SUSTAINABLE DEVELOPMENT AND LAND USE WITHIN THE NOMINATION OF THE SKADAR LAKE WATERSHED FOR UNESCO TBR

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CONTENTS:

1. OWNERSHIP STRUCTURE AND HISTORICAL LAND USE ANALYSIS OF THE RB AREA

1.1.Legal status of the basin area

The ownership structure of land in the Skadar Lake area and its wider basin is a key factor in the planning of sustainable development and protection of this ecosystem. The land is under various ownership categories, with state ownership dominating, while water surfaces, according to the Water Law, are considered public water goods and are exclusively owned by the state.

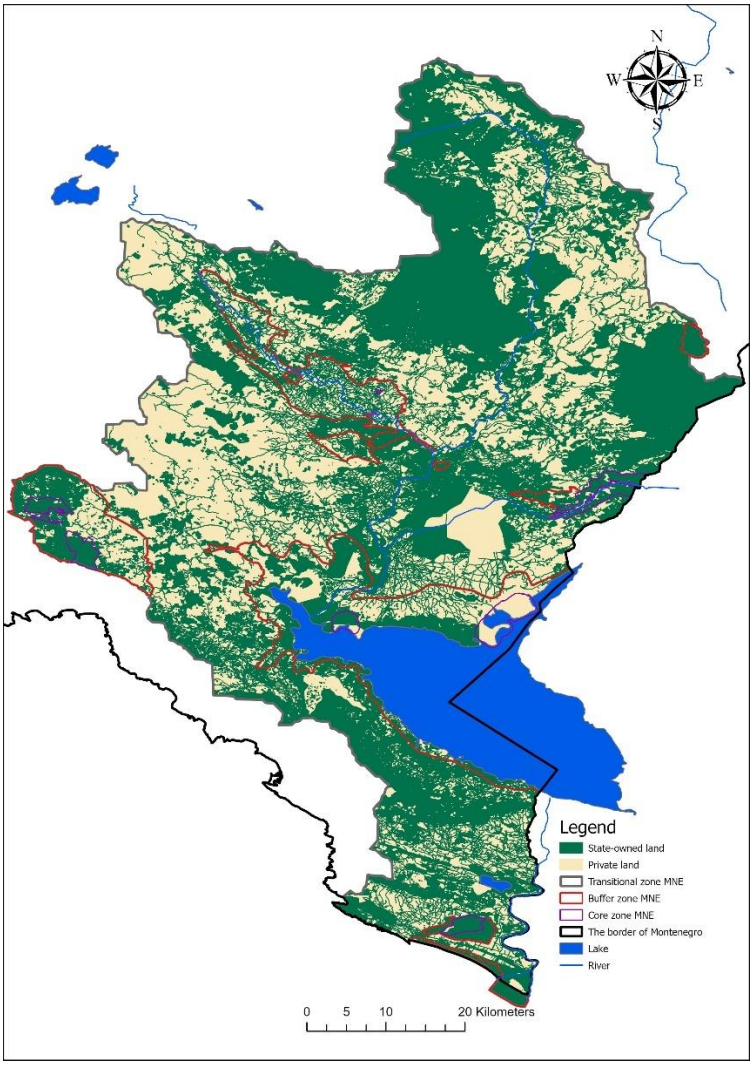
The Skadar Lake basin area is divided into three zones that differ in size, function, and land ownership structure. Each of these zones plays a key role in ecological stability and spatial planning, while simultaneously reflecting different levels of state and private ownership. The total area of all zones together represents a complex mosaic of land categories, where agricultural, natural, and urbanized spaces overlap in certain segments.

The largest territorial unit is the Skadar Lake basin, which spans over 346827 hectares. This area encompasses a wide range of landscapes, from marshlands and floodplains to hilly areas surrounding the lake. In this vast area, state-owned land covers more than 162447.60 hectares, indicating the significant role of public ownership in regulating and preserving the ecosystem. In this segment, water surfaces are included in the official land categorization, as they are exclusively public property in accordance with legal regulations.

The transit zone, covering nearly 274301.96 hectares, represents an area that stretches between the central core of protected natural units and the peripheral areas of populated and agriculturally cultivated land. State ownership in this zone amounts to approximately 117361 hectares, which is a slightly smaller percentage compared to the previous sector. This zone is a key space for balancing development and the conservation of natural resources, as important infrastructure, settlements, and arable land are located within its boundaries. Due to its specific position, the transit zone is subject to greater pressure from human activities, including the expansion of settlements, tourist capacities, and more intensive land cultivation.

The protective zone, also known as the buffer zone, covers about 66000.15 hectares and serves as a barrier between the central core and populated areas. Its primary function is to maintain ecological stability and reduce the impact of anthropogenic activities on the core protected area. In this zone, state ownership, including water surfaces, occupies slightly more than 40492.31 hectares, representing 61.35 % of the total area. This ratio indicates the presence of a small area of private land, predominantly used for agricultural activities. Given that the buffer zone plays a strategic role in reducing ecological pressures on the lake's core, the management of both public and private parcels in this area has a crucial impact on ecosystem preservation.

Map No 1.. Ownership structure in the Skadar Lake Basin BR area [1]



The smallest unit within the analyzed data is the core zone, which spans just over 6525 hectares. This segment constitutes the central and most preserved part of the Skadar Lake basin, where the strictest ecological standards and land use regulations are applied. State ownership dominates here as well, covering slightly more than 4627 hectares, indicating a small degree of private ownership in this strictly protected area. This zone is crucial for the preservation of natural

[1] Map created using ArcGIS Pro based on data obtained from the Real Estate Administration. The area of the polygon was calculated cartographically using ArcGIS Pro. The share of state land is likely higher because, according to information from the Real Estate Administration, there is still no electronic property cadastre in the municipality of Tuzi, particularly in the vineyard areas of Plantaže, until the procedures for submission to this Administration are completed.

biodiversity and serves as the backbone of all ecological strategies related to the Skadar Lake basin.

The land ownership structure within these zones reveals clear trends regarding the presence of state and private ownership. State-owned lands dominate the central, ecologically sensitive areas, while private parcels are more frequently found in peripheral zones and regions subject to higher degrees of urbanization and agricultural exploitation. This relationship between different categories of ownership directly influences management strategies, as regulating private land often poses a challenge in implementing protection measures and sustainable development initiatives.

Table No. 1. Areas of State-owned Land by Zone[2]

No	Name	Total area / ha	State-owned land / ha	Share of total area (%)
1.	**RB Skadar Lake Basin**	346827.86	162447.60	46.84
2.	**Transitional zone**	274301.96	117361.20	42,79
3.	**Buffer zone**	66000.15	40492.31	61.35
4.	**Core zone**	6525.71	4627.89	70.92

The analysis of the percentage ratio between state-owned land and the total area of each zone indicates that the highest proportion of state ownership is present in the core and buffer zones, whereas the transit zone has a relatively lower percentage of state-owned land, suggesting greater involvement of private owners. This aspect is particularly significant in the context of sustainable development planning, as the implementation of protection measures on private parcels frequently faces administrative and economic constraints.

Trends in ownership structure over the past decades show that state-owned land has maintained a stable position in the most preserved zones, while transit zones have experienced more intense changes. Processes of privatization, urbanization, and the expansion of agricultural capacities have influenced the redistribution of land resources, which in some cases has led to the fragmentation of ecological corridors and increased pressure on natural habitats. These trends highlight the necessity for more precise land management mechanisms that will facilitate the conservation of natural values without hindering the development of local communities.

In future land-use planning, particular attention should be directed toward the regulation of private lands within buffer zones and the implementation of more efficient urbanization control measures in transit areas. Sustainable management of the Skadar Lake Basin depends on balancing the preservation of the natural environment with enabling economic activity, whereby the land ownership structure will play a crucial role in defining strategies for the development and protection of this unique ecosystem.

[2] The land area data were obtained from the Real Estate Administration (polygon shapefiles), and their surface was cartographically calculated using ArcGIS Pro software.

The data obtained indicate that state-owned land covers a significant portion of the Skadar Lake basin. In the core zone, which includes the most important protected areas, state-owned land accounts for more than 70.92% of the total area. In the transit zone, which encompasses most of the inhabited and agricultural areas, state ownership makes up about 42%, while in the buffer zone it exceeds 61%.

One of the key factors influencing changes in the land structure is the fluctuation of the Skadar Lake water level, which seasonally varies from 359.2 km² at its minimum to 500.6 km² at its maximum. These oscillations affect the processes of soil waterlogging and exposure in coastal areas, further contributing to the degradation of land resources and reducing their usability for agriculture.[3]

1.2.Regulations on Management and Protection of the Area

The management and protection of land in the Skadar Lake basin take place within a complex legal and planning framework, the foundation of which lies in the Constitution of Montenegro.[4] Article 1 of the Constitution defines Montenegro as a civic, democratic, ecological, and social state based on the rule of law, which represents a unique example at the international level. With the proclamation of Montenegro as an ecological state in 1991 in Žabljak, and its subsequent constitutional definition in 2007, an institutional and societal obligation was established to ensure that development is based on the principles of sustainability, preservation of natural resources, biological diversity, environmental protection, and responsible land use. This constitutional provision requires that all development sectors, including spatial planning, agriculture, tourism, energy, and natural resource management, align with the principles of environmental protection and long-term sustainability.

In addition to the Constitution, the legal framework for land and natural resource management in the Skadar Lake basin includes a number of sectoral laws: the Law on State Property, the Law on Nature Protection, the Law on Agricultural Land, the Law on Waters, as well as spatial plans at both national and local levels. These documents regulate land use, measures for the protection of natural resources, institutional responsibilities, and instruments for implementing sustainable development policies.

The Law on State Property[5] provides that state-owned property in protected areas, such as national parks, represents a special asset of public interest. The management of such property must be carried out lawfully, efficiently, and in accordance with its designated purpose. Competent authorities are obligated to ensure its preservation, proper use, and protection from degradation. If the institutions using state property fail to fulfill their obligations, the Government or the municipality may take action, including revoking the property from the user.The disposal of state

[3] Dr Mirko Knežević, Study – Water Regime of the Morača River and Skadar Lake, WWF MedPO and Green Home, Podgorica, September 2009.
[4] The Constitution of Montenegro ("Official Gazette of Montenegro", No. 1/2007 and 38/2013 – Amendments I–XVI)
[5] The Law on State Property ("Official Gazette of Montenegro", No. 21/2009 and 40/2011 – other law)

property is carried out by the State of Montenegro, although certain ownership rights may be exercised by the Government, municipalities, state authorities, and local self-government bodies. This property can be managed through various models, including concessions, leases, and public-private partnerships. In cases where it is necessary to achieve public interest, municipalities are required to make state-owned property available to the state. Decisions regarding the use and disposal of such property are made by the competent authorities, while decisions concerning property of exceptional value are made at the highest state level.

The key strategic document guiding spatial development at the national level is the Spatial Plan of Montenegro, which defines the fundamental principles for land use and spatial organization, development priorities, and guidelines for sustainable resource management. This plan serves as the basis for drafting and harmonizing spatial and urban plans of local self-government units, which elaborate in detail on spatial development at the local level.

These plans are of particular importance in the context of the transition zone, which includes populated and infrastructurally significant areas within the biosphere reserve, where development must be aligned with environmental conservation. Additionally, the spatial and urban plans of local governments are crucial for defining land use regimes and protection measures in protected areas located outside the National Park, including natural monuments, nature parks, protected habitats, and cultural landscapes. The alignment of these plans with national spatial documents ensures coordination between local and state interests, spatial coherence, and the preservation of natural and cultural values.

The fundamental legal document regulating the protection of natural wealth in protected areas is the Law on Nature Protection,[6] which recognizes the Skadar Lake area as a protected natural asset of special significance. According to this law, land management must align with the principles of ecosystem preservation, biological diversity, and sustainable development. The law establishes a system of protected natural assets encompassing various categories of protection (national parks, nature parks, nature reserves, natural monuments, protected habitats, etc.). Each protected area is subject to a protection regime defined by a management plan. Within these areas, protection zones are established (strict, active, and guided protection), which determine the level of permitted activities, conservation measures, and limitations on the use of natural resources. This type of zoning allows for a balance between nature conservation and sustainable land use, in accordance with the specific characteristics of each site.

The key institution responsible for implementing protection measures in national parks is the Public Enterprise for National Parks of Montenegro, which defines protection measures and monitors land use through the National Park Management Plan, in line with the Law on National Parks.

[6] Law on Nature Protection (*Official Gazette of Montenegro*, No. 51/08 of 22 August 2008, 21/09 of 20 March 2009, 40/11 of 8 August 2011, 62/13 of 31 December 2013)

In addition to national legislation, Skadar Lake is also protected under international conventions, including the Ramsar Convention, under which part of the lake has been designated as a wetland of international importance. This further imposes obligations to preserve the ecological function of the land and to prevent unsustainable development.

The land management regulations include spatial planning, which is implemented through Spatial Plans for Special Purposes for the Skadar Lake National Park and Lovćen National Park. These documents divide the area into different protection zones, with stricter land use regimes applied to ecologically sensitive areas. According to the Management Plan for the National Park, there are clearly defined rules for land use within the core zone, buffer zone, and transit zone.

In the core zone, which encompasses the most valuable ecosystems, human activities are strictly limited, with only scientific and conservation activities being permitted. In the buffer zone, which acts as a buffer between the core park area and populated regions, certain agricultural and eco-tourism activities are allowed, but under strict ecological regulations. The transit zone allows for a greater degree of land use, yet it still remains subject to regulations that prevent environmental degradation.

The legal framework imposes significant restrictions on land exploitation to protect the ecological function of national parks. According to the Law on Agricultural Land, arable land in this area can only be used for agricultural production, and any change of land use must be approved by the competent authorities. Additionally, the conditions under which agricultural land can be temporarily used for non-agricultural purposes are strictly regulated, with mandatory reclamation required after use.

The Water Law stipulates that water surfaces are public goods exclusively owned by the state, thereby prohibiting their privatization or unauthorized exploitation. This law also limits construction activities in coastal areas and sets strict conditions for the discharge of waste and other substances that may jeopardize water quality.

In accordance with the Law on National Parks and the Spatial Plan for Skadar Lake National Park, the use of forest and wetland areas is also regulated. Forest exploitation is limited to sustainable management (including sanitary and protective cutting, but under strict conditions and control measures), while cutting in the core zone is prohibited. Wetland areas are under special protection, as they serve as crucial habitats for biodiversity and play a significant role in water filtration and the regulation of the water regime.

Although the laws and planning documents are clearly defined, the implementation of regulations for land protection and management faces numerous challenges. One of the key issues is uncontrolled urbanization, which occurs due to the lack of effective supervision over illegal construction. Additionally, the presence of private land in the buffer zone often complicates the implementation of ecological measures, as landowners do not always comply with legal obligations regarding environmental protection.

2. HISTORICAL LAND USE AND LANDSCAPE CHANGE TRENDS

2.1.Traditional Land Use in the Skadar Lake Basin[7]

Bar

The Bar region of the Skadar Lake basin is characterized by diverse land use, rooted in natural conditions, traditional practices, and the economic orientation of the population. In the past, agriculture, livestock farming, fishing, and forestry were the primary activities of the local population, and the land structure reflected the conditions of the terrain, climate, and availability of water resources. Most of the arable land was organized into small plots with mixed agriculture – viticulture, olive growing, vegetable farming, and fruit growing. In the areas of Crmnica, Krajina, and Limljani, vineyards and orchards were dominant, while in the higher regions, especially around Rumija and Lisinj, pastures and forested areas were present, used for grazing and logging. In the plains and marshy areas of Skadar Lake, particularly in the Virpazar zone, fertile lands on red soils and alluvial deposits were formed, suitable for intensive agriculture and settlement development.

Fishing had a distinctly traditional character, with methods adapted to the ecological dynamics of the lake, while the islands in the lake, including Grmožur and island-monastery complexes, were culturally and religiously valued, often integrated into daily life through religious rituals and local architecture in harmony with the landscape. Marsh landscapes, along with numerous peninsulas and bays, created natural barriers and guided the development of settlements to more favorable micro-locations.

Cetinje

The area of the Capital City of Cetinje, including regions such as Njeguši and Rijeka Crnojevića, was shaped by long-term land use processes adapted to the harsh karst conditions and limited agricultural potential. In this context, the inhabitants traditionally practiced creating terraces for land cultivation, especially on the slopes of Lovćen, in valleys, and karst fields, where the terraced surfaces were walled and further enriched with a layer of fertile soil. These terraces were used for planting modest crops, while less fertile areas were used as pastures. The most valuable lands were found along the edges of sinkholes and in valleys, where it was possible to develop localized but functional agriculture.

Livestock farming was the main activity, especially in the high and steep parts of the katun-karst region, where seasonal katuns predominated. Traditional practices of logging and clearing forests for the creation of pastures significantly altered the natural forest communities, transforming them into shrublands or sparse pastures. In the more fertile area of the Rijeka nahija,

[7] Data on traditional land use were obtained from the Spatial-Urban Plans (PUPs) of the municipalities within the area of the Research Block (RB).

due to the lower altitude and richer vegetation, viticulture and fig cultivation dominated, while native species such as wild rose, hornbeam, oak, and juniper spread in the wild.

Danilovgrad

The area of the Municipality of Danilovgrad represents the historical center of the Bjelopavlić tribe, whose settlement was conditioned by various factors, including security needs, protection from floods, and optimal conditions for agriculture. Permanent settlements were traditionally formed at altitudes between 100 and 600 meters, where the best living and working conditions were present, while the lowland areas along the Zeta River were primarily used for agriculture due to their fertility, but were not suitable for habitation due to frequent floods and high humidity. In the past, land use was regulated by customary law and various forms of ownership – private, brotherhood, village, tribal, church, and state, which allowed for sustainable management and the transmission of traditional knowledge. Typical land use included the cultivation of cereals, vegetables, grapevine, and fruit in the lower regions, while katuns in mountain areas, such as Sinjajevina, were used for seasonal livestock farming, ensuring a natural balance and full utilization of the space.

Podgorica

Traditional land use in the area of present-day Podgorica was focused on the sustainable use of fertile lowland areas, particularly in the Zeta Plain and the Morača Valley, where mixed agricultural activities dominated – especially livestock farming, crop cultivation, and viticulture. In rural areas, a crop rotation system was applied, which involved rotating different plant species to maintain soil fertility and prevent erosion. Along with agriculture, traditional construction was present, in accordance with the environmental values and natural conditions, featuring large household yards and low levels of urbanization. This model of land use supported the preservation of landscape structure and was in harmony with the natural water regimes and relief.

Tuzi

In the area of today's municipality of Tuzi, traditional land use was predominantly agrarian, with a focus on arable land that formed the basis of the local economy. Various types of crops were cultivated in accordance with microclimatic conditions and soil types – ranging from alluvial plains to hilly areas. Vineyards, orchards, and traditional resource use, including livestock farming and the utilization of forest products, played a significant role. The area was abundant in natural water sources, which further shaped the settlement pattern and land use. Villages were maintained with characteristic rural landscapes and traditional architecture, based on local materials and techniques.

Zeta

The Zeta region, particularly the area of Golubovci, had a strong tradition of intensive agriculture, with a large number of estates organized on the principles of family production. The landscape consisted of spatial units with orchards, vineyards, arable land, and pastures. This region was also known for its developed irrigation system, thanks to the proximity of rivers and lakes. The traditional organization of space involved clearly separated zones for living, agriculture, and seasonal activities, while preserving natural vegetation along the rivers and at higher elevations.

Kolašin

The area of the valley and canyon of the Morača River in the municipality of Kolašin was characterized by multi-layered land use, adapted to the terrain configuration, climatic conditions, and the livelihood needs of the local population. The lower reaches of the Morača River formed narrow valley areas suitable for the cultivation of cereals, vegetables, and small fruits, while the higher terrains, especially at the contacts with mountain massifs, were used for extensive livestock farming. Livestock activities were organized under the system of seasonal transhumance, with summer pastures serving as temporary stays for shepherds and their herds. Land users developed traditional methods of cultivation and processing, which were integrated with natural cycles and the characteristics of the landscape. At the same time, the Morača Valley was an important communication corridor, which influenced the establishment of smaller settlements and the economic revival of the area, especially near the Morača Monastery, which was both a spiritual and economic center of the local community.

Nikšić

Pješivci, as part of the Bjelopavlić plain and lower Zeta, are located in a predominantly karst environment, with a pronounced agricultural land use regime. Historically, the area was subject to periodic changes driven by the natural characteristics of the terrain, but it remained focused on traditional grazing, crop farming, and livestock farming. Land use was adapted to the terrain configuration, with systems built to adapt to the karst features – such as wells, dry stone walls, and watering places. This allowed communities to develop a model of coexistence with nature, without disrupting the basic ecological characteristics of the area.

Ulcinj

The area of the municipality of Ulcinj is characterized by a rich tradition of land use, deeply rooted in the natural characteristics of the area and the socio-cultural practices of the local population. The flat terrain and favorable Adriatic climate provided the foundation for the development of traditional agriculture and olive growing. Olive groves in Valdanos, with trees hundreds of years old, testify to the long history of agro-landscapes, while the fields of Ulcinj and Briska have been recognized as areas of intensive agricultural production since the 20th century. The main form of organization was small family farms, often with small plots that were divided

among heirs over time. In rural areas, traditional forms of fishing were developed, among which "kalimera" stands out – a fishing system using wooden huts on the water, specific to Port Milena. This practice, in addition to its economic significance, also carries a pronounced cultural value. Anthropogenic landscapes, with small plots bordered by trees and shrubs, contribute to the preservation of the visual identity of the area and serve both an ecological and aesthetic function in the overall landscape structure.

2.2.Contemporary Changes in the Landscape and Land Use

In the past few decades, the landscape of the Skadar Lake watershed has undergone significant transformations due to the rapid development of urbanization, the expansion of tourist complexes, and changes in agricultural structures. The process of urbanization has been most pronounced in the areas around Podgorica, Tuzi, Zeta, and Ulcinj, where former agricultural lands have been transformed into residential and infrastructural complexes. This trend has led to a reduction in arable land and fragmentation of ecological corridors, which has had a direct impact on the ecological stability of the region. The Skadar Lake landscape has experienced significant changes due to a combination of natural and anthropogenic factors. Satellite imagery analyses show a continuous reduction in wetland areas, an increase in urbanized surfaces, and changes in watercourses due to river regulations and hydroelectric projects.[8]

The regulation of the Morača River and other rivers flowing into the lake has had a significant impact on the landscape dynamics, as it led to changes in flood regimes and alterations in plant communities that adapt to hydrological conditions. At the same time, changes in climate patterns have resulted in more frequent drought periods, further affecting the ecosystem. During drought periods, the decrease in water levels has led to the draining of flood zones, resulting in the loss of crucial habitats for many bird species, fish, and aquatic plants.

The natural resources of Skadar Lake are used for various purposes, including fishing, tourism, agriculture, and the exploitation of forest ecosystems. Traditionally, fishing has been one of the main economic activities in the region, but overfishing and illegal fishing methods have led to a drastic decline in fish populations. The total annual fish production in the lake has decreased from 1,200 tons in the 1980s to less than 600 tons today, representing a 50% reduction. The most endangered species are the bleak (Alburnus scoranza) and carp (Cyprinus carpio), which were once economically the most important for the local population.[9]

Bar

In the second half of the 20th century, the area of the municipality of Bar underwent transformations that significantly impacted the traditional landscape mosaic. Urbanization, tourism development, and infrastructure expansion contributed to a reduction in arable land and

[8] Report on Strategic Environmental Impact Assessment for the Water Management Plan of the Adriatic Basin, DOO Medix, Podgorica, September 2019.
[9] Predictive Hydrological Modeling and Habitat Assessment for Lake Skadar, Montenegro, Center for the Protection and Study of Birds, Author: Ulrich Schwarz, FLUVIUS, Vienna/Podgorica, 2022.

fragmentation of the natural space. Agricultural areas, once covering more than 12,000 ha, were reduced by almost half, while wetland habitats lost over 40% of their original area. Following these trends, the landscape of Lake Skadar, especially in the regions of Krajina, Crmnica, and the coastline, experienced changes such as a reduction in grazing, vegetation succession, and the overgrowth of meadows, further diminishing the possibilities for maintaining traditional activities.

Intensive construction, particularly along the shoreline of Lake Skadar, and spatial reorganization based on tourism and infrastructure projects have contributed to the aesthetic, functional, and ecological transformation of the landscape. Settlements were expanded, coastal zones adapted for recreation and tourism, and natural areas fragmented by road construction and infrastructure. The lake's water level, with seasonal fluctuations, continues to shape the dynamic relationship between land and water, with changes in the shoreline boundaries further affecting land usability and the adaptability of human activities. At the same time, forested and non-arable lands cover a significant portion of the territory, often as a result of the degradation of former pastures and agricultural land, while data indicate that a large percentage of the territory has slopes greater than 20%, further limiting sustainable land use in accordance with its natural capacities.

Cetinje

During the past decades, the landscape of the watershed has undergone significant changes due to depopulation, the abandonment of villages, and the loss of traditional lifestyles. Numerous rural households were abandoned, and land was left neglected, leading to the deterioration of boundary markers, overgrowth of terraced areas, and the disappearance of the characteristic rural structure. Instead of a maintained cultural landscape, neglected areas covered in shrubs and degraded vegetation have emerged. These changes were further exacerbated by erosive processes, leading to the appearance of bare rock surfaces and the loss of fertile soil layers.

At the same time, the spaces around rural settlements, particularly near Cetinje and Njeguši, have undergone a transition. Some buildings have been repurposed into weekend homes and seasonal properties, while urban functions have expanded within city cores, leading to an increase in housing. These changes have often been spontaneous and lacked proper planning, which has compromised the sustainability of the space. Settlements have expanded into arable land, which, in the context of sustainable development, is considered an unacceptable trend.

The landscape of the Rijeka Crnojevića area has also experienced transformation. Although the inherited values in the urban core are recognized as significant, insufficient protection and inadequate spatial management have contributed to the degradation and loss of the authentic environment. Urban development of settlements, migration, and socio-economic changes have directly affected the alteration of land structure and the functional organization of the space. Additionally, anthropogenic influences have altered the structure of vegetation – once tall forests have mostly been replaced by medium and low vegetation, and cultural landscapes have been fragmented and eroded.

Danilovgrad

In the second half of the 20th century, intensive changes in land use began. Settlements started to expand toward lower altitudes, particularly after the construction of the Podgorica-Nikšić main road, which triggered an increase in construction activity. Changes in the structure of agricultural land use are reflected in the significant reduction of areas under fields and gardens, which decreased from over 2,800 hectares in 1989 to around 500 hectares in 2010. At the same time, there was a significant increase in areas covered by meadows. The fragmentation of land holdings, construction of residential buildings on fertile land, and reduced agricultural production contributed to landscape degradation. There is also a tendency toward land parcelization for the construction of houses and weekend homes, which further threatens agricultural land, particularly in the Bjelopavlićka Plain.Additionally, infrastructure development, mining, and forestry leave an increasingly prominent mark on the natural appearance of the area. The introduction of concession models for the exploitation of resources such as forests and mineral raw materials further changes the character of the landscape, with concession revenues not being sufficient to compensate for ecological impacts and invest in sustainable management. Despite this, the area still possesses significant potential for the development of sustainable agriculture and the preservation of its landscape identity, provided appropriate protection measures and planning are implemented.

Podgorica

In the contemporary period, the landscape of Podgorica has undergone significant changes due to urbanization and the expansion of construction zones at the expense of agricultural land. The expansion of residential and commercial zones, informal construction, repurposing green and sports areas into building plots, and the development of infrastructure have caused fragmentation of the space and a decline in traditional rural functions. Changes in land use models – shifting from crop rotation to monocultures, the introduction of intensive agriculture, and neglect of protective measures – have further contributed to the degradation of the land and the landscape identity.

Tuzi

In Tuzi, there is significant demographic pressure and unplanned urbanization, particularly along roadways and on attractive lands. Development without adequate planning documentation has led to the creation of settlements with low urban and infrastructural value, resulting in a reduction of high-quality agricultural land. The fragmentation of land, the expansion of the construction zone onto fertile areas, and the erosion of the cultural landscape have caused the degradation of the traditional rural character. At the same time, there is an increasing need for the protection of natural water sources, riverbeds, and the remediation of ecologically sensitive areas.

Zeta

Golubovci are experiencing intensive urban development along transportation routes and strategic points, leading to changes in the traditional landscape matrix. Increased construction on

lower elevations and the conversion of agricultural land into residential and commercial zones create risks of flooding and resource loss. In an attempt to preserve the landscape identity, measures such as the creation of eco-corridors, protection of park forests, and maintaining large yards have been introduced, but the effects remain limited. Current trends highlight the need for integrated planning to prevent further disruption of the natural balance of the area.

Kolašin

In the modern period, the Morača River valley and canyon have undergone significant changes due to the modernization of the road infrastructure along the river (the Adriatic Highway and the Bar–Boljare motorway), which has led to major infrastructural interventions. The construction of roads, tunnels, and bridges has caused physical fragmentation of the landscape, alterations in surface and groundwater regimes, and increased erosion. Traditional agriculture has declined due to depopulation and a lack of interest among the younger population to live and work in the villages along the river. The settlements have lost their compactness, and much of the land has been overgrown by secondary vegetation.

The lack of integrated spatial planning in earlier stages has resulted in sporadic and often illegal construction, further disrupting the natural environment and the aesthetic harmony of the area. At the same time, the planned hydroenergy development of the Morača River — although currently postponed — potentially poses a significant threat to the landscape and ecological structure of the valley, as it involves the possibility of flooding, rerouting the river, and damaging natural and cultural values. Despite the area's rich natural resources, without clear management and protection mechanisms, the Morača Valley remains vulnerable to further degradation, and its landscape identity is threatened by spatial pressures and infrastructure projects.

Nikšić

In the Pješivci region, due to the proximity to the urban zones of Lower Zeta and the ongoing valorization of the area, there is a fragmentation of the traditional landscape and potential pressures from urbanization. However, the plan still recommends maintaining the agricultural function and limiting construction in order to preserve the natural morphology and local ecological value of the karst system. The guidelines emphasize the importance of preserving cultural landscape elements, including hedgerows, dry stone walls, summer pastures (katuni), and traditional buildings. There is also a focus on their potential integration into rural tourism offerings and local economic activities.

Ulcinj

During the last few decades, the landscape of Ulcinj has undergone significant changes in land use, primarily due to urbanization, tourism development, and a lack of control over spatial development. The loss of fertile agricultural land, especially in the hinterland of the Great Beach, is particularly pronounced, where former vineyards and olive groves have been transformed into

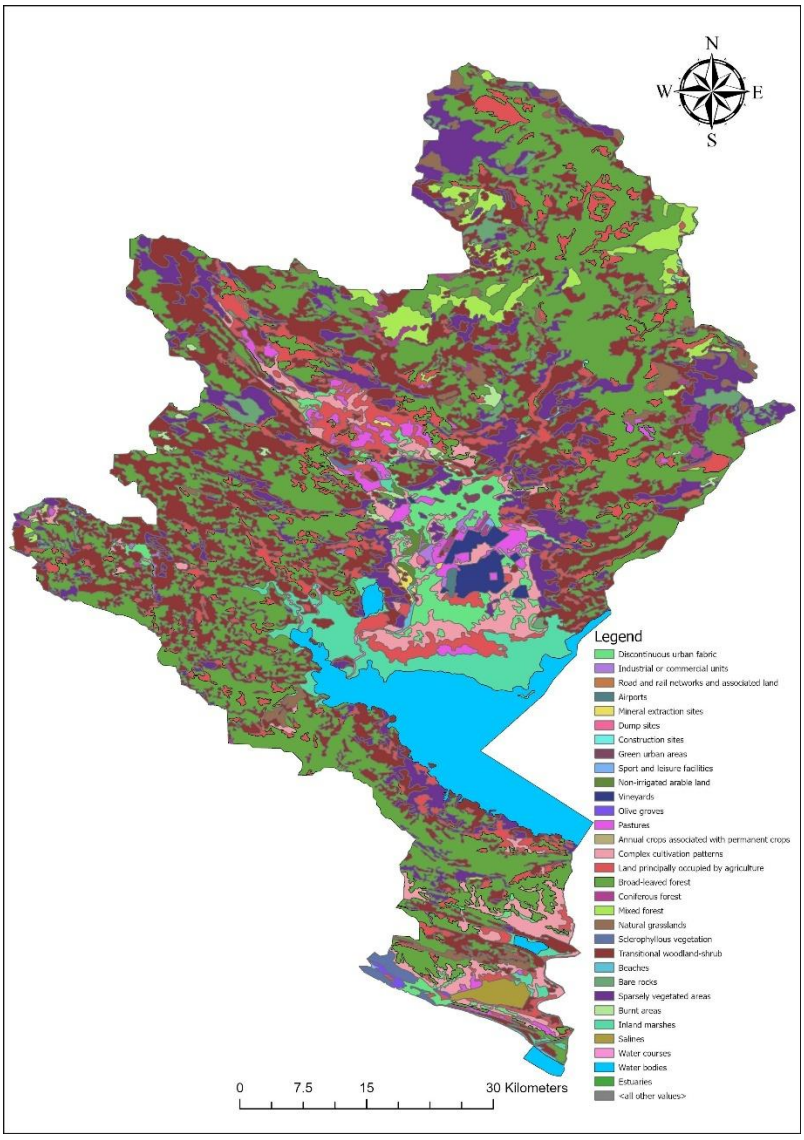
zones of illegal construction or are no longer accessible for agriculture due to urban development plans. While the municipality possesses around 8,500 hectares of deep fluvial land, which represents over 60% of the flatland in the coastal region of Montenegro, its full potential remains untapped.

The landscape of Ulcinj is undergoing significant changes under the pressure of tourism and construction. Unique natural areas, such as the wetland systems in the Bojana River valley, the dune system along the Great Beach, and the rocky coastlines around Pineša and Mendre, are exposed to degradation, partly due to inadequate planning and partly due to changes in ownership and functionality of the land. However, some elements of the traditional landscape have been preserved, such as the kalimera fishing method, the olive groves of Valdanos, and the Ulcinj Saltworks, which continue to hold significant value for biodiversity and the identity of the area. The character of the area remains diverse, ranging from anthropogenic fields to wetlands and forest zones, but there are strong tendencies of transformation that pose a risk of losing the authentic landscape identity of the region.

2.3.Existing Land Use

The land use analysis within the Skadar Lake watershed is based on data obtained from the Corine Land Cover (CLC) portal and processed using ArcGIS Pro software. This analysis provides an understanding of the spatial distribution of various land categories and their significance in both ecological and socio-economic contexts.

Map No 2. Spatial Distribution of Land Categories within the Skadar Lake Basin Area [10]



[10] CORINE Land Cover 2018 (vector/raster 100 m), Europe, 6-yearly — Copernicus Land Monitoring Service

Table 2. Area and Proportion of Land Categories within the Skadar Lake Basin Area [11]

Existing Land Use	Area in ha	Share in total area (%)
Discontinuous urban structure	9240.78	2.67
Industrial or commercial units	730.38	0.21
Road and rail networks with associated land	174.88	0.05
Airport	240.67	0.07
Mineral extraction area	340.57	0.10
Landfills	154.80	0.04
Construction sites	139.91	0.04
Green urban areas	300.00	0.09
Sports and recreational facilities	160.55	0.05
Non-irrigated arable land	588.05	0.17
Vineyards	2858.51	0.83
Olive groves	287.68	0.08
Pastures	5440.21	1.57
Annual crops associated with permanent crops	126.82	0.04
Complex cultivation patterns	14720.65	4.25
Land principally occupied by agriculture with significant areas of natural vegetation	30852.11	8.90
Deciduous forest	107886.86	31.14
Coniferous forest	1720.69	0.50
Mixed forest	7858.43	2.27
Natural grasslands	5911.77	1.71
Sclerophyllous vegetation	1052.57	0.30
Transitional woodland-shrub	81709.11	23.58
Beaches, dunes, sand	366.040	0.11
Bare rocks	4105.81	1.19
Sparsely vegetated areas	32856.93	9.48
Burnt areas	1175.49	0.34
Inland wetlands	10759.22	3.11
Salt pans	1463.15	0.42
Watercourses	516.91	0.15
Water bodies	22659.58	6.54
River estuaries	73.54	0.02
TOTAL:	**346472.81**	**100,00**

The area covered by the RB is characterized by diverse land types, ranging from natural ecosystems to areas influenced by human activity. The largest portion of the territory, 33.91%, is covered by forest complexes, including deciduous, coniferous, and mixed forests. Deciduous forests account for 31.14% of the coverage, while coniferous and mixed forests are present in smaller amounts, covering 0.50% and 2.27% of the total area, respectively. These forested areas

[11] Cartographically calculated area based on Corine Land Cover data

represent key natural resources and play a significant role in preserving biodiversity, soil stability, and the hydrological regime. Natural grasslands and transitional woodland-shrubland account for an additional 25.29% of the coverage, further enriching the ecosystems in the area.

Agricultural land is represented in various forms, with complex land use systems and land that combines agricultural production with significant natural vegetation. These categories together cover 13.15% of the analyzed area. Complex land use systems occupy 4.25%, while land under agriculture with significant natural vegetation covers 8.90%. In the lower areas, there are cultivated lands, vineyards, and olive groves, which account for 0.91%, 0.83%, and 0.08%, respectively, of the total area. In the hilly-mountainous zones, pastures dominate, covering 1.57% of the territory.

Urbanized areas, including settlements, industrial and commercial zones, and infrastructure, occupy 2.93% of the analyzed space. The largest part of these areas is made up of discontinuous urban structures, covering 2.67% of the total territory. Industrial and commercial zones occupy 0.21%, while transport infrastructure, including roads, rail networks, and airports, covers 0.05%. Construction sites and landfills make up 0.80% of the total area, while green urban spaces and sports-recreational complexes are present at 0.14%.

Aquatic ecosystems, including watercourses, wetlands, river estuaries, the marine zone, and coastal lagoons, play a vital role in preserving natural habitats and maintaining the ecological balance of the Skadar Lake area. These areas make up 10.24% of the territory. Wetlands cover 3.11%, while water bodies account for 6.54% of the analyzed area. Salt pans and other specific aquatic features represent 0.42%.

Along the coast of Skadar Lake and in certain mountainous areas, there are lands that are naturally or anthropogenically degraded, including beaches, dunes, bare rocks, and areas with sparse vegetation. These lands cover 10.78% of the analyzed area. Of particular importance are the sparsely vegetated areas, which make up 9.48% of the territory, while bare rocks represent 1.19%. Erosion processes and changes in land use are present at these locations, necessitating special conservation and remediation measures.

The analyzed data allows for precise determination of the spatial distribution of individual land categories, as well as their percentage representation in the total area of the coverage. The total area of the analyzed region is 346472.81ha, with forest complexes and natural grasslands being the dominant categories, while aquatic ecosystems and agricultural lands also have significant representation. These data serve as the basis for further spatial planning and the development of strategies for sustainable natural resource management in the Skadar Lake area.

2.4.Identification of main users for each zone

Identification of the main land users within protected and transitional zones can be based on land ownership structure and land use. Based on the provided data, the analysis covers three key zones: the core zone, the buffer zone, and the transitional zone..

Core zona

The core zone represents the most strictly protected area, predominantly consisting of state-owned land, which accounts for 70.92% of the total (4,627.89 ha out of 6,525.71 ha). This zone is managed by the Skadar Lake and Lovćen National Parks, which play a key role in preserving natural values and implementing protection measures. Spatial characteristics indicate that the majority of the zone is covered by forests and natural vegetation, while a smaller portion includes agricultural land with preserved natural elements. Land users in this zone include research institutions, scientific organizations, environmental inspection bodies, and a limited number of visitors in accordance with the protection regime.

Buffer zona

The buffer zone, which serves as a protective belt around the core zone, covers a total area of 66,000.15 ha, of which 61.35% is state-owned (40,492.31 ha). Within the buffer zone, the land managed by the Skadar Lake and Lovćen National Parks follows a similar protection regime as the core zone. However, the remaining part of the buffer zone, which is not part of these national parks, is managed by the Regional Nature Parks of Komovi and Zeta, the Cijevna Nature Park, the Saltworks, and other protected areas. This zone encompasses various types of land, including partially urbanized settlements, agricultural and forested areas, as well as significant wetland habitats. Land users in the buffer zone include farmers, local communities, tourism operators, and nature conservation organizations, in accordance with the permitted activities.

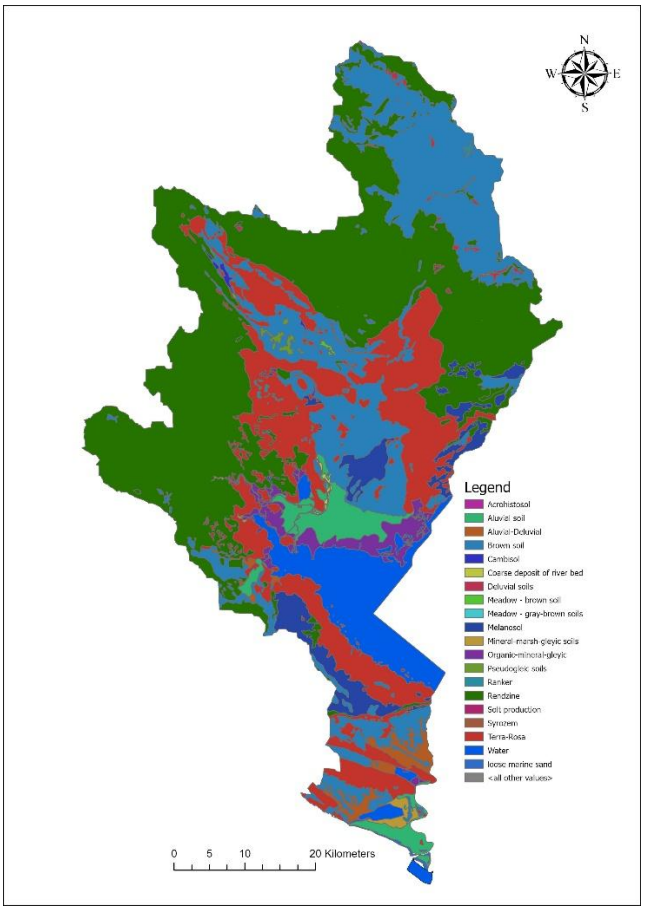
Transitional zona

The transition zone is the broadest area where various forms of land use intersect. The total area of the zone is 274,301.96 ha, of which 42.79% is state-owned land (117,361.20 ha). Based on the land structure and its intended use, this zone includes agricultural areas, urbanized regions, and forest complexes. In addition, there are areas under intensive use, such as settlements and transportation infrastructure, which further shape the profile of land users. The main land users in this zone are economic entities, private landowners, farmers, local governments, the tourism sector, and various organizations involved in sustainable development.

2.5. Pedogeographical Characteristics and Land Classification in the Skadar Lake Basin

Skadar Lake and its basin represent a dynamic ecosystem in which the land plays a crucial role in regulating hydrological, ecological, and biological processes. The lake's surface area significantly varies depending on water levels, with its smallest area recorded at 359.2 km², while during high-water periods, it can reach up to 500.6 km². The average surface area is 419.4 km². The total basin of Skadar Lake covers 5,490 km², with the dominant portion, approximately 81.2%, located within the territory of Montenegro, while the remaining 18.8% belongs to Albania. This spatial framework highlights the complex interaction between terrestrial and aquatic ecosystems, where the lake's water regime directly impacts changes in land type composition and function, particularly in the coastal areas.[12]

Map No. 3. Soil Types in the Scope of RB Skadar Lake Basin [13]



[12] Dr Mirko Knežević, Study - Water Regime of the Morača River and Skadar Lake, WWF MedPO and Green Home, Podgorica, September 2009.
[13] M.Burić, B.Fuštić, P.Bulajić, Atlas of Land in Montenegro, CANU, 2017

The Skadar Lake basin area is characterized by diverse soil types, with different pedological types reflecting the influence of geological, hydrological, and climatic factors. The most prevalent soil type in this region is rendzina, which covers significant areas around the lake's perimeter, with a total area of 136445.41hectares. These soils have formed on limestone and dolomite substrates and represent a characteristic soil type in hilly and mountainous areas, where erosional processes are dominant, and specific physical-chemical characteristics are present. The presence of rendzina indicates a significant influence of the geological composition on the development of the pedological substrate, as they formed on material deposited during glacial periods.

Table No 3. Land within the scope of the Skadar Lake Basin area. [14]

Land Types	Land Types
Alluvial soil	10899.07
Alluvial-colluvial soil	4560.60
Brown soil	75221.24
Red soil	65717.22
Coarse riverbed deposits	317.10
Black soil	13545.57
Colluvial soil	874.69
Meadow soil	380.00
Meadow brown soil	150.31
Living marine sand	378.01
Meadow grey-brown soil	8.65
Mineral-swamp gleysol	1108.00
Organic-mineral gleysol	7522.72
Pseudogley	569.25
Rankers	335.30
Rendzinas	136445.41
Regosols	35.64
Solt production	36.35
Raised peat soil	16.22
Water	24442.76

In the central parts of the Skadar Lake basin, brown soils and red soils dominate. Brown soils cover an area of 75221.24 hectares and represent a transitional stage in soil succession, most commonly found in the lowland areas around Podgorica and along the riverbeds of Morača and Zeta. Red soils, with an area of 65717.22 hectares, form at altitudes of 500 to 600 meters and are recognizable by their characteristic reddish color, which is the result of iron oxidation in the soil

[14] M.Burić, B.Fuštić, P.Bulajić, Atlas of Land in Montenegro, CANU, 2017. The areas have been calculated cartographically.

composition. Above this altitude, black soils (chernozems) dominate, which form in cooler climates and specific mineral compositions.

Alluvial soils are crucial for the ecosystem of the coastal zone of Skadar Lake, as they are formed by river sediment deposition. These soils cover an area of 10899.07 hectares and are often subject to seasonal changes due to fluctuations in water levels. Their fertility depends on the amount of mineral substances deposited during flood cycles. In addition to alluvial soils, alluvial-colluvial soils, covering 4560.60 hectares, play an important role and are found in transitional zones between rivers and more stable land surfaces.

Along with alluvial soils, specific soil types such as mineral-swamp gleysols (1108.00 ha) and organic-mineral gleysols (7522.72 ha) are present in the coastal areas. These soil types are characteristic of wetland areas and have a high content of organic matter, making them important for maintaining ecological balance and biodiversity. In certain areas, pseudogley soils (569.25 ha) are also present, which form under conditions of poor drainage and seasonal water retention.

In parts of the basin with dominant erosion processes, rankers (335.30 ha) and rendzinas are present, while in the lowlands, meadow soils of various types dominate, including meadow brown soils (150.31 ha) and meadow grey-brown soils (8.65 ha). Additionally, in the coastal areas of Skadar Lake, raised peat soils can be found, covering a relatively small area of 16.22 hectares, but they are significant due to their ecological importance and carbon storage capabilities.

Coarse riverbed sediments (317.10 ha) and live marine sand (378.01 ha) also play a special role in the composition of soils, resulting from geological and hydrological processes. Marine sand, which dominates in the coastal areas near the sea, has specific physical properties such as high permeability and low water retention capacity, making it unfavorable for intensive agricultural exploitation.

The water level of Skadar Lake directly affects the soil in the coastal areas, and three main flooding zones can be distinguished. The permanently flooded zone covers the lowest parts of the terrain below the 5.5 m.a.s.l. contour, where the soil remains under water almost throughout the year or has high groundwater levels. The periodically flooded zone extends between 5.5 and 8 m.a.s.l., where the soil is flooded during the year depending on water level fluctuations. The highest zone is the periodically flooded zone, above 8 m.a.s.l., where floods mainly occur during the winter period and last for a shorter time. These fluctuations affect the chemical and physical properties of the soil, its fertility, and the type of vegetation that covers it.

The complexity of the land cover in the Skadar Lake basin reflects the multilayered natural processes that shape the landscape. The interaction between the geological foundation, hydrological cycles, and climatic factors creates diverse types of soil, whose dynamics vary depending on changes in the water regime. These processes make the land resources of this area sensitive to ecological changes, but also a key factor in strategies for sustainable development and the protection of Skadar Lake's natural heritage.

2.6. Land Uses for the RB Skadar Lake Basin Based on Spatial and Urban Planning Documents

The land use within the proposed Biosphere Reserve area of the Skadar Lake Basin must be considered primarily in the context of the draft Spatial Plan of Montenegro until 2040 (PPCG), which serves as the fundamental strategic spatial document of the country. All spatial-urban planning documents of local government units (PUPs) must be aligned with this document, as the PPCG defines the basic structure of land use, development zones, protection regimes, and directions for sustainable development at the national level.

Montenegro

The draft Spatial Plan of Montenegro,[15] recognizes the area of Skadar Lake and its basin as a priority area for biodiversity conservation, enhancing the tourism offer based on natural and cultural values, as well as for the sustainable use of forest and agricultural land. The draft plan strongly emphasizes the need to preserve wetland ecosystems, the regulation of areas along watercourses, as well as the rehabilitation and prevention of land degradation in the contact zones of protected areas. Special attention is also given to rural development and the improvement of infrastructure in areas with significant ecological values, with the integration of nature protection goals into all sectoral policies.

Table No 4. The planned land use in Montenegro (measured cartographically).[16]

Land Use Area	**(ha)**	**%**
Urban Settlement Area - Urban Areas	37165.22	2,70
Urban Settlement Area - Rural Areas	50320.42	3,60
Agricultural Areas	182128.41	13,10
Forests	846466.96	61,00
Infrastructure Areas	377.93	0,00
Special Purpose Areas	1676.06	0,10
Water Areas on Land	39269.84	2,8
Other Natural Areas	230091.44	16,60
TOTAL	**1387496.84**	**100,00**

In this context, the spatial and urban planning documents of the municipalities located within the boundaries of the Biosphere Reserve Skadar Lake Basin – the Capital City of Podgorica (and the separate municipalities of Zeta and Tuzi), Danilovgrad, the Capital City Cetinje, parts of Nikšić and Kolašin, and the municipalities of Bar and Ulcinj – are tasked with precisely detailing land use according to the guidelines of the Spatial Plan of Montenegro until 2040 (PPCG), with a focus on protecting natural resources, sustainable agriculture, eco-tourism development, and

[15] Spatial Plan of Montenegro until 2040 - DRAFT PLAN, Ministry of Ecology, Spatial Planning, and Urbanism, Podgorica, 2023.
[16] Same

preserving local communities.The importance of this coordination is especially evident in the transitional zone of the biosphere reserve, where most human activities take place. In this zone, municipal spatial plans should ensure a balance between development (infrastructure, settlements, industries) and the preservation of natural and cultural landscapes, which includes precisely defining protection zones, land use restrictions, and promoting traditional, environmentally friendly practices.

The following section will present data on the current and planned land uses by municipality, based on official sources and valid PUPs, arranged alphabetically (which must be aligned with the Spatial Plan of Montenegro until 2040, after its adoption and entry into force).

Municipality of Bar

The municipality of Bar is characterized by a significant share of agricultural and forested areas, while non-arable land also occupies a large portion of the territory. The coastal and near-coastal part of the municipality is recognized for the presence of fertile agricultural land, including orchards and vineyards. These areas reflect the economic importance of agriculture, but they also highlight challenges related to land protection and sustainable use of natural resources. Given the urbanization trends, there is a need for more precise regulation of land policy to prevent the expansion of settlements onto agricultural areas.

Table No 5. Agricultural, forest, and non-arable lands of the municipality of Bar.[17]

Land area categories	**Area / ha (%)**
Arable land and gardens	1138 ha
Orchards	2435 ha
Vineyards	289 ha
Meadows	1480 ha
CULTIVABLE LAND	5342 ha
Pastures	13130 ha
Reeds and marshes	9 ha
AGRICULTURAL LAND	18481 ha (31%)
FORESTS AND FOREST LAND	23792 ha (40%)
NON-ARABLE LAND	17527 ha (29%)
Total:	**59800 ha (100%)**

The Capital City of Cetinje

The land structure in the Capital City of Cetinje is characterized by a significant share of forested and grassland areas, while settlements and agricultural lands are represented to a lesser extent.

[17] Spatial and Urban Planning of Bar Municipality, Bar Municipality, Bar, 2018.

Water surfaces are present through rivers, streams, and smaller lakes. Planned development activities include the preservation of natural resources with controlled urbanization.

Table No 6. Land Use Designations in the Capital City of Cetinje [18]

Land area categories	**(ha)**	**%**
Settlements – Built-up Areas	334.2	0.37
Roads	508.1	0.56
Arable Land	1314.6	1.46
Grasslands	17835.2	19.79
Water Surfaces – Lakes	2304	2.56
Watercourses – Rivers, Streams	136.4	0.15
Marshes, Swamps, Reeds	190.5	0.21
Forests	42138.5	46.77
Other Natural Surfaces	25338.7	28.12
TOTAL	**90100,2**	**100**

Municipality of Danilovgrad

The land structure in the Municipality of Danilovgrad shows the dominance of forested and agricultural areas. Meadows and pastures, which are used for livestock farming, are of particular importance. A large portion of the territory covered by forests reflects the natural potential of the municipality, as well as the need for improving protective mechanisms to prevent over-exploitation of timber. Development plans suggest the improvement of infrastructure and better integration of agricultural production with local and regional markets.

Table No 7. Tabular representation of land use categories (crops) in the Municipality of Danilovgrad. [19]

Land area categories		**(ha)**	**%**
Agricultural land	Fields and gardens	1508,8	3.08
	Orchards and vineyards	511,97	1.04
	Meadows	5550,2	11.32
	Pastures, marshes, reeds, and swamps	6699,7	13.67
Forests		30028,40	61.25
Water land		323,9	0.66
Building and other land (karst/rocky land, infertile land, etc.)		4399,5	8.97
Total:		**49022,47**	**100**

[18] Spatial and Urban Plan of the Capital City of Cetinje, Capital City of Cetinje, Cetinje, 2014.
[19] Spatial and Urban Plan of the Munic. of Danilovgrad 2011-2020, Municipality of Danilovgrad, Danilovgrad, 2014.

Capital City of Podgorica

The Spatial Plan of the Capital City of Podgorica at the time of its development also covered the then urban municipalities of Tuzi and Zeta, which have since become independent, as well as the area of Skadar Lake National Park. This plan provides insight into the dominant land use trends in the area now divided into three administrative units, with urbanization, agricultural production, and natural resource protection being key aspects of spatial planning.

Podgorica has seen a significant increase in populated areas, with urbanization extending to agricultural land, particularly in the Zeta Valley and the coastal areas of Skadar Lake. The expansion of urban zones is partly a result of migration movements, as well as unregulated construction, which poses a challenge for future spatial planning. Additionally, the increased demand for residential and commercial spaces has led to pressure on natural resources, including watercourses and forest ecosystems.

Agricultural areas still occupy a significant portion of the territory, with dominant sectors being crop farming, fruit cultivation, and livestock farming. However, there is a noticeable trend of decreasing arable land in favor of other types of land use. The area of Skadar Lake National Park, which is an integral part of this spatial plan, represents the most ecologically important segment of the territory, with a high degree of protection and restrictions on the exploitation of natural resources.

In future spatial development, it is crucial to establish a balance between the need for urbanization and the preservation of natural areas, applying stricter criteria for construction in protected zones. Regulation of the coastal areas of Skadar Lake, protection from uncontrolled land exploitation, and improvement of wastewater management systems are key steps in ensuring the long-term sustainability of this area.

Table No 8. PUP of the Capital City of Podgorica: land area balance, current state[20]

LAND AREA CATEGORIES	Implementation status 2012	Planned status 2012	Change index relative to the 2012 status
	ha	ha	
Urban areas	6.749	4715	0,70
Agricultural land	31.306	23555	0,75
Technical infrastructure	3.156	3444	1,09
Forest areas	41.959	73418	1,75
Water areas	11.338	11866	1,05
Other natural areas	55.831	33324	0,60

[20] Spatial and Urban Plan of the Capital City of Podgorica until 2025, Capital City of Podgorica, Podgorica, February 25, 2014.

Areas for special purposes	402	419	1,04
TOTAL	**150.741**	**150.741**	

Municipality of Tuzi

The territory of the Municipality of Tuzi is characterized by a significant share of agricultural land, with arable areas playing a key role in the local economy. In addition to the agricultural sector, the presence of protective and commercial forests is notable, contributing to ecological balance. Development plans foresee the improvement of infrastructure to support sustainable agricultural production and reduce pressure on natural resources.

Table No 9. Area of the Urban Municipality of Tuzi: land area balance - current state [21]

Land area categories	**(ha)**	**%**
Urban areas	661.17	2.75
Areas and corridors of other infrastructure	13,16	0.05
Arable land	5.350.21	22.28
Other agricultural land	1.223.90	5.09
Water areas	61,03	0.25
Commercial forests	662,74	2.76
Protective forests	4.366,53	18.18
Other areas	11.673,13	48.61
TOTAL	**24.011,87**	**100**

Municipality of Zeta

The Zeta area is recognized for its intensive agricultural production, with arable land and agricultural complexes dominating the landscape. Water areas and protective forests contribute to the overall ecological value of the region, while infrastructure development requires precise regulation to preserve the key natural characteristics of this area.

Table No 10. Area of the Urban Municipality of Golubovci: land area balance - current state [22]

Land area categories	**(ha)**	**%**
Urban areas	1.377,83	9,52%
Areas and corridors of transportation infrastructure	75,88	0,52%

[21] Spatial and Urban Plan of the Capital City of Podgorica until 2025, Capital City of Podgorica, Podgorica, February 25, 2014.
[22] Spatial and Urban Plan of the Capital City of Podgorica until 2025, Capital City of Podgorica, Podgorica, February 25, 2014.

Areas and corridors of other infrastructure	9,12	0,06%
Arable land	2.864,74	19,79%
Other agricultural land	4.092,95	28,27%
Water areas	933,51	6,45%
Protective forests	1.504,60	10,39%
Other areas	3.620,45	25,00%
TOTAL	**14.479,08**	**100,0%**

Municipality of Kolašin

Kolašin is characterized by a large share of forested areas, which dominate the territory. Agricultural lands, although present, are limited due to the mountainous terrain and climatic conditions. Water areas are represented by rivers and smaller lakes, while urbanized areas are limited to the central part of the municipality and smaller rural communities. The development of tourism and ecological initiatives is recognized as a key direction for long-term sustainable spatial management.

Table No 11. Land use purposes in the Municipality of Kolašin [23]

Land area categories	**Area / ha**	**%**
Urban areas	124	0,14
Agricultural land	25672	28,15
Forest areas	54865	60,69
Water areas, swamps	224	0,25
Other natural areas	9741	10,78
Total	**90627**	**100**

Municipality of Ulcinj

Ulcinj is characterized by a diverse land structure, with agricultural land, olive groves, and forests forming key segments of the area. Water areas include rivers, wetlands, and coastal zones, while settlements occupy a significant portion of the territory. Urbanization is present, but the preservation of natural areas is of key importance for the long-term development of the municipality.

[23] Spatial and Urban Plan of the Municipality of Kolašin 2011-2020, Municipality of Kolašin, Kolašin, 2014.

Table No 12. Land use purposes in the Municipality of Ulcinj [24]

Land area categories	Area / ha
Urban areas	1288,31
Agricultural land, olive groves	7407,52
Forest areas	13451,17
Water areas, swamps	3375,96
Other natural areas	368,21

Skadar Lake National Park

Skadar Lake National Park is a key ecological unit within the biosphere reserve. Its territory encompasses wetland ecosystems, forests, water areas, and smaller agricultural zones. The spatial plan highlights the necessity of restricting human activities within the park boundaries in order to preserve biodiversity and prevent the negative impacts of uncontrolled development.

Table No 13. Land use balance of existing purposes within the boundaries of Skadar Lake National Park and its protective zone.[25]

	Area of the NP		Protective zone of the NP		Total	
Land use categories	**Area**	**Percentage**	**Area**	**Percentage**	**Area**	**Percentage**
Settlement structure	154,24	0,36%	594,46	2,47%	748,70	1,13%
Intensive agriculture	1003,26	2,36%	3516,39	14,64%	4519,65	6,80%
Other agriculture	3350,14	7,90%	2358,60	9,82%	5708,74	8,59%
Wetlands	7753,75	18,28%		0,00%	7753,75	11,67%
Forests	4248,05	10,01%	6766,25	28,16%	11014,30	16,57%
Rivers	588,73	1,39%	287,69	1,20%	876,42	1,32%
Other natural areas	3349,45	7,89%	10502,58	43,71%	13852,03	20,84%
Lake	21979,74	51,81%		0,00%	21979,74	33,08%
TOTAL	**42427,36**	**100,00%**	**24025,97**	**100,00%**	**66453,33**	**100,00%**

[24] Spatial and Urban Plan of the Municipality of Ulcinj 2020, Ministry of Sustainable Development and Tourism, Podgorica, December 2016.
[25] Report on the Strategic Environmental Impact Assessment for the Spatial and Urban Plan of Skadar Lake National Park, Ministry of Sustainable Development and Tourism, Podgorica, August 2018.

Komovi Nature Regional Park

The Komovi area is rich in forests, pastures, and natural meadows, making it an important segment of the biosphere reserve. According to the spatial plan, the greatest challenge in managing this area is balancing the preservation of nature with the sustainable use of land for livestock farming and tourism.

Table No 14. Land use categories in hectares and as a percentage of the total area of the Park (according to Corine Land Cover)[26]

Category	**Area / ha**	**%**
Barren rocks	831,03	6,29
Built-up areas	104,91	0,79
Broadleaf forest	2576,19	19,50
Mixed forest	5112,98	38,71
Pastures	28,57	0,22
Areas with sparse vegetation	927,82	7,02
Transitional forest vegetation - shrubs	181,48	1,37
Natural meadows	3062,34	23,19
Mainly agricultural land with significant areas of natural vegetation	382,87	2,90
Total	**13208,18**	100

[26] Management Plan for the Nature Park "Komovi" in the territory of the Capital City 2022-2026, Agency for the Management of Protected Areas of the Capital City, 2021.

3. LEVEL OF INVOLVEMENT OF INDIGENOUS PEOPLES, TAKING INTO ACCOUNT THE "UNITED NATIONS DECLARATION ON THE RIGHTS OF INDIGENOUS PEOPLES“

In accordance with the Constitution of Montenegro,[27] there are no indigenous peoples in the territory of the Skadar Lake basin as defined by the United Nations Declaration on the Rights of Indigenous Peoples. Montenegro is defined in its Constitution as a state of all its citizens, where Montenegrins, Serbs, Bosniaks, Albanians, Muslims, Croats, and other peoples are recognized as an integral part of society.

Therefore, the application of the principles of the UN Declaration in the context of indigenous peoples is not applicable to this area. However, the inclusion of local communities and minority peoples in the decision-making process, preservation of cultural heritage, and management of natural resources is in line with the constitutional principles of multiculturalism and equality of all citizens.

[27] The Constitution of Montenegro ("Official Gazette of Montenegro", No. 1/2007 and 38/2013 - Amendments I-XVI)

4. DIFFERENCES IN APPROACH AND CONTROL OVER RESOURCES BETWEEN MEN AND WOMEN

The analysis of population data by gender from 2023 in the municipalities belonging to the Skadar Lake Basin reveals a slight demographic dominance of women, who make up 51.17% of the total population in this region. These differences may have implications for the economic and social status of women in terms of access to resources, employment, and participation in decision-making. A gender gap analysis highlights the existence of gender disparities in control over key resources, including land, economic opportunities, and education.

Table No 15. Population of Montenegro by Gender, by Municipality[28]

Municipality	Population			*u %*	
	Total	men	women	men	women
Montenegro	**623.633**	**306.807**	**316.826**	**49,20**	**50,80**
Bar[29]	3.246	1.516	1.503	46.70	46,30
Cetinje	14.494	6.946	7.548	47,92	52,08
Danilovgrad	18.617	9.740	8.877	52,32	47,68
Kolašin[30]	746	342	307	45,84	41,15
Nikšić[31]	132	70	50	53,03	37,88
Podgorica	179.505	85.819	93.686	47,81	52,19
Tuzi	12.979	6.712	6.267	51,71	48,29
Ulcinj	20.507	10.399	10.108	50,71	49,29
Zeta	16.071	8.153	7.918	50,73	49,27
Municipalities of Skadar Lake Region	**266.297**	**129.697**	**136.264**	**48.70**	**51.17**

The Gender Equality Index in Montenegro for 2023 is 59.3, representing an improvement compared to 2019, but still indicating significant gender inequalities. The largest gap compared to the EU-27 average is recorded in the area of economic security and access to financial resources. In the field of labor, gender segregation remains pronounced, with women more frequently employed in sectors with lower wages such as education, healthcare, and social protection, while men dominate in higher-paying sectors, including construction and the IT industry.[32]

[28] Population Census in Montenegro 2023, MONSTAT, Podgorica, 2024.
[29] Data for the Municipality of Bar is provided only for the settlements (52) that belong to the Skadar Lake Region area.
[30] Data for the Municipality of Kolašin is provided only for the settlements (30) that belong to the Skadar Lake Region area.
[31] Data for the Municipality of Nikšić is provided only for the settlements (7) that belong to the Skadar Lake Region area.
[32] Gender Equality Index in Montenegro, MONSTAT, Statement 100/2023.

Traditional socio-economic patterns and customary rights in Montenegro still favor men when it comes to property ownership. Women often renounce inheritance in favor of male family members, which affects their access to agricultural and economic resources. Although the law guarantees equal rights, social norms and informal pressures contribute to the maintenance of this imbalance. In rural areas, women have more limited control over agricultural land and are less likely to own farms, while men dominate decision-making regarding land management and resource use.[33]

Data from Table 16 indicate significant gender differences in the management of agricultural households. Although women make up a large part of the agricultural workforce, they are significantly underrepresented as heads of agricultural households and key decision-makers. In Montenegro, out of a total of 26,626 household heads, only 3,443 are women. This imbalance is even more pronounced when considering those who make daily decisions (managers), where men are dominant.

In the municipalities of the Skadar Lake Basin, the trends are similar. In Podgorica, there are 2,168 household heads, of which only 212 are women. In Zeta, men make up 905 household heads, while only 114 are women. In Ulcinj, where there is a strong agricultural tradition, 1,349 households are led by men, while women account for only 99 heads. These data highlight systemic inequality in access to land and resources within the agricultural sector.

Table No 16. Household Head and Person Making Daily Decisions on the Agricultural Household (Manager) by Gender and Age, by Municipality[34]

	Number of Heads of Family Agri.Households [1]	Gender of Household Heads		Gender of Managers		Average Age of Household Heads	Average Age of Managers
		men	women	men	women		
Montenegro	**26.626**	**23.183**	**3.443**	**23.262**	**3.449**	**59**	**59**
Bar	1.130	1.024	106	1.026	109	59	59
Cetinje	304	275	29	282	24	59	59
Danilovgrad	1.133	957	176	957	181	60	59
Kolašin	569	455	114	455	114	61	61
Podgorica	2.168	1.956	212	1.976	210	57	57
Tuzi	736	685	51	690	49	55	55
Ulcinj	1.349	1.250	99	1.257	94	61	60
Zeta	905	791	114	802	107	57	56

The average age of household heads in the municipalities of the Skadar Lake Basin shows that the population is generally older. In most municipalities, the average age of household heads

[33] National Gender Equality Strategy 2021-2025, Ministry of Justice, Human and Minority Rights, 2021.
[34] Agriculture Census in Montenegro 2024, MONSTAT, Podgorica, 2024.

and managers ranges between 57 and 61 years. In Tuzi, this age is slightly lower (55 years), while in Kolašin and Ulcinj, it is higher (61 years). These data indicate challenges regarding the long-term sustainability of agricultural production and the transfer of ownership to younger generations.

In addition to the agricultural sector, women are also underrepresented in entrepreneurship. Although there has been progress in the number of women-owned businesses, barriers still exist in access to finance, business spaces, and support networks. Studies show that women in Montenegro face difficulties in obtaining bank loans, often due to the lack of property that could serve as collateral, which further hampers their economic independence.[35]

When it comes to economic activity, men dominate in the sectors of forestry, fishing, and commercial agriculture, while women are more often engaged in gathering fruits, medicinal herbs, and small-scale agricultural production. In some communities, especially where men have migrated in search of employment, women take on a more active role in agriculture and household management. However, their work often remains unpaid or undervalued within the formal labor market.

Access to finance and economic resources is also uneven. Women are less likely to be credit holders or business owners, while men dominate the entrepreneurship sector. Although there are support programs for women entrepreneurs, gender barriers still limit women's opportunities to participate equally in economic activities.

Regarding education and professional training, women generally have a higher level of formal education compared to men, but this does not reflect proportionally in their participation in the labor market. The labor market in Montenegro continues to favor men in higher-paying sectors, while women are more often employed in lower-paying jobs and the informal sector.

These data clearly indicate that women, although they constitute a significant part of the population and workforce, have limited access to property rights, including ownership of real estate, inheritance rights, and the ability to dispose of resources. The lack of access to land ownership, which plays a crucial role in this region as a resource for economic activity, security, and social status, is especially pronounced. Moreover, women are insufficiently involved in decision-making processes and are often subjected to discrimination when it comes to economic opportunities.

[35] Assessment of the Environment for Female Entrepreneurship in Montenegro, Employers' Union of Montenegro, Podgorica, 2013.

5. DEMOGRAPHIC AND SOCIO-ECONOMIC DATA

Demographic indicators provide insight into population trends over time, with a particular focus on the most recent population census from 2023. Data analysis allows tracking the dynamics of population growth or decline, depopulation processes in rural areas, and the concentration of population in urban centers, which further impacts spatial development patterns, infrastructure, and pressure on natural resources in the Skadar Lake basin and its surroundings. The socio-economic aspects of the analysis focus on employment structure, main economic sectors, migration flows, and other factors that shape the quality of life of the population and the sustainability of traditional economic activities such as agriculture, fishing, and tourism. Administratively, the reserve area includes parts of several municipalities, with the most significant being Podgorica, Tuzi, Zeta, Kolašin, Danilovgrad, Cetinje, Bar, and Ulcinj. Each of these municipalities has specific demographic characteristics conditioned by geographic location, level of urbanization, migration patterns, and dominant economic sectors.

5.1.General Overview of the Population in the Reserve Area

The population of the biosphere reserve area includes nine municipalities, with approximately 266,297 inhabitants. This number represents about 42.70% of the total population of Montenegro, indicating the significant demographic importance of this area. Podgorica, as the administrative and economic center, has the largest population, while Nikšić, Kolašin, and Cetinje are among the municipalities with smaller populations. It is important to note that the municipalities of Nikšić, Kolašin, and Bar are not fully part of the biosphere reserve, but only partially, as a significant portion of their territory lies outside the Skadar Lake basin.

Table No 17. Population of the Biosphere Reserve by Municipality[36]

MUNICIPALITY	Population Number	
	Total	%
Montenegro	**623.633**	**100,00**
Bar[37]	3.246	0,52
Cetinje	14.494	2,32
Danilovgrad	18.617	2,99
Kolašin[38]	746	0,12
Nikšić[39]	132	0,02
Podgorica	179.505	28,78
Tuzi	12.979	2,08
Ulcinj	20.507	3,29
Zeta	16.071	2,58
Municipalities of the Skadar Lake BR	**266.297**	**42,70**

[36] Population Census in Montenegro 2023, MONSTAT, Podgorica, 2024.
[37] 52 Settlements within the Biosphere Reserve
[38] 30 Settlements within the Biosphere Reserve
[39] 7 Settlements within the Biosphere Reserve

The demographic structure shows that the settlements along the shores of Skadar Lake and the coastal areas of Bar and Ulcinj are the most densely populated, while the interior areas, including the mountainous regions of Kolašin and rural parts of Cetinje, are less populated. Migration flows influence seasonal changes in the population, particularly during the summer months when there is an increase due to tourism. These data are crucial for sustainable development planning and the preservation of the biosphere reserve's ecosystem.

Table No 17.1. Population by Municipality in Montenegro According to the 1991, 2003, 2011, and 2023 Censuses

Municipality	2023		2011		2003		1991	
	Total	*in %*	Total	*in %*	Total	*in %*	Total	*in %*
Montenegro	**623,633**	***100.00***	**625,266**	***100.00***	**673,094**	***100.00***	**615,035**	***100.00***
Bar	45,812	*7.35*	42,368	*6.78*	45,246	*6.72*	37,321	*6.07*
Cetinje	14,494	*2.32*	16,757	*2.68*	18,754	*2.79*	20,307	*3.30*
Danilovgrad	18,617	*2.99*	17,678	*2.83*	16,636	*2.47*	14,718	*2.39*
Kolašin	6,700	*1.07*	8,420	*1.35*	10,043	*1.49*	11,120	*1.81*
Nikšić	65,705	*10.54*	72,824	*11.65*	76,677	*11.39*	74,706	*12.15*
Podgorica	179,505	*28.78*	187,085	*29.92*	179,401	*26.65*	152,025	*24.72*
Tuzi	12,979	*2.08*	In the territory of Podgorica	–	–	–	–	–
Ulcinj	20,507	*3.29*	20,265	*3.24*	26,451	*3.93*	24,217	*3.94*
Zeta	16,071	*2.58*	In the territory of Podgorica	–	–	–	–	–

5.2.Population by Age Group by Municipality

Table No 18. Population of Montenegro by Age Group by Municipality[40]

Municipality	Average Age of the Population		
	Total	men	women
Montenegro	**39,73**	**38,52**	**40,90**
Bar	39,79	38,56	40,95
Cetinje	43,28	41,52	44,90
Danilovgrad	41,03	39,92	42,25
Kolašin	43,16	42,09	44,26
Nikšić	41,14	39,73	42,51
Podgorica	37,65	36,16	39,02

[40] Population Census in Montenegro 2023, MONSTAT, Podgorica, 2024.

Tuzi	36,65	36,52	36,78
Ulcinj	40,70	40,07	41,35
Zeta	39,61	38,64	40,61
Municipalities of the Skadar Lake BR	**40,11**	**39,24**	**41,40**

Data from Table 17 show that the average age of the population of Montenegro is 39.73 years, with men being slightly younger than women. When looking at the municipalities that belong to the Skadar Lake Biosphere Reserve, it is observed that their average age is 40.11 years, which is slightly above the national average. The municipalities within this region show different trends.

Podgorica and Tuzi have the youngest population, with Tuzi being the youngest municipality in the analyzed set. On the other hand, Cetinje and Kolašin have the oldest population, with an average age exceeding 43 years. These differences may be the result of migration, natural population growth, and economic factors that influence the retention of younger populations.

Men are on average younger than women in all municipalities, which is expected given the longer life expectancy of women. The municipality of Ulcinj, although not among the youngest, has relatively balanced age averages between genders. These differences in age structure may have long-term consequences on economic development, demographic policies, and the demand for social services in the Skadar Lake region.

5.3.Ethnic origin and composition, minorities, main economic activities, and the location of their primary areas of concentration, with reference to the proposed zoning map of the future RB.

Table No 19. Population of Montenegro by national or ethnic affiliation, by municipalities.[41]

Nacionalna odnosno etnička pripadnost	Crna Gora	u %	Opštine																	
			Bar	u %	Cetinje	u %	Danilovgrad	u %	Kolašin	u %	Nikšić	u %	Podgorica	u %	Tuzi	u %	Ulcinj	u %	Zeta	u %
Ukupno	**623.633**	***100,00***	**3.246**	***7,09***	**14.494**	***100,00***	**18.617**	***100,00***	**746**	***11,13***	**132**	***0,20***	**179.505**	***100,00***	**12.979**	***100,00***	**20.507**	***100,00***	**16.071**	***100,00***
Crnogorci	256.436	*41,12*	1.045	*32,19*	13.199	*91,07*	10.670	*57,31*	212	*28,42*	76	*57,58*	97.894	*54,54*	1.964	*15,13*	2.435	*11,87*	8.005	*49,81*
Srbi	205.370	*32,93*	354	*10,91*	698	*4,82*	6.589	*35,39*	289	*38,74*	22	*16,67*	55.365	*30,84*	258	*1,99*	1.025	*5,00*	6.946	*43,22*
Bošnjaci	58.956	*9,45*	_	_	z	*z*	11	*0,06*	-	-	_	_	4.697	*2,62*	1.772	*13,65*	797	*3,89*	14	*0,09*
Albanci	30.978	*4,97*	779	*24,00*	28	*0,19*	63	*0,34*	z	*z*	_	_	1.780	*0,99*	8.119	*62,55*	15.078	*73,53*	72	*0,45*
Muslimani	10.162	*1,63*	324	*9,98*	z	*z*	63	*0,34*	z	*z*	_	_	1.559	*0,87*	363	*2,80*	330	*1,61*	z	*z*
Hrvati	5.150	*0,83*	_	_	38	*0,26*	38	*0,20*	z	*z*	_	_	622	*0,35*	z	*z*	39	*0,19*	20	*0,12*
Bjelorusi	696	*0,11*	_	_	10	*0,07*	z	*z*	-	-	z	*z*	127	*0,07*	-	-	z	*z*	-	-
Bosanci	461	*0,07*	_	_	z	*z*	18	*0,10*	z	*z*	_	_	113	*0,06*	14	*0,11*	36	*0,18*	z	*z*
Crnogorci-Muslima	294	*0,05*	_	_	-	-	z	*z*	-	-	z	*z*	61	*0,03*	31	*0,24*	14	*0,07*	-	-
Crnogorci-Srbi	1.268	*0,20*	_	_	11	*0,08*	42	*0,23*	_	_	_	_	513	*0,29*	z	*z*	12	*0,06*	106	*0,66*
Egipćani	1.655	*0,27*	_	_	-	-	-	-	-	-	_	_	528	*0,29*	11	*0,08*	z	*z*	-	-
Goranci	280	*0,04*	_	_	13	*0,09*	-	-	-	-	_	_	126	*0,07*	z	*z*	z	*z*	-	-
Jugosloveni	1.632	*0,26*	_	_	19	*0,13*	51	*0,27*	_	_	_	_	519	*0,29*	z	*z*	20	*0,10*	26	*0,16*
Mađari	230	*0,04*	_	_	z	*z*	11	*0,06*	z	*z*	z	*z*	57	*0,03*	-	-	z	*z*	z	*z*
Makedonci	834	*0,13*	_	_	13	*0,09*	36	*0,19*	z	*z*	_	_	301	*0,17*	z	*z*	10	*0,05*	24	*0,15*
Muslimani-Crnogor	217	*0,03*	_	_	-	-	-	-	-	-	-	-	51	*0,03*	z	*z*	z	*z*	-	-
Njemci	313	*0,05*	_	_	z	*z*	22	*0,12*	z	*z*	z	*z*	52	*0,03*	-	-	16	*0,08*	z	*z*
Romi	5.629	*0,90*	_	_	66	*0,46*	44	*0,24*	-	-	_	_	3.431	*1,91*	118	*0,91*	259	*1,26*	36	*0,22*
Rusi	12.824	*2,06*	11	*0,34*	118	*0,81*	93	*0,50*	_	_	_	_	2.629	*1,46*	-	-	63	*0,31*	31	*0,19*
Slovenci	264	*0,04*	z	*z*	z	*z*	z	*z*	z	*z*	_	_	97	*0,05*	-	-	z	*z*	z	*z*
Srbi-Crnogorci	1.701	*0,27*	_	_	z	*z*	71	*0,38*	_	_	_	_	506	*0,28*	z	*z*	12	*0,06*	80	*0,50*
Tatari	161	*0,03*	_	_	z	*z*	z	*z*	-	-	z	*z*	35	*0,02*	-	-	z	*z*	-	-
Turci	1.816	*0,29*	_	_	z	*z*	26	*0,14*	z	*z*	z	*z*	956	*0,53*	27	*0,21*	17	*0,08*	z	*z*
Ukrajinci	3.087	*0,50*	_	_	16	*0,11*	17	*0,09*	z	*z*	z	*z*	439	*0,24*	z	*z*	13	*0,06*	z	*z*
Regionalna pripadn	1.086	*0,17*	_	_	z	*z*	15	*0,08*	z	*z*	_	_	211	*0,12*	z	*z*	z	*z*	17	*0,11*
od toga Bokelji	*640*	*0,10*	-	-	*z*	*z*	-	-	-	-	z	*z*	*z*	*z*	-	-	-	-	-	-
Ostale nacije	3.136	*0,51*	_	_	39	*0,27*	62	*0,33*	_	_	_	_	1.083	*0,60*	43	*0,33*	77	*0,38*	27	*0,17*
Ostalo	1.090	*0,17*	_	_	z	*z*	21	*0,11*	_	_	_	_	404	*0,23*	11	*0,08*	z	*z*	24	*0,15*
Ne želi da se izjasn	17.907	*2,88*	37	*1,14*	177	*1,23*	642	*3,44*	_	_	_	_	5.349	*2,98*	206	*1,59*	216	*1,05*	604	*3,76*

[41] Population Census in Montenegro 2023, MONSTAT, Podgorica, 2024. For the municipalities of Bar, Kolašin, and Nikšić, only data for the settlements that are part of the RB are provided.

Montenegro as a whole has a predominantly Montenegrin population, accounting for 41.12% of the total population, while Serbs are the second-largest ethnic group, comprising 32.93%. Bosniaks, Albanians, and Muslims are also represented, but in significantly smaller numbers, with Bosniaks making up 9.45%, Albanians 4.97%, and Muslims 1.63%.

In the municipality of **Podgorica**, as the largest urban center in the region, Montenegrins make up 54.54% of the population, while Serbs are the second-largest group with 30.84%. Albanians, Bosniaks, and Muslims are present, but in smaller percentages. This data highlights the pronounced multiethnic structure of the capital city, which is a result of migrations from other parts of the country and the wider region.

The municipality of **Tuzi** is specific in that Albanians constitute the dominant ethnic group, with 62.55% of the total population. This reflects the long-standing historical and cultural ties of this region with the Albanian ethnic space. Montenegrins are a significant minority, making up only 15.13%, while Serbs and Bosniaks represent an even smaller portion of the population.

A similar situation exists in **Ulcinj,** where Albanians make up as much as 73.53% of the population, making this municipality the most ethnically homogeneous in the region. Montenegrins account for only 11.87%, while the number of Serbs is even lower, at 5.00%. This data points to the ethnic distinctiveness of Ulcinj, which is also reflected in language, culture, and social relations

Unlike the municipalities with a dominant Albanian population, **Cetinje** stands out for its pronounced dominance of the Montenegrin people, who make up 91.07% of the population. Serbs are represented by only 4.82%, while other ethnic groups are present in negligible numbers. This data confirms the historical role of Cetinje as the cultural and political center of Montenegro.

In **Bar**, specifically in the settlements that belong to the RB area, a multiethnic structure is evident, with Montenegrins comprising 32.19% of the population and Serbs 10.91%. Bosniaks account for 8.52%, Albanians for 24.00%, and there is also a notable Muslim community (9.98%). This ethnic composition reflects the historical importance of Bar as a commercial and maritime center that attracted various ethnic communities.

The municipalities of **Danilovgrad** exhibit similar trends, with Montenegrins making up over 50% of the population in both municipalities. In Danilovgrad, Montenegrins represent 57.31%, while Serbs account for 35.39%. In contrast, in Kolašin (in the settlements belonging to the RB), Montenegrins make up 28.42%, while Serbs comprise 38.74%. These figures indicate a strong presence of the Serbian community in these municipalities, which have historically been associated with the Orthodox tradition and cultural ties with Serbia.

In **Nikšić** (in the 7 settlements that belong to the RB), Montenegrins constitute 57.58%, and Serbs 16.67%.

Zeta, as a newly established municipality, is demographically characterized by a relatively balanced ratio between Montenegrins and Serbs. Montenegrins make up 49.81% of the population, while Serbs represent 43.22%. This data suggests a strong demographic connection between this municipality and Podgorica, as well as a significant presence of the Serbian population.

In addition to the main ethnic groups, other minority communities are also present in these municipalities, such as Croats, Roma, Russians, and Muslims. The Roma community is present in Bar, Podgorica, and Ulcinj, while Bar and Podgorica also show a significant share of Russian nationals, which can be linked to migration and investments by Russian citizens in Montenegro.

This data clearly indicates the ethnic diversity of the Skadar Lake basin region, where some municipalities are distinctly homogeneous, while others are multiethnic. This structure carries important social and political implications, ranging from local political relations to cultural and educational policies. Development processes in this region must take into account this ethnic dynamic in order to ensure stable social development and the preservation of the cultural identity of all communities.

Main economic activities

Municipality of Bar

The economy of the Municipality of Bar is characterized by a diverse structure, dominated by tertiary and quaternary sectors. The main economic activities include:

- **Maritime and port economy:** The Port of Bar is the most strategic economic asset of the municipality. In addition to basic cargo handling and storage functions, it hosts a wide range of supporting services – forwarding, customs clearance, logistics, insurance, and agency services.
- **Tourism:** Bar is one of Montenegro's key tourist destinations, with strong potential for integrated coastal, mountain, and lake-based tourism. Investment has been directed toward high-end tourism developments along the coast.
- **Trade:** Wholesale and retail trade represent the dominant business activity, accounting for nearly half of the municipality's total income.
- **Transport, warehousing, and communications:** With a well-developed maritime transport system, this sector employs a significant portion of the workforce. Bar is a key transportation and logistics hub.
- **Construction and industry:** Construction and light manufacturing (particularly in food processing, metalworking, and textiles) are present but play a secondary role in the economic output.

- **Agriculture and fisheries:** Although marginal in terms of employment, olive growing, fruit production, and fisheries are recognized for their development potential, especially in the Skadar Lake hinterland and mountainous areas

The Old Royal Capital Cetinje

1. Agriculture and Fisheries
    - Northern region (Katunska nahija and urban area): livestock breeding, agricultural processing, beekeeping.
    - Southern region (Skadar Lake basin, Riječka nahija): vegetable farming, viticulture, fruit growing, beekeeping, and fishing.
    - Notably, the "Ribarstvo" fish processing plant in Rijeka Crnojevića stands out as the only facility of its kind in Montenegro and one of five in the region .
2. Forestry and Hunting
    - Cetinje is among the most forested municipalities in Montenegro, but forests are of generally low commercial value.
    - The collection and exploitation of medicinal herbs, forest fruits, and mushrooms is largely unorganized .
3. Manufacturing Industry
    - Active companies include: “Obod” Printing House, “Kartonaža” (cardboard packaging), and “Ribarstvo”.
    - Local production includes meat products (especially prosciutto), cheese, bread, and pastries .
4. Tourism
    - A strategic development sector with potential in cultural, religious, eco, and active tourism (Lovćen, Njeguši, Rijeka Crnojevića).
    - The area suffers from underutilization of tourism potential and lacks diverse and decentralized accommodation capacities .
5. Trade and Hospitality
    - Most prevalent activities involve retail and small-scale services (e.g., food, crafts).

- The majority of registered businesses are micro enterprises (1–10 employees), with many being family-run .

6. Crafts and Small Services

   - There is a shortage of services such as tailoring, upholstery, carpentry, watchmaking, and souvenir or folk costume production .

7. Mineral Resources

   - The area has deposits of bauxite, peat, and decorative stone, which represent development potential in mining and related industries .

8. Business Zones

   - Four infrastructure-equipped investment zones:
     - Industrial-Service Zone (25.3 ha)
     - "Košuta" (9 ha)
     - "Gornji Obod" (17.2 ha)
     - Service Zone "Trgopromet" (7.8 ha)
   - These zones offer tax incentives to attract investors .

Municipality of Danilovgrad

The economic development of Danilovgrad is based on the sustainable use of natural resources and traditional industries, with the following key sectors:

- Forestry: Forests represent a significant economic resource. Sustainable forest management is emphasized, including timber production, the use of non-wood forest products (wild fruits and medicinal herbs), and forest protection measures. The wood processing industry is a targeted development area.
- Mining: Traditional extraction of mineral raw materials, especially decorative and construction stone, is a core activity. Further geological exploration and sustainable exploitation (with technical and biological land reclamation) are seen as employment drivers and opportunities for industrial expansion.
- Manufacturing Sector: Development is focused on small and medium-sized enterprises (SMEs), especially those based on the processing of agricultural products (meat, milk, wool, fruit, vegetables) and wood. This sector supports spatially balanced development across the municipality.

- Energy: Renewable energy sources are a strategic priority. Projects involve small hydropower plants (on the Zeta River), solar energy (defined locations in KO Danilovgrad and KO Novo Selo), and potential wind energy exploitation.
- Hunting and Fishing: Development of hunting tourism targeting foreign visitors, along with fish farming (aquaculture) and recreational fishing, particularly on the Zeta River.
- Agriculture and Rural Development: Agriculture is promoted through sustainable land use, integration with the food industry and tourism, and the utilization of traditional advantages. Emphasis is placed on increasing competitiveness and accessing EU (IPA) rural development funds.

Municipality of Kolašin

1. Agriculture

- A key development sector, with a focus on livestock farming and seed potato production.
- Potentials exist for bottling spring water and fish farming.
- The Tara river valley and its tributaries provide quality arable land and mountain pastures.

2. Forestry

- Large forest areas, but currently underdeveloped.
- Improvement of sustainable forest management is needed, including reforestation and disease control.

3. Mining and Raw Material Extraction

- Focused on construction and decorative stone, clay, gravel, and sand.

4. Manufacturing Industry

- Small-scale, mainly connected to agro-processing and wood industry.

5. Tourism

- Kolašin is recognized as a year-round tourism destination.
- Development priorities include:
    - Mountain tourism (Bjelasica, Komovi, Morača Mountains)
    - Winter sports, wellness tourism, eco and rural tourism
    - Active & extreme tourism (biking, hiking, skiing)

- Mountain-sea excursion programs targeting foreign visitors.

6. Energy

- Strong hydropower potential along the Morača River and its tributaries.

Municipality of Nikšić

- Agriculture and Livestock Farming
  These areas traditionally rely on agriculture and livestock breeding as primary sources of livelihood. However, recent incidents—such as the improper disposal of dead livestock—have raised serious concerns among residents about environmental and public health risks.
- Trade and Service Activities - Bogetići, being the central settlement of the Pješivci region, hosts small-scale retail and hospitality establishments serving the local population and travelers.
- Tourism and Cultural Heritage - The area holds potential for the development of rural and cultural tourism, owing to its natural beauty and presence of historical and cultural landmarks.

The Capital City of Podgorica and the Municipalities of Tuzi and Zeta

The Capital City of Podgorica is the administrative, economic, transportation, and university center of Montenegro. As the country's largest city, Podgorica plays a central role in the development of national institutions, the economy, education, and international relations. Its economy is characterized by a diverse structure, dominated by the service sector, trade, light industry, and information technologies. Podgorica also serves as a major hub for road, rail, and air transportation.

The main economic sectors in Tuzi are agriculture, trade, light industry, and rural tourism. Due to its favorable geographic location and good transport connectivity, the area supports various economic activities. Industrial zones are planned near Plantaže 13 jul, and economic forests and tourism potential are further valorized.

The dominant economic activity in the Zeta area (Golubovci) is agriculture, owing to extensive arable land. There are also developments in cold storage facilities (e.g., in Mataguži), an agro-industrial zone, and service-storage zones, alongside planned projects in energy efficiency and waste management.

Municipality of Ulcinj

The economy of the Municipality of Ulcinj is predominantly dependent on tourism, employing approximately 17.5% of the population, with around 90% of households offering

private accommodation. Tourism is identified as the main sector for future development, with key zones including Velika Plaža (Long Beach), Ada Bojana, and the Old Town.

Agriculture holds substantial potential due to favorable soil and climatic conditions, yet remains underdeveloped due to poor infrastructure, lack of investment, and limited production organization. The flatlands (Ulcinj and Štoj fields, Šas valley, and Anamal fields) are suitable for intensive agriculture, including organic food production.

The food industry is weakly developed. There is one dairy plant operating below capacity, seven oil production facilities (traditional and modern), and a bakery with a daily capacity of 30,000 kg.

Fishing (marine and freshwater) is economically insignificant, though traditional "kalimera" fishing huts on water are a unique cultural and touristic feature.

Economic activity is mainly concentrated in trade, services, and hospitality, with a dominance of small businesses and sole proprietors among the more than 2300 registered enterprises

5.4.Population of Montenegro by Religion

The religious structure of the population in the municipalities within the Skadar Lake basin shows significant differences, reflecting the ethnic and cultural diversity of the region.

Table No 20. Population of Montenegro by religion, by municipalities.[42]

Opštine	Ukupno	u %	Hrišćanstvo										Islamska	u %	Budistička	u %	Ostale vjere	u %	Ateisti	u %	Agnostici	u %	Neželi da se izjasni	u %	Ostalo	u %
			Pravoslavna	u %	Katolička	u %	Protestantska	u %	Jehovini svjedoci	u %	Ostale hrišćanske	u %														
Crna Gora	623.633	100,00	443.394	71,10	20.408	3,27	568	0,09	252	0,04	2.727	0,44	124.668	19,99	214	0,03	536	0,09	14.260	2,29	2.524	0,40	13.093	2,10	989	0,16
Bar	3.246	7,09	816	25,14	31	0,96	-	-	-	-	-	-	1.140	35,12	-	-	-	-	-	-	-	-	35	1,08	-	-
Cetinje	14.494	100,00	13.310	91,83	136	0,94	12	0,08	-	-	80	0,55	112	0,77	z	z	12	0,08	496	3,42	95	0,66	223	1,54	14	0,10
Danilovgrad	18.617	100,00	17.331	93,09	138	0,74	11	0,06	z	z	50	0,27	299	1,61	z	z	31	0,17	266	1,43	35	0,19	416	2,23	32	0,17
Kolašin	746	11,13	605	81,10	-	-	z	z	-	-	-	-	-	-	z	z	z	z	-	-	-	-	-	-	-	-
Nikšić	132	0,20	80	60,61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Podgorica	179.505	100,00	143.191	79,77	3.022	1,68	213	0,12	99	0,06	1.021	0,57	18.776	10,46	78	0,04	220	0,12	6.819	3,80	1.415	0,79	4.400	2,45	251	0,14
Tuzi	12.979	100,00	542	4,18	5.150	39,68	-	-	-	-	37	0,29	7.097	54,68	-	-	-	-	15	0,12	-	-	113	0,87	25	0,19
Ulcinj	20.507	100,00	2.365	11,53	2.015	9,83	z	z	z	z	24	0,12	15.769	76,90	z	z	z	z	80	0,39	27	0,13	168	0,82	42	0,20
Zeta	16.071	100,00	15.406	95,86	123	0,77	z	z	z	z	31	0,19	132	0,82	z	z	z	z	83	0,52	10	0,06	258	1,61	14	0,09

[42] Population Census in Montenegro 2023, MONSTAT, Podgorica, 2024. The data for the municipalities of Bar, Kolašin, and Nikšić refer only to the settlements that are part of the RB.

Orthodoxy is the dominant religion in most municipalities, especially in Zeta, Kolašin, Danilovgrad, and Cetinje, where the Orthodox population makes up more than 90% of the total. In Podgorica, the main administrative center, 79.77% of the population identifies as Orthodox, while in Bar that percentage is somewhat lower (55.02%, and 25.14% in the settlements that are part of the RB), due to the presence of other religious communities.

Catholicism is most prevalent in Ulcinj (9.83%) and Bar (0.96% in the RB settlements), where there is a longstanding Catholic tradition, particularly among Albanians and Croats. Smaller Catholic communities are also present in Podgorica and Cetinje, but in significantly lower numbers.

Islam is most represented in the municipalities of Tuzi and Ulcinj. In Tuzi, the Muslim population accounts for 54.68%, while in Ulcinj it reaches 76.90%. This corresponds with the ethnic composition of these municipalities, which are predominantly Albanian. In Bar, Islam is represented by 31.96% of the population (35.12% in the RB settlements), indicating a significant presence of Bosniaks and Albanians.

In addition to the main religious communities, there are also smaller groups of Protestants, Jehovah's Witnesses, and members of other Christian denominations, but their numbers are negligible. Atheists and agnostics are most present in Podgorica (3.80% atheists and 0.79% agnostics), while in other municipalities their percentages are considerably lower.

These data show how religious affiliation in the region reflects the ethnic structure and historical migration patterns. Orthodoxy dominates in the central and northern municipalities, Islam in those with majority Albanian and Bosniak populations, while Catholicism is present in the coastal areas with historically multiethnic populations.

5.5. Main Settlements Within and Near the Proposed RB, with Reference to the Proposed Zoning Map of the Future RB.

In accordance with the law,[43] the Statistical Office (MONSTAT) maintains the Register of Settlements:

Municipality Bar[44]

1. Arbneš
2. Besa
3. Bobovište
4. Boljevići
5. Braćeni
6. Brijege
7. Bukovik
8. Ckla
9. Dabezići
10. Dedići
11. Donja Briska
12. Donji Brčeli
13. Donji Murići
14. Dračevica
15. Dupilo
16. Đuravci
17. Gluhi Do
18. Godinje
19. Gornja Briska
20. Gornja Poda
21. Gornji Brčeli
22. Gornji Murići
23. Gurza
24. Karanikići
25. Komarno
26. Koštanjica
27. Krnjice
28. Kruševica
29. Limljani
30. Livari
31. Lukići
32. Mačuge
33. Madguž
34. Mali Ostros
35. Marstijepovići
36. Martići
37. Orahovo
38. Ovtočići
39. Pelinković i
40. Pinčići
41. Popratnica
42. Seoca
43. Sotonići
44. Tejani
45. Tomići
46. Trnovo
47. Utrg
48. Veliki Ostros
49. Velja Gorana
50. Velje Selo
51. Virpazar
52. Zankovići

The Old Royal Capital Cetinje

1. Bajice
2. Barjamovica
3. Bijele Poljane
4. Bjeloši
5. Bobija
6. Boguti
7. Bokovo
8. Češljari
9. Cetinje
10. Čevo
11. Đalci
12. Dide
13. Đinovići
14. Dobrska Župa
15. Dobrsko Selo
16. Dodoši
17. Donja Zaljut
18. Donje Selo
19. Dragomi Do
20. Drušići
21. Dubovik
22. Dubovo
23. Dugi Do
24. Dujeva
25. Erakovići
26. Gađi
27. Gornja Zaljut

[43] Law on Settlements (*Official Gazette of the Socialist Republic of Montenegro*, No. 29/90 and *Official Gazette of the Republic of Montenegro*, Nos. 48/91, 17/92, and 27/94)

[44] For the municipality of Bar, only the settlements located within the boundaries of the biosphere reserve have been entered into the Register.

28. Gornji Ceklin
29. Grab
30. Građani
31. Gradina
32. Izvori
33. Jankovići
34. Jezer
35. Kobilji Do
36. Kopito
37. Kosijeri
38. Kranji Do
39. Kućišta
40. Lastva
41. Lipa
42. Lješev Stub
43. Majstori
44. Mališin Do
45. Markovina
46. Meterizi
47. Mikulići
48. Milijevići
49. Mužovići
50. Njeguši
51. Obzovica
52. Oćevići
53. Očinići
54. Ožegovice
55. Pačaradje
56. Pejovići
57. Petrov Do
58. Poda
59. Podbukovica
60. Prediš
61. Prekornica
62. Prentin Do
63. Prevlaka
64. Proseni Do
65. Radomir
66. Raičevići
67. Resna
68. Riječani
69. Rijeka Crnojevića
70. Rokoči
71. Rvaši
72. Ržani Do
73. Šinđon
74. Smokovci
75. Štitari
76. Tomići
77. Trešnjevo
78. Trnjine
79. Uba
80. Ubli
81. Ublice
82. Ugnji
83. Ulići
84. Velestovo
85. Vignjevići
86. Vojkovići
87. Vrba
88. Vrela
89. Vuči Do
90. Žabljak
91. Zabrdje
92. Začir
93. Zagora
94. Žanjev Do

Municipality Danilovgrad

1. Bare Šumanovića
2. Begovina
3. Bileća
4. Bobulja
5. Bogićevići
6. Boronjina
7. Braćani
8. Brajovići
9. Brijestovo
10. Ćurčići
11. Ćurilac
12. Dabojevići
13. Daljam
14. Danilovgrad
15. Đeđezi
16. Do Pješivački
17. Dolovi
18. Donje Selo
19. Donji Martinići
20. Donji Rsojevići
21. Drakovići
22. Đuričković i
23. Frutak
24. Glava Zete
25. Glavica
26. Glizica
27. Gorica
28. Gornji Martinići
29. Gornji Rsojevići
30. Gostilje Brajovićko
31. Gostilje Martinićko
32. Gradina
33. Grbe
34. Grlić
35. Gruda
36. Grudice
37. Jabuke
38. Jastreb
39. Jelenak
40. Jovanovići
41. Klikovače
42. Kopito
43. Kosić
44. Krivače
45. Kruščica
46. Kujava
47. Kupinovo
48. Lalevići
49. Lazarev Krst
50. Livade
51. Lubovo
52. Mala Zagreda
53. Malenza
54. Mandići
55. Međeđe I
56. Međeđe II
57. Međice
58. Mijokusovići
59. Miogost
60. Mokanje
61. Mosori

62. Musterovići
63. Novo Selo
64. Orašje
65. Orja Luka
66. Pažići
67. Pitome Loze
68. Plana
69. Počijevka
70. Podglavica
71. Podvraće
72. Poljica
73. Potkraj
74. Potkula
75. Potočilo
76. Povrhpoljina
77. Požar
78. Rošca
79. Rova
80. Ržišta
81. Sabov krug
82. Sekulići
83. Sladojevo Kopito
84. Slap
85. Slatina
86. Šobaići
87. Spuž
88. Sretnja
89. Strahinići
90. Studeno
91. Šume
92. Tvorilo
93. Veleta
94. Velika Zagreda
95. Velje Polje
96. Vinići
97. Viš
98. Vučica
99. Zagorak
100. Župa

Municipality Kolašin[45]

1. Bare
2. Bojići
3. Cerovice
4. Djudjevina
5. Dragovića Polje
6. Gornja Rovca Bulatovići
7. Kos
8. Liješnje
9. Ljevišta
10. Manastir Morača
11. Medjuriječje
12. Mioska
13. Mrtvo Duboko
14. Ocka Gora
15. Osretci
16. Petrova Ravan
17. Požnja
18. Raičevina
19. Raško
20. Ravni
21. Redice
22. Sreteška Gora
23. Starče
24. Svrke
25. Trnovica
26. Velje Duboko
27. Višnje
28. Vlahovići
29. Vranještica
30. Vrujica

Municipality of Nikšić[46]

1. Bogetići
2. Drenoštica
3. Medjedje
4. Milojevići
5. Povija
6. Stubica
7. Tunjevo

The Capital City Podgorica

1. Baloči
2. Begova Glavica
3. Beri
4. Bezjovo
5. Bigor
6. Bioče

[45] For the municipality of Kolašin, only the settlements that belong to the biosphere reserve area have been extracted from the Register..
[46] For the municipality of Nikšić, only the settlements that belong to the biosphere reserve area have been extracted from the Register..

7. Blizna
8. Bolesestra
9. Brežine
10. Bridje
11. Brskut
12. Buronji
13. Ćafa
14. Ćepetići
15. Crnci
16. Crvena Paprat
17. Cvarin
18. Dolovi
19. Donje Stravče
20. Donji Kokoti
21. Draževina
22. Dučići
23. Duga
24. Đurkovići
25. Duške
26. Farmaci
27. Fundina
28. Goljemadi
29. Gornje Stravče
30. Gornji Kokoti
31. Gradac
32. Grbavci
33. Grbi Do
34. Kiselica
35. Klopot
36. Kopilje
37. Kornet
38. Kosor
39. Kruse
40. Kržanja
41. Lekići
42. Liješnje
43. Lješta
44. Lijeva Rijeka
45. Lopate
46. Lutovo
47. Lužnica
48. Medun
49. Mileti
50. Momče
51. Mrke
52. Opasanica
53. Orahovo
54. Oraovice
55. Orasi
56. Ožezi
57. Parci
58. Pelev Brijeg
59. Petrovići
60. Podgorica
61. Prisoja
62. Progonovići
63. Raći
64. Radeća
65. Radovče
66. Releza
67. Rijeka Piperska
68. Seoca
69. Seoštica
70. Sjenice
71. Slacko
72. Staniselići
73. Stanjevića Rupa
74. Stijena
75. Stupovi
76. Trmanje
77. Tuzi Ljevorečke
78. Ubalac
79. Ubli
80. Velje Brdo
81. Veruša
82. Vidijenje
83. Vilac
84. Vrbica
85. Zagreda
86. Zaugao

Municipality Tuzi

1. Arza
2. Barlaj
3. Benkaj
4. Budza
5. Cijevna
6. Delaj
7. Dinoša
8. Donja Selišta
9. Donji Milješ
10. Drešaj
11. Drume
12. Dušići
13. Gornja Selišta
14. Gornji Milješ
15. Gurec
16. Hadžaj
17. Helmica
18. Karabuško polje
19. Koći
20. Kotrabudan
21. Krševo
22. Kuće Rakića
23. Ljekaj
24. Lovke
25. Mužeška
26. Nabom
27. Nikmaraš
28. Omerbožovići
29. Passhkala
30. Pikalj
31. Planica
32. Poprat
33. Pothum
34. Prifti
35. Rogami
36. Rudine
37. Šipčanik
38. Skorać
39. Spinja
40. Stjepovo
41. Sukuruć
42. Traboin
43. Tuzi
44. Vladne
45. Vranj
46. Vuksanlekići

47. Zatrijebač

Municipality Ulcinj

1. Ambula
2. Bijela Gora
3. Bojke
4. Brajše
5. Bratica
6. Briska Gora
7. Ćurke
8. Darza
9. Donja Klezna
10. Donji Štoj
11. Draginje
12. Fraskanjel
13. Gornja Klezna
14. Gornji Štoj
15. Kaliman
16. Kodre
17. Kolonza
18. Kosići
19. Kravari
20. Kruče
21. Kruta
22. Krute
23. Leskovac
24. Lisna Bore
25. Međreč
26. Mide
27. Možura
28. Pistula
29. Rastiš
30. Reč
31. Salč
32. Šas
33. Štodra
34. Sukobin
35. Sutjel
36. Sveti Đorđe
37. Ulcinj
38. Vladimir
39. Zoganj

Municipality Zeta

1. Anovi
2. Balabani
3. Berislavci
4. Bijelo Polje
5. Bistrice
6. Botun
7. Donja Cijevna
8. Golubovci
9. Goričani
10. Gošići
11. Gostilj
12. Kurilo
13. Ljajkovići
14. Mahala
15. Mataguži
16. Mitrovići
17. Mojanovići
18. Ponari
19. Srpska
20. Šušunja
21. Vranjina
22. Vukovci

6. POTENTIAL OF THE FUTURE BIOSPHERE RESERVE AREA AS A MODEL FOR PROMOTING SUSTAINABLE DEVELOPMENTRAZV

Based on the conducted GAP analysis, the results of national workshops, and a review of key development strategies, the area of the future Skadar Lake Basin Biosphere Reserve (BR) demonstrates exceptional potential to serve as a model region for promoting integrated, environmentally sustainable, and socially responsible development. Its complex spatial-functional structure, biological diversity, cultural heritage, and socio-economic potential enable the testing of innovative approaches to resource management, strengthening local communities, and preserving natural and cultural values.

The Skadar Lake Basin area, within which the future Biosphere Reserve (BR) is planned to be established, possesses outstanding prerequisites to serve as a showcase for a territorial approach to sustainable development. Its multilayered spatial and functional structure, diverse land use types, rich biodiversity, and mosaic of cultural landscapes make this area a relevant model for testing integrated development policies. The GAP analysis highlighted numerous overlaps in sectoral priorities, as well as a strong need for synchronization of institutional mechanisms, particularly in terms of applying national strategies at the local level. The results of the national workshops clearly confirmed a strong local identification with the area, an awareness of its value, and a willingness of communities to engage in a development transformation that balances nature conservation, resource valorization, and the improvement of quality of life.

6.1.Actions to Promote Sustainable Development in Line with Available Policies

In line with national development policies and the sectors defined through strategic documents—including strategies for agriculture, forestry, biodiversity protection, climate change, energy, and waste management—specific and tailored measures can be implemented in the Skadar Lake Basin Biosphere Reserve (BR):

- Support for the transformation of the local economy toward sustainable business models, through the application of circular economy principles and the use of renewable energy sources. The circular economy concept, as a key mechanism for reducing waste and using resources efficiently, can significantly enhance sectors such as agriculture, forestry, and tourism in this region, in accordance with the National Strategy for Circular Transition by 2030.
- Preservation and revitalization of traditional knowledge and practices through formal recognition of intangible heritage, especially in the sectors of fishing, agriculture, and handicrafts.
- Development of a participatory management model for the BR, involving local residents, the civil sector, and private stakeholders in the decision-making process.

- Linking the sectors of nature protection, tourism, and rural development through joint projects and the establishment of multifunctional zones with an integrated approach to resource use.

Montenegro's normative and strategic framework provides a solid foundation for implementing concrete actions within the Biosphere Reserve (BR). The National Strategy for Sustainable Development until 2030 positions Montenegro as a society of high human development that aims to base its economic growth on efficient resource use, innovation, and knowledge. Strategies for rural development, tourism, waste management, biodiversity conservation, and climate change are aligned with European policies and open space for modeling various local initiatives.

The BR area is ideally suited for the implementation of the circular economy concept through projects that integrate ecological production, renewable energy sources, and waste processing into useful resources. The forestry sector can significantly contribute to the sustainable valorization of resources by increasing added value in the wood industry, reducing waste, and utilizing wood biomass as a renewable energy source, in line with the National Forestry Strategy. At the same time, the revitalization of traditional occupations and skills in the sectors of fishing, agriculture, and crafts enables their reintegration into modern sustainable economy streams.

The establishment of participatory management—as a key principle of the UNESCO MAB Programme—has already been recognized through the activities of local organizations and initiatives that demonstrate a high level of readiness to cooperate with management structures. Additionally, the spatial complexity and varying degrees of natural resource preservation offer the opportunity to establish multifunctional zones where integrated approaches to resource use, education, and innovation can be tested. Such models align with green economy principles and can serve to demonstrate how local policies can be operationalized through clearly defined pilot projects.

6.2. Potential for Fostering Economic and Human Development that is Socio-Culturally and Environmentally Sustainable

The future BR provides a clear framework for improving the quality of life of the local population through the valorization of natural capital and cultural heritage. The following development opportunities have been identified:

- Local government development documents (e.g., strategic plans of the municipalities of Podgorica, Bar, Nikšić, Danilovgrad, and Ulcinj) already recognize the need for economic diversification toward green and sustainable transformation.

- Access to funding is available through instruments such as IPARD III, national and bilateral funds (e.g., UNDP, EU Green Agenda), enabling the implementation of local initiatives in areas such as eco-tourism, organic production, landscape conservation, and energy efficiency.

Key sectors with growth potential include:

- Eco-tourism and cultural tourism
- Organic and traditional agriculture
- Renewable energy sources (e.g., small-scale solar systems)
- Social and circular economy.

The future BR encompasses a wealth of human and natural resources which, if properly valorized, can stimulate significant developmental progress. Montenegro's Rural Development Strategy for the period 2023–2028 particularly emphasizes the importance of including women and youth, diversifying the rural economy, and improving the quality of life in peripheral and underdeveloped areas. Given that a significant number of settlements within the BR are affected by depopulation, lack of infrastructure, and limited market access, the area can serve as a laboratory for applying the principles of territorial cohesion and regional balance.

In this context, several financial instruments have been identified as available to directly support local stakeholders—ranging from the IPARD III program and continuous World Bank support through MIDAS, to international donor mechanisms such as UNDP (which, through the project "Towards Carbon Neutral Tourism," sought to introduce the EU Eco Label for hotels in Montenegro), the EU Green Agenda, and bilateral initiatives. This eco-certification initiative, though currently limited in scope, can serve as a model to be further developed and adapted within the biosphere reserve in the context of sustainable tourism and local communities.

In addition to financial support, there is also significant synergy among sectoral policies that recognize the BR as a zone where sustainable tourism, organic production, energy transition, and the preservation of the cultural landscape can be developed. The introduction of the smart villages concept, as well as the LEADER approach, further strengthens the role of the community as the main driver of change. This framework also enables the generation of new, locally rooted economic models that are environmentally responsible, culturally relevant, and socially equitable.

6.3.Assessment of Change and Success – Goals and Indicators

Although systematic assessments of the impacts of various policies in the Skadar Lake basin are still under development, certain indicators and goals have already been defined or proposed in relevant documents:

The National Biodiversity Protection Strategy envisions by 2030:[47]

- An increase in the share of protected and Natura 2000 areas by 10%.
- Improvement in the status of at least 20 endangered species

The Strategy for the Development of Agriculture and Rural Areas of Montenegro 2023–2028 recognizes:[48]

- Improvement of the living standards of the rural population
- Promotion of employment
- Greater inclusion of women and youth as key goals of sustainable rural development

The focus is on income diversification, strengthening the local economy, and ensuring more equitable access to resources and support for vulnerable social groups. In parallel, work is underway to improve the Code of Good Agricultural Practice, as well as to establish national agroecological indicators, which will enable more precise monitoring of agriculture's impact on biodiversity and soil quality. According to a yet unofficially available analysis, Montenegro is currently positioned as one of the leading countries in Europe in terms of the share of so-called High Nature Value (HNV) agriculture, which further confirms the potential of this sector to contribute to the preservation of natural capital and the sustainable development of rural areas.

The Waste Management Strategy plans to:[49]

- Increase the recycling rate to 25% by 2027
- Eliminate 80% of illegal landfills

During the workshops, one of the key indicators of the successful implementation of the BR was highlighted as: *the number of local communities involved in participatory management processes and the number of new green jobs created through projects within the BR.*

Although the monitoring of sectoral policy implementation in the Skadar Lake basin is still in the establishment phase, the available documents contain guidelines that can serve as a foundation for creating an indicator framework for the BR. Montenegro's Biodiversity Protection Strategy foresees an increase in the area of protected sites and the preservation of the status of endangered species by 2030, which can be directly linked to the implementation of zoning and management within the BR. The Rural Development Strategy identifies improving the standard of living, employment of youth and women, and the encouragement of local processing and promotion of authentic products as key measures for the socio-economic recovery of rural areas.

[47] National Biodiversity Strategy with Action Plan for the period 2016–2020, Ministry of Sustainable Development and Tourism, Podgorica, 2015.
[48] Strategy for the Development of Agriculture and Rural Areas of Montenegro 2023–2028, Ministry of Agriculture, Forestry and Water Management, Podgorica, 2023.
[49] Waste Management Strategy of Montenegro until 2030, Ministry of Sustainable Development and Tourism, Podgorica, 2015.

The Waste Management Strategy introduces obligations to increase recycling and eliminate illegal landfills, which is of particular importance for the preservation of the Skadar Lake ecosystem and its tributaries. In addition, the National Strategy for Sustainable Development clearly defines the need to introduce a system of indicators and qualitative measurements of progress, referring to the Human Development Index, resource productivity, and social inclusion as key parameters. At the national workshops, it was emphasized that the number of active local communities involved in management, as well as the number of green jobs created, will serve as direct indicators of the success of BR concept implementation. The GAP analysis specifically highlighted the importance of establishing a locally relevant set of indicators covering areas such as natural and cultural heritage, citizen participation, environmental awareness, and the functionality of institutional coordination.

7. ACTIVITIES THAT POSITIVELY OR NEGATIVELY CONTRIBUTE TO LOCAL SUSTAINABLE DEVELOPMENT IN THE SKADAR LAKE BASIN BR

7.1.Types of Activities, Area of Implementation, and Community Involvement

In addition to tourism and agriculture, the following activities have been identified as influencing the BR:

a) Urbanization and Infrastructure Development

Area of Activity:

Urbanization and infrastructure development are most intense in the transition zone of the Skadar Lake Biosphere Reserve, with significant dynamics observed in the municipalities of Podgorica, Danilovgrad, Ulcinj, and Bar. The greatest pressures originate from the urban and suburban areas of Podgorica—particularly Zeta and Tuzi—where zones for urban and industrial expansion are concentrated.

Stakeholders and Community Involvement:

The processes of urbanization involve local residents (as landowners and users of facilities), construction companies, private and foreign investors, and the competent planning and management institutions. The local population is directly involved in land-use changes—both through functional transformation of space and through employment—but is also exposed to negative effects such as the loss of arable land and pressure on existing infrastructure.

Description of Activities:

Urbanization includes the expansion of urban and suburban settlements, construction of residential and commercial buildings, extension of the road network, development of industrial zones, and associated utility infrastructure. According to the Spatial-Urban Plan of the Capital City Podgorica through 2025, the construction of several industrial zones (621 ha), mixed-use zones (592 ha), transport network development, and urban structure expansion is planned. At the same time, the construction of tourism and commercial facilities, as well as energy infrastructure such as solar power plants, is also foreseen—further increasing spatial pressure.

The mismatch between urbanization and the area's ecological carrying capacity, insufficient construction oversight, and poor application of sustainable spatial planning principles pose serious challenges. Construction without adequate strategic environmental assessments can directly threaten biodiversity and traditional practices that form the foundation of sustainable development for local communities.

b) Fisheries and Aquaculture

Area of Activity:

Fisheries and aquaculture activities are primarily carried out on Skadar Lake, the Bojana River, and other water bodies within the Skadar Lake Biosphere Reserve. Skadar Lake, the largest lake in the Balkans, is a key area for freshwater fishing in Montenegro, while the Bojana River is important for mixed freshwater-marine regimes.

Stakeholders and Community Involvement:

Local fishermen—often organized into family cooperatives—form the backbone of this activity. In addition, tourism operators who incorporate fishing into eco- and rural tourism experiences are also active, as well as scientific institutions such as the Institute of Marine Biology in Kotor. The Ministry of Agriculture, Forestry and Water Management and the Public Enterprise for National Parks of Montenegro (JPNPCG), which issues permits for commercial fishing in Skadar Lake National Park, hold management and regulatory roles.

Description of Activities:

Traditional fishing on Skadar Lake has been practiced for decades, using specific local tools and techniques. However, in recent years, there has been a noticeable increase in the use of modern methods and equipment, which—combined with weak control and inadequate monitoring—has led to growing pressure on fish populations. Aquaculture is developing more slowly, although natural conditions are favorable for the farming of species such as carp (Cyprinids) and eel. Currently, there is no organic aquaculture production, although the potential for its development exists.

Key Challenges:

- Lack of an integrated fish stock monitoring system and insufficient inspection oversight
- Need for the establishment of modern landing sites and cold chains for product preservation
- Absence of standardized infrastructure for fish farming, processing, and distribution
- Low participation of women and youth in the sector, along with limited access to funding for equipment and process modernization[50]

It is essential to improve the resource management system through the digitalization of catch monitoring and strengthening of inspection capacities, as well as to valorize traditional fisheries through tourism and cultural products (e.g., "fish days," local gastronomy, thematic routes). Additionally, aquaculture should receive more attention through pilot projects focused on organic production, supported by EU funding.

The transboundary dimension in overcoming the challenges of uniform fish resource management was highlighted in all workshops and meetings as a crucial element, pointing to the necessity of bilateral cooperation.

c) Forestry and Natural Resource Exploitation

Area of Activity:

Forest areas within the Skadar Lake Biosphere Reserve—particularly in the municipalities of Nikšić, Cetinje, Danilovgrad, and Kolašin—are of strategic importance for forestry. In addition to natural forests, these zones include exploitation areas for timber harvesting and extraction of other mineral resources.

Stakeholders and Community Involvement:

Activities in the forestry and natural resource sectors involve the timber industry, local residents (who use wood for fuel or construction), private concession holders, and state institutions—primarily the Ministry of Agriculture, Forestry and Water Management. Increasingly influential are investors from the bioenergy sector and private companies involved in the extraction of mineral resources.

Description of Activities:

In forested areas, legal logging is carried out based on forest management plans, but illegal logging also occurs and represents a serious threat to ecosystem protection. Forest resource exploitation includes the use of wood for energy, construction, and processing, as well as the collection of non-timber forest products. In certain parts of the BR, the extraction of mineral

[50] Fisheries Sector Development Strategy with Action Plan 2024–2029, Ministry of Agriculture, Forestry and Water Management, Podgorica, 2023.

resources (gravel, sand, limestone) has been identified as part of industrial development, which further impacts the landscape and biodiversity.

Key Challenges:

- Weak implementation of adaptive and close-to-nature forest management practices
- Low efficiency in controlling illegal activities, especially in remote areas
- Limited wood processing capacity – with raw materials predominantly exported instead of finished products
- Need to strengthen institutions and improve intersectoral cooperation between forestry, energy, and environmental protection sectors

It is necessary to introduce modern monitoring systems (e.g., satellite and drone surveillance), improve the legislative framework and operational mechanisms to combat illegal logging, and promote value-added processing and certified production of timber and bioenergy. In addition, enhancing education and involving local communities in forest management would contribute to resource conservation and help reduce conflicts between economic and environmental interests.

d) Industrial and Energy Production

Area of Activity:

Industrial and energy production within the Skadar Lake Biosphere Reserve is mostly concentrated in the transition zone of the BR, particularly in the industrial areas of the municipalities of Podgorica, Bar, and Nikšić. Key industrial capacities are located in these areas, including the Aluminium Plant (KAP) in Podgorica, which is undergoing a gradual shutdown of its aluminum production line, while investor activities are being redirected toward other projects, including potential new manufacturing facilities. Other major industrial sites include the Port of Bar, processing plants, metal and construction industries, as well as various smaller industrial facilities and energy supply stations. In terms of energy, focus is also placed on existing hydropower infrastructure and planned facilities on the Morača and Zeta rivers.

Stakeholders and Community Involvement:

Stakeholders include industrial companies, energy operators, state institutions (e.g., Ministry of Energy and Mining, Ministry of Economic Development), local governments, and workers employed in these sectors. The local population is involved primarily through employment opportunities, but also indirectly affected through impacts on health, quality of life, and the environment.

Description of Activities:

- Description of Activities:
- Processing industries, particularly in the metal, construction materials, and food sectors

- Production and distribution of electricity, including hydropower plants and solar power stations
- Extraction of mineral resources (gravel, clay, stone)—especially in the Nikšić area and along the Morača River. Montenegro's Industrial Policy 2024–2028 identifies these sectors as key to the transition toward a sustainable and green economy, with a focus on digitalization, circular business models, and climate neutrality.[51]

Key Challenges:

- The need for modernization and green transition of outdated industrial infrastructure
- The need to remediate major industrial pollution sites such as KAP (red mud and solid waste)
- Insufficient alignment of industrial activities with spatial and environmental planning
- Weak implementation of environmental standards and emission control mechanisms
- Limited access to clean technologies and low levels of local value-added processing

There is a strong need to fully integrate circular and green economy principles into industrial and energy production. Priority should be given to projects that use renewable energy sources (RES), reduce emissions, and improve energy efficiency. Key measures include the introduction of certification systems and eco-standardization in industrial zones, as well as strengthening environmental inspection and pollution control.

It is also crucial to involve local communities in decision-making processes related to industrial and energy development in their surroundings. Planning for sustainable energy sources must consider current trends and thorough impact assessments on both the environment and society.

Additionally, the transboundary dimension is especially relevant in the case of hydropower projects with cross-border impacts, where international conventions are often not applied adequately or in a timely manner—as seen in the case of the Cemi/Cijevna River and hydropower construction on the Albanian side.

e) Waste Management and Pollution

Area of Activity:

Waste management and pollution affect all major urban and rural zones within the Skadar Lake Biosphere Reserve. Particularly critical areas include Podgorica, Bar, Ulcinj, and Danilovgrad, where both official and informal waste disposal sites are present, along with improper wastewater management.

[51] Industrial Policy of Montenegro 2024–2028, Ministry of Economic Development, Podgorica, 2024.

Stakeholders and Community Involvement:

Waste management involves a wide range of actors—public utility companies, residents, businesses (especially in the industrial sector), as well as state and local institutions responsible for monitoring and regulation. Citizens are involved as waste producers, users of waste collection services, and as potential participants in waste sorting and reporting illegal dumping sites.

Description of Activities:

- Waste disposal: According to Montenegro's Waste Management Strategy until 2030, the majority of waste is still landfilled, while recycling and sorting rates remain very low—only about 2.6% of the total collected waste was sorted in 2013. Numerous illegal dumpsites are also present within the BR territory.
- Wastewater: Wastewater treatment is underdeveloped. In many settlements, wastewater is discharged directly into Skadar Lake or its tributaries without prior treatment.
- Pollution: In addition to solid waste and wastewater, industrial pollution poses a major challenge, as does the use of pesticides and fertilizers in agriculture, which enter aquatic ecosystems through surface runoff and groundwater infiltration.

Key Challenges:

- Unevenly developed municipal infrastructure – especially in rural areas
- Weak integration of primary and secondary waste sorting systems
- Lack of wastewater treatment in many towns and settlements
- Need for removal of existing illegal dumpsites and remediation of contaminated areas

Necessary Measures:

- Establish regional waste management centers in line with EU standards
- Ensure efficient operation of recycling centers and waste sorting systems
- Introduce mandatory wastewater treatment in all settlements within the Skadar Lake catchment area
- Strengthen education and involvement of local communities in environmental protection
- Apply the "polluter pays" principle through fees and inspection measures targeting irresponsible entities

7.2.Positive and Negative Impacts on the Goals of the Biosphere Reserve (BR)

Activity	Positive Impacts	Negative Impacts
Urbanization and Infrastructure	Creation of new jobs. Modernization of infrastructure. Improvement of transportation connectivity. Influx of investments. Access to socio-economic services. Regional connectivity and creation of an environment/opportunities for sustainable development.	Conversion of fertile agricultural land into construction zones. Loss of natural habitats. Pressure on the water resources of the Skadar Lake basin. Pollution and disruption of landscape integrity. Insufficient accompanying infrastructure and pollution of air, soil, and water.
Fisheries and Aquaculture	Traditional fishing holds an important cultural and economic role in the community. Potential for the development of ecotourism and branding of local fish products. Employment of local population and contribution to food security.	Uncontrolled fish harvesting, especially of protected and commercially important species (e.g., eel), along with the presence of illegal fishing. Weak enforcement of fishing quotas and spatial fishing restrictions. Erosion of traditional knowledge due to modernization and unfair competition.
Forestry and Resource Exploitation	Potential for developing sustainable value chains in the wood industry and bioenergy production. Job creation in rural areas. Opportunities for the development of the green and circular economy through the valorization of forest products.	Illegal logging and excessive resource exploitation threaten biodiversity, soil stability, and water regimes. Lack of capacity for real-time monitoring, control, and inspection. Risk of soil erosion and loss of forest protective functions (climate regulation, water and soil protection).

Industry and Energy	High potential for job creation and strengthening of the economic base. Opportunities for implementing green and digital transition through new technologies and renewable energy sources. Multiplier effects on supporting sectors – transport, logistics, construction.	Air, water, and soil pollution, especially near KAP and industrial zones. High water and energy consumption, along with CO_2 and other pollutant emissions. Mining activities degrade the landscape and threaten natural habitats. Insufficient control of industrial waste and a weak system of corporate environmental accountability.
Waste Management	There is a legal and strategic framework that recognizes the importance of circular economy and waste sorting. The activities of certain municipalities (e.g., Podgorica, Tivat) in implementing recycling centers and pilot waste sorting projects show potential for system improvement. Opportunities for employment in the waste management and raw material processing sectors.	The existence of illegal dumpsites and low waste sorting rates. Insufficient infrastructure for the treatment of municipal and industrial waste. Water, soil, and air pollution have a direct negative impact on biodiversity, human health, and the tourism potential of the BR. Poor public awareness and lack of control mechanisms and sanctions.

Several positive outcomes have already been achieved as part of efforts to enhance sustainable development in the Skadar Lake region. A sustainable fishing regime was introduced in the Skadar Lake National Park by the Public Enterprise for National Parks of Montenegro, marking an important step toward preserving fish stocks and traditional practices. At the same time, the Forest Administration and the Ministry of Agriculture, Forestry and Water Management launched initiatives to expand the protection of forest areas and encourage reforestation in degraded zones.

The Environmental Protection Agency coordinated the designation of new protected areas, as well as the mapping of potential sites for inclusion in the Natura 2000 network. On the local level, important actions were taken by the Capital City of Podgorica and the Municipality of Ulcinj

through the implementation of wild landfill remediation projects, which directly reduced pressure on land and water resources.

Within the World Bank-funded project "Industrial Waste Management and Cleanup" (IWMCP), implemented by the Environmental Protection Agency of Montenegro, project documentation was prepared for the remediation of pollution from the red mud basin and solid waste of the former KAP industrial complex. In parallel, local governments and utility companies developed technical documentation for the treatment of urban wastewater, laying the groundwork for future investments in water protection infrastructure.

7.3.Indicators for Assessing the Condition and Trends

To monitor the impact of these activities, the following indicators are used:

1. Ecological Indicators:

- Area of conserved forests (ha)
- Biodiversity index (and biomonitoring - still under development)
- Water pollution levels (chemical, physical, and biological (under development) parameters), and water quantity
- Air pollution levels (ecological air pollution indicators are currently being developed), soil pollution (insufficiently developed)
- Amount of waste disposed of (t/year)

2. Economic Indicators:

- Revenue from tourism, fisheries, and agriculture (€)
- Number of employees in environmentally sustainable sectors
- Degree of industrialization and economic diversification
- Size of subsidies for supporting agro-ecological measures, eco-tourism, circular economy...
- Number of entrepreneurs who have implemented ESG models for investments...

3. Social Indicators:
- Participation of local population in ecological projects (%)
- Number of educational and scientific research related to the BR

7.4.Actions and Measures for Optimizing Impact on the BR

Current actions include:

- Remediation of environmental issues – removal of illegal dumpsites, industrial waste, and improvement of wastewater treatment.
- Promotion of eco-tourism – development of hiking, biking, and educational trails, rural tourism, gastronomy, etc.
- Preservation of fish stocks – introduction of strict fishing controls and protection of endangered species with cross-border coordination.
- Ban on illegal logging – increased monitoring and stricter penalties.
- Ban on illegal resource exploitation (gravel, water, etc.) – increased monitoring and stricter penalties.

Proposed measures for the future:

- Sustainable urban development planning – controlled city growth with protection and resilience of key ecosystems, including urban ones.
- Promotion of circular economy – increased investment in recycling and waste reduction. Also, adopting principles such as zero km, zero waste, etc.
- Strengthening local community awareness – campaigns on the importance of sustainable resource use.
- Financial support for ecological projects – incentives for agriculture and tourism with ecological standards.

The impact analysis of various activities on sustainable development in the BR shows that the integration of ecological principles into economic sectors is essential. Tourism, agriculture, fisheries, forestry, industry, and infrastructure can develop sustainably through smart planning and strengthening ecological awareness. The implementation of the proposed measures will help preserve biodiversity and improve the socio-economic development of the BR.

8. POTENTIAL BENEFITS OF ECONOMIC ACTIVITIES FOR THE LOCAL POPULATION

Economic activities within the proposed Skadar Lake Biosphere Reserve have the potential to contribute to the sustainable development of local communities. However, the benefits for the local population vary significantly depending on the sector, scale of activities, degree of formalization, and involvement of local stakeholders. Below are the main benefits and revenues arising from the previously described activities:

a) Urbanization and Infrastructure Development

- Revenues and Benefits:
- Employment of local labor in the construction sector (low-skilled and skilled jobs).
- Increase in land value in transition zones – especially for landowners.
- Improved access to transport and utility infrastructure (roads, water, sewage).
- Opportunities for the development of small businesses (hospitality, crafts) in newly urbanized areas.

How benefits are transferred: Direct employment, through compensation for land expropriation, and tax revenues used by local governments for public services.

b) Fisheries and Aquaculture

Revenues and Benefits:

- Direct revenue from the sale of fish and fish products (at markets, restaurants, fishmongers).
- Tourist tours with fishing elements ("fishing tours," educational tours, local fish tastings).
- Seasonal and permanent employment in the sector – particularly for family farms.

How benefits are transferred: Through fishing permits, membership in fishing cooperatives and associations, participation in local tourism projects and fairs.

c) Forestry and Natural Resource Exploitation

Revenues and Benefits:

- Collection of firewood, sale of timber, and non-timber forest products (e.g., mushrooms, medicinal herbs).
- Employment in concession and wood processing companies.
- Participation in conservation and reforestation activities (seasonal employment).

How benefits are transferred: Through employment, concession fees that are partially returned to municipalities, and local initiatives and cooperatives for forest products.

d) Industrial and Energy Production

Revenues and Benefits:

- Direct employment in industrial plants, logistics, and supporting services.
- Engagement of local subcontractors (e.g., transport, maintenance, catering).
- Potential compensation for the use of natural resources through environmental funds.

How benefits are transferred: Mainly through the labor market (wages), but also through public investments and funds financed by industrial fees and taxes.

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e) Waste Management and Pollution

Revenues and Benefits:

- Employment in public utility companies and recycling centers.
- Waste sorting activities and collection of secondary raw materials (especially in the informal sector).
- Participation in remediation projects and environmental protection education.

How benefits are transferred: Through permanent and temporary employment, subsidies and grants for "green jobs," as well as improved quality of life (health, tourism, spatial planning).

Although all the described activities have the potential to contribute to the income of the local population, the key condition for achieving long-term benefits is greater involvement of the local community in planning and decision-making, as well as a more equitable distribution of profits through public policies, support for small and medium-sized enterprises, and promotion of the green economy.

9. CULTURAL AND SPIRITUAL VALUES, CUSTOMARY PRACTICES, LANGUAGES, RITUALS, AND TRADITIONAL LIVELIHOODS IN THE RB CATCHMENT OF LAKE SKADAR

9.1. Cultural Identity and Spiritual Values in the Contemporary Context of the RB Catchment of Lake Skadar

The RB Catchment Area of Lake Skadar, which includes the territories of the municipalities of Podgorica, Tuzi, Zeta, Cetinje, Danilovgrad, Nikšić, Bar, Ulcinj, and Kolašin, as well as the Skadar Lake National Park, Lovćen National Park, Komovi Nature Park, Zeta Nature Park, the Cijevna Natural Monument, and the Ulcinj Saltworks, represents a region of exceptional cultural diversity and rich intangible heritage. Predominantly inhabited by a multiethnic population, this area preserves a wide array of customs, languages (Montenegrin, Serbian, Albanian, and Romani), folk rituals, traditional crafts, and livelihoods.

Table No 21. Population of Montenegro by Mother Tongue, by Municipalities [52]

Maternji jezik	Crna Gora	u %	Opštine															
			Bar	u %	Cetinje	u %	Danilovgrad	u %	Kolašin	u %	Podgorica	u %	Tuzi	u %	Ulcinj	u %	Zeta	u %
Ukupno	**623.633**	***100,00***	**45.812**	***100,00***	**14.494**	***100,00***	**18.617**	***100,00***	**6.700**	***100,00***	**179.505**	***100,00***	**12.979**	***100,00***	**20.507**	***100,00***	**16.071**	***100,00***
Crnogorski	215.299	*34,52*	18.440	*40,25*	12.431	*85,77*	7.632	*40,99*	2.330	*34,78*	74.953	*41,76*	3.244	*24,99*	2.400	*11,70*	4.722	*29,38*
Srpski	269.307	*43,18*	15.785	*34,46*	1.258	*8,68*	9.427	*50,64*	3.903	*58,25*	80.436	*44,81*	387	*2,98*	1.706	*8,32*	10.252	*63,79*
Bosanski	43.470	*6,97*	2.110	*4,61*	z	*z*	11	*0,06*	z	*z*	2.425	*1,35*	1.098	*8,46*	405	*1,97*	z	*z*
Albanski	32.725	*5,25*	2.030	*4,43*	23	*0,16*	72	*0,39*	z	*z*	2.533	*1,41*	7.820	*60,25*	15.233	*74,28*	79	*0,49*
Hrvatski	2.193	*0,35*	150	*0,33*	21	*0,14*	11	*0,06*	z	*z*	257	*0,14*	z	*z*	24	*0,12*	z	*z*
Bjeloruski	280	*0,04*	80	*0,17*	z	*z*	-	-	-	-	33	*0,02*	-	-	z	*z*	-	-
Bokeljski	186	*0,03*	z	*z*	-	-	-	-	-	-	z	*z*	-	-	-	-	-	-
Bošnjački	2.030	*0,33*	290	*0,63*	-	-	z	*z*	-	-	280	*0,16*	89	*0,69*	132	*0,64*	-	-
Crnogorski-Srpski	1.336	*0,21*	69	*0,15*	z	*z*	41	*0,22*	14	*0,21*	500	*0,28*	z	*z*	z	*z*	62	*0,39*
Crnogorski-Srpski-I	1.721	*0,28*	92	*0,20*	10	*0,07*	52	*0,28*	10	*0,15*	673	*0,37*	11	*0,08*	15	*0,07*	35	*0,22*
Engleski	407	*0,07*	48	*0,10*	z	*z*	13	*0,07*	z	*z*	125	*0,07*	z	*z*	z	*z*	z	*z*
Goranski	226	*0,04*	42	*0,09*	-	-	-	-	-	-	95	*0,05*	z	*z*	z	*z*	-	-
Hrvatsko-Srpski	233	*0,04*	17	*0,04*	z	*z*	z	*z*	z	*z*	58	*0,03*	-	-	z	*z*	z	*z*
Jugoslovenski	178	*0,03*	15	*0,03*	z	*z*	z	*z*	z	*z*	72	*0,04*	z	*z*	-	-	z	*z*
Makedonski	613	*0,10*	67	*0,15*	13	*0,09*	20	*0,11*	-	-	202	*0,11*	z	*z*	10	*0,05*	17	*0,11*
Maternji	1.408	*0,23*	63	*0,14*	27	*0,19*	47	*0,25*	14	*0,21*	534	*0,30*	-	-	z	*z*	16	*0,10*
Njemački	292	*0,05*	87	*0,19*	z	*z*	22	*0,12*	z	*z*	51	*0,03*	-	-	19	*0,09*	z	*z*
Romski	4.658	*0,75*	187	*0,41*	61	*0,42*	40	*0,21*	-	-	2.923	*1,63*	94	*0,72*	101	*0,49*	28	*0,17*
Ruski	14.731	*2,36*	3.207	*7,00*	141	*0,97*	103	*0,55*	24	*0,36*	2.986	*1,66*	-	-	71	*0,35*	37	*0,23*
Srpski-Crnogorski	1.210	*0,19*	81	*0,18*	10	*0,07*	39	*0,21*	17	*0,25*	437	*0,24*	z	*z*	z	*z*	42	*0,26*
Srpsko-Hrvatski	12.999	*2,08*	888	*1,94*	267	*1,84*	543	*2,92*	180	*2,69*	4.224	*2,35*	25	*0,19*	107	*0,52*	364	*2,26*
Turski	1.823	*0,29*	110	*0,24*	z	*z*	34	*0,18*	z	*z*	959	*0,53*	z	*z*	14	*0,07*	z	*z*
Ukrajinski	2.308	*0,37*	691	*1,51*	10	*0,07*	12	*0,06*	z	*z*	304	*0,17*	z	*z*	z	*z*	z	*z*
Ostali jezici	3.109	*0,50*	343	*0,75*	44	*0,30*	52	*0,28*	26	*0,39*	1.084	*0,60*	66	*0,51*	118	*0,58*	44	*0,27*
Ostalo	200	*0,03*	z	*z*	z	*z*	z	*z*	-	-	z	*z*	z	*z*	z	*z*	z	*z*
Ne želi da se izjasn	10.691	*1,71*	912	*1,99*	133	*0,92*	432	*2,32*	157	*2,34*	3.269	*1,82*	102	*0,79*	109	*0,53*	327	*2,03*

Data on the mother tongue of the population in the municipalities belonging to the RB Catchment of Lake Skadar reveal significant regional differences, reflecting the ethnic structure and historical influences. At the national level in Montenegro, Serbian is the most commonly declared mother tongue (43.18%), while Montenegrin is spoken by 34.52% of the population. Bosnian and Albanian are also present, though to a lesser extent.

[52] Census of Population in Montenegro 2023, MONSTAT, Podgorica, 2024.

In Podgorica, the main administrative and economic center, Serbian dominates with 44.81%, while Montenegrin is spoken by 41.76% of the population. In Tuzi, Albanian is dominant at 60.25%, reflecting the municipality's ethnic composition. Ulcinj shows a similar trend, with Albanian as the mother tongue for as much as 74.28% of the population.

In municipalities with a majority Orthodox population, such as Cetinje, Danilovgrad, and Kolašin, Montenegrin prevails. In Cetinje, 85.77% of the population speaks Montenegrin, while in Danilovgrad that percentage is 40.99%, with a significant share of Serbian (50.64%). Kolašin, on the other hand, has a high percentage of Serbian speakers (58.25%).

In Bar, linguistic diversity is more pronounced: 40.25% of the population speaks Montenegrin, while 34.46% speak Serbian. Albanian is also present with 4.43%, indicating the multiethnic structure of this coastal municipality. In Zeta, Serbian is dominant with 63.79%, while 29.38% of the population speaks Montenegrin.

These data point to a strong link between ethnic affiliation and language, with Montenegrin and Serbian being most prevalent in Orthodox communities, while Albanian is dominant in municipalities with a majority Albanian population. The linguistic structure of these municipalities carries significant cultural and educational implications, particularly regarding language use in schools and administration.

The cultural values of this area are reflected in the traditional architecture of rural settlements such as Karuč, Godinje, Donji and Gornji Brčeli, which embody a unique harmony between nature and human intervention. Sacred sites of different religious denominations—Orthodox monasteries (Ostrog, Morača, Nikšić Monastery), Islamic mosques (Tuzi, Ulcinj), and Catholic churches (Bar, Podgorica)—serve as centers of spirituality and cultural exchange.

Numerous oral traditions, legends, myths, and beliefs have been preserved in this region and are passed down through generations. Notable examples include tales from Nikšić, Crmnica, Bjelopavlići, and Zeta, such as the legend of the Crmnica pomegranate and stories of fairies from the Bar area. Cetinje's distinctive humor and the legends of Ivan Crnojević also form an important part of the oral heritage that characterizes this region.

Folk dances, songs, and performing arts remain present in daily life, especially through the tradition of the Montenegrin *oro* (circle dance), *zdravice* (toasts), *lelekanje* (wailing chants), and *gusle* singing. Of special cultural interest are the traditional pirate game (*Gusharaveli*) in Ulcinj and the chivalric games in Cetinje.

Holidays and rituals such as *krsna slava* (patron saint celebration), Christmas and Christmas Eve, Bajram, and other festivities carry deep spiritual and social significance. The ceremonial burning of the *badnjak* (oak branch) in front of the Cetinje Monastery and at King Nikola's Square is recognized as an important ritual event. Customs such as lamenting (*tuženje*, *naricanje* or *lelekanje*) and godparenthood (*kumstvo*) also represent key elements of funeral and family practices.

The cultural landscape is further enriched by gastronomic heritage: leafy cheese, Čevski and Katunski cheese, dried carp and eel, 42-layer pie, *zeljanik* (spinach pie), *bamija* (okra stew), *pačaburek* (duck pastry), Zeta cakes, *tespidž* (a type of drink), *kastradina* (dried lamb), mead, teas, and ointments—all of which testify to the deep connection between nature, labor, and culture.

Traditional livelihoods include livestock farming in mountainous areas (Komovi, Lovćen, Upper Morača), fishing on Lake Skadar (using tools like "vrš" and "sadra"), and crafts and artisanal skills such as boat building, making *crepulje* (roof tiles), blacksmithing, gold embroidery, filigree work, milling, as well as the use of natural resources through activities like harvesting and processing reeds, cutting *viša* (a type of grass), making straw roofs, and preparing natural remedies. Practices such as *katunovanje* (seasonal migration to pastures) and *moba* (collective labor) reflect a specific collective way of organizing life and work.

Many of these values have already been documented and recognized as intangible cultural heritage of Montenegro in the official registry of the Directorate for the Protection of Cultural Heritage, and some have even been proposed for inclusion on the UNESCO list.

Table No 22 – Intangible Cultural Heritage of Montenegro within the RB Catchment of Lake Skadar [53]

MONTENEGRO		
Montenegrin oro (traditional circle dance)	Part of folk culture, performing arts, traditional dance and song.	Intangible cultural heritage of Montenegro. Performing art – of national importance
Zlatovez (gold embroidery)	The craft of making and decorating Montenegrin traditional costume.	
Katunovanje (seasonal mountain livestock migration)	Traditional form of livelihood, seasonal livestock herding and life in the mountains.	Registered cultural property
Slava (patron saint celebration)	Veneration of a saint believed to be the protector of the family line and household or brotherhood.	Registered cultural property
Celebration of Christmas Eve and Christmas	Part of folk culture, performing arts, traditional dance and song.	Registered cultural property
Night of Museums	An annual international cultural and artistic event held in late May in almost all cities of Montenegro.	Registered cultural property, cultural event

[53] Strategy for the Development of Cultural Tourism in Montenegro with an Action Plan until 2023, Ministry of Sustainable Development and Tourism, 2018.

European Heritage Days	An annual international event held in September.	Registered cultural property, cultural event
BAR		
Cult of Saint Vladimir	The craft of making and decorating Montenegrin ceremonial costume	Registered cultural property
Legend of the Crmnica pomegranate	Legend of the Crmnica pomegranate the color of wine	Registered cultural property
Legend of the fairies	Legend of the fairies, fairy coins, and the fairy cave	Registered cultural property
Filigree technique	Traditional craft and skill	Registered cultural property
Caulking (traditional boat sealing technique)	Old craft	Registered cultural property
Bamija (traditional dish)	Traditional cuisine	Registered cultural property
Cult of the Old Olive Tree	Cult of the Old Olive Tree in Mirovica – "The Saint of Bar"	Registered cultural property
Maslinijada (Olive Festival)	Exhibition of renowned local products: olives, olive oil, and citrus fruits	Registered cultural property
International TV Festival in Bar	Festival event	Registered cultural property, cultural event
Wine and Bleak Fish Festival in Virpazar	The festival consists of various entertainment events honoring Lake Skadar, its fish, and the famous Crmnica wine.	Registered cultural property, cultural event
ULCINJ		
Kalimera fishing	A type of special lift fishing net used at the mouth of the Bojana River on Lake Skadar and Ada Bojana near Ulcinj.	Registered cultural property
Hillallyk	Traditional skill of crafting a bridal cap	Registered cultural property
Gusharaveli	Gusharaveli pirate dance – a traditional dance. According to legend, the dance is a combination of African and Albanian rhythms.	Registered cultural property
Ashura (Ashire, Akshyre)	Traditional dish	Registered cultural property, cultural event
Southern Soul Festival	Cultural event	Registered cultural property, cultural event

CETINJE		
The Cult of Saint Peter of Cetinje		Registered cultural property
Chivalric Games	Traditional custom	Registered cultural property
Cetinje Humor	Oral tradition	Registered cultural property
Fishing on Lake Skadar	Traditional fishing on Lake Skadar	Registered cultural property
Dried Carp and Bleak	Traditional dish	Registered cultural property
Dried Figs	Traditional dish	Registered cultural property
Cheese from Čevo	Traditional crafting skill	Registered cultural property
Cheese from Katun	Traditional crafting skill	Registered cultural property
Kastradina	Kastradina with greens and potatoes, traditional dish	Registered cultural property
Greens with Smoked Meat	Traditional dish	Registered cultural property
Mead	Traditional beverage	Registered cultural property
Beekeeping Trails and Stories		Registered cultural property
Lighting of the Yule Log in Front of the Cetinje Monastery	Traditional custom	Registered cultural property
Lighting of the Yule Log at King Nikola's Square	Traditional custom	Registered cultural property
The Scent of Linden and Honey	Event that gathers Cetinje beekeepers and showcases their skills	Registered cultural property, event
Njeguši Feast	More recent cultural event	Registered cultural property, event
Kastradina	Dried mutton and goat meat	Registered cultural property
Žutokora (please clarify if this refers to a specific dish or custom)	Traditional skill	Registered cultural property
Cherry Harvesting	Harvesting – cherry gathering, traditional skill	Registered cultural property
Kasoranje (Water Chestnut Gathering)	Kasoranje (water chestnut, trapa), traditional skill	Registered cultural property
DANILOVGRAD		

Folk Tales of Bjelopavlići	Folk Tales of Bjelopavlići (about the origin of Bjelopavlići, the village of Jelenak, etc.), oral tradition	Registered cultural property
Milling	Milling – traditional livelihood	Registered cultural property
Ostrog Monastery	Sacred site	Registered cultural property
Mliječnica (Traditional Dairy Product)	Traditional dish	Registered cultural property
Ilindan Gathering (St. Elijah's Day Gathering)	Traditional folk celebration at the Church of Ružica, on Mount Sinjajevina	Registered cultural property, event
May Day Celebrations	May Day celebrations at Ždrebaonik	Registered cultural property, event
NIKŠIĆ		
Legends about Ivan Crnojević	Traditional legend	Registered cultural property
The Legend of Daković's Cave	Traditional legend	Registered cultural property
The Tale of the Church of Grahovo	Legend about the construction of the Church of Grahovo	Registered cultural property
Birthplace of Saint Stefan of Pipers	Sacred site	Registered cultural property
The Legend of the Stojaga Rock	Legend of the Stojaga Rock above Morakovo	Registered cultural property
The Legend of Džametovac Spring	Traditional legend	Registered cultural property
Weather Prognostication (Traditional Weather Lore)	Traditional belief	Registered cultural property
PODGORICA/ TUZI/ ZETA		
Boatbuilding (Traditional Small Wooden Boats)	The skill of crafting boats on Lake Skadar	Registered cultural property
Making of crepulja – traditional clay baking lids	Traditional craft and skill of making clay pots for baking bread	Registered cultural property
Harvesting and building with žar (reed)	Traditional skill of making reed objects, using žar (reed) harvested from the Zeta shore of Lake Skadar	Registered cultural property

Viticulture and Winemaking	Traditional viticulture and winemaking	Registered cultural property
Moba (Traditional Communal Work Practice)	Custom of mutual aid and communal work	Registered cultural property
Zeta Cakes – Prsukači	Traditional dish	Registered cultural property
Tespidž (Traditional Dish – untranslated name)	Sweet pastry, traditional dish	Registered cultural property
Zerzevat (Traditional Vegetable Dish – untranslated name)	Traditional dish	Registered cultural property
Slava Bread (Ritual Bread for Patron Saint's Day)	Traditional dish	Registered cultural property
Kučki Cheese	Traditional dish	Registered cultural property
Kučka Blend (Traditional Food Mixture)	Traditional dish	Registered cultural property
Dolma	Traditional dish	Registered cultural property
Porridge (Kaša)	Traditional dish	Registered cultural property
Pačaburek (Traditional Pastry – untranslated name)	Savory pie, traditional dish	Registered cultural property
Zeljanik (Pie with Greens)	Traditional dish	Registered cultural property
Sugar Delight (Lokum)	Traditional dish	Registered cultural property
Kasaronje (Water Chestnut Gathering – already noted earlier)	Harvesting kasaronje (water chestnuts) and preparing dishes from them	Proposal
Fig Harvesting		Proposal
Making Straw Roofs	Traditional skill and craftsmanship	Proposal
Umbilical Cord Tying (Traditional Birth Ritual)	Traditional healing	Registered cultural property
Lamenting and Mourning (Traditional Funeral Custom)	Funeral customs	Registered cultural property

Godparenthood (Spiritual Kinship)	Custom	Registered cultural property
KOLAŠIN		
Traditional games of the Kolašin region	KUD Mijat Mašković	Registered cultural property
Making of layered cheese	Traditional dish, skill and craftsmanship of making layered cheese	Registered cultural property
Old chants of the Vasojevići		Registered cultural property
Handicrafts	Embroidery, weaving, crocheting, braiding, spinning, sewing, working on the wool spinning machine, working on natra (traditional loom)	Registered cultural property
Pie with 42 layers	Preparation of pie with 42 layers, traditional dish	Registered cultural property
Herbal teas and balms	Gathering and preparation of teas and balms from medicinal herbs	Registered cultural property
Toast (Traditional Ceremonial Speech)	Toasting during celebrations	Registered cultural property
Lamentation	Part of the funeral ritual	Registered cultural property
Wailing (Traditional Mourning Cry)	Male form of lamenting the deceased	Registered cultural property

9.2.Trends of Weakening and Endangerment of Intangible Cultural Heritage

Although the rich heritage still exists, many of its manifestations are in decline today. Numerous traditional practices are losing vitality due to migration, modernization, economic instability, and the decreasing interest of young people in preserving cultural heritage. The depopulation of rural areas, the loss of languages in daily use, the abandonment of old crafts, and the disappearance of social structures such as family cooperatives present significant challenges.

Particularly endangered are forms of intangible heritage that rely on oral transmission of knowledge—such as multilingual narrative traditions, local dialects, and skills that cannot be learned from books. Reports and strategies (e.g., the Strategy for the Development of Tourism and Cultural Tourism in Montenegro) highlight the accelerated decline of active traditional skills and the reduced presence of local heritage in public spaces.

Numerous values are in decline due to:

- Migration of young people to urban centers and abroad,
- Reduced transmission of knowledge and skills between generations,
- Lack of institutional protection and mechanisms for valorization,
- Tourist commercialization without respect for authenticity,
- Loss of dialects and traditional idioms, especially among the youth.

Particularly endangered are skills such as fishing with *kalimerama* (traditional fishing tools), making goose-feather tools, the practice of *mobarstvo* (collective labor), and specific local rituals that are increasingly rarely practiced.

9.3.Initiatives and Mechanisms for the Protection, Promotion, and Revitalization of Cultural Heritage

In order to preserve intangible cultural heritage, various activities and programs have been initiated at the national and local levels. Many heritage elements from this area have already been included in the national registry of intangible cultural heritage, including fishing with kalimerama (traditional fishing tools), boat-building skills, traditional games from the regions of Kolašin and Cetinje, and the guslar tradition. Gastronomic elements, such as leafy cheese from the Kolašin area, are also actively promoted as part of the tourist offer.

Festivals and cultural-artistic societies play a special role, as they encourage interest in heritage among young people through games, costumes, songs, and dances. Examples include the "Days of Wine and Eel" in Virpazar, as well as local events in Cetinje, Kolašin, and Ulcinj. Workshops, training programs, research studies, and public calls for the preservation and revitalization of old crafts and oral traditions are also organized, with support from the Ministry of Culture, international organizations, and the non-governmental sector.

In the previous decade, the following activities were carried out:

- Nominations for the UNESCO list (e.g., the cult of Saint Vladimir, guslar tradition),
- Revitalization of local festivals (Wine and Eel Festival, Honey and Wine Days, Zetska House Days),
- Support for local crafts through GIZ, UNDP, and IPA fund projects,
- Promotion of language and cultural diversity through language schools and ethno-events,
- Digitization of cultural heritage (virtual exhibitions, online museum content)[54]

9.4.The Role of Cultural Values in Sustainable Development and Community Plannin

- [54] Strategy for the Development of Cultural Tourism in Montenegro, 2018.

Cultural values and traditional knowledge form the foundation of sustainable development in this area. Through the responsible integration of cultural heritage into planning, tourism, education, and local policies, it is possible to create synergy between preserving identity and economic development. Traditional products, crafts, and knowledge can be transformed into resources for rural tourism, creative industries, branding of local cuisine, and promoting the region as an authentic cultural destination.

The participation of social organizations – cultural and artistic societies, religious institutions, fraternities, and local associations – is crucial for preserving living heritage. These entities act as "guardians of practice," meaning they are the transmitters of knowledge who, through their daily engagement and events, contribute to the preservation of local identity.

Cultural values should become the drivers of development:

- Through the inclusion of identity elements in tourist products (e.g., branding products: Skadar eel, Zeta wine, Lovćen prosciutto),
- Valorization of knowledge about fishing, livestock farming, and construction as the basis for new activities,
- The role of social organizations (cultural and artistic societies, fraternities, religious communities, women's associations) in preserving and promoting cultural identity,
- Spatial planning based on cultural landscapes and the participation of local communities (Source: Draft SRKT, 2018).

9.5.Indicators and Tools for Monitoring Activities in Cultural Heritage Preservation

According to the Tourism Development Strategy (2022–2025) and the Draft Strategy for the Development of Cultural Tourism, the indicators include:

Quantitative indicators:

- Number of revitalized events and festivals,
- Number of tourists at cultural sites,
- Number of active craft workshops,
- Number of cultural contents in the tourist offer.

Qualitative indicators:

- Satisfaction of the local community,
- Level of education about cultural heritage,
- Youth participation in cultural programs.

Evaluation is carried out through local and national institutions, as well as international partners (UNESCO, UNDP, GIZ).

10. TOURISM AND TOURIST CAPACITIES IN THE PROPOSED RB

10.1. Types of Tourism and Tourist Capacities

Tourism in the proposed biosphere reserve (BR) encompasses a variety of tourism activities, depending on the natural and cultural characteristics of each municipality. In the BR areas, coastal tourism, ecotourism, adventure tourism, cultural tourism, rural and agro-tourism are developed, and in some parts, sports, wellness, and health tourism as well.

The tourism offer of the BR can be divided into two main groups:

- Coastal tourism – Most developed in the municipalities of Bar and Ulcinj, with dominant beach tourism, along with excursion, event-based, and nautical tourism.
- Continental tourism – These types of tourism are represented in the municipalities of Cetinje, Danilovgrad, Nikšić, Kolašin, Podgorica, Tuzi, and Zeta, where cultural, adventure, ecotourism, rural, and religious tourism dominate.

Table No 23. Tourist arrivals and overnight stays by municipality, total for 2023. [55]

Municipality	Tourist arrivals				Tourist overnight stays			
	Foreign	Domestic	Total	Structure	Foreign	Domestic	Total	Structure
	(1)	(2)	(3)=(1)+(2)	(3) u %	(1)	(2)	(3)=(1)+(2)	(3) u %
Total MNE	**2.447.103**	**166.203**	**2.613.306**	**100,0**	**15.778.818**	**610.461**	**16.389.279**	**100,0**
Bar	250.568	12.912	263.480	10,1	2.347.302	41.755	2.389.057	14,6
Cetinje	8.883	5.243	14.126	0,5	51.788	19.818	71.606	0,4
Danilovgrad	5.031	390	5.421	0,2	39.687	702	40.389	0,2
Kolašin	37.685	9.684	47.369	1,8	101.219	22.621	123.840	0,8
Nikšić	13.305	3.170	16.475	0,6	25.195	7.117	32.312	0,2
Podgorica	175.423	16.445	191.868	7,3	362.144	33.541	395.685	2,4
Tuzi	4.636	17	4.653	0,2	5.106	81	5.187	0,0
Ulcinj	326.509	17.606	344.115	13,2	1.759.766	78.013	1.837.779	11,2
Zeta	3.111	224	3.335	0,1	3787	255	4.042	0,0
Total RB	**825.151**	**65.691**	**890.842**	**34,0**	**4.695.994**	**203.903**	**4.899.897**	**29,8**

In 2023, the tourism sector in the Skadar Lake Basin Biosphere Reserve (RB) region recorded a significant volume of tourism traffic, with foreign tourists accounting for the dominant share of total arrivals and overnight stays. The total number of arrivals in the region reached 890,842, while the number of overnight stays reached 4,899,897, indicating that visitors spent a considerable number of days in the area.

Tourism traffic was concentrated in several key municipalities, with Bar and Ulcinj occupying leading positions. These destinations are traditionally popular among tourists due to their coastline, as well as attractions that include cultural-historical heritage and natural beauty.

[55] MONSTAT (www.monstat.org)

Podgorica, the capital, had a significant number of arrivals, although overnight stays were considerably lower, suggesting that many visitors stayed for shorter periods, possibly for business tourism or transit travel.

The municipalities of Tuzi and Zeta had modest tourism traffic in 2023, with very few arrivals and overnight stays compared to other municipalities in the region. Their tourism offerings are not sufficiently developed to attract a larger number of tourists, which represents both a challenge and an opportunity for further development, especially in the context of ecotourism and rural tourism.

The structure of overnight stays shows that foreign tourists accounted for the dominant share of total overnight stays, highlighting the international attractiveness of the region. However, domestic tourists also contributed to the tourism traffic, albeit to a lesser extent. The tourism in the region was largely seasonally oriented, with higher activity during the summer months, while other periods of the year saw lower visitor volumes. Sustainable tourism development in this context requires strategies to extend the season and diversify the tourism offer to reduce dependence on the summer season.

Table No 24.Tourist arrivals and overnight stays in private accommod. by municipality,2024.[56]

Municipality	Tourist arrivals				Tourist overnight stays			
	Foreign	Domestic	Total	Structure	Foreign	Domestic	Total	Structure
	(1)	(2)	(3)=(1)+(2)	(3) u %	(1)	(2)	(3)=(1)+(2)	(3) u %
Total MNE	**1.148.632**	**8.227**	**1.156.859**	**100,0**	**10.353.281**	**40.124**	**10.393.405**	**100,0**
Bar	142.122	444	142.566	12,3	1.613.456	2.512	1.615.968	15,5
Cetinje	3.434	13	3.447	0,3	41.240	175	41.415	0,4
Danilovgrad	1.779	0	1.779	0,2	39.944	0	39.944	0,4
Kolašin	12.082	899	12.981	1,1	55.735	2.808	58.543	0,6
Nikšić	3.711	606	4.317	0,4	8.962	1.181	10.143	0,1
Podgorica	14.133	906	15.039	1,3	52.184	1.562	53.746	0,5
Ulcinj	225.664	2.145	227.809	19,7	1.143.791	10.027	1.153.818	11,1
Total RB	**402.925**	**5.013**	**407.938**	**35,3**	**2.955.312**	**18.265**	**2.973.577**	**28,6**

In 2024, the available data only relates to individual accommodation, which represents just a part of the total tourism traffic and does not provide a complete picture of tourism in the region.

[56] The primary source of data for calculating tourist arrivals and overnight stays in individual accommodation, i.e., so-called "private accommodation," are the records of Local Tourist Organizations, in accordance with the Law on Tourist Organizations (*Official Gazette of Montenegro*, Nos. 073/10 of 10.12.2010, 040/11 of 08.08.2011, 045/14 of 24.10.2014, 042/17 of 30.06.2017, 027/19 of 17.05.2019). Unregistered tourists are not included in the research. Data for the municipalities of Tuzi and Zeta are not available at the time of writing the report.

According to this data, the total number of tourist arrivals amounted to 407,938, while the number of overnight stays was 2,973,577.

Individual accommodation mainly refers to private apartments, holiday homes, and smaller establishments that are not part of the hotel system. This form of accommodation often attracts tourists seeking greater flexibility, more affordable prices, or a more authentic experience of staying in a destination. A significant share of foreign tourists is also observed in this category, confirming the continued interest of international visitors in this region.

The municipalities of Bar and Ulcinj remain key destinations in the individual accommodation segment, with Ulcinj having a high number of arrivals and overnight stays, indicating the stable popularity of this destination among tourists who choose private accommodation. Bar also maintains a significant position (though outside the RB area), while other municipalities show lower traffic volumes.

It is interesting to note that a significant number of overnight stays are made in individual accommodation, indicating that tourists who choose this type of lodging tend to stay longer in the region. This could suggest family vacations, recreational visits, and exploration of natural beauties, but it also represents a potential opportunity for the development of sustainable tourism initiatives.

Data for the municipalities of Tuzi and Zeta is unavailable for 2024, making it difficult to assess their participation in this segment of tourism. However, given the low tourism activity in 2023, it is possible that their contribution remained minimal in 2024 as well.

When examining data from both years, it can be concluded that the Skadar Lake Basin Biosphere Reserve region still has significant tourism potential, but it is clear that the structure of tourism is changing. Individual accommodation constitutes a significant portion of tourism traffic, and foreign tourists continue to dominate among visitors.

In order to ensure the sustainable development of tourism, it is important to focus on extending the season, diversifying the offer, and promoting lesser-developed destinations within the region. Special attention should be given to ecotourism and cultural tourism, which can help distribute tourist traffic more evenly throughout the year and reduce seasonal fluctuations. Emphasis can also be placed on educational tourism, including nature schools and tourist educational tours.

Moreover, individual accommodation shows significant potential, but it requires additional support measures to ensure its qualitative sustainability and eliminate operations in the grey zone. Quality regulation, ecological standards, and better integration with local tourism initiatives can contribute to the long-term success of this sector. Attention should also be given to reducing mass tourism, i.e., managing visits, particularly in core and buffer zones (the Durmitor National Park already expresses concerns and the need for visitor management due to the increasing number of tourists in visitor centers and on water surfaces during peak seasons).

Ultimately, while tourism in the Skadar Lake Basin Biosphere Reserve region continues to play a significant role in the economy, its sustainable improvement requires careful planning and adaptation to the needs of modern tourists, while preserving the attributes and values of the ecosystem.

10.2. Struktura smještaja

Tourist accommodation capacities in the collective accommodation sector within the Skadar Lake Basin Biosphere Reserve region reflect the diversity of the accommodation offer, which includes hotels of various categories, small hotels, aparthotels, campsites, and other types of establishments. The accommodation structure shows that hotel accommodation dominates, with noticeable differences between municipalities in terms of the type and number of available capacities.

Table No 25. The tourist accommodation capacities in collective accommodation, 2022. year. [57]

Kategorije smještaja	Broj objekata	Broj smještajnih jedinica	Sobe	Apartmani	Kamp mjesta	Broj kreveta	Stalni	Pomoćni
Crna Gora	**438**	**21.263**	**17.087**	**3.576**	**600**	**50.917**	**47.910**	**2.877**
BAR	**55**	**2552**	**2211**	**319**	**22**	**6456**	**6180**	**276**
Apart hotel	**4**	**151**	**52**	**99**		**346**	**346**	
Dvije zvjezdice **	1	30	30			40	40	
Tri zvjezdice ***	1	42	17	25		94	94	
Četiri zvjezdice ****	2	79	5	74		212	212	
Mali hotel	**16**	**283**	**235**	**48**		**716**	**683**	**33**
Tri zvjezdice ***	10	165	145	20		440	432	8
Četiri zvjezdice ****	6	118	90	28		276	251	25
Garni hotel	**5**	**74**	**67**	**7**		**184**	**165**	**19**
Tri zvjezdice ***	5	74	67	7		184	165	19
Hotel	**25**	**1936**	**1774**	**162**		**4941**	**4727**	**214**
Jedna zvjezdica *	1	27	27			70	70	
Dvije zvjezdice **	3	181	178	3		415	415	
Tri zvjezdice ***	9	481	468	13		1244	1194	50
Četiri zvjezdice ****	11	1216	1085	131		3133	2982	151
Pet zvjezdica *****	1	31	16	15		79	66	13
Kamp	**1**	**23**	**1**		**22**	**90**	**90**	
Četiri zvjezdice ****	1	23	1		22	90	90	
Ostalo	**4**	**85**	**82**	**3**		**179**	**169**	**10**
CETINJE	**6**	**210**	**166**	**44**		**536**	**512**	**24**
Mali hotel	**2**	**22**	**19**	**3**		**46**	**44**	**2**
Dvije zvjezdice **	1	13	13			28	26	2
Tri zvjezdice ***	1	9	6	3		18	18	
Hotel	**3**	**136**	**108**	**28**		**296**	**278**	**18**
Tri zvjezdice ***	1	97	93	4		194	194	
Četiri zvjezdice ****	1	26	12	14		72	58	14
Pet zvjezdica *****	1	13	3	10		30	26	4
Ostalo	**1**	**52**	**39**	**13**		**194**	**190**	**4**

[57] MONSTAT (www.monstat.org). Data for the municipality of Zeta are currently not available.

DANILOVGRAD	**3**	**53**	**46**	**7**		**132**	**112**	**20**
Mali hotel	**2**	**24**	**21**	**3**		**60**	**50**	**10**
Tri zvjezdice ***	1	16	14	2		40	32	8
Četiri zvjezdice ****	1	8	7	1		20	18	2
Hotel	**1**	**29**	**25**	**4**		**72**	**62**	**10**
Četiri zvjezdice ****	1	29	25	4		72	62	10
KOLAŠIN	**6**	**214**	**150**	**29**	**35**	**514**	**499**	**15**
Mali hotel	**3**	**55**	**45**	**10**		**154**	**151**	**3**
Tri zvjezdice ***	2	23	14	9		57	54	3
Četiri zvjezdice ****	1	32	31	1		97	97	
Hotel	**1**	**117**	**102**	**15**		**243**	**236**	**7**
Četiri zvjezdice ****	1	117	102	15		243	236	7
Ostalo	**2**	**42**	**3**	**4**	**35**	**117**	**112**	**5**
NIKŠIĆ	**10**	**197**	**184**	**13**		**455**	**434**	**21**
Mali hotel	**7**	**99**	**89**	**10**		**226**	**215**	**11**
Tri zvjezdice ***	5	85	75	10		193	182	11
Četiri zvjezdice ****	2	14	14			33	33	
Garni hotel	**1**	**7**	**7**			**16**	**16**	
Tri zvjezdice ***	1	7	7			16	16	
Hotel	**2**	**91**	**88**	**3**		**213**	**203**	**10**
Tri zvjezdice ***	2	91	88	3		213	203	10
PODGORICA	**43**	**1469**	**1262**	**206**	**1**	**3143**	**2966**	**177**
Mali hotel	**14**	**209**	**164**	**44**	**1**	**447**	**414**	**33**
Tri zvjezdice ***	9	137	111	25	1	292	271	21
Četiri zvjezdice ****	4	57	42	15		125	113	12
Pet zvjezdica *****	1	15	11	4		30	30	
Boutique hotel	**1**	**28**	**25**	**3**		**56**	**56**	
Pet zvjezdica *****	1	28	25	3		56	56	
Garni hotel	**12**	**216**	**188**	**28**		**484**	**435**	**49**
Dvije zvjezdice **	1	15	14	1		38	30	8
Tri zvjezdice ***	6	89	79	10		205	184	21
Četiri zvjezdice ****	5	112	95	17		241	221	20
Hotel	**13**	**914**	**787**	**127**		**1872**	**1777**	**95**
Tri zvjezdice ***	1	113	113			230	230	
Četiri zvjezdice ****	10	540	445	95		1076	1013	63
Pet zvjezdica *****	2	261	229	32		566	534	32
Hostel	**1**	**21**	**17**	**4**		**46**	**46**	
Ostalo	**2**	**81**	**81**			**238**	**238**	

TUZI	**1**	**30**	**20**	**10**		**60**	**60**	
Hotel	**1**	**30**	**20**	**10**		**60**	**60**	
Četiri zvjezdice ****	1	30	20	10		60	60	
ULCINJ	**40**	**2349**	**1756**	**326**	**267**	**6305**	**6070**	**235**
Apart hotel	**1**	**9**		**9**		**18**	**18**	
Tri zvjezdice ***	1	9		9		18	18	
Mali hotel	**15**	**270**	**209**	**61**		**717**	**651**	**66**
Tri zvjezdice ***	5	72	51	21		223	192	31
Četiri zvjezdice ****	10	198	158	40		494	459	35
Garni hotel	**1**	**12**	**6**	**6**		**38**	**32**	**6**
Četiri zvjezdice ****	1	12	6	6		38	32	6
Hotel	**17**	**1337**	**1159**	**178**		**3403**	**3350**	**53**
Tri zvjezdice ***	4	162	110	52		352	352	
Četiri zvjezdice ****	12	1146	1021	125		2973	2940	33
Pet zvjezdica *****	1	29	28	1		78	58	20
Turističko naselje	**2**	**389**	**348**	**41**		**959**	**879**	**80**
Tri zvjezdice ***	2	389	348	41		959	879	80
Kamp	**4**	**332**	**34**	**31**	**267**	**1170**	**1140**	**30**
Tri zvjezdice ***	1	40			40	160	160	

In the municipality of Bar, one of the most significant tourist centers in the region, the accommodation capacities are the most diverse, but the majority are located in the coastal zone, which is not part of the Biosphere Reserve area. This municipality has a significant number of hotels, with a dominance of three- and four-star hotels. In addition to hotel accommodation, there are also aparthotels and small hotels, offering a combination of privacy and hotel services, making them a popular choice for visitors seeking flexibility during their stay. There is also camping accommodation in Bar, although its representation is modest compared to other types of accommodation.

Cetinje, while culturally and historically significant, has a much smaller number of accommodation capacities compared to the coastal municipalities. The accommodation structure mainly relies on small hotels and mid-range hotels, with no pronounced dominance of luxury properties. This suggests that tourism in this area is still not fully developed in terms of large hotel complexes, but there is potential for the development of authentic and specialized tourist offerings.

Danilovgrad has a limited number of accommodation capacities, with mainly small hotels and three- and four-star hotels. This accommodation structure corresponds to its location and function, where tourism develops more slowly compared to other municipalities in the region. The limited accommodation offer indicates potential for further development, especially in the rural tourism segment and accommodation tailored to ecologically conscious tourists.

In Kolašin, hotel accommodation is dominant, with a focus on four-star properties, suggesting that the development of tourism in this area is based on providing high-quality stays, especially in the winter period. Camping accommodation is also present, but to a lesser extent, indicating potential for further development of this type of accommodation in line with growing interest in active and nature-based tourism. It is important to note that the vast majority of accommodation capacities in Kolašin are located outside the boundaries of the biosphere reserve.

Nikšić offers a diverse but limited range of accommodation, including small hotels and guesthouses, with a dominant presence of three-star properties. The accommodation structure reflects the nature of the town, where tourism is not the leading industry but is developing in the context of business travel and visits to cultural landmarks. Given the geographical location of Nikšić, there is potential for further development of accommodation tailored to adventure tourism and mountain activities. In this case as well, the accommodation capacities are located outside the boundaries of the proposed biosphere reserve.

Ulcinj, as one of the most important tourist destinations in the south, offers a wide range of accommodation capacities. Three- and four-star hotels dominate, and a significant segment includes small hotels and tourist resorts. Compared to other municipalities in the region, Ulcinj has a higher number of camping sites, indicating the presence of tourists who prefer staying in nature and a simpler type of vacation. Aparthotels are also present, allowing a combination of hotel comfort with the flexibility of private stays. Ulcinj's tourist offer is predominantly focused on beach tourism, with an emphasis on utilizing natural resources such as the Velika Plaža, Ada Bojana, and other coastal locations, which significantly shapes the structure and seasonality of accommodation capacities.

The accommodation structure in the RB Sliv Skadarskog jezera region shows varying levels of tourism development in each municipality. While Bar and Ulcinj are traditionally oriented toward coastal tourism with a large number of hotels and resorts, other municipalities like Cetinje and Danilovgrad have more modest capacities, reflecting less intense tourist traffic. Kolašin, on the other hand, stands out with quality hotel accommodation tailored to winter tourism, while Podgorica offers a diverse range of accommodations suited to business visits.

In the context of sustainable tourism development, there is room to optimize the accommodation structure, with a focus on diversifying the offer in less developed municipalities. The development of ecotourism, rural tourism, and accommodation tailored to adventure activities could contribute to a more even distribution of tourist traffic and better utilization of capacities throughout the year.

10.3. Seasonality and Distribution of Tourists

Seasonality is one of the biggest challenges of tourism in the proposed biosphere reserve. More than 80% of tourist arrivals occur during the summer season (June-September), which significantly burdens the infrastructure and resources in coastal municipalities.

- Coastal municipalities (Bar and Ulcinj) – Nearly 90% of tourist visits take place during the summer months. These municipalities dominate in terms of arrivals and overnight stays, but tourism is highly seasonal.
- Mountain municipalities (Kolašin) – The main tourist flows occur during the winter, with a focus on skiing tourism (which is outside the scope of the BR). However, activities are also being developed during the summer, such as hiking and adventure sports.
- Urban and continental municipalities (Cetinje, Podgorica, Nikšić, Danilovgrad, Tuzi, Zeta) – In these municipalities, tourism is less seasonally pronounced, and the main arrival flows are related to business, cultural, and eco-tourism.

Tourism in the proposed BR significantly relies on the coastal sector, but there is also great potential for the development of alternative forms of tourism. The key challenge remains reducing seasonality and achieving a more even distribution of tourist traffic. The development of eco-tourism, rural tourism, and adventure activities can enable more sustainable growth and reduce pressure on the coastline.

10.4. Main tourist attractions and their locations

The proposed biosphere reserve encompasses a diverse range of natural and cultural-historical attractions spread across the territory of several municipalities. Each of them contributes to the overall tourist offer through specific sites and types of tourism. Below is an overview of the key tourist attractions by municipality and protected areas.

10.4.1. Natural and cultural attractions by municipality

Municipality Bar

- Bar Riviera – Long pebbly beaches, among which the most famous are Sutomore, Čanj, Veliki pijesak, and Uvala Maslina.
- Old Bar – Ancient ruins at the foot of Rumija mountain, showcasing the rich history of this region.
- The Old Olive Tree at Mirovica – One of the oldest olive trees in Europe, over 2000 years old.
- Mount Rumija – Ideal for hiking, with a summit offering panoramic views of the sea and Lake Skadar.
- Chestnut Forest, Ubli, hiking trails
- Lake Skadar (partially within the territory of Bar) – Opportunities for cruising, fishing, and birdwatching. Islands with churches and fishing villages.

- Virpazar, Besac, Radus? Wine regions of Crmnica, etc.
- Marina Bar – The main center of nautical tourism in southern Montenegro.
- The Međureč Canyon – Becoming increasingly popular.

The Old Royal Capital Cetinje

- Lovćen National Park – Home to Njegoš's mausoleum, historical hiking trails, and spectacular viewpoints.
- Cetinje Monastery – A cultural and spiritual center, housing relics of great significance.
- Biljarda – Former residence of Petar II Petrović Njegoš.
- River Crnojevića – An authentic spot on Lake Skadar, known for its bridges and traditional taverns. Other small fishing villages include Karuč, Bobija, Dodoši, Ponari... The Obod Cave and town.
- Žabljak Crnojevića, nearby meadows.
- Njeguši – The birthplace of the Montenegrin Petrović dynasty, famous for its prosciutto and cheese.
- City parks and the Lipso Cave – Protected areas...

Municipality Danilovgrad

- Ostrog Monastery – A world-renowned pilgrimage site, carved into the rock.
- Ždrebaonik Monastery – A 13th-century Orthodox monastery known for its spiritual significance and well-preserved architecture.
- River Zeta – Ideal for ecotourism and sport fishing.
- Bridge on the Zeta River – A bridge from the Ottoman period, a symbol of Danilovgrad.

Municipality Nikšić[58]

- Onogošt Fortress – Remains of a medieval town.
- Krupac and Slano Lakes – Popular spots for recreation, fishing, and water sports.
- Red Rock (Crvena stijena) – One of the most important Paleolithic sites in Europe, with cave drawings and artifacts dating back tens of thousands of years.
- Emperor's Bridge (Carev most) – An impressive structure from the 19th century.
- Trebjesa Viewpoint – A hill above Nikšić with forest trails and a beautiful view of the town.

Municipality Kolašin[59]

- Biogradska Gora National Park – One of the last primeval forests in Europe, with Biogradsko Lake.

[58] The listed attractions are located outside the boundaries of the biosphere reserve.
[59] Biogradska Gora National Park and the Bjelasica mountain are located outside the boundaries of the biosphere reserve

- Morača Monastery – A medieval Orthodox monastery.
- Upper Morača River and Morača Canyon (Platije) – A popular destination for hikers, kayaking enthusiasts, and anglers.
- Mountain Ranges of Bjelasica and Komovi – Favorite destinations for hiking and adventure sports.

The Capital City Podgorica

- Duklja – A Roman archaeological site from the 1st century.
- Šipčanik Winery – Part of the "Wines of Montenegro" route, offering tastings of local wines.
- Gorica and Ljubović – Popular urban recreational zones.
- Morača River – A natural beauty flowing through the heart of the capital.
- Medun – An Illyrian town and the birthplace of Marko Miljanov.
- Ćemovsko Field
- Ponari.

Municipality Tuzi

- Cijevna River Canyon – Known as the "Montenegrin Colorado," a favorite spot for nature lovers.
- Olive Groves and Wineries – Part of the wine and agro-tourism offerings of the region.
- Nijagara Waterfall on the Cijevna River – A natural attraction nearby.
- Ćemovsko Field
- NP SJ (Southern Part of Hum Bay).

Municipality Ulcinj

- Velika Plaža – The longest sandy beach in Montenegro, stretching 12 km.
- Ada Bojana – A river island known for eco-tourism and kitesurfing.
- Ulcinj Salina – One of the most important ornithological habitats in Southeastern Europe.
- Old Town of Ulcinj – One of the oldest urban centers on the Adriatic, with strong Ottoman influence.
- Valdanos
- Old Town of Sač
- Šasko Lake and the Bojana River.

Municipality Zeta

- Morača River – Flows through Zeta, offering opportunities for fishing, swimming, and excursions.
- Plavnica – A popular tourist destination on Lake Skadar with a marina, restaurants, and opportunities for cruising and recreation.

- Lake Skadar (partially within the territory of Zeta) – Opportunities for sightseeing and eco-tourism.
- Vranjina – Often called the "Montenegrin Venice." Vranjina is home to the Visitor Center of the National Park.
- Lesendro – An impressive 18th-century fortress.

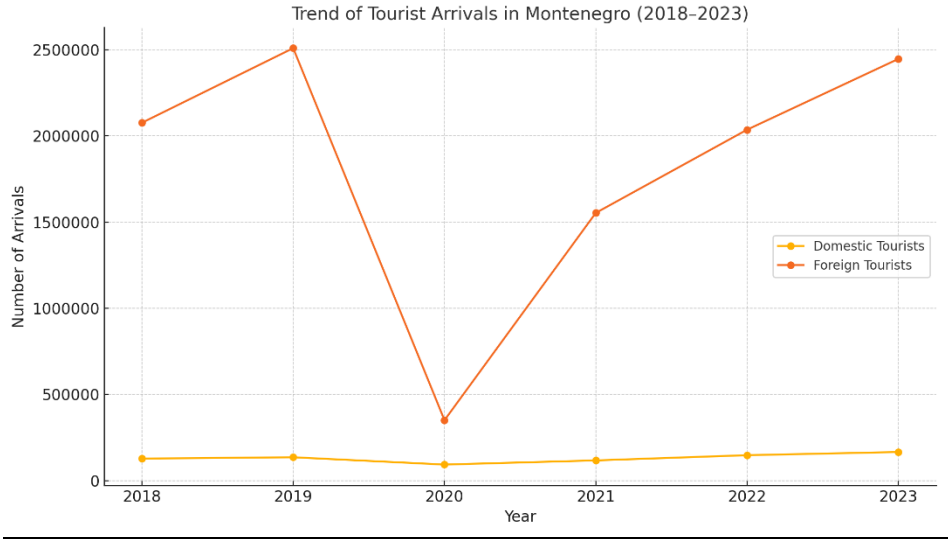
10.5. Number of Visitors and Growth Trends

Data from 2023 shows that the Biosphere Reserve attracts approximately 825,151 foreign tourists and 65,691 domestic tourists annually, totaling 890,842 visitors. There is a clear growth trend, with expectations of further increases in the number of tourists in the coming years, especially through the development of specialized tourism products.

Table No 26. Arrivals of Guests by Type of Tourist Destinations

	Total	*Capital Podgorica*	*Coastal resorts*	*Mountain resorts*	*Other tourist resorts*	*Other places*
	TOTAL					
2018	**2.204.856**	**169.890**	**1.873.764**	**97.808**	**59.902**	**3.492**
2019	**2.645.217**	**186.207**	**2.270.313**	**113.373**	**69.261**	**6.063**
2020	**444.065**	**39.752**	**357.727**	**28.053**	**14.797**	**3.736**
2021	**1.670.879**	**95.723**	**1.473.802**	**68.729**	**30.372**	**2.253**
2022	**2.183.975**	**168.109**	**1.877.121**	**86.840**	**44.011**	**7.894**
2023	**2.613.306**	**191.868**	**2.247.316**	**104.092**	**56.621**	**13.409**
	DOMESTIC TOURISTS					
2018	128.053	14.871	74.723	17.326	20.835	298
2019	135.592	15.845	81.308	14.864	23.357	218
2020	93.270	8.327	63.789	11.752	8.998	404
2021	117.321	12.049	73.057	20.937	11.149	129
2022	147.572	17.323	97.480	18.320	14.061	388
2023	166.203	16.445	113.929	18.995	16.203	631
	FOREIGN TOURISTS					
2018	2.076.803	155.019	1.799.041	80.482	39.067	3.194
2019	2.509.625	170.362	2.189.005	98.509	45.904	5.845
2020	350.795	31.425	293.938	16.301	5.799	3.332
2021	1.553.558	83.674	1.400.745	47.792	19.223	2.124
2022	2.036.403	150.786	1.779.641	68.520	29.950	7.506
2023	2.447.103	175.423	2.133.387	85.097	40.418	12.778

The data from the table on guest arrivals by types of tourist destinations indicates clear growth trends, with fluctuations that were more pronounced during the pandemic years. Observing the period from 2018 to 2023, it is evident that the total number of visitors increased year after year, with the exception of 2020, when the pandemic caused a sharp decline in arrivals. After the recovery in 2021, growth resumed, and 2023 recorded record numbers, surpassing the pre-pandemic levels of 2019.



The highest growth in arrivals was observed in coastal destinations, which are traditionally the most visited, while the capital city, mountain destinations, and other tourist spots also experienced gradual growth. The number of visitors in 2023 reached 2,613,306, which is significantly higher than 2,183,975 in 2022 and 1,670,879 in 2021. Compared to 2019, when 2,645,217 visits were recorded, 2023 nearly reaches this level, confirming the stabilization and growth of tourism after the pandemic crisis.

In the analysis of the structure of arrivals, it is noticeable that foreign tourists make up the majority of visitors. In 2023, the number of foreign guests reached 2,447,103, a significant increase from 2,036,403 in 2022 and 1,553,558 in 2021. The recovery of international travel and the growing attractiveness of destinations have contributed to this positive trend.

The number of domestic guests also increased, but at a slower pace. In 2023, 166,203 domestic tourists were registered, compared to 147,572 in 2022. When compared to 2018 and 2019, when the number of domestic visitors ranged between 128,000 and 135,000, it is clear that there is a gradual increase in domestic interest in internal tourism.

Analysis by Types of Tourist Destinations

- Coastal Destinations remain the dominant tourist locations, with 2,247,316 arrivals in 2023, almost returning to the 2019 level (2,270,313). The growth in tourism in these areas confirms the importance of the summer season and the coastline as a key resource for the tourism sector.
- The Capital, Podgorica, although not one of the leading destinations, shows a steady increase in visitor numbers. In 2023, 191,868 arrivals were recorded, an increase from 168,109 in 2022. This growth may be attributed to an increase in business and conference events, as well as improvements in the capital's tourism offerings.
- Mountain Destinations, such as winter and recreational centers, saw significant growth in visits, with 104,092 arrivals in 2023, compared to 86,840 in 2022. This trend highlights a growing interest in winter and active tourism, which represents an opportunity for further investment in mountain destinations.
- Other Tourist Destinations also show growth, but with a smaller volume of traffic. In 2023, 56,621 arrivals were recorded, a significant improvement compared to 44,011 in 2022, confirming the increasing interest in lesser-known destinations.

Trends clearly show that tourism has recovered after the pandemic and continues to grow. Coastal destinations remain the main driver of tourism, but the growing interest in mountain destinations and internal tourism indicates a diversification of the tourism offer. Foreign visitors make up the dominant segment of guests, while domestic tourism is growing at a slower pace.

Predictions for the upcoming period suggest the possibility of further growth, especially with additional investments in infrastructure, promotion, and sustainable tourism. The recovery of air traffic, increased interest in adventure and eco-tourism, as well as the strengthening of cultural and business events, could further contribute to the stable growth of visitor numbers in the coming years.

10.6. Management of Tourism Activities

The management of tourism activities within the proposed Biosphere Reserve (BR) is based on the coordination of several key institutions that oversee various aspects of tourism development. These institutions play strategic, operational, and regulatory roles in the planning and implementation of tourism policies. Below are the main institutions responsible for managing tourism activities in the BR, along with their responsibilities and modes of operation.

10.6.1. Ministry of Tourism

The Ministry of Economic Development of Montenegro (MER) is the umbrella institution responsible for creating the tourism development strategy at the national level. Its key functions in the tourism sector include:

- Strategic planning – Development and implementation of the Tourism Development Strategy 2022–2025, which defines the key directions for tourism development in Montenegro.

- Regulatory role – Adoption of laws and bylaws regulating tourism activities, including the Law on Tourism and Hospitality, the Law on Residence Tax, the Law on Ski Resorts, and the Law on Mountain Trails.
- Coordination with international institutions – MER closely cooperates with the World Bank, UNDP, EBRD, and other international partners to ensure that domestic tourism policies align with global sustainable tourism trends.
- Improving the investment environment – Support to the private sector and promotion of public-private partnerships in tourism, particularly through the destination management model, which is planned to be further developed in the coming years.

The Ministry of Tourism also ensures that tourism activities are aligned with the goals of sustainable development and environmental protection, in accordance with the Strategic Environmental Impact Assessment.

10.6.2. National Tourism Organization of Montenegro (NTOCG)

NTOCG is the institution responsible for promoting Montenegro as a tourist destination in both international and domestic markets. Its role is crucial in:

- Marketing and Promotion – Organizing and implementing promotional campaigns aimed at attracting tourists from target markets.
- Destination Brand Development – Increasing the recognition of Montenegro as a sustainable, green, and smart tourist destination.
- Market Analysis and Statistical Monitoring – Collecting and analyzing data on tourism trends in Montenegro, in cooperation with MONSTAT and local tourist organizations.
- Development of New Tourist Products – Special emphasis is placed on ecotourism, adventure tourism, and cultural tourism, with the goal of diversifying the tourism offer and reducing seasonality.

NTOCG collaborates with international tourism organizations such as UNWTO and participates in cross-border cooperation projects in the field of tourism.

10.6.3. Local Tourist Organizations (LTO)

Local Tourist Organizations (LTO) have a key role in the implementation of tourism policies at the level of individual municipalities within the BR. Their main responsibilities include:

- Local promotion and organization of tourist events – Each municipality within the BR has its own tourist organization that deals with promoting local attractions and organizing events.

- Support for the development of accommodation and catering capacities – Collaboration with hoteliers, restaurateurs, and private accommodation owners to improve the quality of tourist services.
- Management and maintenance of tourist infrastructure – Investments in signposts, cycling and hiking trails, information centers, and other key infrastructure elements.
- Informing tourists – Providing information to visitors through tourist info centers and digital platforms.

LTOs function as intermediaries between state institutions and local tourism entrepreneurs, ensuring that tourism development is tailored to the specific characteristics of each municipality.

10.6.4. Public Enterprise National Parks of Montenegro (NPCG)

The Public Enterprise National Parks of Montenegro (NPCG) manages protected areas and plays a significant role in the development of ecotourism. Their responsibilities in the management of tourist activities include:

- Protection and maintenance of national parks – Preserving the ecosystems in Lake Skadar, Biogradska Gora, and Lovćen, which are part of the proposed BR.
- Sustainable tourism development in protected areas – NPCG collaborates with tourism organizations to develop sustainable hiking trails, ecological tours, and educational programs for visitors.
- Regulation of visitation and control of tourist activities – Setting restrictions in sensitive zones to minimize negative impacts on the environment.
- Education and awareness raising – Organizing workshops, ecological campaigns, and informing tourists about the importance of nature conservation.

NPCG advocates for integrated management of protected areas, which includes collaboration with local communities to ensure that ecotourism contributes to their economic development.

The management of tourist activities in the proposed biosphere reserve is based on multisectoral cooperation among key institutions. The Ministry of Tourism provides the strategic framework and makes regulatory decisions, while NTOCG promotes Montenegro as a destination. Local tourist organizations play a significant role in the operational implementation of tourism policies on the ground, while NPCG ensures the preservation of natural resources and the development of ecotourism.

The further development of the tourism sector in the BR will depend on increased coordination between institutions, improvement of public-private partnerships, and strengthening of sustainable tourism. Investments in infrastructure, digitalization, and innovative forms of

tourism can significantly contribute to positioning this area as a model of sustainable tourism in the region.

10.7. Impact of Tourism on the Biosphere Reserve

Tourism has a significant impact on the biosphere reserve (BR), contributing to economic development and the preservation of cultural heritage, but it can also pose a threat to the ecosystem if not developed sustainably. While tourism brings positive economic and infrastructural benefits, inadequate management can result in negative consequences such as degradation of natural resources and excessive urbanization. By analyzing the available data from the Tourism Development Strategy until 2025 and the Strategic Environmental Impact Assessment, it is possible to identify the key impacts of tourism on the BR.

10.7.1. Positive Impacts

Economic Contribution of Tourism

Tourism is one of the key economic sectors in Montenegro, with a direct impact on Gross Domestic Product (GDP) and employment. According to data from the World Travel and Tourism Council (WTTC) in 2021, the tourism industry in Montenegro contributed 25% to the GDP, while data from the Tourism Development Strategy 2022-2025 indicates that tourism employs around 31.9% of the workforce and serves as the main source of income for many local communities within the BR.

The positive impact is especially pronounced in coastal and rural areas, where tourism facilitates the development of small businesses, agritourism, and local crafts. Examples of this include:

- Development of wine and gastro tours in the hinterland of Lake Skadar.
- Increased demand for traditional souvenirs and handicrafts in Cetinje and Bar.
- Sustainable fishing tourism on Lake Skadar and the Morača River.

Investments in tourism bring multiple economic benefits, including higher revenues from accommodation taxes and increased employment in hospitality and related sectors.

Infrastructure Development

Tourism has directly contributed to improving transportation accessibility and modernizing infrastructure in municipalities within the BR. Large infrastructure projects have been supported through state and local budgets, as well as international investments, which have improved the following:

- Road Infrastructure – Construction of the Princess Ksenija Highway, as well as the modernization of major roads such as the Podgorica–Cetinje–Budva route and local roads leading to national parks.

- Public Transportation Network – Introduction of seasonal tourist lines to Lake Skadar National Park and Lovćen.
- Ecological Infrastructure – Investments in recycling centers, wastewater treatment plants, and energy efficiency projects in national parks.

A special emphasis has been placed on the development of cycling and hiking trails, which have become a popular form of sustainable tourism. The introduction of eco-tourist buses and electric bicycles reduces reliance on cars, contributing to the reduction of pollution.

Cultural Heritage Protection

Tourism plays a key role in the preservation and revitalization of historical sites through funding restoration projects and promoting cultural heritage. Many cultural landmarks in the BR have received financial support thanks to tourism revenue, including:

- Restoration of Stari Bar and reconstruction of the Old Town of Ulcinj.
- Protection of the Ostrog Monastery and revitalization of cultural centers in Cetinje.
- Maintenance of the traditional villages of Njeguši and Godinje, promoting local architecture and ways of life.

10.7.2. Negative Impacts

Although tourism represents a significant potential for economic development and the promotion of the natural and cultural values of the Skadar Lake watershed, its uncontrolled expansion and inadequate management can have multiple negative consequences for the biosphere reserve. The most common negative impacts include:

Pressure on natural resources, especially aquatic ecosystems, through increased water consumption, improper waste disposal, and pollution of water and soil;

Landscape degradation due to uncontrolled and often illegal construction of accommodation and tourism facilities, particularly in protected zones and ecologically valuable areas;

Habitat fragmentation and loss of biodiversity resulting from the reduction of natural areas and disruption of migration corridors;

Increased CO_2 emissions and noise, especially during peak tourist season, which negatively affect the tranquility and natural cycles of the ecosystem;

Commercialization of cultural and spiritual values, leading to the loss of authenticity of local customs, rituals, and community identity;

Increased traffic and infrastructure pressure, causing congestion, erosion, and adverse effects on rural and protected areas.

To minimize these impacts, it is necessary to establish stricter control over spatial planning, define the carrying capacity of the area, and develop effective mechanisms for monitoring and managing tourism flows in line with the principles of sustainable development and the objectives of the UNESCO "Man and the Biosphere" programme.

10.8. Managing the Impacts of Tourism

Tourism in the biosphere reserve (BR) brings economic and infrastructural benefits, but it can also have negative effects on the ecosystem, spatial development, and the quality of life of local residents. To ensure the sustainable development of tourism, it is essential to apply effective assessment mechanisms and involve key stakeholders who will manage these processes. Managing the impacts of tourism in the BR is based on continuous monitoring, ecological assessments, and coordination between state institutions, local communities, and the private sector.

10.8.1. Assessment Mechanisms

Visitor Number Monitoring

Monitoring the number of visitors is crucial for understanding tourism flows and planning appropriate measures to mitigate negative impacts. The monitoring is carried out through:

- Official Tourism Statistics – National and local authorities use data from MONSTAT, the National Tourism Organization of Montenegro (NTOCG), and local tourist organizations (LTO) to analyze tourist movements.
- Guest Registration System – Recording tourists through the registration of accommodation tax allows for more accurate estimation of visitors in collective and individual accommodations.
- Visitor Counters in Protected Areas – The introduction of electronic visitor counters in national parks and key tourist zones would help assess the pressure on specific locations.

The data collected through monitoring is used for:

- Decision-making on Spatial Planning and Infrastructure – Adjusting the capacity of transportation and utility infrastructure based on seasonal visitor fluctuations.
- Limiting Visits in Sensitive Areas – A quota system for restricting the number of tourists during certain periods can be applied in national parks and protected zones.
- Developing Strategies for Extending the Tourist Season – Data analysis helps create programs to stimulate tourism outside the summer months.

Environmental Impact Assessment

An environmental impact assessment is necessary to ensure that tourism development does not harm natural ecosystems and the quality of the environment. This process is carried out through:

- Strategic Environmental Impact Assessment (SEIA) – Every significant tourism development project must undergo an environmental impact assessment in accordance with the Nature Protection Law.
- Protected Area Management – The National Parks of Montenegro (NPCG) apply specific regulations to protect the ecosystems of Lake Skadar, Lovćen, and Biogradska Gora.
- Natural Resource Conservation Measures – The development of ecological accommodation capacities, energy efficiency, and recycling systems are key elements in mitigating the negative impacts of tourism.

Environmental assessment enables:

- Prevention of Harmful Consequences through early identification of problems and proposing protective measures.
- Adjustment of Tourism Activities to the natural capacities of the location.
- Biodiversity Preservation through visitor control in protected areas.

10.8.2. Key Stakeholders in Management

Managing the impacts of tourism in a biosphere reserve requires coordination between various institutions and sectors. Key stakeholders include government institutions, local communities, and the private sector, with each of these entities playing a specific role in the planning, regulation, and implementation of tourism activities.

Ministry of Ecology, Sustainable Development, and the Development of the North

This ministry is responsible for the ecological aspects of tourism and the sustainability of natural resources. Its key responsibilities include:

- Protection of Natural Ecosystems in the BR – Developing and implementing laws and strategies for environmental conservation in tourist zones.
- Control of Ecological Standards – Conducting inspection oversight regarding the protection of national parks, rivers, lakes, and other natural sites threatened by tourism activities.
- Implementation of Strategic Environmental Impact Assessment (SEIA) – Assessing the impact of new tourism projects on biodiversity and natural resources.
- Promoting Ecotourism and Energy-efficient Solutions – Advancing sustainable tourism through the promotion of eco-accommodation, renewable energy sources, and waste reduction in tourism facilities.

This ministry plays a crucial role in integrating ecological standards into tourism, ensuring a balance between development and the conservation of the natural environment in the BR.

Ministry of Spatial Planning, Urbanism, and State Property

This ministry is responsible for spatial planning and regulating the construction of tourism infrastructure, with a particular focus on preserving the space within the BR. Its responsibilities include:

- Management of Spatial Plans – Defining rules and standards for the construction of tourism facilities, ensuring compliance with sustainable development practices.
- Regulation of Urbanization in Tourism Zones – Preventing uncontrolled construction and guiding tourism development towards sustainable practices.
- Oversight of Infrastructure Projects – Ensuring that the construction of roads, hotels, and other facilities within the BR complies with ecological and spatial standards.
- Development of Strategies to Reduce Seasonal Pressure – Planning tourism infrastructure that allows for a more even distribution of visitors throughout the year.

Efficient spatial planning is crucial to preventing excessive urbanization, protecting ecological corridors, and preserving the authenticity of spaces within the BR.

Local Communities

Local communities play a crucial role in shaping tourism development, as they are directly affected by the impacts of tourism. Their role includes:

- Participation in Decision-Making – Through the work of local tourism organizations (LTO) and municipal authorities, communities can influence the creation of tourism policies.
- Support for Local Economic Development – Promoting rural tourism, agritourism, and local gastronomy as a way to diversify the tourism offer.
- Protection of Cultural and Natural Heritage – Organizing events and initiatives to preserve traditional values and natural resources.

Active involvement of local communities enables more balanced economic development and reduces the negative environmental effects of tourism.

Private Sector

The private sector is crucial for the development and enhancement of the tourism offer in the biosphere reserve (BR). Its role includes:

- Investments in Accommodation and Infrastructure – Development of hotels, eco-lodges, and rural households that adhere to the principles of sustainable tourism.

- Sustainable Management of Tourist Facilities – Implementation of energy efficiency, recycling, and use of ecological materials in tourist facilities.
- Public-Private Partnerships – Collaboration with state institutions and local communities in eco-tourism, cultural tourism, and adventure tourism projects.

The private sector can significantly contribute to reducing seasonality and increasing the quality of the tourism offer, while simultaneously protecting natural resources.

Efficient management of tourism impacts in the biosphere reserve requires coordination among various actors. The Ministry of Ecology, Sustainable Development, and Northern Development is responsible for protecting the natural environment and conducting ecological assessments of tourism, while the Ministry of Spatial Planning, Urbanism, and State Property manages regulations on construction and sustainable tourism infrastructure planning.

Additionally, local communities play a key role in decision-making, while the private sector enables the development of innovative tourism products through sustainable investments. Only through synergy between these sectors can long-term and sustainable tourism development be ensured, while preserving the natural and cultural values of the biosphere reserve..

10.9. Agricultural and Other Activities

The biosphere reserve (BR) is characterized by a rich agricultural and craft tradition, which is increasingly linked to the tourist offer through the development of agro-tourism, ecological production, and traditional crafts. According to the Agricultural and Rural Development Strategy 2023–2028, the agricultural sector in the BR is of crucial importance for the economic development of rural communities, the sustainability of natural resources, and the preservation of cultural identity.

The connection between agriculture and tourism is reflected in the offer of local products in tourist facilities, the organization of wine and gastro tours, as well as the development of rural accommodation that offers authentic experiences. Among the dominant agricultural and rural activities in the BR, viticulture, olive growing, and rural tourism stand out, having significant potential for synergy with tourism.

10.9.1. Viticulture and Wine Production

Viticulture is one of the most important agricultural sectors in the BR, particularly prominent in the hinterland of Lake Skadar, Podgorica, Danilovgrad, and Bar. According to the Agricultural Development Strategy, Montenegro has approximately 4,500 hectares of vineyards, with the largest areas being the Podgorica vineyard region, Crmnica, and Ulcinj.

Key characteristics of viticulture in the BR:

- Crmnica and Lake Skadar – Traditionally known for the indigenous varieties Vranac and Krstač, which are part of Montenegro's wine identity.

- Podgorica – The main wine production center with modern vineyards and wineries that have developed wine routes and tasting tours.
- Danilovgrad – A smaller, developing wine region, with an increased demand for organic and biodynamic wine production.

Wineries in these regions, in addition to production, offer tourist services such as vineyard tours, wine tastings, and event organization. This form of tourism contributes to the promotion of indigenous varieties and strengthening the brand of Montenegrin wines on the international market.

10.9.2. Olive growing

Olive growing is a key agricultural activity in the coastal and central municipalities of the Biosphere Reserve (BR), with a special emphasis on Bar and Ulcinj. According to the Agriculture Development Strategy, Montenegro has over 500,000 olive trees, the majority of which are located in the BR area.

Main characteristics of olive growing in the BR:

- Bar – the center of Montenegrin olive growing – Known for its ancient trees and the production of extra virgin olive oil.
- Ulcinj – Developed ecological olive cultivation with a focus on integrated and organic production.
- Cetinje and Danilovgrad – Smaller olive groves that are part of family production and are connected to rural tourism.

Olive growing has strong potential for tourism development, as it allows visitors to participate in olive harvesting, oil tasting, and traditional workshops. The preservation of ancient olive groves and the promotion of local olive oil contribute to branding Montenegro as a destination for gastronomic and agro-tourism.

10.9.3. Rural Tourism

Rural tourism is becoming increasingly popular in the Biosphere Reserve (BR), thanks to the rich cultural heritage and the authentic way of life of rural communities. The rural areas of Cetinje, Nikšić, Kolašin, and Danilovgrad are developing agro-tourism offerings that include traditional taverns, ethno-villages, and family farms.

Key features of rural tourism in the BR:

- Cetinje and Njeguši – Traditional farms and drying houses offering authentic gastro-tours with tastings of Njeguški prosciutto and cheese.
- Kolašin and Nikšić – Development of eco-villages and mountain houses offering homemade organic food and activities such as hiking, horseback riding, and wild fruit picking.

- Danilovgrad and Lake Skadar – Rural tourism combined with wine and fishing tours, where visitors can participate in traditional fishing methods and the preparation of local dishes.

Rural tourism helps preserve traditional crafts and agricultural practices while simultaneously creating additional income sources for local communities.

Agricultural and rural activities in the BR have tremendous potential for integration with tourism, contributing to sustainable development, strengthening the local economy, and preserving cultural heritage. Viticulture and wine production in the hinterland of Lake Skadar, Podgorica, and Crmnica enable the development of wine routes and the promotion of indigenous varieties. Olive growing, especially in Bar and Ulcinj, contributes to branding Montenegro as a destination for eco-tourism and gastronomic tourism. Rural tourism, in areas such as Njeguši, Kolašin, and Lake Skadar, allows tourists to experience authentic lifestyles, local food, and traditional crafts.

Further development of agro-tourism and rural initiatives is crucial for preserving the identity of the biosphere reserve, increasing the economic stability of rural communities, and promoting sustainable forms of tourism in Montenegro.

10.10. Indicators for Tourism Condition Assessment

The number of arrivals and overnight stays is a basic indicator of tourist traffic and provides insight into seasonal trends, the popularity of a destination, and the strain on tourism infrastructure. According to data from the Statistical Office of Montenegro (MONSTAT), in 2023, Montenegro recorded 2,613,306 tourist arrivals and 16,389,279 overnight stays.

Tourism trends in 2023:

- A 19.66% increase in the number of arrivals compared to 2022.
- A 31.87% increase in the number of overnight stays compared to the previous year.
- Main source markets are Serbia (17.9%), Russia (10.1%), Bosnia and Herzegovina (9%), Germany (6.2%), Kosovo (5%), and France (3.9%).
- The highest number of overnight stays was recorded in coastal municipalities, while mountain centers like Kolašin saw a significant rise outside the summer season.

In the context of the BR, the national parks of Lake Skadar and Lovćen have seen a steady increase in visitors, with 688,555 visits recorded in 2023 across all national parks, reflecting a 43% increase compared to 2022.

These data indicate the need for better management of seasonality and a more balanced spatial distribution of tourists to avoid overcrowding at certain locations and reduce the negative impact on the ecosystem.

10.11. Indicators of Ecological Stress

Tourist activities can have a negative impact on the environment, so monitoring ecological indicators is used to assess the level of ecosystem stress. Key ecological indicators include:

Water Quality

- Water quality analyses in Lake Skadar show increased nutrient concentrations, resulting from tourist vessels, urbanization, and inadequate wastewater treatment.
- The Ulcinj saltworks is experiencing changes in its hydrodynamic regime, which could affect the biodiversity of this protected area.

Waste Levels

- Increased tourist traffic has led to a rise in waste quantities, particularly in national parks and popular viewpoints.
- The issue of inadequate waste disposal is evident in rural areas, where municipal services lack the capacity to regularly remove waste.

Ecosystem Pressure

- Soil erosion in national parks, especially in areas with intense hiking and cycling routes, increases the risk of vegetation loss.
- A rise in the visitation of natural reserves without clear restrictions can lead to habitat degradation for key species of fauna and flora.

Measuring ecological indicators allows for timely actions to protect the environment, including setting visitor limits in sensitive areas, implementing ecological standards, and improving waste management systems.

10.12. Financial Contribution of Tourism

Tourism makes a significant economic contribution through revenues from tourist activities, employment, and investments. According to data from the Central Bank of Montenegro, tourism revenues in 2023 amounted to 1.51 billion euros, representing a 43.67% increase compared to 2022.

Key economic indicators for tourism in 2023:

- Tourism revenues account for about 30% of Montenegro's GDP, confirming the sector's key role in the country's economy.
- Designated revenues of the National Tourism Organization of Montenegro (accommodation taxes, tourist taxes, and membership fees) amounted to 4.05 million euros, an increase of 17.19% compared to the previous year.

- The tourism sector employs about 31.9% of the total workforce, with a growing trend in hotel and hospitality services.

It is particularly significant that the economic contribution of tourism is also increasing in rural areas, where agro-tourism and eco-tourism projects are being developed. Examples include increased investments in wineries and rural accommodation capacities in the hinterland of Lake Skadar and in Cetinje.

The growth in tourism revenues demonstrates the sector's substantial economic potential but also presents challenges in terms of controlling the spatial expansion of tourism infrastructure and reducing seasonality dependency.

Indicators for assessing the state of tourism show continuous growth in tourist traffic, increased ecological challenges, and a significant economic contribution from the sector. The number of arrivals and overnight stays shows a growth trend but emphasizes the need for better management of seasonality and a more balanced distribution of tourists. Ecological indicators warn of increased pressure on natural resources, which requires systematic monitoring and the implementation of sustainable tourism practices. The financial contribution of tourism confirms its strategic importance to the economy of Montenegro, with growing significance for agro-tourism and eco-tourism.

For further sustainable tourism development in the BR, it is necessary to strengthen the monitoring system, improve ecological standards, and encourage the diversification of the tourism offer to reduce seasonality and the ecological impacts of tourism.

10.13. Measures for Optimizing the Impact of Tourism

Tourism in the Biosphere Reserve (BR) represents a significant economic driver, but also a factor that can have negative consequences for the natural environment and spatial development. To ensure the sustainability of tourism and reduce negative impacts, a range of strategic measures must be implemented to achieve a balance between economic benefits, environmental preservation, and the quality of life for local communities.

The measures are divided into supporting the development of positive tourism effects and reducing negative consequences through ecological, spatial, and infrastructural initiatives.

10.13.1. Positive Effects

Support for Sustainable Tourism Development and Reduction of Seasonality

One of the key challenges of tourism in the BR is high seasonality, which leads to uneven distribution of tourism revenues and increased pressure on infrastructure during the summer season. Measures to reduce seasonality include:

- Development of year-round tourism products – Improvement of winter offerings in mountain resorts (Kolašin, Lovćen), cultural tourism (Cetinje, Lake Skadar), and adventure tourism (cycling, hiking, speleology).
- Support for eco and agro-tourism – Through subsidies and promotion of rural households, wine and olive routes.
- Development of health and wellness tourism – Investments in spa centers and natural mineral water sources in Nikšić, Danilovgrad, and Ulcinj.

By implementing these measures, tourism can become a more stable sector, not relying solely on the summer season and mass visits.

Improving Infrastructure through Investments in Green Mobility

Tourism development must be accompanied by infrastructure improvements, with a focus on sustainable solutions that reduce the ecological footprint of tourism. Key initiatives include:

- Development of green mobility – Introduction of electric buses and cycling paths in national parks and tourist centers.
- Improving public transport – Better connectivity of rural destinations with the coast through eco-friendly transportation options.
- Construction of eco-walking paths and pontoons on Lake Skadar – To reduce the pressure of motorized boats on biodiversity.

These measures reduce traffic congestion, pollution, and noise, while providing visitors with a more authentic and environmentally friendly experience.

Strengthening Local Entrepreneurship through Rural and Gastronomic Tourism

Tourism development should also contribute to the local economy by encouraging small entrepreneurs in rural areas of the BR. Key measures include:

- Subsidies for small businesses in rural tourism – Support for households offering authentic accommodation and local cuisine.
- Promotion of local products – Introduction of "eco-labels" and branding of indigenous products (Vranac wine, olive oil, Njeguški cheese).
- Involvement of local communities in tourism projects – Education and empowerment programs for small businesses to make tourism a tool for socio-economic development.

These initiatives contribute to preserving cultural heritage and traditions, while simultaneously ensuring income for the local population and reducing migration from rural areas.

10.13.2. Reduction of Negative Effects

Introduction of Stricter Ecological Standards for Construction in Tourist Zones

Urbanization and inadequate infrastructure represent major threats to the BR ecosystem. Measures to be implemented include:

- Application of Ecological Standards in Construction – All new tourist facilities must use energy-efficient materials and sustainable energy sources.
- Construction Ban in Protected Areas – Preserving natural areas through strict regulations on construction in Lake Skadar, Lovćen, and the Ulcinj Salina.
- Revision of Existing Tourism Projects – Inspections and environmental impact assessments to prevent spatial degradation.

These measures ensure landscape preservation, reduce ecological risks, and harmonize tourism with the natural environment.

Development of Waste and Water Supply Systems for Tourist Centers

The growth in tourist traffic increases pressure on municipal infrastructure, which can lead to waste and water pollution issues. Necessary measures include:

- Construction of New Wastewater Treatment Systems – Especially in coastal municipalities and rural tourist destinations.
- Improvement of Waste Disposal Systems – Installing recycling points in tourist centers and introducing mandatory waste separation.
- Ecological Monitoring in National Parks – Continuously monitoring water quality and ecosystem conditions to prevent pollution caused by tourism.

Efficient management of waste and water resources is crucial for preserving biodiversity and ensuring the long-term sustainability of the tourism sector.

Limiting Excessive Urbanization through Spatial Plans

The spatial expansion of tourist zones often leads to uncontrolled urbanization, which threatens natural resources and landscapes. Measures for regulating urbanization include:

- Creating "Green Zones" in Tourist Destinations – Regulating space to limit construction in sensitive areas.
- Introducing Stricter Criteria for Issuing Building Permits – Tourist projects must align with the National Sustainable Development Strategy.
- Encouraging Adaptive Reuse Strategies – Investing in the renovation of traditional buildings for tourism purposes instead of new construction.

These measures reduce uncontrolled urbanization and ensure the long-term preservation of the natural environment in the Biosphere Reserve.

Measures to optimize the impact of tourism in the BR are focused on increasing positive effects through sustainable development, improving infrastructure, and strengthening the local

economy, while simultaneously reducing ecological and spatial negative impacts of tourism. Their implementation is key to the long-term sustainability of the sector and the protection of the natural and cultural values of the biosphere reserve.

11. AGRICULTURE AND FORESTRY

11.1. Agriculture

11.1.1. Structure and Use of Agricultural Land

The area of the proposed Skadar Lake Basin Biosphere Reserve encompasses various agro-ecological units that span multiple municipalities, including Podgorica, Zeta, Tuzi, Danilovgrad, Cetinje, Ulcinj, and partially Bar, Kolašin, and Nikšić. Agricultural land in these municipalities is a key natural resource, both in terms of local food production and economy, as well as in preserving landscape integrity, traditional practices, and biodiversity.

Table No 27. The number of agricultural households, used agricultural land (excluding katuns and communes)[60]

	The number of households	Used agricultural land, ha (hectares)	Arable land, ha	Perennial crops, ha	Meadows and pastures, ha	Other, ha
	1	(2)=(3)+(4)+(5)+(6)	3	4	5	6
Montenegro	**26,711**	**126,614.2**	**8,542.1**	**9,434.8**	**107,605.6**	**1,031.7**
Bar	1,135	1,219.2	131.7	436.8	614.2	36.5
Cetinje	306	384.3	12.1	34.5	327.3	10.3
Danilovgrad	1,138	4,027.6	582.2	122.0	3,272.0	51.4
Kolašin	569	2,987.5	93.4	167.4	2,705.2	21.3
Nikšić	3,187	15,631.5	1,038.9	274.9	14,207.5	110.2
Podgorica	2,186	7,665.1	399.5	2,848.4	4,302.4	114.7
Tuzi	739	2,478.0	917.7	215.7	1,337.2	7.3
Ulcinj	1,351	2,852.4	305.2	790.4	1,714.1	42.6
Zeta	909	2,275.6	1,036.6	155.8	1,061.2	21.9

[60] Agricultural Census 2024, MONSTAT, 2025

The data from the 2024 Agricultural Census indicate that the total areas of used agricultural land in the municipalities within the Biosphere Reserve (RB) are highly diverse, and their structure clearly reflects local natural conditions, social patterns, and historical land use practices.

The municipalities of Podgorica, Zeta, and Danilovgrad stand out due to the largest areas of active agricultural land. In Podgorica, a significant share of land is dedicated to perennial crops (orchards, vineyards), which is the result of a long tradition of viticulture and intensive horticultural production in the Zeta plain. These municipalities also show a high proportion of meadows and pastures, reflecting a combination of livestock and crop production. In Zeta, arable land is particularly significant, confirming the importance of cereal and vegetable production in this municipality.

In the municipality of Tuzi, the land structure is more balanced—there are arable lands, multipurpose plantations, and meadows. This municipality has a strong orientation towards family farming, with a significant number of smaller households engaged in the production of fruits, vegetables, and traditional livestock feed. This type of production model is often linked to local communities that operate through informal exchange systems and local markets.

Ulcinj is notable for its combination of Mediterranean-type agriculture and livestock farming in the hinterland. Perennial crops in Ulcinj—especially olive groves—play an important role in both the local economy and the preservation of the cultural landscape. Additionally, the presence of arable land and pastures highlights the diversification of the agricultural base.

Cetinje has more modest total areas of used agricultural land, but it is dominated by pastures linked to traditional mountain livestock farming. The land structure indicates an extensive farming approach, with no significant share of intensive crop production. Although smaller in area, this region has high cultural and landscape significance, particularly in the context of preserving intangible heritage and traditional knowledge.

For the municipalities of Bar, Kolašin, and Nikšić, it is important to note that only smaller parts of their territories fall within the boundaries of the Biosphere Reserve (RB). For example, in Kolašin, this is mainly the Morača River valley, while in Nikšić, it pertains to the southern, rural areas—particularly Pješivci. Therefore, while data for these municipalities show large total areas of agricultural land (especially in Nikšić), they do not fully reflect the actual situation in the parts that are within the RB. In Nikšić, meadows and pastures dominate, which is expected given the terrain and the development of livestock farming, while Kolašin features a similar land structure with a pronounced mountain orientation.

It is important to note that many households operate with very small areas and fragmented parcels, which significantly hinders economic sustainability and modernization. This type of land ownership requires special support measures, such as consolidation programs, infrastructure improvements, and joint land cultivation. Additionally, a large portion of the land is used

traditionally, without formal registration, which further complicates planning and the implementation of development policies.

Overall, the analysis of land structure and use indicates significant resources that could be valorized through sustainable production practices, branding of territorial identity (e.g., Crmnica wine, olive oil from Ulcinj), as well as through agrotourism and educational programs that link nature, culture, and local production.

11.1.2. Livestock farming, poultry farming, and beekeeping

Livestock production in the municipalities that are fully or partially within the proposed Biosphere Reserve of the Skadar Lake Basin continues to play a significant role in preserving the rural economy, cultural landscape, and biodiversity. According to the 2024 Agricultural Census, the livestock population in the region is characterized by the presence of various types of livestock and poultry, indicating diversified farming systems that heavily rely on traditional practices and natural resources.

Table No 28. The number of livestock, poultry, and beehives, by municipality [61]

	Conditional livestock	Cattle	Sheep	Goats	Pigs	Poultry	Beehives
	1	2	3	4	5	6	7
Montenegro	**106,622.0**	**68,600**	**167,344**	**28,184**	**52,272**	**1,361,403**	**113,794**
Bar	1,683.3	1,011	2,701	2,012	675	15,949	9,266
Cetinje	1,127.7	752	1,635	1,292	487	5,672	4,960
Danilovgrad	5,393.1	2,105	9,337	1,678	4,601	101,871	4,003
Kolašin	2,056.0	1,499	4,868	469	520	8,062	1,747
Nikšić	24,269.8	11,520	26,755	8,778	10,308	613,263	12,971
Podgorica	8,511.0	2,309	9,372	2,433	11,995	224,161	25,088
Tuzi	2,447.4	1,572	4,858	1,296	522	19,593	3,055
Ulcinj	2,658.0	1,826	6,197	712	335	16,112	3,082
Zeta	2,141.5	1,301	621	212	2,887	19,029	720

The most common are cattle and sheep, while goats, pigs, and poultry are present to varying extents, depending on local conditions and household needs. In flat and more accessible areas,

[61] Agricultural Census 2024, MONSTAT, 2025

especially in the municipalities of Podgorica, Danilovgrad, and Zeta, livestock production has a more commercial character, with a larger number of conditional livestock and more developed infrastructural conditions. In these areas, livestock farming is often integrated with crop farming and the production of bulk feed, contributing to closed production cycles and greater resilience of households.

In municipalities with more pronounced mountain morphology, such as Cetinje and parts of Tuzi and Ulcinj, livestock farming mainly relies on the use of natural pastures and has an extensive character. Traditional sheep and goat farming stands out, relying on decades-long patterns of seasonal grazing and communal land use, including elements of transhumance—moving livestock to higher altitudes during the summer months. This livestock system not only has high ecological value but also represents an important segment of the intangible cultural heritage of local communities.

Beekeeping, although often considered a supplementary activity, shows a stable development trend. Data indicates that the number of beehives is significant in almost all municipalities—particularly in Podgorica, Bar, Cetinje, and Danilovgrad. The geographical and plant diversity of this area provides excellent conditions for beekeeping, especially for the production of honey with protected geographical origin. Beekeeping also plays an important role in biodiversity conservation, particularly pollinators, and represents one of the sectors with the lowest negative environmental impact.

The municipalities of Nikšić and Kolašin, although they report high values of livestock on the municipal level, must be viewed with caution in the context of the Biosphere Reserve (RB). Only smaller parts of these territories—such as Pješivci in Nikšić and the Morača River valley in Kolašin—fall within the reserve's boundaries. Although overall data for these municipalities show a strong livestock base, the real contribution to the proposed RB is limited by the spatial scope. However, these areas represent the core of traditional livestock production and can serve as pilot areas for developing the "High Nature Value Farming" model, in accordance with agroecological principles and the goals of the UNESCO MAB program.

Despite the existing potential, the livestock sector faces numerous challenges, including depopulation of rural areas, aging farm holders, limited infrastructure, and increasing competition pressure in the supply chain. In this regard, support for livestock farming must be multilayered: from preserving pastures and legal security of their use to subsidizing veterinary services, producer associations, and educating young farmers.

As part of an integrated approach to the development of the biosphere reserve, livestock farming should be treated not only as an economic activity but also as a tool for preserving landscape integrity, reducing the risk of fires, and promoting the cultural diversity of local communities.

11.1.3. Mechanization and technical capacities of farms

The level of mechanization in agriculture is an important indicator of the technical development and capacity of local farms to meet the demands of a modern and sustainable agricultural system. Based on data from the 2024 Agricultural Census, municipalities that are part of or partially fall within the proposed Biosphere Reserve of the Skadar Lake Basin (RB) show varying degrees of mechanization, reflecting local agroecological conditions, land structure, farm size, and economic potential.

Table No 29. Mechanization and equipment - tractors, by municipality, Montenegro [62]

	Number of farms	Number of farms that own tractors	Number of tractors			
			do 40kW (54 KS)	od 41 kW do 60 kW (56 KS do 82 KS)	od 61 kW do 100 kW (83 KS do 136 KS)	više od 100 kW (više od 136 KS)
Montenegro	**26,711**	**7,271**	**6,734**	**1,685**	**741**	**213**
Bar	1,135	187	189	z	z	-
Cetinje	306	29	29	7	-	-
Danilovgrad	1,138	182	175	67	z	z
Kolašin	569	93	82	z	z	-
Nikšić	3,187	583	499	196	69	16
Podgorica	2,186	335	306	55	107	10
Tuzi	739	359	370	30	5	-
Ulcinj	1,351	478	562	207	216	108
Zeta	909	387	398	50	z	z

The highest number of tractors in absolute terms is registered in the municipalities of Podgorica, Tuzi, Zeta, and Danilovgrad, where the highest concentration of active agricultural farms is also located. These municipalities are characterized by lower terrain, better accessibility, more developed infrastructure, and a longer tradition of organized agriculture. Mechanization in these areas includes a wide range of tractors of different horsepower, indicating a higher level of modernization and adaptation to various types of production—from crop farming to fruit growing and viticulture.

[62] Agricultural Census 2024, MONSTAT, 2025

On the other hand, municipalities with more mountainous terrain, such as Cetinje, Ulcinj, and especially Kolašin, have a lower degree of mechanization. In these areas, the number of tractors per farm is significantly smaller, and primarily lower-powered tractors are present. This structure of mechanization reflects smaller land areas, limited access to plots, and a lower production intensity, which often relies on traditional tools and manual labor. In some cases, this can be linked to more environmentally friendly practices, but it also presents challenges in terms of competitiveness, physical workload, and work efficiency.

Interestingly, in some municipalities, such as Ulcinj and Zeta, the number of tractors per farm indicates a high level of equipment—even above the national average. This could be the result of more developed cooperatives, better access to financing, and the presence of multiple generations in households that continue to invest in production. These positive examples can serve as models for other municipalities within the RB that have the potential to improve mechanization.

When it comes to the municipalities of Nikšić and Kolašin, as noted in previous analyses, it is important to emphasize again that the data pertains to the territories of entire municipalities, while only limited parts of these areas fall within the RB boundaries. Nikšić, despite having a high total number of tractors, has parts within the RB that have characteristics of peripheral rural areas with sparsely populated villages and mountainous terrain. Kolašin, with its pronounced mountainous morphology, reports a low degree of mechanization, mostly in the form of smaller, multifunctional tractors adapted to more difficult conditions.

What further complicates the situation in terms of technical capacities is the low level of farm cooperation and the lack of shared equipment, which particularly affects smaller family farms. In this context, implementing programs for joint use of machinery (e.g., through cooperatives, clusters, local funds) could significantly increase access to modern technologies with a lower financial burden on individuals.

In light of sustainable development and climate challenges, future models of mechanization development should be focused on:

- Promoting energy-efficient and low-carbon equipment,
- Digitalizing agricultural processes (precision agriculture),
- Educating youth about sustainable technologies,
- Developing local mechanisms for servicing and maintaining equipment.

Special emphasis should be placed on connecting mechanization with concepts of smart villages, short value chains, and circular economy, where technological advancements are not only viewed as tools for increasing production but also as key factors for enhancing community resilience, preserving natural capital, and reducing dependence on external inputs.

11.2. Forestry

11.2.1. Distribution and Spatial Distribution of Forests in the RB Area

Forests and forest land are one of the most important natural resources in the territory of the proposed Skadar Lake Basin Biosphere Reserve. Their presence not only contributes to the ecological stability of the region, but also shapes the landscape identity, microclimatic conditions, and ways of life of the local population. In this regard, understanding the spatial distribution of forests is key to planning sustainable management and integrating protective and economic functions in line with the objectives of UNESCO's Man and the Biosphere (MAB) program.

Table No 30. Forest and forest land area by land category by municipalities.[63]

Municiplity	Land category					
	Total area		Forest		Forest land	
	ha	%	ha	%	ha	%
Bar	62686	100	29374	47	5220	8
Cetinje	89620	100	72589	81	5733	6
Danilovgrad	42410	100	27840	66	3695	9
Kolašin	90825	100	58512	64	4721	5
Nikšić	213277	100	149426	70	23079	11
Podgorica[64]	149271	100	69375	46	7841	5
Tuzi	26790	100	11649	43	1731	6

According to data from the Draft Spatial Plan of Montenegro until 2040, forests are present in almost all municipalities within the area covered by the proposal for the establishment of the Biosphere Reserve (RB) – whether they are low Mediterranean forests in Ulcinj and Bar, or mountain deciduous and mixed forests in Kolašin, Cetinje, Nikšić, and Danilovgrad.

However, when interpreting the available data, it is important to highlight several methodological limitations:

[63] Spatial Plan of Montenegro until 2040 - DRAFT PLAN, Ministry of Ecology, Spatial Planning, and Urbanism, Podgorica, 2023.
[64] The data for Podgorica include Tuzi and Zeta.

1. The statistical data are based on the current administrative status, meaning that the forest areas for the Capital City of Podgorica are combined with the municipalities of Tuzi and Zeta, which were administratively separated after the database was created. Therefore, all data for these three territorial units are presented as a single entity – "Podgorica."
2. The data refers to the entire territories of municipalities, although in the case of the municipalities of Bar, Kolašin, and especially Nikšić, only smaller parts of their territories are within the RB area. For example, in Nikšić, the southeastern part – Pješivci and its surroundings – is part of the RB zone, while in Kolašin, it refers to the Morača valley. In Bar, the forests are in the contact zone of the RB, predominantly with Mediterranean species.

Considering these facts, the largest total forest and forest land areas are registered in the territories of Nikšić, Podgorica (with Tuzi and Zeta), and Kolašin, which is consistent with their general geographical characteristics – large territorial areas, high altitude ranges, and rich forest cover. However, only smaller parts of these areas are actually within the boundaries of the proposed RB, so these data cannot be used as direct indicators of forest density within the reserve itself, but rather as an indicator of the potential that partially belongs to the area of the reserve.

In the municipalities of Cetinje and Danilovgrad, the forest fund is also significant, especially in the hilly and mountainous zones, where native species such as beech, hornbeam, oak, and black pine are present. The forests in these areas often have a protective function – preventing erosion, stabilizing the microclimate, and serving as natural barriers between populated areas and mountain zones. At the same time, they represent important resources for gathering non-timber forest products and developing recreational facilities.

Ulcinj, although it has a smaller total forest area, is characterized by specific coastal and Mediterranean vegetation zones, including a significant presence of Aleppo pine and various species of oak. These forests, although limited in surface area, have significant landscape and ecological value, especially in terms of soil conservation, biodiversity protection, and their connection to wetland and aquatic ecosystems in the Solana and Šasko Lake areas.

It is noticeable that the spatial distribution of forests within the proposed RB most often coincides with areas of medium and higher slopes, which are naturally less suitable for agriculture and construction but are extremely valuable in terms of ecological stability. These areas represent potential for the development of multifunctional forestry, including sustainable exploitation, habitat protection, education, and tourism.

In addition to horizontal distribution, it is important to highlight the vertical aspect of forest distribution – from sub-Mediterranean to subalpine zones – which makes this region exceptionally rich in terms of the diversity of forest habitats and the adaptability of different forest communities.

Based on all the above, it can be concluded that although the spatial distribution of forests in the municipalities of the RB shows high potential for various functions, further planning and management must be based on spatially precise data and maps that clearly separate areas that fall within the actual boundaries of the reserve from those that lie outside its limits. This approach will enable rational and sustainable forest management, in line with the natural, social, and economic specificities of this exceptionally diverse area.

11.2.2. Qualitative Characteristics of Forests: Structure, Slope, and Accessibility

The quality of forest resources in the area of the proposed Biosphere Reserve Skadar Lake Basin (RB) varies depending on altitude, exposure, slope, species composition, ownership structure, and historical usage. Data from the Draft Spatial Plan of Montenegro until 2040, based on the First National Forest Inventory, provide insight into the basic indicators of forest quality in the analyzed municipalities.

Table No 31. Spatial distribution of forests by categories.[65]

Land use / Montenegro.	Area			
	Total ha	forest ha	forest %	forest SVG
Commercial forest	626928	550669	88	67
Protective forest	116350	97366	84	12
Forest for other purposes (includes all purposes that are neither economic nor protective forests)	1815	1015	56	0
Forest for other purposes	13400	6711	50	1
Seed stand	592	592	100	0
National park	35149	28408	81	3
Other protected natural assets and Ecological networks (Emerald and Natura 2000)	64628	5515885	85	7
No data available	528225	85674	16	10
SVG	**1388581**	**826782**	**60**	**100**

[65] *Spatial Plan of Montenegro until 2040 – DRAFT PLAN, Ministry of Ecology, Spatial Planning and Urbanism, Podgorica, 2023.*

One of the key indicators of forest resource quality is the average timber volume per hectare, which varies significantly across municipalities. The highest values are recorded in the municipalities of Kolašin and Cetinje, with over 300 m³ per hectare in high forests, indicating good forest health, stand maturity, and relatively well-preserved conditions. These figures confirm the potential for sustainable economic management, as well as the high ecological value of these forests in terms of carbon storage, water regime regulation, and soil protection.

In the municipalities of Danilovgrad, Podgorica (including Tuzi and Zeta), and Nikšić, the timber volume is somewhat lower, but still within a range that allows for planned logging in accordance with sustainable management principles. However, in these municipalities, there is a pronounced difference between state-owned and private forests: while state-owned forests have significantly higher timber volume and better spatial organization, private forests are often fragmented, of lower quality, and less accessible.

When analyzing inaccessible forests, data show that a significant percentage of forests in mountainous areas are not easily accessible for exploitation, which limits their economic value but simultaneously contributes to their protection and conservation. In the context of the River Basin (RB), this can be considered an advantage, as these forests can be integrated into regimes of passive protection, ecological monitoring, or educational tourism.

Most forests in the RB area are located on terrain with slopes between 16° and 30°, while a smaller percentage covers steeper areas. This range indicates the complex topography of the region, where many forests are situated on hilly and mountainous slopes. Combined with the fact that a significant portion of forests is located at altitudes above 600 meters, it is evident that these forests are ecologically and hydrologically important, but logistically challenging for exploitation.

Precisely due to this relief factor, a large number of forest areas fall into the category of protective forests – preventing erosion, landslides, and soil degradation, especially in the Skadar Lake basin, where any intervention in the upper zones directly affects the stability of the lowland wetland and aquatic ecosystems.

One of the key challenges in forest management is their accessibility to machinery and the forest road network. In municipalities with more developed infrastructure – such as Zeta, Danilovgrad, and parts of Podgorica – forests are more technically accessible, which allows for planned logging and forest regeneration. In contrast, in the mountainous zones of Kolašin, Cetinje, and parts of Nikšić (within the RB area), forests are often inaccessible and fragmented, with limited possibilities for technical access.

This factor has a dual significance: on one hand, it limits economic exploitation and increases management costs; on the other, it contributes to preserving the natural character of the forests, as reduced accessibility leads to fewer human interventions.

In the municipality of Ulcinj, although the overall forest area is smaller, special attention should be given to Mediterranean forests and maquis, which form a natural buffer around wetland

areas. These forests, despite their low growth and limited timber volume, are of exceptional value for maintaining the microclimate, connecting habitats, and reducing the impact of urbanization.

In the municipalities of Nikšić and Kolašin, where forest areas are the largest in absolute terms, it is important to emphasize that only limited parts of these territories fall within the RB area. Therefore, data from the Spatial Plan reflect the potential of the entire municipality rather than the specific reserve. Nevertheless, those parts – such as Pješivci in Nikšić and the Morača Valley in Kolašin – include typical examples of high-quality mountain forests with significant natural and landscape values.

11.2.3. Multifunctional Value of Forests and Opportunities for Sustainable Use

The forests within the proposed Skadar Lake Basin Biosphere Reserve area play an exceptionally important multifunctional role that goes far beyond traditional economic timber exploitation. Their contribution to biodiversity conservation, microclimate regulation, soil and water protection, as well as the shaping of landscape identity and the cultural value for local communities, makes them a key resource for implementing the principles of sustainable development within the RB territory.

Table No 32. Spatial distribution of forests by category [66]

Land use designation	Area			
	Total ha	forest ha	forest %	forest SVG
Economic forest	626928	550669	88	67
Protective forest	116350	97366	84	12
Forest for other purposes (includes all purposes that are neither economic nor protective forests)	1815	1015	56	0
Forest for other purposes	13400	6711	50	1
Seed stand	592	592	100	0
National park	35149	28408	81	3

[66] Spatial Plan of Montenegro until 2040 – DRAFT PLAN, Ministry of Ecology, Spatial Planning and Urbanism, Podgorica, 2023.

Other protected natural assets and Ecological networks (Emerald and Natura 2000)	64628	5515885	85	7
No data available	528225	85674	16	10
SVG	**1388581**	**826782**	**60**	**100**

Forests in this area, particularly in mountainous and hilly zones, function as ecological corridors and habitat cores for numerous plant and animal species. The diversity of species, habitat structures, and the relative preservation of forest ecosystems make them vital for maintaining genetic diversity, which is especially important in the context of climate change and adaptive natural resource management.

The connection of forest areas with wetland, river, and lake systems (e.g., Lake Skadar, the Morača River, Bojana, Rijeka Crnojevića) enables both horizontal and vertical ecological connectivity, essential for sustaining dynamic natural processes. These forests also contribute to stabilizing precipitation and water flow regimes, reducing the risk of floods and erosion, particularly in areas above wetland ecosystems.

For many communities living in the transition and buffer zones of the RB area, forests hold multiple values: in addition to providing firewood, construction materials, and grazing land, they are spaces of identity, daily life, and cultural practices. The collection of non-timber forest products – such as medicinal herbs, forest fruits, mushrooms, and resin – represents an important supplementary activity for households, especially in rural areas with limited market access and stable income.

If properly valorized, this segment can serve as a basis for the development of branded local products with geographical origin, encouraging the diversification of the rural economy and greater community resilience. Furthermore, forest resources have the potential to be integrated into the development of agro-tourism and eco-tourism, offering visitors authentic experiences – from educational walks and hiking to forest fruit harvesting and workshops with local artisans.

Although most forests in the region are formally under some level of protection (e.g., forests within Skadar Lake National Park or in natural and cultural heritage zones), in practice they still face numerous threats: illegal logging, wildfires, uncontrolled grazing, unsustainable use of non-timber products, and insufficient institutional oversight in private forests. Land fragmentation, unregulated ownership, and low interest in collective organization further complicate the situation.

It is therefore important to develop multifunctional forest management models that are not focused solely on logging and timber production, but integrate goals of nature conservation, rural development, education, and sustainable tourism. Such models, already in use in UNESCO biosphere reserves across Europe, may include:

- zoning of forests according to their function (e.g., protective, educational, recreational, economic),
- development of local forest management plans, with active community participation,
- incentives for the sustainable use of non-timber resources,
- establishment of forest education and interpretation centers,
- linking forests with local schools, tourism organizations, and cooperatives.

Forests within the RB area offer the opportunity to demonstrate UNESCO's concept of harmonious coexistence between humans and nature, where natural resources are not an obstacle to development, but its foundation. Their protection and sustainable use should be aligned with:

- the Forestry Strategy of Montenegro,
- spatial plans of local self-governments,
- rural development policies,
- and a participatory planning approach.

Through well-guided forest policies, the RB area can become a model of an integrated forest landscape, combining high natural value with economic utility and the social function of forests.

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