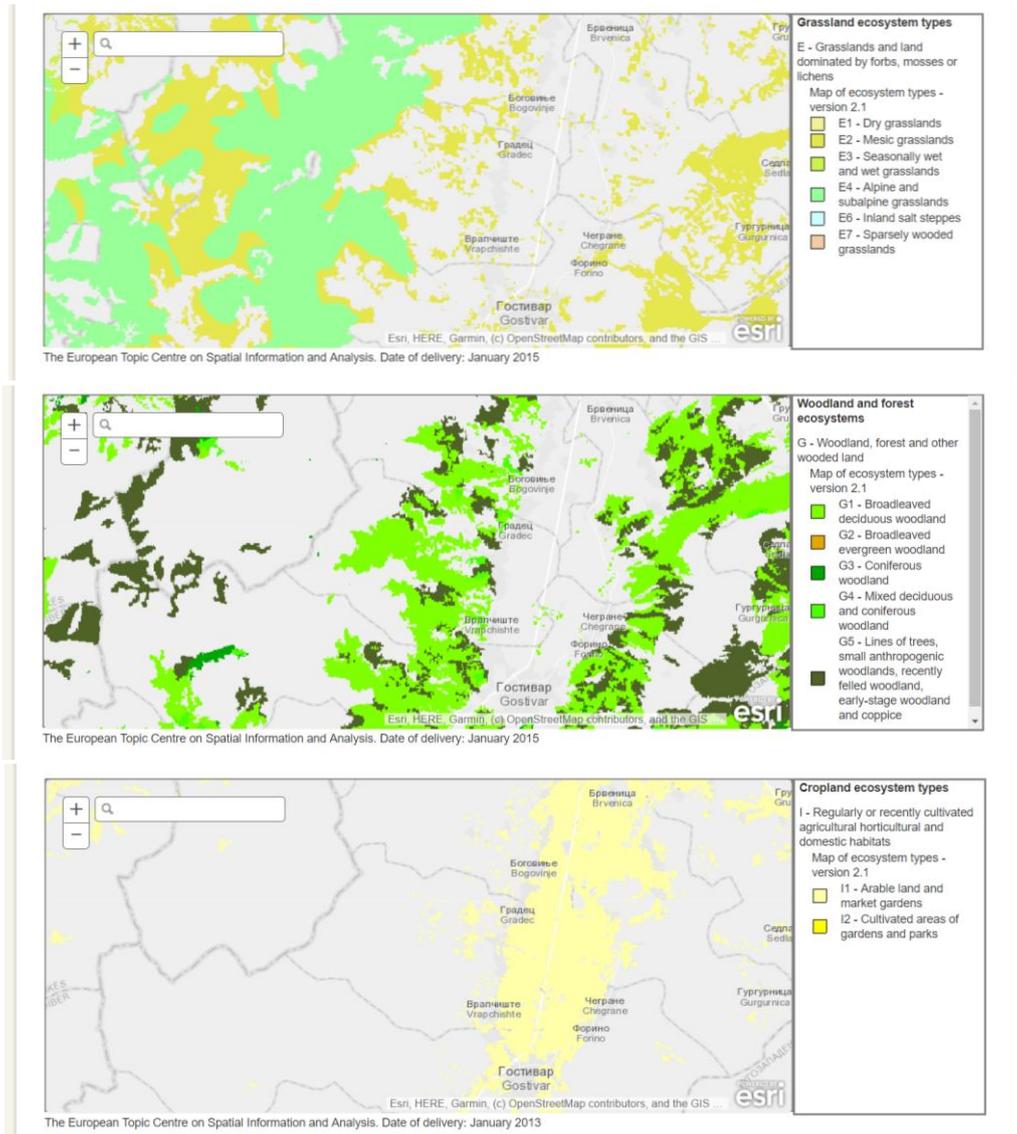


Diagram 3 Corine maps for the study area

The Sustainable Development Goals (SDGs) are a collection of 17 global goals set by the United Nations General Assembly in 2015 for the year 2030. The SDGs are part of Resolution 70/1 of the United Nations General Assembly, the 2030 Agenda. The Sustainable Development Goals are: 1) No Poverty; 2) Zero Hunger; 3) Good Health and Well-being; 4) Quality Education; 5) Gender Equality; 6) Clean Water and Sanitation; 7) Affordable and Clean Energy; 8) Decent Work and Economic Growth; 9) Industry, Innovation, and Infrastructure; 10) Reducing Inequality; 11) Sustainable Cities and Communities; 12) Responsible Consumption and Production; 13) Climate Action; 14) Life Below Water, 15) Life On Land; 16) Peace, Justice, and Strong Institutions; 17) Partnerships for the Goals.

The goals are broad based and interdependent. The 17 Sustainable Development Goals' each have a list of targets that are measured with indicators. Key to making the SDGs

successful is to make the data on the 17 goals available and understandable throughout implementing ecosystem approach.

It is important to indicate that basic concept for defining the most important (key) ecosystem types in this Action plan was taken from the National Strategy for Biodiversity in Republic of North Macedonia which as basis for ecosystem types was taken from the third level of EUNIS habitats classification. Some of the ecosystem types from comprehensive classification of the ecosystems in Republic of North Macedonia are important for the study area the Municipality of Vrapchisht.

Essentially is to be mentioned that some of these ecosystems have lesser importance in terms of ecosystem services due to the fact that the study areas is small and also the they are represented or present on small areas, while some are more important and representative appear as key ecosystems and cover significant portion of the study area the Municipality of Vrapchisht territory. As important and representative ecosystems are considered those which has influence on water supply, air purification, soil erosion, carbon storage, pastures and grass lands, supply of timber and other products, etc. (lake and river ecosystems, deciduous, evergreen and mixed forest ecosystems).

According to the EUNIS classification of habitats in the Republic of North Macedonia All habitat groups of first level under EUNIS classification are represented in Macedonia, except marine (A and B). Analyzing the EUNIS classification on the study area it can be concluded that in the Municipality of Vrapchisht the important and relevant are:

- C: Inland surface waters;
- E: Grasslands and lands dominated by forbs, mosses and lichens;
- F: Heathland, scrub and tundra;
- G: Forest and other wood land;
- H: Inland unvegetated or sparsely vegetated habitats;
- I: Regularly or recently cultivated agricultural, horticultural and domestic habitats;
- J: Constructed, industrial and other artificial habitats.

In addition, for each habitat a short description and explanation will be provided.

C: Inland surface waters

Inland surface waters refer to aboveground open fresh or brackish water bodies (rivers, streams, springs, lakes) away from the coastline. These also include the littoral zones of these bodies, as well as built water bodies which support semi-natural biocenoses. Significant elements of biological diversity are endemic forms, particularly specific to the three natural lakes.

Inland surface waters are divided into three habitat groups of second level: surface standing waters (C1), surface running waters (C2) and littoral zone (C3), which are in turn differentiated into three lower habitat levels.

E: Grasslands and lands dominated by forbs, mosses and lichens

This group of habitats is a complex group comprising six smaller groups in Republic of North Macedonia, namely: Dry montane grasslands (E1), Mesic grasslands – meadows (E2), Seasonally wet and wet grasslands (E3), Alpine and subalpine grasslands (E4), Woodland fringes and clearings and tall forb stands (E5), and Inland salt steppes (E6).

Distribution of dry montane grasslands (E1) is bound to oak forest region. They occur in altitudinal belt from 60 to 1200 m, on different geological grounds, mostly on secondary habitats. Phytocenological affiliation of syntaxa encompassed by these habitats has not been definitely resolved, but the most frequent community in question is the one of the class Festuco-Brometea. High number of endemic plant species in Republic of North Macedonia is specific for this group of habitats exactly.

The groups of mesic grassland stands/habitats (E2) and seasonally wet and wet grasslands (E3) refer to more or less wet pastures and meadows from lowland and lower mountain belt within boreal, amoral, moderately warm humid and Mediterranean zone. Contrary to habitats in the group E2, which are exposed at bigger anthropogenic intervention (regular grazing, mowing, agricultural improvement, use for sporting, etc.), habitats in E3 incorporate pastures and meadows with no significant human influence. Both habitat groups are characterized by communities of the class Molinio- Arrhenatheretea.

Habitats of alpine and subalpine grasslands (E4) most often occur above the upper forest boundary. They include primary and secondary grassland formations in boreal, amoral, moderately warm humid and Mediterranean zone, which is dominated by species from the families Poaceae or Cyperaceae. Compared to previous groups, climate here is characterized with higher humidity and lower temperatures in the course of the year. Three major subgroups of this habitat group can be distinguished in Macedonia: Acid alpine and subalpine grasslands (E4.3), Calcareous alpine and subalpine grasslands (E4.4) and Alpine and subalpine enriched grasslands (E4.5).

Habitat group E5 – Woodland fringes and clearings and tall forb stands is ecologically one of the most heterogeneous habitat groups. It includes stands with tall grass or ferns which grow on abandoned urban and agricultural lands, along watercourses, on woodland fringes or in pastures inhabited with species from adjacent habitats. Besides native communities specific to woodland fringes (E5.2) and subalpine wet tall-herb and fern stands (E5.5), it also incorporates various weed communities on abandoned urban, suburban and rural structures, industrial sites, arable lands, etc. (E5.1).

Habitats of inland salt steppes (E6) refer to saline soils on which grass plants resistant to high concentrations of salts are predominant. Salt steppes from Republic of North Macedonia, under the EUNIS classification, belong to E6.215: Pelago-Vardar salt steppes, comprising halophyte communities from the southwestern part of the Balkan Peninsula, in the area surrounded by Pelagonides and Meso-Macedonian mountains, in the arid zone of the rivers Vardar and Gorna Morava. Several habitat types of the sixth level are mentioned for Macedonia.

F: Heathland, scrub and tundra

According to EUNIS definition, habitat group F comprises inland habitats which are dry or temporarily flooded, with more than 30% vegetation cover of semi-scrubs or scrubs. The tundra, as a habitat characterized with permafrost occurrence, does not occur in Republic of North Macedonia. Heathland and scrub habitats are defined as vegetation dominated by dwarf scrubs or scrubs not taller than 5 m. These also include scrub orchards, grapevine plantations, hedgerows, and communities with climate limited trees lower than 3 m, as well as stands with scrub willows (*Salix* spp.) and alder buckthorn (*Frangula*) on humid grounds. In Republic of North Macedonia, this habitat group comprises eight subgroups of the second level: Arctic, alpine and subalpine scrubs (F2), Temperate and Mediterranean-montane scrub (F3), Maquis, arborescent matorral and thermo-Mediterranean brushes (F5), Garrigues (F6), Mediterranean heaths (phrygana, hedgehog-heaths and related coastal cliff vegetation) (F7), Riverine and fen scrubs (F9), Hedgerows (FA) and Shrub plantations (FB).

G: Forests and other wooded land

This habitat group comprises woodland where vegetation dominates or has until recently been represented by trees with their crown coverage of at least 10%. Trees are defined as woody plants able to reach height of (above) five meters, regardless of climate and edaphic conditions. It includes lines and belts of trees, low-trunk forests, regularly cultivated tree nurseries, cultural plantations of trees and orchards, as well as marshy woodlands with alder, poplar and riparian willow woodlands and small wood stands. In the frames of the first level, four habitat groups of the second level occur in Republic of North Macedonia, namely: Broadleaved deciduous woodlands (G1), Coniferous woodlands (G3), Mixed deciduous and coniferous woodland (G4) and Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5).

H: Inland unvegetated or sparsely vegetated habitats

Habitats belonging to this group are characterized with low vegetation cover which does not exceed 30%. They are dry or seasonally wet. The second level includes five distinctive habitat groups: Terrestrial underground caves, cave systems, passages and water bodies (H1), Scree (H2), Inland cliffs, rock pavements and outcrops (H3) and Miscellaneous inland habitats with very sparse or no vegetation (H5). All of them are exceptionally sensitive to external anthropogenic impacts.

I: Regularly or recently cultivated agricultural, horticultural and domestic habitats

Habitats belonging to this group are typical anthropogenically conditioned habitats maintained by ploughing and digging or occur upon recent abandonment of cultivated land. Two habitat groups are distinguished on the second level: Arable land and market gardens (I1) and Cultivated areas of gardens and parks (I2). The first group usually includes crops collected regularly in the course of the year, and not plantations of trees or scrubs. Cereals and leguminous crops, fields under sunflower, potatoes and similar crops are included here.

The quality of the biodiversity depends on the intensity of agricultural exploitation and presence of edges of natural vegetation between fields. The second group encompasses small scale (domestic) ornamental gardens and urban parks. Besides cultivated, some wild species can be found there, too.

J: Constructed, industrial and other artificial habitats

This group includes habitats established under the direct influence of man. At the second level, specific habitat groups include habitats covering more than 30% of the area in cities (J1) and habitats where buildings are with low density (J2). Furthermore, this group includes active and abandoned mines (J3), Transport networks, parts of airports, pavements, recreational areas, constructed parts of cemeteries (J4), fully artificial water bodies and related structures (J5) and landfills.

3.3 Aim and specific objectives of the Action plan

This Action Plan will provide an opportunity to look across different policy and ecosystem contexts and draw together a high-level overview of how biodiversity capitalization and payment for ecosystem services (PES) can be incorporated and integrated into the study area, as well as to identify synergies and potential linkages. It aims to:

- To identify the main strategic aims and objectives related to the evaluated ecosystem services (milk production, meat production, forage production, wild animals, timber production, water supply, drinking water, carbon storage, air purification, soil erosion, natural photographers and cultural heritage).
- To propose further actions to each ecosystem service for capitalization and improvement of ecosystem services. The proposed actions should be in accordance to the BIOPROSPECT Project objectives.
- To made dimensional analysis (existing and new situation) in regard to status of ecosystem services.

Biodiversity, Ecosystems and their Services, capitalization i.e. PES is an evolving agenda so this Action Plan should reflect work in progress. Further development requires partnership-working and capacity-building among a wide range of stakeholders; further investment and engagement are required in the longer term to fully realize the potential benefits of biodiversity capitalization and PES.

4 INSTITUTIONAL FRAMEWORK FOR BIODIVERSITY CONSERVATION

It is also important to consider that biodiversity and ecosystems provide many critical life support functions and benefits for human wellbeing, security and economic growth, including food, clean water, recreational services and climate regulation. Despite its significant values, biodiversity worldwide is being lost, in some areas at a rapid rate.

Given these losses, there is an urgent need for firstly, greater application of policies and incentives to promote the conservation and sustainable use of biodiversity and ecosystem services, and secondly, a more efficient use of available finance in existing biodiversity programmes.

The existing institutional setup for biological diversity conservation and sustainable use in the Republic of North Macedonia is mainly centralized in governmental institutions. Although the process of decentralization has been initiated long time ago (as early as in 2005), only few competences concerning biological diversity conservation have been delegated to local level.

The Assembly of the Republic of North Macedonia (through its Commission for transport, communications and environment) and the Government of the Republic of North Macedonia (through the ministries and the Commission for economic system and current economic policy) play the main role through adoption of legislation and strategic documents, proclamation of protected areas, biodiversity protection etc.

The competent state authority in the areas of environment and nature protection is the Ministry of Environment and Physical Planning (MoEPP). The Administration of Environment was established in 2007, as a body responsible for the performance of expert activities in the area of environment and nature protection, and its main goal is to establish efficient and integrated system of environment and nature protection, thus improving the quality of the environment in the Republic of North Macedonia. Five departments were established within the Administration, as follows: Department of Environment, Department of Waste Management, Department of Waters, Department of Industrial Pollution and Risk Management and Department of Nature.

The Department of Nature is further divided into four divisions (for biological diversity; natural heritage protection; space planning in protected areas and geodiversity; and genetically modified organisms) carries out activities for nature protection through protection of biological and landscape diversity and protection of natural heritage. The Department of Waters is responsible for the performance of expert activities related to waters protection in accordance with the regulations on waters. The Department of Environment is responsible for the performance of environmental impact assessment procedure, protection of soil, protection against noise and maintaining of databases for quality of the environment.

There are other departments within MoEPP which also have significant role in the conservation of biological diversity, such as: Department of Spatial Planning, Macedonian Environmental Information Centre, as well as Spatial Information System Office and State Environmental Inspectorate, etc.

The National Committee for Biological Diversity with the Secretariat was established in 1999 aiming to monitor the implementation of the Convention on Biological Diversity at national level. The Committee was especially active during the elaboration of the Country Study on Biological Diversity (First National Report, 2003) and the first National Strategy for Biological Diversity and Action Plan (2004), but later its activity has lessened.

The Ministry of Agriculture, Forestry and Water Economy has important role in the conservation and sustainable use of biological diversity, especially through the following:

- Protection and sustainable use of forests and other forest products, regulation of hunting and fishing (Department of Forestry and Hunting, State Inspectorate of Forestry and Hunting);
- Development of organic agricultural production (Department of Agriculture, Division for Organic Production, State Inspectorate of Agriculture),
- Protection of agro-biological diversity (Department of Livestock Breeding, Administration of Seeds and Seeding Material),
- Rural development (Department of Rural Development),
- Protection of animals and plants against diseases and pests (Veterinary Medicine Administration, Phytosanitary Administration, State Veterinary Inspectorate, Administration for Plants Protection),

4.1 National legal framework for biodiversity protection

Protection of natural rarities occurred for the first time in the 1963 Constitution of the Socialist Republic of Macedonia (Article 32). (though the term “biological diversity” is not mentioned), the 1991 Constitution of the Republic of North Macedonia (Official Gazette of the Republic of North Macedonia no. 52/91) contains legal grounds for nature protection, thus providing for the right to a healthy environment (Article 43, paragraph 1); every citizen has a duty to improve and protect environment and nature (Article 43, paragraph 2); natural wealth of the country, flora and fauna, are determined as goods of general interest enjoying special protection (Article 56, paragraph 1); and certain goods of general interest for the country may be awarded for use in a manner and under conditions specified in the law (Article 56, paragraph 3). The Law on Environment (Official Gazette of the Republic of Macedonia no. 53/05, 81/05, 24/07, 159/08, 83/09, 48/10, 124/10, 51/11, 123/12, 13/13, 163/13, 41/14) is a framework law that regulates the protection and promotion of the environment for the purpose of ensuring the right of citizens to a healthy environment including biological diversity. Moreover, international multilateral agreements ratified by the Republic of North Macedonia (Convention on biological diversity, Bonn Convention, Ramsar Convention, Bern Convention, UNESCO, etc.) represent part of the legal system on nature conservation in the country. Almost 10 years ago, an attempt was made to consolidate and update the previous laws affecting species and habitats protection: Law on Natural Rarities Protection (Official Gazette of the Social Republic of Macedonia no. 41/1973), Law on Protection of National Parks (Official Gazette of the Social Republic of Macedonia no.

33/80) and Law on Protection of Ohrid, Prespa and Dojran lakes (1977) in accordance with the new global trends in nature conservation (adopted CBD 2010 Targets), global categorization of protected areas prescribed by International Union for Conservation of Nature (IUCN), sustainable development principles and obligations from relevant ratified international agreements. Certainly, noticeable role in the creation of the law had the process of accession of the Republic of Macedonia to the European Union starting with the transposition of national legislation to the EU Acquis, including transposition of the two most important directives for nature protection – Birds and Habitats Directives in national legislation.

In 2004, the Law on Nature Protection (Official Gazette of the Republic of Macedonia no. 67/04) was adopted as a general law that regulates the protection of nature by protecting the biological and landscape diversity, and the protection of the natural heritage, in protected areas and outside of protected areas, as stated in Article 1. Since its adoption, the Law has been amended on several occasions (Official Gazette of the Republic of Macedonia nos. 67/04, 14/06, 84/07, 35/10, 47/11, 148/11, 59/12, 13/2013, 163/13, 41/14). Full implementation of the Law will be accomplished upon the adoption of the relevant bylaws – around 50 bylaws are prescribed, 17 of which have been adopted. However, development and adoption of some secondary legislation requires significant efforts and previous scientific/expert work needs to be undertaken. The following main elements are covered in the Law on Nature protection:

- 1) General provisions, general restrictions or prohibitions for the purpose of nature protection;
- 2) Protection of nature, general measures, nature impact assessment, protection of species, protection of habitats and ecosystems, protected areas, protection of landscape, minerals and fossils;
- 3) Organization of the protection of nature;
- 4) Record-keeping in the area of nature protection;
- 5) Monitoring;
- 6) National strategy for nature protection;
- 7) Financing;
- 8) Penalty provisions; and
- 9) Transitional and final provisions.

In addition to the provisions of the Law on Nature Protection, the use of natural resources for economic purposes and land use shall also be regulated by the provisions of sectoral laws (Tab. 18). Preservation of agro-biological diversity is subject of regulation of the Law on Agriculture and Rural Development (Official Gazette of the Republic of Macedonia no. 49/2010; 53/2011, 126/2012, 15/2013 and 69/2013) which in Article 78 thereof provides for support for conservation of genetic diversity of native agricultural plants and native livestock breeds in accordance with the published List (Official Gazette of the Republic of Macedonia no. 71/11), stipulates the manner of monitoring and analysis of

conditions and measures for conservation of native species of agricultural plants and native livestock breeds on the basis of the extent of their being threatened and their eradication is prohibited. The work of the gene bank is covered in the Law on Seed and Seeding Material (Official Gazette of the Republic of Macedonia no. 55/11). The Law on Livestock Breeding (Official Gazette of the Republic of Macedonia no. 7/2008, 116/2010 and 23/2013) defines 11 native breeds and/or lines of domestic animals. The Law on Nature Protection stipulates the obligation to assess the impacts of measures and activities envisaged under various development strategic, programme and planning documents that might have impact on nature, as well as activities planned in nature, which during their implementation, independently or combined with other activities, may disturb natural balance (Articles 15 and 18). The purpose of these activities is to avoid or minimize nature degradation, and they are implemented in accordance with the provisions of the Law on Environment. These provisions (SEA and EIA) are especially important in terms of preventing fragmentation of habitats during the implementation of projects for construction of roads, dams, airports, etc. Depending on anticipated or caused degradation of nature, as well as the ability for compensation, compensation measures are envisaged (Article 19), i.e. activities compensating or mitigating nature degradation. In practice, progress has been noted in the application of SEA legal procedure during the last years, though ultimate effects do not have satisfactory results. It is especially important to mention that the quality of developed studies, concerned public participation and measures to reduce negative impacts related to biological diversity, is improving. Legal framework for SEA application has been established; however we may conclude that these procedures do not achieve the desired effect from nature and biological diversity protection point of view.

In addition the list of all relevant policy regulations (laws) grouped per different field will be listed. For practical reasons the laws are classified in five (5) groups: (Agrobiodiversity, Use of natural resources, Land Use, GMO and Food safety and animal protection).

Agrobiodiversity:

- Law on Agriculture and Rural Development (Official Gazette of the Republic of North Macedonia no. 49/2010; 53/2011, 126/2012, 15/2013 and 69/2013)
- Law on Seed and Seeding Material (Official Gazette of the Republic of North Macedonia no. 55/11)
- Law on Agricultural Products Quality (Official Gazette of the Republic of North Macedonia no. 140/2010, 53/2011 and 55/2012)
- Law on Animal Husbandry (Official Gazette of the Republic of North Macedonia no. 7/2008, 116/2010 and 23/2013)

Use of natural resources:

- Law on Hunting (Official Gazette of the Republic of North Macedonia no. 26/09, 32/09, 136/11, 01/12, 69/13, 164/13 and 187/13)
- Law on Forests (Official Gazette of the Republic of North Macedonia no. 64/09, 24/11, 53/11, 25/13, 79/13, 147/13 and 43/13)

- Law on Fishery and Aquaculture (Official Gazette of the Republic of North Macedonia no. (7/08, 67/10, 47/11, 53/11 and 95/12)
- Law on Organic Agricultural Production (Official Gazette of the Republic of North Macedonia no. 146/2009)
- Law on Waters (Official Gazette of the Republic of North Macedonia no. 87/08, 06/09, 161/09, 83/10 and 51/11)
- Law on Water Management Companies (Official Gazette of the Republic of North Macedonia no. 85/03, 95/05, 103/08, 1/12 and 95/12)
- Law on Water Communities (Official Gazette of the Republic of North Macedonia no. 51/03, 95/05, 113/07 and 36/11)
- Law on Pastures Management (Official Gazette of the Republic of North Macedonia no. 3/98, 101/2000, 89/2008, 105/2009, 42/10 and 164/2013)

Land use

- Law on Spatial and Urban Planning (Official Gazette of the Republic of North Macedonia no. 51/2005, 137/07,91/09, 124/10,18/11,53/11,144/12 and 55/13)
- Law on Construction (Official Gazette of the Republic of North Macedonia no. 130/09, 124/10, 18/11, 36/11, 13/12, 144/12, 25/13)
- Law on Construction Land (Official Gazette of the Republic of North Macedonia no. 17/11, 53/11, 144/12, 25/13)
- Law on Agricultural Land (Official Gazette of the Republic of North Macedonia no. 135/07, 18/11, 42/11, 148/11,95/2012, 79/2013, 87/2013, 106/2013, 164/2013 and 39/2014)
- Law on Concessions and Other Public Private Partnership (Official Gazette of the Republic of North Macedonia no. 7/2008, 139/2008, 64/2009 and 52/2010)
- Law on Mineral Resources (Official Gazette of the Republic of North Macedonia no. 136/2012, 25/2013, 93/2013, 132/2013 and 44/2014)
- Law on Auto Bearings (Official Gazette of the Republic of North Macedonia no. 13/2013)
- Law on Tourism Development Zones (Official Gazette of the Republic of North Macedonia no.141/12)

GMO

- Law on Genetically Modified Organisms (Official Gazette of the Republic of North Macedonia no.35/2008)

Food safety and animal protection

- Law on Veterinary Medicine (Official Gazette of the Republic of North Macedonia no. 113/2007, 23/2011 and 156/2011)
- Law on Animal Protection and Welfare (Official Gazette of the Republic of North Macedonia no. 113/2007 and 136/2011)
- Law on Food Safety (Official Gazette of the Republic of North Macedonia no. 157/10)

4.2 International legal framework for biodiversity protection

In addition are listed the most important international agreements related to biological diversity conservation ratified by the Republic of North Macedonia:

- Convention on Biological Diversity (Rio, 1992);
- Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena, 2000);
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971);
- Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979);
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 1979);
- UNESCO Convention for the Protection of the World Cultural and Natural Heritage (World Heritage Convention, Paris, 1972);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Washington, 1972);
- European Convention for the Protection of Vertebrate Animals Used for Experimental and other Scientific Purposes (Strasbourg, 1996);
- European Landscape Convention (Florence, 2000);
- Agreement on the Conservation of Bats in Europe (London, 1991);
- Agreement on the Conservation of African-Eurasian Migratory Waterbirds (Hague, 1995);
- Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (Aarhus, 1998);
- UN Framework Convention on Climate Change (Rio de Janeiro, 1992);
- UN Convention to Combat Desertification in Those Countries Experiencing Drought and/or Desertification, Particularly in Africa –UNCCD (Paris, 1994)

5 STRATEGY AND ACTION PLAN FOR SUSTAINABLE CAPITALIZATION OF BIOLOGICAL DIVERSITY IN PERI-URBAN FOREST IN MUNICIPALITY OF VRAPCHISHT

5.1 Importance of the Action plan

Recent decades have been characterized by increased migration from rural to urban areas. As a result, since 2008 and for the first time in history, more than half the world's population lives in towns and cities, and this percentage is expected to swell to 70 percent by 2050. Cities reshape and alter natural landscapes as they expand, creating microclimates in which temperatures, rainfall and winds differ from those of the surrounding countryside.

Urban development – as often practices – results in the depletion and degradation of natural ecosystems in and around urban areas, the drastic loss of vital ecosystem services¹ and,

potentially, little resilience to disturbances, such as those caused by climate change. As the world continues to urbanize, sustainable development challenges will increasingly concentrate in urban areas, particularly in lower- and middle-income countries, where urbanization has often taken place rapidly, spontaneously and with insufficient strategic planning, resulting in unsustainable patterns of land use.

Evidence of the unsustainability of urban growth is increasingly drawing public attention to the need for sustainable urban models capable of responding to increasing demands for food and basic ecosystem services. The United Nations General Assembly recently adopted the Sustainable Development Goals (SDGs), which include many targets directly related to cities.

Urban planners and city administrators face daily challenges in managing complex urban environments, such as maintaining enough healthy and safe food, clean water, clean air, energy, housing and green spaces and addressing conflicts of interest related to land use. More than ever, they must rise to the challenge of ensuring that their cities are economically, socially and environmentally sustainable, resilient and capable of providing the ecosystem services needed by their citizens for a good quality of life. Well-designed and managed urban and peri-urban forest and tree systems (hereafter referred to collectively as “urban forests” except where it is necessary to distinguish among such systems) are integral to meeting this challenge: urban forests can make significant contributions to the environmental sustainability, economic viability and livability of urban settlements.

5.2 Description of activities for realization of the Strategic goals

The natural environment provides a wide range of goods and services – ‘ecosystem services’ – that underpin human health, wellbeing and prosperity. In order to improve our effectiveness at securing a healthy natural environment, REFORD is committed to developing a more strategic approach and a more integrated framework for policymaking and delivery. This action plan sets out a clear vision and, for the first time, recognizes that this is a shared responsibility across central and local government. To help us deliver the Action plan, we are now taking further steps to embed an ecosystems approach in policymaking and delivery, based on several core principles:

- taking a more holistic approach to policymaking and delivery, with the focus on maintaining healthy ecosystems and ecosystem services
- ensuring that the value of ecosystem services is fully reflected in decision-making
- ensuring environmental limits are respected in the context of sustainable development, considering ecosystem functioning
- taking decisions at the appropriate spatial scale while recognizing the cumulative impacts of decisions
- promoting adaptive management of the natural environment to respond to changing pressures, including climate change.

Moving towards an ecosystems approach will deliver several important benefits:

- more effective delivery of our environmental outcomes
- better-informed decisions that take full account of environmental impacts, helping us to achieve sustainable development
- better prioritization and more efficient use of our resources
- more effective communications and greater awareness of the value of the natural environment and ecosystem services.

REFORD has worked with many of our key partners and stakeholders, to agree this Action Plan to drive the adoption of an ecosystems approach.

The Action Plan identifies several actions (listed below) that will be delivered mainly over the next 5 years and which represent an ambitious and wide-ranging agenda for the municipality, the NGO network and central government and its regional offices within the municipality. We have identified a number of clear priority areas for action that will be fundamental to our success and to securing wider engagement at the local, regional and national levels:

The Action plan is consisting of 5 (five) main strategic goals necessary for improved biodiversity capitalization.

A1: To identify the main/underlying causes for decreasing the value of ecosystem services and biodiversity loss through its mainstreaming in the Vrapchisht society

A2: To reduce the direct and indirect pressures on ecosystems and forests

A3: To improve the status and role of forests focusing on increasing the benefits from forests and ecosystem services

A4: To improve the local knowledge for the real value of the ecosystem services and availability of relevant information related to ecosystems' economic value and benefits.

A5: To create efficient system for promotion of the ecosystem services with high potential to rural/eco/tourism activities related to the cultural ecosystem services

The strategic goals will be further developed below, subcategorized in additional action (activities), identified as crucial and necessary for reaching the strategic goals. In addition, under each strategic goal set of related activities are presented.

Goal 1						
To identify the main/underlying causes for decreasing the value of ecosystem services and biodiversity loss through its mainstreaming in the Vrapchishte society						
Number	Action step description	Party/Dept. Responsible	Date to begin	Date Due	Desired outcome	Source /Donors
1.1	Analysis of existing subsidies and redefinition of subsidies conflicting with the national targets for maintenance of ecosystem services	MAFWE, MoEPP, Municipality of Vrapchisht,	2021	2023	Identified subsidies having negative impact on ecosystem services	Budget of RNM, Foreign donors,

1.2	Promotion of and support to subsidies in forestry sector that are favorable for promotion and maintenance of ecosystem services	MAFWE, MoEPP, Municipality of Vrapchsht, P.E. National Forests and branch Shar - Gostivar, Private forest owners	2022	2030	Subsidies in forestry sector favorable for promotion and maintenance of ecosystem service	Budget of RNM, Foreign donors,
1.3	Promotion of and support to subsidies in agricultural sector that are favorable for promotion and maintenance of ecosystem services	MAFWE, MoEPP, Municipality of Vrapchsht, Association of farmers, P.E. for Pasture Management	2022	2030	Subsidies in agricultural sector favorable for promotion and maintenance of ecosystem service	Budget of RNM, Foreign donors,
1.4	Support to farmers maintaining native species of domestic animals (cows, sheep, goats) and crops	MAFWE, Municipality of Vrapchsht, Association of farmers, P.E. for Pasture Management	2021	2030	Number of farmers receive support and number of native domestic animals	Budget of RNM, Foreign donors, EU funds
1.5	Promotion of good forest management practices that are favorable for protection and maintenance of ecosystem services	MAFWE, MoEPP, Municipality of Vrapchsht, P.E. National Forests and branch Shar - Gostivar, Private forest owners	2021	2030	Identified and subsidizes good forest management practices	Budget of RNM, Foreign donors, EU funds
1.6	Promotion of good agricultural management practices that are favorable for protection and maintenance of ecosystem services	MAFWE, MoEPP, Municipality of Vrapchsht, Association of farmers, P.E. for Pasture Management	2021	2030	Identified and subsidizes good agricultural management practices	Budget of RNM, Foreign donors, EU funds

Goal 2						
To reduce the direct and indirect pressures on ecosystems and forests						
Number	Action step description	Party/Dept. Responsible	Date to begin	Date Due	Desired outcome	Donors
2.1	Support to the process of adoption of water management	Municipality of Vrapchsht, Communal Enterprise Vrapchisht	2020	2025	Adopted water management plan	Budget of RNM, Foreign donors, Municipality budget, C.E. Vrapchisht Budget
2.2	Opportunities of utilizing NWFP – establishing sustainable quotas	MAFWE, MoEPP, Municipality of Vrapchsht, P.E. National Forests and branch Shar - Gostivar, Private forest owners, P.E. for Pasture Management	2023	2025	List of most collected NWFP, established sustainable quotas	Foreign donors, EU funds
2.3	Good harvesting practices for collection of NWFP	MAFWE, MoEPP, Municipality of Vrapchsht, P.E. National Forests and branch Shar - Gostivar, Private forest owners, P.E. for Pasture Management	2021	2030	Number of organized trainings for sustainable harvesting of NWFPs. Number of issued certificates for sustainable harvesting of NWFP.	Budget of RNM, Foreign donors, EU fund,
2.4	Reduction of CO2 emission as results of replacing the Municipality street lightening system	NGOs, MoEPP, Municipality of Vrapchsh	2022	2030	Number of replaced street lights	Budget of RNM, Foreign donors, EU fund,
2.5	Reduction of CO2 emission thorough utilization of biomass or solar energy	NGOs, MAFWE, MoEPP, Municipality of Vrapchsh	2022	2030	Number of changed heating systems	Budget of RNM, Foreign donors, EU fund,

Goal 3						
To improve the status and role of forests focusing on increasing the benefits from forests and ecosystem services						
Number	Action step description	Party/Dept. Responsible	Date to begin	Date Due	Desired outcome	Donors
3.1	Protection of the sources for drinking water	Municipality of Vrapchsht, P.E.National Forests - branch Shar - Gostivar	2020	ongoing	Protected water sources, legal procedures implemented, sources included and mapped in the Forest Management Plans	Municipality budget, Foreign grants
3.2	Decreasing the illegal activities in forests	Municipality of Vrapchsht, P.E.National Forests - branch Shar - Gostivar, Private forest owners	2021	2025	Zero illegal activities within municipality, special focus on forests near water sources	Budget of RNM, Foreign donors,
3.3	Development of sensitivity maps with regard to forest fires	MAFWE, MoEPP, Municipality of Vrapchsht, P.E.National Forests and branch Shar - Gostivar, Private forest owners	2021	2025	Sensitivity maps developed; use of the sensitive maps in forest management plans and in various sectors	Budget of RNM, Foreign donors,
3.4	Development of sensitivity maps with regard to soil erosion and forest loss	MAFWE, MoEPP, Municipality of Vrapchsht, P.E.National Forests and branch Shar - Gostivar, Private forest owners	2021	2025	Sensitivity maps developed; use of the sensitive maps in forest management plans and in various sectors	Budget of RNM, Foreign donors,

Goal 4						
To improve the local knowledge for the real value of the ecosystem services and availability of relevant information related to ecosystems' economic value and benefits.						
Number	Action step description	Party/Dept. Responsible	Date to begin	Date Due	Desired outcome	Budget
4.1	Establishment of the level of knowledge and awareness about the values of the ES	Municipality of Vrapchsht	2020	2025	Identified target group, conducted survey and workshops, representative sample	Municipality budget, Budget of RNM, Foreign grants
4.2	Implementation of activities for public awareness among specific target groups (farmers, PFOs, business sector etc.)	Municipality of Vrapchsht	2020	2025	Organized seminars, workshops and training with different thematic topics according to the specific group	Municipality budget, Budget of RNM, Foreign grants
4.3	Promotion of values of ecosystem services	Municipality of Vrapchsht, local NGOs	2022	2029	Number of implemented activities for promotion of ES	Foreign grants and grants for NGO, domestic budgets
4.4	Fostering implementation of rural development funds focusing on promotion of traditional practices	MAFWM, MLSP, NGOs, Public Enterprise for Pasture, Municipality Vrapchisht	2021	2031	Examples of promoted traditional practices	Budget of RM,

Goal 5						
To create efficient system for promotion of the ecosystem services with high potential to rural/eco/tourism activities related to the cultural ecosystem services						
Number	Action step description	Party/Dept. Responsible	Date to begin	Date Due	Desired outcome	Donors
5.1	Organize fairs for promotion of NWFP and services and traditional organic food (milk products, meat, marmalades, honey)	Municipality of Vrapchsht, local NGOs	2020	anually	Starting process for organizing fair for promotion of local food (milk products (chees) non-wood forest products (chestnuts, mushrooms, berries, honey, medicinal and aromatic plants)	Municipality budget, Budget of RNM, Foreign grants
5.2	Creation of tourist trails and trails signs necessary for promotion of tourism activities	Municipality of Vrapchsht, local NGOs	2020	per purpose	Restoration of roads used by mountaineers, bikers, nature photographers	Budget of RNM, Foreign grants
5.3	Development of tourist maps/offers/guides on specific and attractive places for promotion of cultural ecosystem services	Municipality of Vrapchsht, local NGOs (mountaineers PFOs, hunters)	2020	2030	Number and diversification of published maps, offers	Municipality budget, Budget of RNM, Foreign grants
5.4	Encouraging measures and practices for maintenance and improvement of economic values of ecosystem services regarding cultural services	Municipality of Vrapchsht, MAWFE, local NGOs	2021	2030	Number of introduced measures and practices	Municipality budget, Budget of RNM, Foreign grants, EU funds

5.5	Identification of opportunities for developing alternative tourism in Municipality of Vrapchsht	Municipality of Vrapchsht, local NGOs, private sector, Agency for promotion of tourism	2021	2030	Identified and implemented alternative tourism possibilities (hunting, biking, mountaineering, adventure parks etc.)	Foreign grants, EU funds, private sector investments
5.6	Encouragement of rural tourism by promoting food from local producers	Municipality of Vrapchsht, local NGOs, private sector, Agency for promotion of tourism	2022	2030	Number of local rural population offering such services, number of overnights	Budget of RNM, Foreign grants, EU funds, business sector
5.7	Development of promotional material for capitalization of cultural ecosystem services	Municipality of Vrapchsht, local NGOs, private sector, Agency for promotion of tourism	2022	2030	Developed brochures, videos, leaflets, billboards focusing on places with high cultural ecosystem values.	Foreign grants, EU funds, business sector

5.3 Valuation of the economic dimension of the project using BIOPROSEPT tools and comparative value assessment (existing–after the implementation of interventions) – Process of Operationalization

The economic, scientific and environmental cooperation was established in 2014 between eight (8) partners: a three (3) Universities (two from Greece and one from Cyprus), three (3) Research Institutes (two from Greece and one from Bulgaria) and two (2) Municipalities (one from North Macedonia and one from Albania). The cooperation was within the frame of Interreg V-B "Balkan-Mediterranean 2014-2020" Transnational Cooperation Programme working on Project “Conservation and sustainable capitalization of biodiversity in forested areas (BIOPROSPECT)”. Based on the partners structure, as well as scientific and environmental collaboration, the main goal of the project was to enhance valuation of ecosystem services, developing a tool for comparative value assessment in order to have comprehensive and unified activities among the partners which have different backgrounds (universities, research institutes and municipalities).

The most important part of the BIOPROSPECT Project is economics dimension of the project by using the project tools and comparative assessment. Therefore with in the BIOPROSPECT Project several activities are predicted in order to be developed a

comparative assessment. The first activities is to provide operational models and guidelines for the economic valuation and sustainable capitalization of biodiversity-ecosystem services in peri-urban forests as well as in agriculture, water resources management, education, recreation and social inclusion. Than to develop examples for sustainable capitalization of biodiversity in natural forests and protected areas. Followed by establishing a knowledge exchange network for the economic valuation and sustainable capitalization of forest biodiversity. In the end all above mentioned activities related to mainstreaming biodiversity valuation and bioeconomy should be integrated in regional and rural development strategies and policies.

In this part we want to provide operational tools for the conservation of forest biodiversity through economic valuation and sustainable capitalization. In order to achieve this, a methodological framework of creating social and economic drivers of forest conservation through the capitalization of biodiversity services was developed. Through the development process a there was need and assessment of the status and trends of forest services' availability and distribution was created. Additionally, throughout the project, a complete set of guidelines for sustainable capitalization of forested areas will be developed, covering a variety of topics.

More specifically, these topics will include Guidelines for: a) BIOPROSPECT assessment; b) Stakeholders engagement and public participation in the economic valuation of biodiversity; c) Provisional services related to NWFPs, d) Agriculture and industry BIOPROSPECT; e) Regulative services related to water resources management; f) Cultural services related to tourism and recreation; and g) Cultural services related to education and social inclusion.

The sustainable economic activity is closely connected with two additional dimensions: the **ecological dimension** - in relation to economical use of resources, new knowledge and knowhow regarding valuation and capitalization of ecosystems services, as well as with the **social dimension**, for human resources and role of local (rural) people in capitalization and valuation of ecosystem services. The Socio-ecological dimension is considered as very important for the BIOPROSPECT Project. It is a comprehensive form of sustainable economic activity. Through targeted promotion of sustainable high-quality products and services, this project affords a contribution towards saving of resources. Fostering regional instances of cooperation helps in have common approach, sharing knowledge and strengthen regional cooperation, as well as to contribute towards better use of capacities and increase the efficiency of utilization of natural resources and valuation and capitalization of ecosystem services. Finally, each of the project partners is encourage on individual base to promote project activities and finding.

6 PROCESS FOR MONITORING THE IMPLEMENTATION

The volume of knowledge about ecosystem services, especially their mapping and valuation within the territory of Municipality Vrapchisht, has enhanced during the period 2014-2019. Thus, for example 12 ecosystem services were valued and mapped. The first report aimed “Mapping and valuation of biodiversity services in peri-urban forest” was developed in 2019. For each of the three ecosystem categories (Provisional, Regulating and Maintenance and Cultural) several ecosystem types were mapped and valued. Significant progress in Municipality of Vrapchisht has been achieved with the project “Conservation and sustainable capitalization of biodiversity in forested areas” with the number CCI 2014TC16M4TN003 in frame Transnational Cooperation Programme Interred Balkan-Mediterranean 2014-2020 and financed from the general budget of European Union. In the frames of these and other studies, several ecosystem types and habitats have been described.

As it was mentioned above during the past period, continuous research work has been carried out with regard to mapping and valuation of ecosystem services, following the logic the next step after mapping and valuation of ecosystem services is creation of Action plan for sustainable capitalization of biological diversity in peri-urban forest in Municipality of Vrapchisht (this document), where the steps for capitalization and enhancement of ecosystem services are created. Therefore, it is necessary a monitoring process to be developed in regards observing the process of implementation of the Action plan and activities predicated with the plan. The Monitoring is a toll that can limit the strategy, as well as implement information on the ability to organize the availability and availability of information officers, infrastructure solutions, and services to create otherwise. Monitoring is enabled by mood and by participating in site continuous feedback from implementation. To identify current successful or potential problems that may arise if you are able to improve your opportunities. Monitoring so you can spot a project that can be given, try it out and find information that can be heard. That why it is important to develop a monitoring activity in the beginning. It helps in further addressing the issues that need to be considered. The monitoring activities are helping in tracking and assessing the results of the interventions taken with the proposed activities. It is a dynamic and changeable document that should referred to and updated on a regular basis. While the specifics of each activity will look different, they should all follow the same basic structure and include the same key elements.

The monitoring will include some documents that may have been created during the program planning process, and some that will need to be created new. For example, elements such as the logic model/logical framework, theory of change, and monitoring indicators may have already been developed with input from key stakeholders and/or proposed by the BIOPROSEPT project. Therefore, the monitoring will consider those documents and develops a further plan for their implementation.

Monitoring and evaluation processes can be managed by the donors financing the assessed activities, by an independent branch of the implementing organization, by the

project managers or implementing team themselves and/or by a private company. The credibility and objectivity of monitoring and evaluation reports depend very much on the independence of the evaluators. Their expertise and independence is of major importance for the process to be successful.

Monitoring should be the specific duty of two sectors in frame of Municipality of Vrapchisht, the Local Economic Development (LED or Локален Економски Развој (ЈЕР)) and the Sector for Environmental Protection (Животна Средина) which will take care of the monitoring process throughout the Action Plan's implementation. Good tracking/recording system is the most important toll by which the Action plans' activities are monitored. The system should be comprehensive and available for all to use for measuring progress towards established targets. Maintaining a tracking/recording system enables the assessment of necessary steps, corrective actions, and identification of successes. Periodic review of the activities outlined in the Action Plan is critical to meet realization of Action plan goals.

7 LITERATURE

- Aalde, H., Gonzalez, P., Gytarsky, M., Krug, T., Kurz, W.A., Ogle, S., Raison, J., Schoene, D., Ravindranath, N.H., Elhassan, N.G., Heath, L.S., Higuchi, N., Kainja, S., Matsumoto, M., Sanchez, M.J., Somogyi, Z., 2006. Forest Land. 2006 IPCC Guidel. Natl. Greenh. Gas Invent. 4, 4.1-4.83. <https://doi.org/10.1016/j.phrs.2011.03.002>.
- Agrobiodiversity in Southeast Europe - assessment and policy recommendations - country report Macedonia, Skopje : GIZ, 2018.
- Апелтон, М. (2008). Заштитени подрачја во Македонија: преглед. Извештај во рамки на ГЕФ/УНДП/МЖСПП проектот „Зажакнување на еколошката, институционалната и финансиската одржливост на системот на заштитени подрачја во Македонија“, Скопје.
- Boyd, J., and Banzhaf, S. (2007). What are ecosystem services? The need for standardized environmental accounting units. *Ecological Economics*, vol 63, no 2, pp 616–626.
- Castro, A. J., Verburg, P. H., Martín-López, B., et al. (7 authors) (2014). Ecosystem service trade-offs from supply to social demand: a landscape-scale spatial analysis. *Landscape and Urban Planning*, vol 132, pp 102–110.
- Conniff, R. 2018: Habitat on the Edges: Making Room for Wildlife in an Urbanized World: available in December 2019 <https://e360.yale.edu/features/habitat-on-the-edges-making-room-for-wildlife-in-an-urbanized-world>
- Church, A., Fish, R., Haines-Young, R., et al. (15 authors) (2014). *UK National Ecosystem Assessment Follow-up. Work Package Report 5: Cultural Ecosystem Services and Indicators*. UNEP-WCMC, LWEC. Available at: <http://uknea.unep-wcmc.org/Resources/>
- Ciancio, O., Corona, P., Marinelli, M. and Pettenella, D. 2007. Evaluation of forest fire damages in Italy. *Academia Italianadi ScienzeForestali*. 60 p.
- CICES 2018: <https://cices.eu/content/uploads/sites/8/2018/01/Guidance-V51-01012018.pdf>
- CICES Classification version 4.3: <https://biodiversity.europa.eu/maes/common-international-classification-of-ecosystem-services-cices-classification-version-4.3>

- Elmqvist, T., Goodness, J., Marcotullio, P.J., Parnell, S., Sendstad, M., Wilkinson, C., Fragkias, M., Güneralp, B., McDonald, R.I., Schewenius, M., Seto, K.C., 2013. Urbanization, biodiversity and ecosystem services: Challenges and opportunities: A global assessment, *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities: A Global Assessment*. Chapter 11 Urban Ecosystem Services <https://doi.org/10.1007/978-94-007-7088-1>.
- EU INSTRUMENT FOR PRE-ACCESSION (IPA) RURAL DEVELOPMENT PROGRAMME 2014-2020, Skopje 2015. http://ipardpa.gov.mk/Root/mak/docs/Zakonodavstvo/IPARD%20II%20Programme_ENG.pdf
- Ferrari, M Geneletti D 2014 Mapping and Assessing Multiple Ecosystem Services in an Alpine Region a Study in Trentino, Italy *Ann di Bot* 4 65 71
- Fisher, B., and Turner, R. K. (2008). Ecosystem services: classification for valuation. *Biological Conservation*, vol 141, no 5, pp 1167–1169.
- Фронт 21/42 (2012). Анализа на транспозицијата, спроведувањето и извршувањето на еколошкото законодавство на Европската Унија во Република Македонија со фокус на хоризонталното законодавство, Скопје, стр. 66.
- Gaglioppa, P., Marino, D., 2016. Manual for the valuation of ecosystem services and implementation of PES schemes in agricultural and forest landscapes. Rome.
- Gaucher, C., Domingues-Hamdi, É., Prin-Mathieu, C., Menu, P., Baudin-Creuz, V., 2015. Good Practice Guidance for Land Use, Land-Use Change and Forestry, *Comptes Rendus-Biologies*. <https://doi.org/10.1016/j.crvi.2014.11.00>
- ЕФ/УНДП/МЖСПП проект „Зажакнување на еколошката, институционалната и финансиската одржливост на системот на заштитени подрачја во Македонија“ (2008- 2011), финансиран од ГЕФ.
- Gliozzo, G., Pettorelli, N., Muki Haklay, M., 2016. Using crowd sourced imagery to detect cultural ecosystem services: A case study in South Wales, UK. *Ecol.Soc.*21. <https://doi.org/10.5751/ES-08436-210306>
- Guide for investments in Polog planning region <https://rdcpolog.mk/wp-content/uploads/2019/03/Poloski-ENG-e-book-v11.pdf>
- Hassan R., Scholes R., and Ash N. eds. 2005. Millennium ecosystem assessment. Washington: Island Press.

- Heath, M.F. and M.I. Evans (Eds) (2000). Important bird areas in Europe: Priority sites for conservation. – 2 vols. Cambridge, UK, BirdLife International, BirdLife Conservation Series No. 8).
- Integrated Plan for Local development 2019 – 2022 Municipality of Vrapchisht.
- IUCN-CMP (2002). Unified Classification of Direct Threats. Version 1.0
- Mace, G. M., Norris, K., and Fitter, A. H. (2012). Biodiversity and ecosystem services: a multilayered relationship. *Trends in Ecology & Evolution*, vol 27, no 1, pp 19–26.
- Maes, J., Egoh, B., Willemsen, L., et al. (14 authors) (2012a). Mapping ecosystem services for policy support and decision making in the European Union. *Ecosystem Services*, vol 1, no 1, pp 31–39.
- McPhearson, T., Kremer, P., Hamstead, Z.A., 2013. Mapping ecosystem services in New York City: Applying a social-ecological approach in urban vacant land. *Ecosyst.Serv.* 5, 11–26. <https://doi.org/10.1016/j.ecoser.2013.06.005>
- Mincev I. 2015. Development of methodology for determination of protection zones around water reservoirs from aspect of soil erosion and sediment transport, Doctoral thesis, UKIM Forestry faculty in Skopje
- National Biodiversity strategy and Action Plan for the period of 2018-2023, MoEPP 2018, in the frame of the Project “Support to the Republic of Macedonia for revision of National Biodiversity Strategy and Action Plan and development of the Fifth National Report to the Convention on Biodiversity” financed by GEF.
- Považan, R., Getzner, M., Švajda, J., 2014. Value of Ecosystem Services in Mountain National Parks. Case Study of Veľká Fatra National Park (Slovakia). *J. Environ. Study* 23, 1699–1710
- Public Enter National Forests: Forest Management Plan “Mazdracha”
- Smakhtin, V.; Revenga, C.; Döll, P. Taking into Account Environmental Water Requirements in Global-Scale Water Resources Assessments; Comprehensive Assessment Research Report 2; CGIAR’s System-Wide Initiative on Water Management (SWIM): Montpellier, France, 2004; ISBN 92-9090-542-5.
- Secretariat of the Convention on Biological Diversity (2010). Global Biodiversity Outlook 3. Montreal, p. 94.

- Staub, C., Ott, W., Heusi, F. et al. (12 authors) (2011). *Indicators for Ecosystem Goods and Services: Framework, methodology and recommendations for a welfare-related environmental reporting*. Federal Office for the Environment, Bern. Environmental studies no. 1102: 17 S.
- Tammi, I., Mustajärvi, K., Rasinmäki, J., 2017. Integrating spatial valuation of ecosystem services into regional planning and development. *Ecosyst.Serv.* 26, 329344. <https://doi.org/10.1016/j.ecoser.2016.11.008>
- TEEB (2009), *The Economics of Ecosystems and Biodiversity. Climate Issues Update*
- TEEB (2010), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A Synthesis of the Approach, Conclusions and Recommendations of TEEB*.
- Tratalos, J. A., Haines-Young, R., Potschin, M., Fish, R., and Church, A. (2015). Cultural ecosystem services in the UK: lessons on designing indicators to inform management and policy. *Ecological Indicators*
- Programme for Development of the Polog Planning Region 2015-2019 https://rdcpolog.mk/wp-content/uploads/2019/03/Programme-for-Development-of-the-Polog-Planning-Region_ENG_VK.pdf
- Tengberg, Anna & Fredholm, Susanne & Eliasson, Ingegard & Knez, Igor & Saltzman, Katarina & Wetterberg, Ola. (2012). Cultural ecosystem services provided by landscapes: Assessment of heritage values and identity. *Ecosystem Services*. 2. 14–26. 10.1016/j.ecoser.2012.07.006.
- UNEP (2011). *Pan-European 2020 Strategy for Biodiversity*.
- UNEP/CBD/COP/DEC/X/2 (2010). *The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets*

8 ANNEXES

8.1 Annex 1 LIST OF NATIONAL POLICIES

- Constitution of the Republic of Macedonia (Official Gazette of the RM No. 52/91).
- Law on Agriculture and Rural Development (Official Gazette of the RM No.. 49/2010).
- Law on Agricultural Land (Official Gazette of the RM No. 135/07).
- Law on waters (Official Gazette of the RM No. 87/08).
- Law on Forests (Official Gazette of the RM No 64/09).
- Law on Pastures (Official Gazette of the RM No. 3/98).
- Law on Hunting (Official Gazette of the RM No 26/09).
- Law on Environment (Official Gazette of the RM No. 53/05).
- Law on Nature Protection (Official Gazette of the RM No. 67/04).
- Law on Seeds and Seedlings (Official Gazette of the RM No. 55/11).
- Law on Breeders Rights (Official Gazette of the RM No. 52/2009).
- Law on Livestock Production (Official Gazette of the RM No. 7/2008).
- Law on organic agricultural production (Official Gazette of the RM No. 146/2009).
- Law on Quality of Agricultural Products (Official Gazette of the RM No. 140/2010).
- Law on Plant Health Protection (Official Gazette of the RM No. 29/2005).

8.2 Annex 2 LIST OF NATIONAL STRATEGIES, PROGRAMS AND PLANS

- National Strategy for Agriculture and Rural Development 2014-2020
- National Strategy for Biodiversity strategy with Action plan. 2018, MoEPP,
- National Strategy for Sustainable Development, Part I/II,
- National Strategy for Sustainable Development, Part II / II, 2008, 49p.
- Strategy for sustainable development of forestry, MAFWE 2006.
- Program for Rural development 2014-2020 (IPARD II)

8.3 Annex 3 RATIFIED CONVENTIONS

- Convention on Biological Diversity, (www.cbd.int) ratified by law (Official Gazette of RM 54/97);
- • Cartagena Protocol on Biosafety to the Convention on Biological Diversity, <http://bch.cbd.int/protocol>, ratified by law (Official Gazette of RM 40/2005);
- Convention for the protection of the World's Cultural and Natural Heritage <http://whc.unesco.org/en/conventiontext>, ratified by law (Official Gazette of SFRY 56/74);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora www.cites.org, ratified by law (Official Gazette of RM 82/99);
- • European Landscape Convention, ratified by law (Official Gazette of RM 44/2003);
- United Nations Framework Convention on Climate Change, <http://unfccc.int/2860.php>, ratified by law (Official Gazette of RM 6/97);
- Kyoto Protocol to the United Nations Framework Convention on Climate Change;
- United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa <http://www.unccd.int> ratified in February 2002 (Official Gazette of RM 13/02);
- International Convention on Plants Protection, <https://www.ippc.int/en/core-activities/governance/convention-text> ratified in 1985 (Official Gazette of SFRY 1/85);
- International Treaty on Plant Genetic Resources for Food and Agriculture (signed, no contracting party).

8.4 Annex 4: Meetings with stakeholders

8.4.1 Meeting on knowledge transfer from project “Mapping and valuation of ecosystem services” towards effective and efficient project “Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht”





Date: 29 November 2019

Venue: Primary School Naim Fresheri - Municipality of Vrapcisht

8.4.2 *Meeting on Stakeholders' information and consultation process on Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht*





Date: 10 December 2019

Venue: Restoran Goxha - Municipality of Vrapcisht

8.4.3 *Meeting on consultation process with the representative of the Municipality of Vrapchisht for the process of Monitoring and implementation of the Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht*

Date: 9 January 2020

Venue: Municipality of Vrapchisht

8.4.4 *Meeting on stakeholders' final consultation for the proposed activated framed in the Action plan development for the improved biodiversity capitalization in the peri-urban forest of Vrapchisht*

Date: 13 January 2020

Venue: Primary School Naim Fresheri - Municipality of Vrapchisht