SPATIAL PLAN OF MONTENEGRO
UNTIL 2020

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INTRODUCTION

0.1 Legal basis and applied procedures during the elaboration of the Spatial Plan

Based on the Decision of the Parliament of the Republic of Montenegro on the 13th of September 2001 (Official Gazette No. 45/01) the process of the elaboration of the Spatial Plan of Montenegro (hereinafter the Plan) started in 2002 when the Ministry of Environmental Protection and Physical Planning assigned a contract for elaboration of the Plan to `Holding Montenegroinzenjering`. As it is defined in the Decision of the Parliament, the Plan shall be valid until 2020.

Legal basis for the elaboration of the Plan is in Article 5 of the previous Law on Spatial Planning and Development in spite of the fact that the new Law on Spatial Planning and Development entered into force on the 5thof May 2005 (Official Gazette No. 28/05 from 5th May 2005). Nevertheless, elaboration of the Plan is in line with the provisions of the previous law because the process was started before enacting the new, present law. However, conditions given in the present law are adequately taken into consideration.

Structure and contents of the Plan result from the methodology defined by the Work Project and work organization which are based on the previous but harmonized with the current legislation. The procedure of harmonization was carried out through comprehensive considerations and adjustments among the Ordering Party, Expert Commission for Plan Assessment and the Contractor. So finally, with the change of structure and admendments of the text, defined by the Ordering Party by the official document No. 08-1226/06 from the 3rd of April 2006, the Plan is presented as a logical composition of descriptive and graphical part.

In the first, descriptive, part of the Plan, “Appraisal of the state of spatial development” results of the analysis of the achievements of the previous Plan and review of previous experiences in planning and managing the development are presented. Overview of current spatial organization and use has been conducted, starting from natural conditions to overviews of achieved development level at all fields. Finally, the appraisal of the state with potentials, limitations and noticed conflicts in development is given, primarily presented through the analysis of the status of the environment.

In the second part, “Projection of development and concepts of spatial organization, development and use in Montenegro” is presented. Projection of development is based on starting points and objectives defined by conducted analysis and on achieved social and economic development. Concepts of spatial organization and development in the initial part rely on current structure of the spatial organization and development and are in accordance with current sustainable development principles.

Based on these principles, the Plan accomplishes inter-sector harmonization including the guidelines for the spatial planning documents of lower rank, i.e. the spatial development of Montenegro is defined in an integrative and balanced manner. Therefore, from the spatial aspect, conditions for accelerated and more equitable socio-economic development are provided.

The Plan was elaborated on the basis of available documentation. A major problem is the considerable lack of accurate data which causes the absence of a solid basis for creating the spatial development strategy. The period until the elaboration of the next Plan has to be used to complete the required database and to establish a well-functioning spatial information management system.

0.2 Character of the Spatial Plan of Montenegro

Article 5 of the previous and for the elaboration mandatory Law on Spatial Planning and Development stipulates that “the Spatial Plan of the Republic, in accordance with natural and

social situation and needs as well as the long-term objectives of economic development, defines spatial development basis of the territory of the Republic and organizes the spatial development".

This definition is entirely in compliance with the definition given in Article 19 of the new Law on Spatial Planning and Arrangement: "Spatial plan of the Republic is a strategic document and a general basis for the organization and spatial development of the Republic. The Plan defines national objectives and measures for spatial development in accordance with overall economic, social, ecological and cultural-historical development of the Republic."

Following the definitions given in the previous and in the present Law, the function of the Plan is to provide a framework for the spatial development of the territory of Montenegro, what implies defining:

- General principles and objectives of spatial development based on sustainable development,
- Area and sub-area specific objectives and principles of spatial development based on sustainable development,
- Sector and sub-sector specific objectives and principles as far as requirements of spatial and spatially related sustainable development are concerned,
- Guidelines to be considered in the elaboration of sector policies and more detailed spatial planning documents on the national and local level.

The Spatial Plan of Montenegro should not be understood as a "development plan" nor as an "investment plan". It is not possible to determine the realization of investments on particular locations by the Plan (for example the construction of hydropower plants or the construction/upgrading of roads). **Each location defining is done primarily based upon the purposefulness of the particular location for a certain use (for example natural protection, settlement development, traffic lines, tourism, accumulations) with the aim to preserve appropriate locations from other uses which are in contradiction or have considerable negative impacts on the identified priority use.**

The Plan also cannot provide precise data on capacities of tourist facilities (accommodations, ski lifts, marinas, etc.) which should be preserved in particular areas in Montenegro within the period of Plan validity. Areas suitable for development of tourism or specific segments of tourism and locations of larger tourist structures like marinas, should be defined in the Plan. By providing principles of the development of these areas and locations, the ecological and social carrying capacity is respected and sustainable development is ensured. Figures mentioned in the text - e.g. regarding the number of accomodation units – describe the maximum values in accordance with sector documents like the Masterplan for Tourism Development and not the number of accommodation units which have to be constructed in the period of validity of the Plan. Whether the particular use will be realized or not, is not the subject of the Plan but of sector planning, as well as of further analyses of environmental impacts, social acceptability and economic efficiency. The greater the limitations for spatial use are, the more important the use of this planning instrument becomes for the preservation of certain locations. Size, topography, natural values and created structures of Montenegro demand careful use of the available resources. Locations and areas appropriate for certain uses have to be protected from misuse. This implies the need to protect unique and valuable natural resources as well as the preservation of appropriate locations and areas in order to ensure a long-term economic development and mitigation of social imbalances.

The Spatial Plan of Montenegro, thus, is the general strategic framework for sustainable spatial development and represents the basis for harmonizing different sector and non-sector policies which also have spatial consequences.

Another important element in spatial development of Montenegro is the fact of widespread illegal construction and inadequate use of land, which creates great obstacles for sustainable development. The practice of illegal constructions and inadequate use of land, what means breaking of the existing laws, cannot be stopped by the provisions of the Plan. Only a change in certain laws and regulations and only the strengthening of the inspection system can contribute to the improvement of the existing situation regarding this issue.

The task of the Spatial Plan is to verify sector requirements referring to long-term spatial development using integrative i.e. inter-sector approach which is in accordance with an optimum use of the space as a limited and undoubtedly non-renewable resource. This often leads to:

- conflicts between different sector requirements which have to be harmonized and solved in accordance with the defined general principles of the spatial development and
- negligence of particular sector proposals in favor of other uses of locations and areas more appropriate for the requirements of the principles and objectives of sustainable development.

Bases for any solution of conflicts of (sector) interests within the elaboration of the Plan are the principles of sustainable development and the constitutional obligation “Montenegro Ecological State”.

A spatial plan cannot replace sector policies. According to the Law on Spatial Planning and Development, the Spatial Plan of |Montenegro should be elaborated considering programmes and strategies of economic and social development as well as environmental protection. However, during the elaboration of the Plan, the problem in defining border lines of competences between spatial planning as an inter-sectoral integrative approach and of sector policies was noticed. The question is: How far can spatial planning go in order to replace or substitute sector policy in case the sector policy does not exist or is considered as inadequate relating to the principles and objectives of the Spatial Plan?

In case of elaboration of the Plan, the situation is fairly complex. Series of sector strategies are in the process of elaboration, in the process of adoption, or they have not been initiated yet. Some sector strategies are not elaborated in cooperation with the spatial planning and thus they are inadequate for use as a basis for sector considerations in the Plan. The Spatial Plan cannot and should not substitute sector strategies. In a period of rapid transition, the Spatial Plan can only provide strategic framework and must ensure that the spatial planning follows the constitutional requirements and sustainable development. This can be achieved by formulating and postulating the objectives, principles and guidelines which are strict enough to manage and organize spatial development. Another important aspect is the regular revision of the Plan in order to reflect the changes and challenges even before the year 2020.

In line with the above stated function of the Plan, it has to be clearly specified that the Plan is not realized directly, but by taking into consideration objectives, principles and guidelines by sector documents and more detailed spatial planning documents. The Spatial Plan does not specify direct legal obligations for population but only for public administration on national and local level as well as for specific private investors.

Keeping the above mentioned in mind, it is obvious that matters of local planning documents or sector responsibilities (e.g. promotion of rural tourism, promotion of bio-agriculture, education, definition of cultural heritage, etc.) cannot be solved by the Spatial Plan. This is also valid for the matters of illegal construction, which are the subject of respecting the existing laws and regulations. On the contrary, successful and effective realization of principles, objectives and guidelines set by the Plan which reflect needs and requirements for sustainable development, completely depend on respecting the laws and regulations by all participants and by the conduction of legally prescribed control mechanisms.

The function of the Plan is to provide a strategic framework for the general spatial development of Montenegro until 2020 and to form clearly defined corridors to which sector planning and more detailed spatial planning have to move. This means that a list of priority interventions or a plan of activities cannot be part of the Plan. Guidelines and recommendations for the realization of necessary institutional adjustments, further conceptual and legal clarifications and promotion of urgently needed public investments will be given in order to achieve the realization of defined objectives. The very realization depends on the sector and local authorities.

0.3 Definitions of key terms

Sustainable development:	Sustainable development describes in general the approach for considering environmental protection, economic development and social requirements (sustainability triangle).
General principle:	A general principle, as supreme rule, impliesstatements about the development, organization and securing of the area significant for Montenegro, independent from particular conditions in certain areas or sectors and gives the instructions for accompanying planning and decisive processes.
Sector principle:	A sector principle implies statements about the development, organization, and securing the area significant for Montenegro, i.e. for a particular sector or sub-sector and gives the instructions for planning and decisive processes; sector and area principles are often combined in one principle.
Area principle:	Area principle implies statements about the development, organization, and securing the particular area or location and gives the instructions for planning and decisive processes; sector and area principles are often combined in one principle.
General objective:	A general objective implies mandatory provisions about the development, organization and securing the area significant for Montenegro, independently from particular conditions in certain areas or sectors.
Sector objective:	A sector objective implies statements about the development, organization, and securing the area significant for Montenegro, i.e. for a particular sector or sub-sector and gives instructions to accompanying and decisive processes; sector and area objective are usually combined in one objective.
Area objective:	An area objective implies statements about the development, organization, and securing the particular area or location; sector and area objective are usually combined in one objective.
Guidelines:	Guidelines implies rules, steps, procedures, and/or institutional structures necessary to achieve principles and/or objectives for development, organization and securing the area (spatial development). They also encompass directions referring to different kinds of supports which are necessary for achieving strategic objectives of the Plan (e.g. institutional, organizational, IT support, research support, etc.).
More detailed spatial planning documents:	The term “more detailed spatial planning documents” covers all spatial planning documents in the sense of “a lower rank plans”

which are in line with the provisions from the Law on Spatial Planning and Development, except the Spatial Plan of Montenegro, and those are:

On the national level:
- spatial plan of a special purpose area
- detailed spatial plan
- study on location.

On the local level:
- spatial plan of the local self-governance unit
- general urban plan
- detailed urban plan
- urban project
- local study on location.

Level of detailness has to be in line with provisions given in the respective articles of the Law on Spatial Planning and Development. Besides the provisions of the above mentioned Law, it may encompass some other plans, programmes and projects for development, like regional plans for sustainable order, programmes on environmental protection of special areas, etc.

Sector planning documents: The term “sector planning documents” encompases all documents elaborated during sector activities and sector development. This includes all kinds of strategic documents like development strategies and programmes, master plans, etc. as well as all kinds of operational documents like projects and investment proposals.

A – APPRAISAL OF THE STATE OF THE SPATIAL DEVELOPMENT

1. APPRAISAL OF ACHIEVEMENT OF THE SPATIAL PLAN OF MONTENEGRO

The First Spatial Plan of Montenegro[1] was enacted in 1986; changes and amendments were made twice, in 1991 and in 1997. The analysis of planned activities and the degree of their achievement are given by the fields in the following text.

1.1 Natural values and cultural heritage

Natural and landscape values - Considering the period from the adoption of The First Spatial Plan of Montenegro (1986) until today, it can be concluded that natural areas planned for protection have not been protected, especially bigger areas, except the National Park »Skadar Lake« (1986). Namely, all newly formed protected natural areas in this period are of relatively small size, therefore there had been no significant increase in the share of the protected natural areas in the entire territory of Montenegro.

Cultural heritage- During the realization of the Plan, the recommendations and suggestions on measures for protection of the cultural heritage were not fully realized. On the contrary, very frequent deviations are obvious, as of the principles of protection of registered cultural heritage as well as of its direct, registered and potentially protected surroundings.

1.2 Demographic changes and spatial and urban structures

Appraisal of the state of demographic changes - According to the Changes and Amendments of the Plan in 1997, it is anticipated that 648.000 inhabitants will live in Montenegro: 149.000 in the Southern region; 279.000 in the Central region; and 220.000 in the Northern region. According to the census in 2003 that projection has not been achieved, since the total number of inhabitants was 620.145. In the Northern region, total number of the inhabitants has decreased to 194.879, and along with that negative changes for all key demographic parameters have been recorded in this region. Negative population growth has been realized in all municipalities of the Northern region, except in the municipality of Rozaje. In this region, the increase of the participation of the elderly inhabitants in the total population has been recorded.

Planned projection of demographic changes has been almost completely confirmed for the Central region, and nearly confirmed for the Southern region. The population density in rural and suburban areas has been decreased.

Organization and spatial development.- Although since the adoption of the Plan, numerous spatial and urban plans of lower planning level were elaborated and adopted, the aims of the organization and spatial development were not fully realized. Without any doubts, the very existence of those plans has left positive influence. Deviation from the planning postulates of the Plan are mostly the result of the factors from three groups: 1) Economic limitations during the previous period of time; 2) Lack of defined implementing instruments in spatial and urban planning; 3) Disharmonized spatial-planning and development policy, especially in the field of implementation.

With changes and amendments of the Plan in 1997, a polycentric model of organization and spatial development is defined. In this model, urban centres marked as main are: Podgorica (national centre), Bar, conurbation of the Boka Kotorska towns, Niksic, Cetinje, Bijelo Polje, Berane and Pljevlja (centres with regional and sub-regional functions). Other municipal centres

[1] Hereinafter: the Plan

were planned to have some specialized functions besides the municipal function. A larger number of sub-municipal centres were also defined. It was anticipated with this model that functional entities are formed around bigger urban centres which will also encompass the rural areas in the zone of defined poles of development. The rank of the urban centres from the Plan has been only partly achieved. Kotor has achieved the rank of the centre of sub-regional importance, while Cetinje, Pljevlja and Berane significantly lagged behind in structural and economic sense. Podgorica has been developed as the centre of national rank, and Bar as the regional centre of broader importance.

Three regions are defined in the Plan, which are distinguished because of the natural characteristics, way of the spatial use and development, economic activities and different comparative advantages for development: 1) **Coastal region** (municipalities Herceg Novi, Kotor, Tivat, Budva, Bar and Ulcinj). **2) Central region** (municipalities Podgorica, Danilovgrad, Nikšić and Cetinje). **3) Northern region** (municipalities Plužine, Šavnik, Žabljak, Pljevlja, Mojkovac, Kolašin, Bijelo Polje, Berane, Andrijevica, Plav and Rožaje). Regional differentiation anticipated by the Plan has been only partly confirmed. Anticipated demographic increase of the urban population has been realized only in the Central region, and a smaller realization also appeared in the Southern region, while Northern region has additionally decreased its participation in the total number of population (in spite of the inflow of refugees and internally displaced persons). In the Central region urban-rural continuum is formed in direction Tuzi – Podgorica – Danilovgrad – Nikšić, and direction Podgorica – Cetinje – Budva. In the Southern region the forming of the conurbation of towns anticipated by the Plan is almost completed.

Regarding the social and economic development, regional differences have increased. In the Northern region municipalities have at their disposal an insignificant part of revenues from concessions on raw materials, this being their only permanent source of revenue (Since 2004, they also receive revenues from the real estate tax collecting).

Social activities - Except for science, the prediction of all other fields of social activities from the Changes and Amendments of the Plan (1997) were mostly achieved. However, spatial disproportion in regard to the service network is still a problem.

Ecosystem as a component of the spatial structure - Areas in Montenegro on which ecological balance is based are determined in the Plan, with the following special functions: 1) Areas of core importance for maintenance and protection of hydrologic conditions (basin areas, springs of main rivers and protective strips around lakes and water accumulations). 2) The areas of important microclimate influence (mountain chains and large forest complexes). 3) The areas of special landscape values. 4) Areas important for the protection of the flora and fauna, especially rare, endemic and endangered species. 5) Corridors which connect different protected zones, national and regional parks which represent the basis of the ecosystem.

A planned system of primary and secondary ecological corridors, however, has not been established on necessary levels yet: 1) in the institutional sense, neither jurisdictions nor measures for realization of the planning orientations for the formation of the ecological corridors were determined, nor the control of those measures. 2) In the planning sense, the elaboration of the Special Purpose spatial Plan, for ecological corridors is late, and harmonization with the plans of lower rank on certain areas is not coordinated enough and 3) in the operational sense, structured development of ecological corridors is missing.

Integrity of the spatial structure - Higher integration of the structure of spatial development in Montenegro was anticipated in the Plan (1986) and in Changes and Amendments (1997). Main levers of such concept should have been: 1) Improvement of the technical infrastructure; 2) Establishment of the network of sub-municipal service centres. 3) Improvement of small economy and tourism. It is obvious that those aims were not achieved.

Connection with neighbouring areas - Appraisal of achievement: 1) in the Changes and Amendments of the Plan (1997), it is emphasized that in the period encompassed by the Plan (until 2000) it will not be possible to ensure more significant improvement of the links between Montenegro and its surroundings, nor to achieve total activation of the capacities of Port of Bar, what has been confirmed later. 2) Regulation of the Skadar Lake and river Bojana remains a critical and very complex problem and the provisions of the Plan have to be replaced by new approaches. 3) Forming of tourist zones in the area of Durmitor and Bjelasica is in process, while for the establishment of the national park Prokletije there is a need for cooperation with Albania and Kosovo/Serbia. 4) Resolving the political status in Kosovo and Metohija is the

precondition for establishment of the regular traffic links with this region, as well as with Greece, Macedonia, Bulgaria, etc.

Openness to post planning development - In the Plan and the Changes and Amendments, the necessity of the strict reservation of space for realization of the projects which could not have been started before 2000 due to the economic problems during the 90`s was especially emphasized. The necessity for protection of the corridors defined for the development of traffic lines, space for hydro accumulations, zones with deposits of mines and mineral raw materials and areas for development of agriculture and tourism is emphasized. Those planning postulates have been only partly achieved, but they have not been abandoned.

1.3 Economic development

Only a small number of strategic objectives of the Plan from 1986 and of the Changes and Amendments from 1997 have been realized: 1) From 1989 to 1995 GDP was reduced by half, the number of unemployed was suddenly increased, the so called grey economy increased, the living standard of the larger part of the population decreased, territorial differences in regard to development were not lessened but increased, migrations from Northern to Central and Southern region were intensified , available development resources were not used enough, etc. 2) Only after 1996 the economy gradually recovered, although in 2004 it achieved only 72% of the domestic product in 1989. 3) During the last several years the process of privatization has been intensified, which creates preconditions for the functioning of integrated market and realization of the permanent economic and other development; 4) Institutional and organizational adaptations in the field of environmental protection and spatial development and organization are in progress.

Energy - Compared to the postulates of the Plan, neither one of the planned energy facilitiy has been realized, mostly due to the economic situation and lack of means for investments.

Tourism[2] - After the decrease in the first half of the 90`s, and gradual improvement in the second half of the decade, a significant growth in this field has been recorded during the last few years.

Agriculture - Aims and postulates of the Plan (1986) and of the Changes and Amendments (1997), as well as of the Green Strategy (1991) have not been completely realized: 1) Agricultural production has stagnated or declined because of degrading of agro-complexes of public sector, but also because of restitution of the land to the previous owners. 2) Projected average growth rate of 7% per year obviously was not realistic. 3) The anticipated expectations regarding the activation of the land, construction of the processing plants and activation of other potentials were not realized. 4) Better use of the available potentials was not achieved. 5) As the final result, instead of the planned decrease in food deficit, it has increased except for a few products (potatoes and other season vegetables, lamb meat, medicinal herbs and forest fruits) where market surplus has been achieved.

Forestry - Objectives and the principles of Spatial Plan of Montenegro (1986) as well as the Management Plans for forests (general bases) during the previous period have not fully been realized. The biggest laggings are recorded in the production of wooden categories, revitalisation and breeding of new forests and in construction of forest communications. Minimum investments in technical-technological development of forestry and wood industry, slow processes of their transition during this period, had a negative impact on realization of planned works and the condition of forest fund.

[2] Detailed analysis of those questions is given in the part on tourism development, as well as in the part on regional development.

However, the growth trend has been recorded in all segments lately. Logging is within the limits of the allowed logging amount, two new seedling nurseries have been opened, and there have been significant investments in technology development. Great attention is being paid to planning in forestry, seedling production and supply of modern equipment in forestry and wood processing, which had a positive effect on the financial aspect and new employment. The process of privatisation of companies in the area of forestry and wood processing is finished.

The process of introducing acknowledged FSC standards in forestry has begun, as well as the implementation of GIS. National inventory of forests has begun as well as elaboration of national forestry policy.

Hunting - Sustainable forest management means at the same time sustainable management of wildlife, i.e. creation of the optimal conditions for the improvement of the condition of autochthone wildlife. In that sense, planned aims are being only partly achieved.

Fishing - In this field a significant improvement has been achieved: 1) Elaboration of the fishing basis and their application has contributed to a more rational management over the specific fishing areas. 2) relation with environment has been improved. Main problems are: 1) the procedure of establishment and proclamation of the main and general nature reservation has not been carried out to an end. 4) The problem due to the insufficient control and prevention of the activities of illegal fishing still exist.

Within the maritime fishery sector monitoring of resources is carried out, biomass of those resources is estimated and biologically acceptable level of the use of those resources is suggested. The Laws on freshwater and sea fishery have been enacted, harmonized with EU laws.

Maritime economy - Neither one of the key aims in this field has been achieved: 1) The share of the shipping in GDP of Montenegro, which in 1980 amounted 24%, was not increased but in 1989 dropped to 16,4%, while presently Montenegro is left without its merchant fleet. 2) A positive influence of the maritime shipping on the development of foreign trade and transit in the country is missing. 3) A positive influence of the maritime shipping to make more use of the Port of Bar, railway and road traffic, as well as other maritime economic service activities is also missing. 4) Planned increase of the transport capacities and expanding of the construction of the part of operational coast at the crossing “Verige” has been only partly realized, through partial development of the part of operational coast. 5) Planned increase of the capacity of coastal navigation up to the limit which provides realization of 15% of economic effectiveness from oversea shipping has not been achieved either.

1.4 Infrastructural and communal systems

For the first time, general basis for the organization and spatial development of Montenegro in total has been determined by Spatial Plan for the period until 2000. The spatial conception of the long-term development of traffic infrastructure has been also defined, which was treated through anticipated improvement of the connections of the Republic with economic territory of the country (former Yugoslavia) and through regional and inter-municipal connections and local accessibility, as one of the key preconditions for the achievement of development objectives determined by the Plan, especially comparing to the more equal regional development.

Road traffic - According to the Spatial Plan from 1986 for the period until 2000, a long-term development of the road traffic has still been based on the development of the road network whose basis consists of one strong transversal direction of main road importance (Petrovac-Titograd-Matesevo-Andrijevica, with the route from Matesevo for connection with the road Kolasin-Mojkovac-Bijelo Polje-Prijepolje) and three longitudinal directions. Changed and amended spatial concept of the long-term development of the road network from 1991, introduces second strong transversal direction (Priboj-Pljevlja-Žabljak-Nikšić-Trebinje-Dubrovnik, with part from Pljevlja to Prijepolje and from Niksic to Cetinje, i.e. Boka Kotorska). With previously confirmed and defined longitudinal directions of connection,a basic system for

the roads of main road importance on the territory of Montenegro was formed. The Changes and Amendments of the Plan from 1992, besides main roads and regional roads, anticipated motor roads and so called fast traffic line on the coast as well. The road reserved for the traffic of motor vehicles- fast traffic line is: Ulcinj-hinterland of Bar-hinterland of Budva- hinterland of Tivat- a variant of the crossing over the Boka Kotorska Bay -connection to the Adriatic motor way in the area of Herceg Novi. With the Changes and Amendments of the Spatial Plan of the Republic in 1997 from the aspect of the road traffic, the solutions for the location of the future motor roads are completely taken over from the previous changes and amendments of the Plan (1991). The network of highways and regional roads mostly remained unchanged. The only significant change is the change of the part of road section: Priboj-Pljevlja-Žabljak-Šavnik-Brezna (connection with highway Nikšić-(border Bosnia and Hercegovina)-Nikšić-Vilusi-Grahovo-Risan and their influence, in those areas, on the smaller change in the network of regional roads. The key analysis on the achievements of the Plan are the following: 1) Regarding the strategic aims, no new section of the primary road network has been completely constructed, except the tunnel Sozina with connecting roads (as well as the connection to the highway Petrovac – Podgorica). 2) In the previous spatial plans there were certain dilemmas regarding the corridor of the future motor way, at direction Mateševo – Podgorica - Tanki rt (tunnel `Sozina`, west or east by-pass of Podgorica). There were some dilemmas regarding the gorge Verige, as well as the location of the tunnel "Čakor". They have been mostly solved by further elaboration of the project-planning documentation.

Railway traffic - Referring to the aims of the Plan, except the construction of the railway line Titograd – border with Albania, nothing else has been realized in the development of the railway network.

Air traffic - Referring to what was planned: 1) The concept of the development of air traffic has stayed the same. 2) There is an imbalance between the developmental plans of the airports and the urban plans for spatial entities around the airport locations. 3) The main works on the reconstruction of the airports in Podgorica and Tivat have been finished.

Special types of the transport - In the Changes and Amendments of the Plan (1997), the possibility of constructing the gas pipeline system in Montenegro is mentioned, with the aim to connect it with the gas pipeline system of Serbia, and wider with the international system. For that purpose, corridors in the zone of future speed roads were anticipated. Those postulates have not been realized yet.

Telecommunications - Compared to the condition when the Changes and Amendments were adopted (1997), the current situation is significantly better, especially in the field of landline and mobile phone networks.

Postal traffic- Compared to what was planned (in 1986), the condition (in 2005) is as follows: 1) It was planned for the number of JPM to be increased from 109 to 242, but only 139 have been realised; 2) The number of delivery regions has even decreased from 323 to 308, due to migration of the population from villages to towns; 3) The number of authomatised post offices has increased from 39 to 74, and the number of authomatised counters increased from 175 to 255; 4) Two postal centres for processing and transport of mail and postal packages were closed (in Bar and Bijelo Polje), after which the transport moved to air traffic (instead of railway traffic); 5) As a whole, in spite of the postal network not developing as it was planned, it is still becoming modernised due to the use of new technologies. New solutions are applied as well in order to organize a postal network, which includes voice mail and mobile networks, which makes the Montenegrian Post Office more satisfying for customers, in spite of still not spreading the network. Quality, safety and speed of managing the business have increased.

Water power engineering and hydro technical systems - Appraisal of the achievements: 1) While in the larger part of municipalities in the Central and Northern region of Montenegro, the development of settlements is followed by various degrees of development of the water supply system, in the Southern region previously planned construction of the regional water supply system has not been realized, and this is an obstacle to the development of that region. 2) Not even one planned hydro-energy facility has been realized. 3) Practically, nothing was done under the plan to enable the existing melioration system and construct new melioration systems. 4) With the previous plan the defining of the shore zone of Skadar Lake has been demanded, but that has just started. 5) Planned development of the system for drainage of the

wastewaters has not been achieved yet especially regarding the filtering of the wastewaters besides the drainage network, where except one small plant of lower capacity in Virpazar, no new plant has been constructed.

Waste management.- In the Plan from 1986 the issue on the ways and types of the waste treatment has not been treated separately, but this problem was given within general remarks, so the information on achievement can not be provided. The Changes and Amendments of the Plan in 1997 mostly treated the construction of sanitary landfills for solid communal waste, construction of the centre for combustion of the waste and production of electric energy in Podgorica, forming the centre for processing the organic waste (composting) on location between Bijelo Polje and Berane and problems with the industrial and hazardous materials. It was recommended that in the case of reactivation of the mines Brskovo and Suplja stijena, the improvements of technology process should be included and appropriate technological solutions for recovery of the industrial waste from those mines should be chosen. In 2004, the first inter-municipal sanitary landfill Lovanja (of temporary character) has been constructed for municipalities of Kotor, Tivat and Budva, and conditions for recovery and construction of the sanitary inter-municipal landfill in Podgorica were created.

1.5 Seismic risk and risk from other accidents

Based on over 30 elaborated basic studies on different fields (geology, morphology, seismology etc.), including the separate study on vulnerability for the needs of the Spatial Plan of Montenegro, and with use of large documentation based on the review of more than 64000 buildings and their classification according to the noticed degree of damages caused by earthquake in 1979 (40000 facilities were analyzed, with their differentiation according to the purpose, type of the construction, storey, material, type of the foundation, conditions of the foundation ground), the concept of integrated consideration and control of the seismic risk is defined in the Plan. A special role was given to the spatial and urban planning in the realization of the aims of seismic risk management in a broader sense. A large number of general and special measures for mitigation of consequences caused by natural hazards, and/or for application of economically justified measures for protection, and/or for directing the construction in the scope of less vulnerable spatial development schemes (with lower and different levels of hazards), has been anticipated.

Most of the key postulates and propositions of the Plan have been neglected, and often ignored, including those that were supported by the law. In that context, with the lack of suitable institutional system, as well as with disregarding of adopted spatial and urban plans of lower rank, the level of seismic risk and hazard has increased very much compared to the previous postulates of the Plan. Inadequate changes of the Plans have had very unfavourable influence here, as well as tolerating the mass illegal building, uncontrolled increase of the density and concentration of the constructions in urban agglomerations etc. In those terms, an open question remains on how much is the existing construction fund secured in the seismic sense.

1.6 Anticipated and achieved development of the regions

Southern region.- Zones of intensive agriculture at the territories of Ulcinj, Bar and Boka Kotorska were not realized, while the stockbreeding, especially of goats, has increased during last years.

Realizations of development of port industrial complexes, as well as appropriate services and warehouses have been intensified. Tourist capacities have been strengthened during the last few years within tourist centres, as well as development of recreational areas. Directing of the locations of weekend houses towards rural areas is obvious, with the aim to contribute to revitalization of the villages.

Realization of growth, development and organization of towns Bar, Ulcinj and Budva, in line with the directives of the Plan is not consistent, what also refers to unbalanced development of towns in the Bay of Boka Kotorska, as well as to protection of rural settlements.

Also, the objectives regarding the protection of waters, construction of drainage systems with the treatment of wastewaters and maintenance of ecological corridors along coastal mountains were only partly realized.

The protection of the landscape is realized through separation of the zones of special protection with spatial and urban plans, but those provisions are often not implemented.

Central region.- The change has been done, compared to the assigned directive of preservation and purpose of the agricultural land in the zone of Zetsko-bjelopavlicka plain, Niksic field and Zupa Niksicka. The program for exploitation of decorative stone has been realized at the territory of Danilovgrad and Spuz. The work in the zones anticipated for the construction of accumulations in the medium course of the river Moraca have been stopped since 1998. Reservation of the land for new industrial capacities has not been realized. The development of business functions and whole sale trade in Podgorica and Niksic has been realized. Development of Podgorica, Nikšić and Cetinje has not been mutually harmonized. The pressure on expansion of Podgorica has not been decreased. Danilovgrad has not secured a stable position as the centre of agricultural zone of intensive development. Tuzi, Golubovci and partly Spuž became components (parts) of the urban agglomeration of Podgorica.

Northern region.- Intensification of agriculture and cattle-breeding has been only partly realized, and planned consolidation of forest complexes has not been executed nor the creation of protective forests. The system for forest protection, forest strips for the protection from wind, maintenance and improvement of water quality of the river Lim, protection of the quality of air and underground waters, as well as the protection of the areas from which they come from, have been only partly realized.

Conditions for continuous and total exploitation of the coal mine deposits in Pljevlja and relocation of the bed of river Ćehotina were realized through planning documentation Municipal Spatial Plan and GUP Pljevlja.

Development objectives for winter and rural tourism have been partly realized. Forming of the system of complementary centres at direction Plav – Rožaje – Berane - Bijelo Polje has not been realized.

The construction of the railway towards Prijepolje and highway directions towards Foca and Priboj were not realized, and there was not any improvement of the connection with Bijelo Polje.

2 EXPERIENCES FROM THE PLANNING PROCESS AND PREVIOUS SPATIAL DEVELOPMENT MANAGEMENT

2.1 System of spatial planning and spatial development on national and local level

During the 80s, spatial planning and development in Montenegro was based on a system of self-governing social planning. The Law on spatial planning and development was based on the system of social planning with complete planning of the economic and social development, primarily through the rules for planning development of activities in the space and protection of the public property. With abandonment of the systems of social planning, the laws were amended and adapted to new demands. With adoption of the new spatial legislation, the bases for realization of policy for sustainable spatial development are created, as well as for the mutual harmonization of the sector spatial planning, preparation of expert bases, comprehensive treatment of the space, participation of the public and democratization of decision making.

The system of spatial planning in Montenegro, however, is still not realized up to the level that it can provide comprehensive and versatile harmonized spatial interventions, i.e. activities. As a consequence, intersectoral harmonizing is incomplete, or it is missing. There is also a lack of horizontal and vertical connection and harmonization between different planning stakeholders. Deficiency of the system is also reflected in low institutional organization in the field of spatial organization and development.

In the current system of spatial planning the relation between development and normative contents of spatial plans is insufficiently defined, and this represents one of the larger deficiencies. Spatial plans and municipal spatial plans are, first of all, normative and development documents for the spatial orientation, so it is necessary to mutually harmonize those two dimensions. That is why it is important that implementation instruments for realization of strategic spatial visions are defined in the plans, at least for a certain period.

Due to the long lasting procedure of changes of spatial plans and spatial plans of municipalities, adaptation to the current state causes disapproval of many participants, and that is why the users prefer more flexible, i.e. more comfortable decisions, which provide more space manoeuvre in realization. Insufficiently regulated relations between public and private interests, as well as insufficiently determined meaning of the public property, additionally decrease the importance of planning decisions and their obligatory characteristics.

A big problem is the underdevelopment of the system of indicators for the spatial use and development. Generally, the supervision over the realization of the plans is insufficient, and very often inefficient.

However, a strong legal system makes basic assumption for functioning of the system established on market motivated and market based decisions where the planning mechanism are those that should ensure that the influence of the market is not causing negative social, ecological and other consequences that can not be controlled.

Altogether, main characteristics of the hitherto system of spatial development are following:

- Secondary legislation (supplementary regulations) for realization and supervision over the Law implementation is not completely prepared and especially inter-sector harmonization is lacking.
- The relation between development and normative contents of spatial planning and urban planning documents is insufficiently defined.
- The changes of municipal spatial plans and general urban plans are often and long lasting.

- The criteria and indicators for monitoring of spatial conditions and changes are missing, as well as criteria for the monitoring and evaluation of the realization of legal and planning provisions.
- The supervision over the realization of the plans is insufficient, and the practice of inspection services is not efficient enough.
- Indirect instruments for ensuring more efficient spatial development are missing.

Regional and local aspects of the planning system - Current spatial planning in Montenegro is conducted on two levels: national and local. Competencies are defined by a number of laws, and in this field it is defined by the Law on spatial planning and development and by the Law on local self-governance. In organizational sense, land managment on national level is not sufficiently connected and coordinated with the one on municipality level.

Level of regional planning is almost completely neglected, although it was anticipated by regulations from 1995 and partly by the new Law. This represents a big lack of system and practice, since the regional level (or more of them) is the most appropriate for harmonizing interests between local communities and country, testified by European practice during last few years. Namely, joint interests of local communities, exspressed through or as an interest of a certain region are easier to be exspressed on this level and harmonize them with national interests, especially in fields of environmental protection and management, development of economic activities, defining infrastructural priorities and managing infrastructural systems.

Regional managerial and planning level is as important as the possibility for more successful inclusion in the processes of European cooperation and integration. In this sense, inclusion in the so called 'European regional high tide' would facilitate Montenegro to define its development priorities comparing to the priorities of regional and spatial development, which are already established in most of European and regional documents. Priority should include:

-The least developed regional areas, especially those which lag behind national average in achieved GDP and employment rate;

-Areas with specific development problems, such as areas poor in resources and economy, areas with structural problems and high unemployment rate, as well as border areas and other areas with limited development potentials and activities;

-Areas ecologically sensitive and/or valuable and/or vulnerable, especially those which are already determined in certain international documents and schemes;

-Areas where minority communities live, as well as Roma ethnical communities.

Regional level of development management and planning is not developed, while the number of local initiatives which search for solutions on the very regional level has increased. The current situation could turn into state when preparation and qualitative and democratic decision making could be hindered, or even blocked. Those situations tipically carry larger number of negative consequences as usual, so institutional planning on regional level is necessary. The problem is as well that the present Law on spatial planning and development is not familiar with the level of elaboration of regional plans.

2.2 State of elaboration of spatial planning documentation

In the previous period on the level of the Republic following spatial plans were elaborated:

- Spatial Plan of the SR Montenegro for the period until 2000 (1986);
- Spatial Plan of the SR Montenegro for the period until 2000 (1986). Changes and Amendments in the road traffic network (1991);
- Spatial Plan of Montenegro for the period until 2000 – Changes and Amendments (1997).

Besides these, numerous studies were elaborated as the informational and research base. On the basis of these, all special purpose spatial plans were elaborated: Durmitor with the canyon of the river Tara, Skadar Lake, Biogradska Gora and Morsko Dobro (Coastal zone), as well as

most of spatial plans of the municipalities. Spatial plans in the previous period were not elaborated for municipalities: Andrijevica, Bar, Danilovgrad, Mojkovac and Šavnik. Total territory surface of those municipalities amounts to 2302 km², i.e. 16,66% of the teritorrry of Montenegro. In the following planning period the importance of elaboration of municipal spatial plans should be emphasized, and this is a legal obligation as the precondition for more equalized spatial development and use.

General urban plans are elaborated for all municipal centres, except Šavnik. Regulative plans cover different parts of the GUP in some municipalities.

2.3 Land management

Land as a spatial, economic and political category experiences significant improvements in line with the change in social, political and economic system in Montenegro and with higher ecological awareness of the society. In such circumstances, however, there are still open questions regarding appropriate development of the land management.

As a priority, faster development of the professional personnel should be continued, for systematic, permanent and competent management and protection of the public interests in this field. This is of special importance in the situation when there is an increase in the number of speculations with land, and in such situation it is not possible to realize appropriate financial income through the legally regulated market i.e. legal market of real estates and current taxation system, which would make it possible for municipal authorities to apply long-term policy of the spatial development and organization.

In the field of management of construction land, initial steps have been made, and the existing system and practice are not harmonized with the main streams of transitional reforms and changes. A huge number of basic, conceptual issues are still unsolved. All that indicates that there is a need for designing the reform in this field as soon as possible since its regulation greatly influences realization of sustainable spatial and urban development policy and policy for spatial organization and use. Construction land market is underdeveloped and basic regulation mechanisms and institutions are missing, as well as modern ways of financing development of construction land. Due to the lack of taxation for rent, national and local communities (local authorities) are loosing significant potential tax means (revenues). In the situation when spatial planning, urban and environmental protection is insufficiently developed, and there are radical changes of property relations and structure, the existing solutions cannot adequately influence sector and spatial structure of very intensive investments. This should be one of the main roles of a proper policy for construction land management.

There are especially big problems regarding the existing **land informational system,** where the most important are the following:

- Since the system of general national land record – cadastre is insufficiently developed, lack of adequate statistic data, indicators and other informational support in this field is present everywhere, especially in bigger towns; therefore all information necessary for balancing and evaluation of land, trade, rent, taxation, etc. (monitoring land transactions) are often not available.
- Particularly, adequate cadastre of real estates is missing, as well as cadastre of underground objects and lines (real estate cadastre is established for approximately 50% of Montenegrin territory)
- Likewise, many data in different records in this field (state tax administrations, local municipal offices for land management and construction, municipal planning offices, state statistics, etc.) are not mutually harmonized.

2.4 Balance sheet of the surfaces by purpose (land use)

Approximate structure of use for the total territory of the Republic (13.812 km^2) is: agricultural land approximately 5.140 km^2 or 37% of the territory; woods approximately 6.622 km^2 or 45% of the territory, and settlements, roads, stony areas and other categories approximately 2.442 km^2 or 18% of the territory. Since cadastre for agricultural land and land covered with wood has not been established and since the standards for their recording have not been harmonized, one part of the territory is recorded both as wood land (not overgrown wood) and as agricultural land (meadows).

Regarding the level of the forest density (40%) compared to the former Yugoslavian republics higher level of forest density has Slovenia (50%). Among European countries that have higher forest density than Montenegro are Finland and Sweden.

Montenegro has only 741 km² of the higher quality agricultural land (5, 4% of the territory) what indicates that it has special importance for Montenegro. The major part of the higher quality land, (75,6%) is in the following municipalities: Podgorica 17%, Pljevlja 14,5%, Bijelo Polje 14,2%, Berane 9,5%, Bar 7,4%, Nikšić 7,3%, Ulcinj 5,7%; other municipalities 0,8 - 3,9%.

Based on the data from 2003, arable land and gardens cover 448 km^2, orchards around 95km^2, vineyards around 38 km^2 and meadows around 1314 km^2. Total surface of arable land amounts 1897 km^2 or 0.31 ha per inhabitant. Montenegro is among the countries without sufficient arable land, and if only fields, orchards and vineyards are considered as cultivable land, as in the countries of EU, it is very poor (0,09 ha per inhabitant).

Settlements, surfaces of constructed structures and planned surfaces - In Montenegro there are 21 municipalities with 40 urban and 1216 rural settlements. According to the census from 1991, 15 villages were left without permanent inhabitants. According to the census from 2003, 20 more villages were left without permanent inhabitants (in municipality of Bar 4, Budva 5, Danilovgrad 1, Kotor 2, Nikšić 1, Pljevlja 3, Cetinje 4 villages), but 11 rural settlements which were abandoned in 1991 according to census from 2003 had a permanent population. Territory encompassed by urban plans is 66.74 km^2.

The density of the network of settlements in the three regions of Montenegro is very uneven (it depends on the population density and the surface of the territory). The densest network of settlements is in the coastal area with approximately 15 settlements on 100 km^2 (Budva -27 and Tivat - 26). The least dense network is in the Northern area with approximately 7.8 settlements on 100 km^2, and with especially low density in municipalities Mojkovac, Plav and Šavnik. Municipalities of the central area have a network density of approximately 8,8 settlements on 100 km^2, which is near the average settlement network density for the level of the Republic which amounts to 8,98 settlements on 100 km^2. One important characteristic of the network of centres at the territory of the Republic is: Podgorica as national and Niksic as regional centre encompass within their urban zones 32% of the total population of the Republic.

The process and character of urbanization is different in the regional aspect. The Northern region has remained less urbanized and at a lower level of quality of urban development. Central region is highly urbanized, but with inherited and new-formed problems of urban development. The southern region of the Republic remains at the relatively satisfying level of quality of urbanization, but with more and more evident appearance of rapid settlement expansion.

Regarding the regions of Montenegro, the degree of urbanization in the Central region of the Republic is realized over 78%, at the coast around 62%, while the degree of urbanization is the lowest in the Northern reagion and amounts 41, 38 % of urban population. Regarding the municipalities the highest degree of urbanization is the municipality of Budva, more than 85% of the population, then Cetinje 83,07%, Podgorica 82,93%, Niksic 77,32% and the lowest Andrijevica 18,55% and Šavnik 19,34%. It could be expected that these tendencies continue. In some cases the high degree of urbanization is a result of great depopulation of rural areas (e.g. Cetinje).

Water catchment areas and zones of protection.- In the previous Spatial Plan the main accent was put on use of hydro-potential because of a great influence of organization,

development and use of the space of Montenegro. This especially refers to areas anticipated for accumulations.

In the document “Water management basis of Montenegro” different solutions are elaborated from the aspects of the needs and interests of separate economy sectors and users: water power engineering, electro economy, tourism, agriculture, industry.

This study especially emphasizes the importance of the establishment of wider zones of protection of springs and water catchment areas as the precondition for preservation of the significant resource of potable water existing in Montenegro.

It is emphasized that it is necessary to protect around 2000 km² of the territory of Montenegro as the wider zones of the springs and water catchment areas.

River courses and protective strips along the rivers. - Urbanization, building and traffic lines construction significantly change geo-hydrological conditions for absorbing and drainage of the surface waters. For many years there have been indications for endangerment of the settlements which is caused by not respecting the protective strips along the rivers.

The tendency of the construction in the protective strip along the rivers and in urban areas and right outside of them is detected. Urbanization of the Pazicko Polje near Danilovgrad is an example of not respecting the information about the regimes of waters. In the period from 1980 to 2005 significant part of this settlement flooded three times, where the floods in 1980 and 2001 were “a hundred year waters”. Similar occurancies exist in the valley of the river Lim, at the estuary of the river Moraca and in Zeta plain. The Law on Waters defines the territory of the protective strips along the rivers where the construction is forbidden.

Zones of the mine deposits and mineral raw materials.- Zones of the mine deposits and mineral raw materials are numerous and they cover large land areas. In the previous spatial plans overall balances of the surfaces which should be reserved for exploitation were not given. The data that there are occurancies and deposits of bauxite (white and red) registered on almost 1/3 of the republic territory is emphasized. The surface under peat is 1400 ha, and surface excavations of the lignite cover several hundreds of hectares around Pljevlja.

The need for precise zoning of those deposits is emphasized, due to the fact that there are already conflicts appearing between urban plans and plans for mine exploitation. The example from Pljevlja indicates such situation. The changes of the GUP are ongoing in order to enable expanding of the surface excavations of the coal mine in the area of business zone of Pljevlja.

2.5. Informational (IT) base for the spatial management

Several managing, planning and information problems are common for entire Montenegro, so their solving should be undertaken on the national level, with additional regional differentiation, i.e. specification:

- Existing system of preparation, adoption and realization of decisions is not adequate from the aspect of implementation of principles, criteria and programs of conception “Montenegro Ecological State”, and it is even less adequate from the aspect of application and realization of the paradigm of sustainable development. Numerous characteristics of environment, space and development are the best witnesses to that. That is why it is priority, based on the newer practice and best practices from European Union, to start implementation of procedural standards and forms that would satisfy mentioned requirements. The existing institutional and organizational arrangements in the planning and protection of environment are not adequate in every aspect because they do not enable realization of declared general aims of development and protection.
- In spite of a certain progress during the last several years, especially in the implementation of GIS and similar techniques in spatial and urban planning and protection of environment, available informational and other cognitive material in this field still does not satisfy in many aspects all the needs of systematic and permanent management of development, spatial development and protection of environment.

Existing segments are mostly mutually unstructured and unconnected. They have been formed for different purposes, but mutually uncoordinated, from the following basic groups: (1) the largest part considers overview and evaluation of the status. (2) There are some data systems for monitoring of specific activities. (3) There are less data on socio-economic aspects of the use of spatial ecological resources. (4) Informational support in decision making in the narrower sense, in different fields is also very low. (5) The least developed are systems of indicators for the needs of permanent planning evaluation in preparation, adoption and realization of decisions on sustainable development and protection of environment. Existing cognitive material often does not enable elaboration of more complex, encircled and complete appraisals and bringing qualitative strategic decisions on spatial and other development and on environmental protection.

As the consequence of the influence of the factors from the two groups mentioned, as well as of the numerous other factors, neglection of planning, urban and landscaping issues and devastation of environment is high, especially in some parts of Montenegro. This is a consequence of the so called unplanned construction. Illegal construction is manifested in several ways over different types of interventions which are in the planning, technical and legal sense unacceptable. Examples of illegal construction are: different types of reconstructions, upgrading and construction of the individual buildings; construction interventions in residential buildings to detriment of joint and public interests; work of different economic units in a way that directly or indirectly and for a long period disrespected the regulations on environmental protection, etc. All these types of illegal interventions have more or less in common the fact that they jeopardize general public interests. It is obvious that solving this problem is not possible without more strict and more consistent spatial urban and ecological policy, and without relevant policy of redirecting of the interested stakeholders to invest in locations which have been determined for that by plans and other legal decisions.

3. MAIN FACTORS OF SPATIAL DEVELOPMENT

3.1 Geographic position of Montenegro

Montenegro is an Adriatic-Mediterranean Dinaric country of Southeast Europe, located between 41º39' and 43º32' of northern latitude and between 18º26' and 20º21' of eastern longitude. It borders Croatia and Bosnia and Herzegovina to the west, Serbia to the north and northeast, Albania to the southeast and east and the Adriatic Sea to the southwest. It covers the total area of 13,812 km^2, and the total sea area of some 2540 km^2. According to the 2003 census, Montenegro had the population of 620,145, meaning that the population density is 44.8 inhabitants per 1 km^2.

The greatest comparative advantage of Montenegro is its location at the Mediterranean, the position which marked its historic and cultural development. Being a maritime country, especially with the ports of Bar and Kotor, it has a direct link with other countries in the Mediterranean region and other maritime countries. Such position provides numerous advantages, first of all for development of tourism and maritime economy. Another important feature of its geographic position is the link with Belgrade which lies at the crossroads of European mainroad corridors VII and X and the links towards Nis and Skopje.

Considering its geographic location, Montenegro is relatively side-lined compared to the Balkans hinterland, since it is not located on the main routes of pan-European main road corridors (I–X). The construction of the Adriatic Highway and in particular the Bar-Belgrade railway (with a line Podgorica-Skadar) and the Port of Bar improved this rather peripheral traffic location of Montenegro in relation to main European corridors. Its location was greatly improved with the reconstruction of the existing Adriatic Highway, on-going rehabilitation of the Bar-Belgrade railway and the modernization of airports in Podgorica and Tivat.

Administratively, Montenegro is divided into 21 municipalities covering the following areas: Nikšić 2065 km^2, Podgorica 1441 km^2, Pljevlja 1346 km^2, Bijelo Polje 924 km^2, Cetinje 910 km^2, Kolašin 897 km^2, Plužine 854 km^2, Berane 717 km^2, Bar 598 km^2, Šavnik 553 km^2, Danilovgrad 501 km^2, Plav 486 km^2, Žabljak 445 km^2, Rožaje 432 km^2, Mojkovac 367km^2, Kotor 335 km^2, Andrijevica 283 km^2, Ulcinj 255 km^2, Herceg Novi 235 km^2, Budva 122 km^2, Tivat 46 km^2.

3.2 Natural conditions

3.2.1 Geological basis

Stratigraphic- lithologic composition – The terrains of Montenegro are composed of rocks of newer Palaeozoic, Mesozoic and Cainozoic.

Newer Palaeozoic rocks are represented by, more or less schistose, clay-marl sandy layers and different types of slate with rare interlayers of lenses of limestone and conglomerates. These rocks form the greatest part of south-eastern area of Montenegro.

Mesozoic rocks are represented by a number of known facieses, among which particularly: carbonate, igneous, volcanogenic-sediment, diabase-cherk and flysh.

Carbonate facieses consist of limestone and, in smaller percentage, dolomites. Rocks of this facies in central zone of Montenegro form a well known geotectonic unit called „High karst zone“ and they can also be found in other parts of Montenegro.

Igneous facies is made of numerous equivalents of eruptive rocks and their tuffs.

Volcanogenic –sediment facies is represented by cherks, tuffs, tuffites, bentonites and occasional limestone with interlayers of cherks.

Diabase-cherk facies consists of sediment, volcanic and intrusive igneous rocks.

Flysh facies is made of clay, marl, sandstone, limestone and transitive variants of these lithologic members with occurrences of breccias and conglomerate.

Cainozoic rocks are represented by carbonate and flysh facies of Palaeogene; Neogene's marine and freshwater sediments and quaternary loose sands, pebbles, bigger blocks with or without clays, of glacial, fluviglacial, lumniglacial, deluvial and alluvial origin.

Geotectonic composition of Montenegro – In researches conducted so far, it was determined that four familiar regional geotectonic units of southeast Dinarides form the terrain of Montenegro: Adriatic-Ionian system of wrinkle ridges, Pindos – Cukali zone (Bar- Budva zone), High karst zone and Durmitor nappe. These regional nappes–units are with squamous, wrinkle-ridges and faults of significant dimensions on the territory of Montenegro.

Neotectonics – The look of today – the relief of Montenegrin territory is mostly shaped by neotectonic movements which have continued until today. These movements belong to Alpine techtogenesis which started with orogenic phase in Montenegrin terrains and continued through the whole Mesozoic and Cainozoic with more orogenic phases that left visible traces. Among these orogenic phases, the strongest one with greatest consequences was the Laramian orogenic phase. In terrain of Montenegro neogenic movements left, among other things, freshwater and marine Miocene sediments, numerous wrinkle-ridges and cracks which are the base (fields in karst). Those movements still continue and manifest themselves in earthquakes stronger than 5^{o} Richter scale and by movements of waste blocks (and their denivellization) in the part of south-eastern Dinarides belonging to the territory of Montenegro. Overall knowledge of these neogenic movements indicates that, in general, the territory of Montenegro is rising in level, except for the area of Skadar Lake basin and the part of the Adriatic Sea basin opposite to it, which is lowering.

Hydro geologic characteristics – The greatest part of terrain of Montenegro is built of carbonate rocks, cavernal rocks and rocks of intergranular porosity (around 70%). Terrains made of these rocks are very water porous. These terrains are without surface water streams. Atmospheric resids quickly sink and feed with waters the fissured karst and dense aquifers which are emptied in zones of erosion basis, seacoast area, Skadar lake with the rims of Zeta and Bjelopavlici plains, Nikšić field and along the river beds.

Lithological complexes form only a smaller part of the terrain of Montenegro, in which there interchangeably exist occurrences of porous sediment rocks with igneous rocks which do not have significant effective porosity. Terrains composed of these rocks are bearers of smaller deposits of underground waters in a form of fissured and dense aquifers. These ground waters are emptied along the erosion basis, through smaller springs even on upper heights above those bases.

Terrain of Montenegro is made of clay schistose rocks, flysh, igneous, volcanic-sediment, diabase-cherk facies and freshwater clay-marl neogenics and sediments without significant effective porosity. These rocks form water impermeable areas of terrain – for surface and underground waters.

Dominant hydro geologic characteristics of Montenegro are manifested in processes and occurrences of karst erosion (holokarst) which are followed by occurrences and processes of river and glacier erosion and sea abrasion. Besides the ones mentioned, the distinguishing feature of Montenegrin terrain is definitely the fact that it belongs to the watersheds of Black and Adriatic Sea.

Terrains of Montenegro made of cracked, cavernous and intergranular porosity rocks are the bearers of underground waters in form of fissured and dense aquifers.

Engineering geological characteristics – Territory of Montenegro is mostly made of tight-stiff-petrified rocks. This ensures stability and bearing capacity of the terrains and at the same time makes them adequate for any kind of construction inside and on top of them, except along the canyons, where, due to land sliding, the use of space is very difficult and limited.

Smaller parts of Montenegrin territory are made of flysh, schistose and clastic rocks which are less petrified, tight and stiff. The terrains of these rocks are subject to washing away, gullying, tearing and slipping. These are the difficulties of the terrains made of these rocks, which makes construction work more difficult, and especially the maintenance and usage of roads.

Coastal fields, smaller parts of karst fields, plain of Bjelopavlici and Zeta and the terrace beside its watercourse are made of various clayish-sandy-pebbled sediments. This type of composition gives these terrains limited bearing capacity. These terrains are mostly plain or with slight incline, which makes them stable. This is also their main positive feature.

3.2.2. Mineral raw materials

With the researches conducted so far, 28 types of mineral raw materials have been discovered in terrains of Montenegro, out of which 15 have been exploited. The estimate is that 23 mineral raw materials are economically significant. Metallic and non-metallic mineral raw materials, coals, sea salt and underground waters are significant, while oil and gas are still under research. Besides these, technogenic raw materials should also be considered.

Coal, micro lignite – Micro lignite is found in "neogenic coal-bearing basins" of river Ćehotina watershed, in Potrlica (with Kalušići, Komina, Radosavci, Grevo and Rabitlje), Borovica (with Ljuće- Šumani), Maočki, Mataruški, Otilovići, Bakrenjački and Gliničkі basins.

In researches conducted so far, reserves of micro lignite are determined in neogenic coal-bearing basins of Ćehotina river valley: in three deposits of $A+B+C_1$ category 80,976 x 10^3 t, in three deposits of $B+C_1$ category 123,640 x 10^3 t, in five deposits of C_1 category 27,928 x 10^3 t(Total 232,544 x 10^3 t)

Coal, charcoal – Deposits of charcoal are discovered, with reserves determined only in valley of river Lim particularly in Berane and Polički basin.

In Berane basin, of oligo-miocenic in age, there are deposits – chases: Budimlje, Petnjik, Zagorje and Berane

From deposit Budimlje – 1,620,000 tons of coal was exploited

Petnik deposit had 16.7 million tons of $A+B+C_1$ category reserves at the end of 1992, but from 1981-1997 from this deposit 918,888 tons of coal were exploited.

Zagorje deposit has 3,338,000 tons of C_1 category reserves.

The major part of *deposit Berane* is under the town of Berane, river Lim and the airport, which puts its 103 million tons of reserves into perspective C_1 and C_2 category reserves.

Polički basin, neogenic in age, in 1975 had 22,546,000 tons of $B+C_1$ category of reserves out of which balance class had 11,789,000 t.

Total reserves of charcoal in the valley of river Lim (surroundings of Berane) of $B+C_1$ category are about 30 million tons and perspective ones over 100 million tons.

Peat- Besides being an energetic raw material peat is used in balneology, agronomy and chemical industry. It can be found in coastal area of Skadar Lake – Podhumski bay. Researches of Podhumski bay deposits referred to reserves of peat of 3 million tons and semi peat around 8 million tons.

Oil and gas – So far, oil and gas researches have been conducted in Montenegro, onshore and offshore (which are still ongoing). Within these researches onshore (besides other things) surveying of 1,250 km seismic profiles has been conducted so far and 17 deep research boreholes have been made. The deepest among them is UK-1 which is 5,309 m deep. 8,500 km^2 of offshore was surveyed along 10,000 km of seismic profiles and 4 research boreholes have been made.

Researches conducted so far pointed to good onshore and especially offshore perspective, existence of significant deposits of oil and gas and that is:

- oil in mezozoic-palaeozoic offshore zone 7,5 x 10^9 tons
- oil and gas in tertian zone estimated at 5.0 x 10^9 t.

-

Oil-geological potentials of offshore are estimated at 12.5 x 10^9 t. For continental area this estimate was not performed.

Red bauxite – In terrains of Montenegro over 90(ninety) occurrences and deposits of red bauxite were discovered. The most numerous and richest deposits are in karst terrains of High karst zone and number of occurrences in terrains of Adriatic Ionian wrinkle ridges of Montenegro.

In researches conducted so far, red bauxite reserves have been determined: in 14 (fourteen) deposits of A+B+C_1 category 37,537,000 t; from 3(three) deposits of B+C_1 category 3,156,000 t; in 9(nine) deposits of C_1 category 6,591,000 t and in 26 (twenty six) deposits of C_2+D_1 category 48,960,000 t. (Total: 96,244,000 t)

White bauxite – In terrains of Montenegro which belong to High karst zone over 100 (hundred) occurrences and deposits of white bauxite were registered. The use of this raw material is multiple: fireproof industry, Lafarge cement, paint industry, lacquer industry, chemical industry, and cosmetics.

According to the 1988 status, the balance reserves are 250,000 tons, off-balance ones around 1.4 million tons, and perspective reserves around 2.9 million tons.

Lead and zinc – Occurrences and deposits of lead and zinc (with the accompanying elements) can be found in terrains of northern and north-eastern Montenegro (metallogenic province).

The most familiar and biggest deposits of lead-zinc minerals are genetically or para genetically connected to volcanic and volcano-sedimentary rocks of middle Triassic: Brskovo-Bjelasica and Šuplja stijena – Ljubišnja. Besides the stated ones, the occurrences of lead-zinc minerals can be found in lower Triassic and newer Palaeozoic clastic rocks of: Šćepan polje, surroundings of Bijelo polje, Konjuhe, surroundings of Andrijevica, Čakor massif, Visitor, Bjeluh etc. So far, minerals of lead and zinc have been exploited from deposit of Bjelasice (Brskovo) and deposits of Šuplja stijena (Ljubišnje).

The following reserves of lead and zinc have been determined in researches conducted so far: in 7 (seven) deposits of B+C category 17,549,000 t; in 3 (three) deposits of C_1 category 5,685,000 t; (total: 23,234,000 t); in 1 (one) deposit of C_2 category 500,000 t, in 14 deposits of C_2+D_1 category 46,330,000 t. (total: 46,830,000 t).

Copper – Mineralization of Triassic rocks, besides the minerals of lead and zinc, have occurrences of copper (chalcopyrite) as the accompanying minerals. The greatest concentration of copper mineral is determined in Jurassic diabases (chalcopyrite – pyrite mineralization)

Minerals can be found in the form of wires and impregnations, with silver and gold minerals. Geological reserves of copper in Varine (C_1 category) are 5,297,000 t and perspective ones (C_2 category) are 2,041,000 t.

Mercury – Mercury minerals are discovered as monomineralic occurrences in a number of sites: Mountain Kovač, Bjelasica, Boan, Spič. Researches conducted so far have not shown any reserves economically significant.

Estimated (perspective) reserves of mercury metal are: Krnja jela (Boan) is 300 t; Potkovač (Kovač) is130 t; Spič (Sutomore) is 400 t; Brskovo and Bjelojevići 4,600 t; Total: 5,430 t mercury metal.

Architectural-building stone (decorative stone) – Non-metallic mineral raw material – deposits of architectural–building stone have been found in 20 sites so far, with significant reserves, and occurrences in 25 additional sites. These sites are determined in terrains built of Triassic, Jurassic, Cretaceous, Palaeogene and Neogenic carbonate rocks: limestone – dolomites and marbles.

Numerous deposits in the wide area of Donja Zeta river valley – Bjelopavlići: Maljat, Klikovače, Visočica, Jovanovići, Kriva ploča, Suk, Vinići and Radujev krš, with geological reserves around 1.5 million m^3. In surroundings of Kolašin (Gradina and Skrbuša) with geological reserves of over 2 million m^3.

In the surroundings of Andrijevica the estimated reserves of limestone, breccias, marble and vulcanite are over 2 million m^3. On the territory of municipality of Nikšić on site Lipova ravan

there are geological reserves of around 2 million m^3 and they are estimated to be over 5 million m^3.

In the surroundings of Pljevlja – Miljakovići, there are some potential reserves of decorative stone. The wider area of Boka has a number of sites with decorative stone: Gornja Lastva 714,000 m^3 (bokite); Kamenari and Đurići estimated reserves are over 6 million m^3; Ljuštica (Lješević and Vranovići) with calculated reserves of 400,000 m3 and a perspective estimate of 1.7 million m^3.

In municipality of Bar – Crmnica is with reserves of B+C category 460,000 m^3 and perspective reserves of about 790,000 m^3.

Deposit Krute near Ulcinj has reserves of $A+B+C_1$ category of about 1,000,000 m^3 and estimated reserves of over 5,000,000 m^3.

In fund documentation it is stated that the reserves of decorative stone of $A+B+C_1$ category (with smaller part of reserves $B+C_1$ or C_1) of about 15,000,000 m^3 of monoliths, and estimated at 50,000,000 m^3.

Travertine – Familiar deposits are: Tavani, Zukva, Gornja lijeska and Zbljevo.

Tavani (river Bukovica) has proven reserves of 275,000 m^3 of rock masses, of which 116,000 m^3 are blocks.

Gornja lijeska (west of Tomaševo) with reserves of C_1 category 94,000 m^3 of rock masses and perspective reserves are estimated at 150,000 m^3.

Deposit Zukva is exploited and deposit Zbljevo is not economically significant.

Technical-building stone – The amounts of technical-building stone in the terrains of Montenegro are practically unlimited. These are carbonates: limestone-dolomite rock masses and smaller volcanic rocks.

In the terrains of Montenegro there are numerous abandoned stone mines. Today, 17 quarries (mines) are operational 12 (twelve) on the Montenegrin coast- Volujica Goran, Velji zabio, Možura – Orlovo, Borik II, Darza, Ristova ponta, Haj-Nehaj, Velja Spilja, Oblatno, Platac, Lješević – Gajevi, Podi; Midova kosa – Budoš in central region and Kaluđerski laz, Bušnje i Štitarica in the northern part of Montenegro. Only in Štitarica (Mojkovac) igneous rocks are exploited while the rest is limestone.

Technical-building stone has been researched in 19 locations. The overall reserves of carbonate rocks of $A+B+C_1$ or $B+C_1$ category are 38 million tons, and of volcanic rocks only 665,000 m^3.

Pebbles and sand – Pebbles and sand are exploited from numerous deposits of glacial, fluviglacial, lumniglacial, deluvial and alluvial origin.

Sand and pebbles of glacial origin are being exploited from a number of sites by the roads on karst surface on the territory of municipalities of Žabljak, Šavnik and Plužine. Pebbles and sand of fluviglacial origin are exploited from fields in karst: Nikšićko, Grahovsko, Dragaljsko etc and from Zeta plain, lumniglacial from Bjelopavlici plain. Occasionally, rough sand and pebbles from crushers – rock creeps (deluvian) are used along the roads, as for example Nalježići (Kotor).

The most significant and mostly used deposits of pebbles and sand are of alluvial origin: coastal fields (seas) and river beds of: Morača, Tara, Lim and Ćehotina.

Brick clays – The greatest reserves of brick clay are in freshwater neogenic sediments of Ćehotina river valley and Lim. Besides these, occurrences and deposits of alluvial origin are known (around Kolašin, Bijelo polje, Spuž, Tivat and Ulcinj). The extent of researches is small. In deposits of Pljevlja basin reserves of $B+C_1$ and C_1 category count dozens of millions of tons and perspective ones of several hundred million tons. In deposit of Jesikovac reserves $B+C_1$ are 1.3 and perspective ones 2.1 million tons.

Deposits of brick clays, of alluvial origin, of $B+C_1$ and C_1 category are around 15 million tons and perspective ones are about 5 million tons.

Cement marl – Cement marl is found in coal-bearing basins in Ćehotina and Lim river valleys and in parts of the terrain built of paleogenic flysh sediments: Bjelopavlici, Crmnica on Montenegrin coast (surroundings of Ulcinj).

The most thoroughly researched and tested marl is from deposit of Ćehotina river valley: the surroundings of Pljevlja (Potrlica, Kalušići, Rabitlje, Grevo and Radosavac). Reserves of $A+B+C_1$ category are calculated at 93 million tons, (for 12 years that raw material has been exploited for Cement plant in Pljevlja which does not work today). In other noted deposits of Ćehotina river valley, overall reserves are estimated at 28.3 million of tons. Paleogenic reserves of marl from Gradina (Bjelopavlici) are around 30 million of tons and deposits of Donja Klezna near Ulcinj are estimated at about 20 million of tons.

Dolomites – There are practically unlimited quantities of dolomites and limestone dolomite. So far four (4) localities have been explored: Virpazar, Vranjina (Skadar Lake's periphery), Šume and Bršno (Nikšić surroundings). Total reserves confirmed amount to 88 million of tons**.**

Baryta – There is baryta in the area of the mountain Kovač. There are well-known deposits in Potkovač and Plana – Arslanovina within down Triassic clastic sediments. Reserves in Potkovač (Guta, Podguta, Bare and Veliki Meljak) of A+B+C1 category amount to 309,850 tons. In the Plakola bed there are reserves of A+B+C1 categories amounting to 35,000 tons. In the mine field Plana-Arslanovina (locations – Rid and Jezero) reserves of C1 category amount to 11,500 tons. In this area (Kovač) there are some known localities with perspective reserves amounting to around 36,000 tons**.**

Bentonite - Localities and bentonite deposits are known to be present in Bijelo Polje (near Petrovac on the coast), Brajići (near Budva), in the Bar surroundings, Pivska Župa and in Bukovica valley (on the way to Žabljak). Each of these localities is of medium Triassic age and is the result of volcanic activities with disposal into marine environment**.**

The confirmed reserves of bentonite deposits in Bijelo Polje of A+B+C1 categories amount to 1,7 million tons of minerals; in the neighbouring deposits in Bijele šume, perspective reserves are estimated to be 1.4 million tons of mineral. In the Donja Bukovica deposits there are proven reserves amounting to around 730,000 tons while in the neighbouring locality called Nive the estimated reserves of C_2 category amount to 25,000 tons.

Localities along the Montenegrin coast and Pivska Župa have not yet been explored.

Siliceous earth sand – Siliceous earth sand is present only in Ulcinj surroundings in the following deposits: Zoganje, Škarit and Zekova šuma. Perspective reserves of C_2 category in the Zoganje deposit amount to 3,600,000 tons; in the Škarit deposit – 2,140,000 tons; in the Zekova šuma deposit 1,396,000 tons; The total amount of reserves is 7,136,000 tons

Cherks – Cherks (siliceous sediment rocks) are present in the North-East of Montenegro (Jurassic diabase layers), on Montenegrin coast (Pindos-cukali zone). So far the cherks have been explored in the Vrdola locality (Vrmac near Tivat). Here there are reserves of C_1 category amounting to 1,210,000 tons**.**

Sea salt – Sea salt (60% of chlorine and 40% of natrium) is derived from sea water and the processing is being done only in the salt factory «Bajo Sekulić» - Ulcinj. The salt is derived by natural processing (evaporation in basins) and by industrial processing (thermo-compressing process). Production with natural processing started in 1935 and with industrial processing in 1984. Until the end of 2000, 1,355,000 tons of sea salt were produced by natural processing and 236,000 tons were produced by industrial processing.

Underground-waters – Underground waters are mineral resources. There are static and dynamic reserves: fresh, mineral and thermal waters. No part of Montenegrin territory has been explored for static reserves as a target area and to a level of defining their reserves. Dynamic reserves have been explored and partially defined for certain springs as much as it was necessary for providing drinking water for urban centres and for some industrial facilities. Everything that may be said about dynamic (and partially static) reserves of underground waters in Montenegro is the following:

- They participate in total water quantities that flow from Montenegrin territory to the Black Sea basin and to the Adriatic Sea basin. Those quantities are not defined. (Generally speaking, in few years 600 m^3/s of water flows away from the territory of Montenegro);

- they are used for drinking water in all municipalities (21), and in a series of suburban settlements, smaller settlements and villages;
- they are used in industry (Podgorica Aluminium Factory, Brewery “Niksic” etc) and in water supply systems in municipal centres;
- they are used in agriculture for irrigation (Agro factory “13 jul” in Podgorica etc.)

In Montenegro 82% of the population is supplied with underground-waters through water supply systems. Only water supply systems in Herceg Novi and in Pljevlja use surface-waters from Bilecko Lake and Otilovici Lake. The remaining 18% of the population is supplied with drinking water from their own water supply systems, directly from springs or from cisterns. Around 40% of village population does not have regular or good quality drinking water .

Underground-waters are used in industrial and other facilities through towns’ water supplies. So far, technical documentation specifying quantities of ground-waters used for drinking and other purposes has not been produced.

Fresh underground-waters are used for bottling, currently only from two springs – Gornja Bukovica and Gornja Plašnica, but the activities on starting usage of 8 other springs for bottling of underground waters are in progress.

On Montenegrin territory only one thermal water spring is known, Ilica in Komarnica Canyon. Construction of Hydro Power Plant “Mratinja” formed Piva Lake, and the thermal water spring is under the lake. The springs of mineral water are known to be present in the basins of Lim and Ibar on the sea-side.

Mineral water from the Čeoče spring (Bijelo Polje surroundings) is being bottled. Mineral sulphurous springs immediately at the sea margin (and offshore) in Ulcinj are used as healing waters (bathing), whilst mineral waters from Herceg Novi’s surroundings are used in mineral mud for therapeutic purposes (Institute “Simo Milošević” – Igalo).

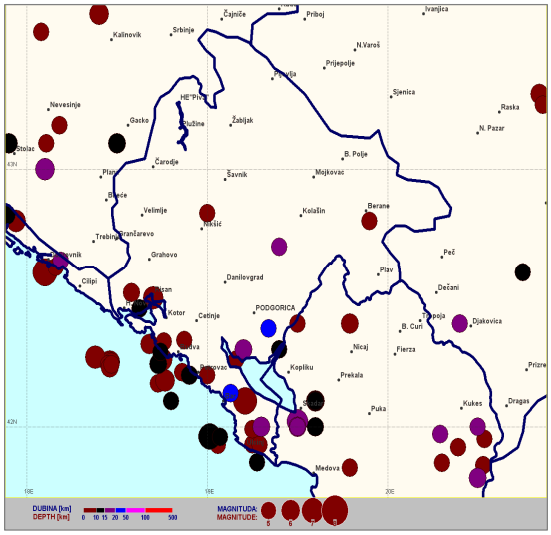
Sources and deposits of technogenic raw materials have equally been included alongside the natural, geogenic deposits. Particularly important are KAP’s red mud deposit, tailing impoundments of “Šuplja stijena” mine, tailing impoundments of “Brskovo” mine and various other deposits of KAP.

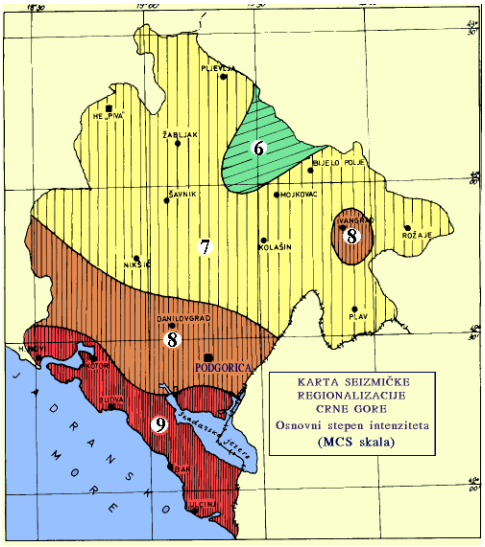
3.2.3. Geo-seismic features

Risks

Seismic features of Montenegro are characterized by numerous autochthonous seismic focal points, but also by a number of seismologic zones on Western Balkans, especially those in the area of southern Croatia, eastern Hercegovina, northern Albania and southern and south-eastern Serbia. As a particularly active seismic area, the following zones should be emphasized: seismologic zones around Ulcinj and Bar, Budva and Brajići, Boka Kotorska but also immediate surroundings of Berane, the whole region of Skadar Lake, Maganik etc.

First records on seismic effects date from fifteen centuries ago. Unfortunately, written documents are very rare and poor. However, there are numerous records on frequent and destructive earthquakes in Dubrovnik and Kotor archives that happened at the area between Dubrovnik and Boka-Kotorska Bay, during the period from 15th to 17th century. Only in that period 7 severe earthquakes were recorded, whose epicentres were in the undersea area (picture 1) 13 km before the entrance into Boka Kotorska. The earthquake of 1563 was described as the one with the most consequences as well as the earthquake of 1608. According to the described macro-seismic effects their blasting effect was 9 degrees in MSC scale and of the equivalent magnitude - 6.3 (Richter’s scale).





Picture 1. - The map of earthquakes' epicentres of magnitude above 5.0 degrees in Richter's, for the period from 15th to 21st century (Seismic Directorate, 2007.)			**Picture 2. –** Seismic re-ionization of Montenegro (V. Radulović, B. Glavatović, M. Arsovski i V. Mihailov, 1982.)

The most severe earthquake, registered and documented in the area of Southern Adriatic and Dinarides, happened in 1667 in the immediate vicinity of Dubrovnik. It was of magnitude 10 degrees in MCS scale, i.e. the equivalent to the magnitude of 7.4 degrees of Richter's scale. The earthquake devastated not only the region of Dubrovnik but the whole Boka Kotorska. The earthquake that hit Skadar (Albania) and its surroundings in 1905 caused a blasting effect with a magnitude of 9 degrees in MSC scale, whilst it was recorded that in the town of Podgorica the magnitude of that earthquake was 9 degrees on the MSC scale. The most severe earthquake that is to be mentioned is the catastrophic one of April 15, 1979 at 07:19 am. It was the earthquake with the magnitude of 7.0 and with epicentre intensity of 9 degrees on the MSC scale. Almost the whole Montenegrin coast was destroyed by the earthquake, with 101 victims and material damage that reached the level of 4.5 billion dollars.

In the context of other forms of natural hazards that often follow destructive earthquakes, it would be justifiable to update the existing maps of potential landslides and rockslides caused by earthquakes in Montenegro, as well as to define a liquefaction hazard that was recorded in many places in the 1979 earthquake on Montenegrin coast and its hinterland.

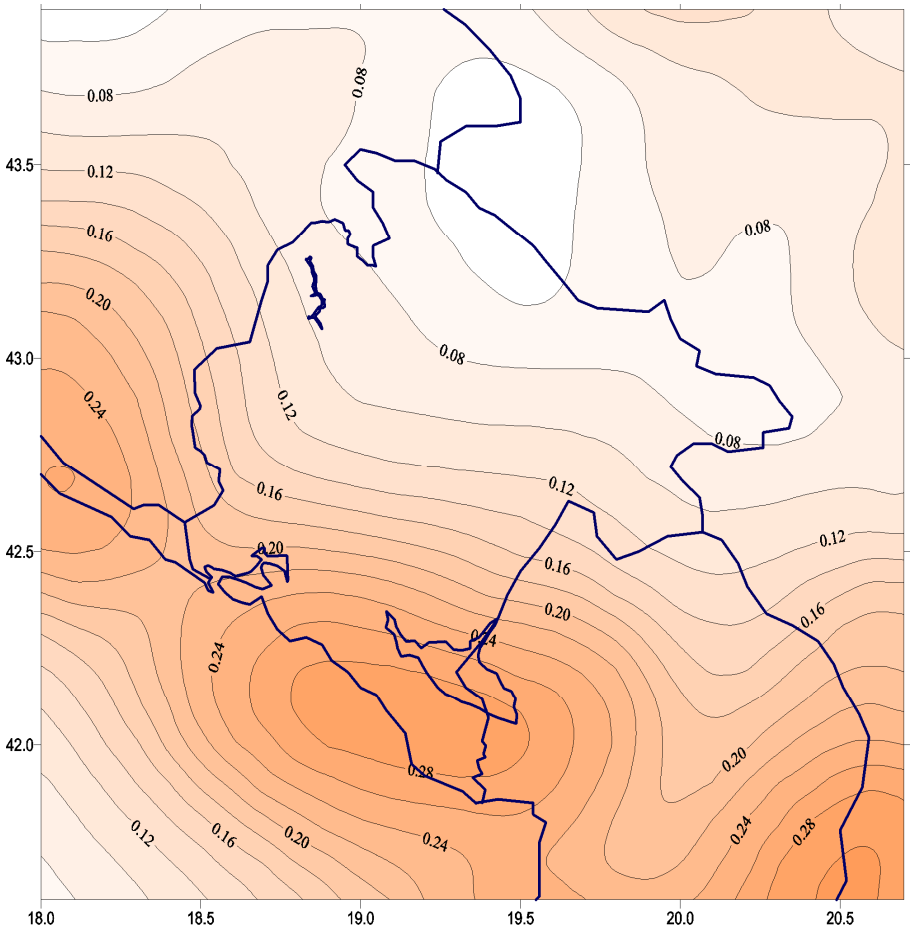
The map of re-ionization of Montenegrin territory, which comprises the parameter of the basic seismic intensity degree (picture 2) reflects major natural seismic potential (picture 2) of that area. The map divides few characteristic seismologic zones that have been manifested in a specific way during the course of time: Southern region, coastal region with Skadar depression, Budva and Boka Kotorska zones. They are characterized with a very high level of seismic activity, with a possible maximum intensity (in the middle ground) of nine degrees of the MSC scale. There are also: Podgorica - Danilovgrad zone with the expected maximum intensity of eight degrees of MSC, the middle part of Montenegro with Northern region including Nikšič, Žabljak and Pljevlja which is characterized with possible maximum intensity of seven degrees of the MSC scale and an isolated seismologic Berane zone that may face earthquakes with a maximum intensity of eight degrees on the MCS scale.

Hazards

During the course of history, a major part of southern Dinarides and a significant part of northern Adriatic were places of numerous destructive and catastrophic earthquakes. Contemporary researches confirm a permanent existence of a high level of seismic hazards in this region. In the sense of seismic hazards the hinterland is particularly highlighted and in a geo-dynamic sense it represents the zone where southern ridges of external Dinarides and north-eastern hinterland of Adriatic tectonic micro plate meet. Because of this, as a seismic active area, there is a part of the Montenegrin coast that should certainly be emphasized and it covers seismological zones around Ulcinj, Bar, Budva, Brajici, Boka Kotorska but also the zones in the immediate vicinity of Berane, the whole region of Skadar Lake, mountain massif of Maganik and many others.

On picture 3 a simplified card of seismic hazard of Montenegro and the surroundings is shown (expected maximum horizontal ground acceleration in gravity parts) within the return-period of 100 years with a 70% possibility of not overcoming the events.

Taking into account maximum expected, theoretically determined, as well as practically manifested parameters of ground oscillations during previous severe and destructive earthquakes in Montenegro, regarding analyses of possible limitations for physical planning purposes, the conclusion can be drawn that in the process of spatial planning it is necessary to respect levels of seismic hazards in order to mitigate seismic risks.



Picture 3. A map of seismic hazard of Montenegro and the surroundings is shown (expected maximum horizontal ground acceleration in gravity parts) within the return-period of 100 years with a 70% possibility of not overcoming the events *(B.Glavatović, 2004.)*

After the earthquake of April 15 in 1979 on Montenegrin coast, Crmnica and Skadar Lake basin, numerous destructive geological events have been manifested such as: liquefaction, landslides, rockslides, changes in water-flow in certain springs. A level of seismic hazard in this region, as well as morphological and engineering-geological features of the terrain, show a permanent high level of geological hazard in dynamic conditions. Therefore, in the process of spatial planning in a wider region of Skadar Lake, it is necessary to adequately respect this considerable type of natural hazard.

Geological features of Montenegrin terrain condition ground oscillations without earthquakes' effects and the high level of geological hazard without dynamic conditions should be pointed out. Namely, it is well known that along river canyons and on the steep mountains terrains there may be rockslides. Sometimes these rockslides cause considerable material damages and casualties. This is particularly speeded up by long-lasting and heavy precipitation. For the same reason great landslides may occur carrying huge parts of ground and sometimes even constructed facilities. Accidents caused by human factor should also be mentioned (superficial accumulation and other ground works). It is also known that during heavy and long-lasting precipitation, surface and ground waters cause damages, and sometimes ruin facilities. Damaging effects of floods are particularly manifested along the coast, Skadar Lake, in karst fields, Bjelopavlic plane and along the flow of the river. Therefore, these types of hazards should be respectively and adequately taken into account.

3.2.4 Geomorphologic factors

Given its small area, one could hardly find more varied and specific relief, phenomena, process and geomorphologic terrain features in general than in Montenegro. It is a consequence of the long geological evolution of the terrain and changeable pronounced endogenous and exogenous forces which created and shaped the relief of Montenegro.

Undoubtedly one of the most prominent geo-morphological features of Montenegrin territory is its sea coast. The southern region is characterized by: varied geological composition and complex geo-tectonic structure; a range of coastal fields with beaches; steep elevations into the mountain massifs of Orjen, Lovćen and Rumija (which separate it from the central part of Montenegro); short watercourses directed towards the sea across the coastal fields, dividing the region into small geo-morphological units and, in particular, well-known Boka Kotorska Bay (with several smaller bays) whose genesis is characterized by geo-tectonic evolution of this part of lithosphere.

The terrains of the southern region change abruptly into hilly-mountainous terrains towards the north and north-east. The border between the regions is in the coastal mountains of Orjen (1,985m above sea level), Lovćen (1,740 m asl) and Rumija (1,593 m ASL). Towards north and north-east, these mountain massifs turn into karst plateau of western Montenegro with decreasing elevation towards the north and north-east – Nikšićko field (over 600 m asl) and Bjelopavlićka plain (approximately 50 m asl) and towards south-east - Zeta valley (bellow 80 m asl) with the Skadar Lake basin with its lowest parts which are in crypto-depression. Karst plateau of western Montenegro is characterized by phenomena, processes and shapes characteristic for holokarst. The area of Nikšićko field, Bjelopavlićka plains – Zeta plains with Skadar Lake are characterized with the lowest altitude of the central region of Montenegro. That region represents a geotectonic and erosion basis for an area of some 4,500 km² which is composed, apart from the Mesozoic limestone, of less petrified and petrified flysh and clastic sediments of Palaeogene and Quaternary.

Starting from Nikšićko field, Zetska and Bjelopavlićka plains, the terrain rises again into the mountainous region with a range of mountains in the corridor following the line Golija (1,942 m asl) – Žijevo (2,184 m asl). This corridor represents the boundary of the Central region of Montenegro. The areas of these high mountains with peaks between 800 and 2,000 m above sea level are characterized by the phenomena, processes and shapes that are characteristic for karst, glacier and river erosion.

The northern region includes the terrains of Piva, Gornja Morača, Tara, Lim and Ibar watersheds and further on to the north-east up to the Montenegrin border with neighbouring countries. This is the region with a range of high mountain massifs over 2.000 m asl, Durmitor being the highest (2,523 m asl). This region is divided by valleys, gorges and canyons of the following watercourses: upper Morača, Piva, Tara, Ćehotina, Lim, Ibar and their tributaries devided into several smaller geo-morphological units. It is also characterized by the region of high mountain massifs with deep canyons indicating very outstanding river erosion, and the phenomena and forms characteristic for karst and glacial erosion. In addition, significant areas of this terrain are composed of clastic and flysh-like clay-sand-marl sediments with frequent phenomena of fast rain-wash, creation of ravines, land tearing and sliding.

3.2.5 Climate as development potential

Climate conditions in Montenegro are predominantly influenced by the Adriatic Sea and mountain massifs. Starting from the sea, depending on the altitude, the climate changes and thus, in this small area, diverse climates are encountered: from the Mediterranean to the Alpine. Duration of sunlight increases with the proximity of the coast. Precipitation is uneven, and it is the highest in parts of coastal mountain ranges (on average, some 4,500 mm annually), while it reduces towards the coast and in particular to the north and northeast. Alongside these main factors, there are also other influences which more or less contribute to local climates. Such climate conditions are suitable for the development of ski tourism, sea tourism, growing subtropical cultures, olive and wine growing along the coastline, cattle breeding and continental fruits growing (plum, apple, pear, raspberry, etc) in the continental and mountain regions.

3.2.6 Hydrological development basis

The sea area across the coast of Montenegro, some 200km wide, makes part of the South Adriatic valley, where the greatest depths of the Adriatic sea are recorded— some 1400 m. Water salinity of the South Adriatic (38.6%o) is somewhat lower than the average on the Mediterranean (39%o). While the chemical composition of the water is similar to other seas, the share of nutritional salts is low compared to ocean waters, having a negative impact on the organic production. According to water temperature (up to 27 ℃ in summertime), the Adriatic belongs to warm seas. Rather slow currents flow in parallel to the shore north-westwards (permanent shoreline current has the speed of 0.7 knots). The tides are not strong (average amplitude is 35 cm.). With the idented quotient of about 3, the total length of the Montenegrin coastline is 293.5 km. With mostly rock shores, the sea is generally deep, while only 20% of the coastline, next to low sandy beaches and accessible rocky shores, is relatively shallow, with a sandy and pebble bottom, suitable for swimming.

Hydrographical, hydrological and hydro geological features of Montenegro have a great influence on the spatial use. These features offer favourable conditions recognized in the access to the sea; this territory being part of great catchment areas (the Adriatic and the Black Sea), with approximately 600 m³/s, almost all of these are domestic, i.e. internal waters (transit amounts 170 m^3/s, or some 28%); possibilities for recreational activities on waters and their use for power generation; fish farming and fishing; numerous glacial lakes embellishing mountain landscapes; the control over a larger part of Skadar Lake with substantial fresh water reserves and specific flora and fauna.

The Adriatic Sea catchment area form the territory of Montenegro includes:

- Montenegrin coast catchment area;
- Western and south-western parts of the Orjen Mountain (give water to Croatian coast);
- Western and north-western karst terrain of the municipality of Nikšić (give water to the watershed of Trebišnjica);
- Eastern slopes of Čakora mountain (give water to Pećka Bistrica and Drim);

– Skadar Lake catchment area.

Watershed areas of Piva, Tara, Ćehotina, Lim and Ibar give water to the Black Sea.

The larger part of Skadar Lake (the largest lake in water surface in the Balkans) belongs to Montenegro. Šasko and Zoganjsko lakes are depression lakes. There are in total 33 glacier lakes in Montenegro. During the second half of the last century 7 artificial lakes were built.

The sea has considerable impact in aquifer waters of the Montenegrin coast, and thus in summertime water from many aquifers may not be used for drinking due to increased concentration of Cl ions.

3.2.7 Soil potentials

In Montenegro, due to the natural factors of climate, geological background, relief, vegetation and human beings, there are various types of soil. The following soil types are the most important:

– Rocky soil (Lithosol) and sysrozem (Regosol) covering the area of 38,470 ha; these are the initial soils on compacted rocks and loosen regolite.

– Calciferous-dolomite dark soil (Kalkomelansol) covering the area of 660,000 ha which is the prevalent type of soil in Montenegro.

– Rendzina which covers the area of 31,205 ha and is similar to calciferous dark soil by its profile and features but is formed on the scattered carbonate substrate. It contains more skeleton than dark soil and arable surfaces are represented by the deeper varieties of swallow holes, karst fields and smaller plateaus.

– Humus silicate soil (Ranker) covering very small area (6,825 ha) as it is formed on the silicate background over 1,500 m above the sea level. It is characterized by the very acid reaction and contains high level of humus.

– Brown acid soil (Distric cambisole), covering the surface of 394,825 ha, comes second; it is most wide-spread in the north-eastern Montenegro.

– Brown iatric soil (Iatric cambisole) covering the area of 118.275 ha, occupies the lowest parts of river valleys (old river terraces), basins and karst fields.

– Brown soil covering the limestone (Kalko cambisole) encompasses the surface of 35,000 ha which represents a transitional form between calciferous dark soil into Terra rossa.

– Terra rossa covering the surface of 84,000 ha spreads in the Montenegrin coast and in the Skadar Lake basin up to 500 – 600 m above the sea level.

– Diluvial, alluvial and swampy soils covering approximately 43,500 ha, occupies the lowest terrains, foot hills and alluvial planes along the watercourses and shores of the Šasko, Plavsko and Skadar Lake.

3.2.8 Flora and fauna as development factors

Richness and diversity of flora and fauna makes the biodiversity in Montenegro as its recognisable characteristic. In comparison with other European countries, Montenegrin biodiversity is considered to be among the largest ones (according to the index size S/A=0.837, which represents the proportion between species of vascular flora and size of state territory-Montenegro is considered to be among the most important biodiversities in Europe).

Considering refugial features of many habitats, endemism is manifested in dominant middle-European, Illyrian, Alpine and Mediterranean elements. Approximately 20% of overall flora belongs to endemic and sub-endemic herbs that occur only in Montenegro and in some neighbouring countries. Due to rareness and endangerment, 415 of herb species and 430 of

animal species and all bat species are protected (Decision on Protection of Certain Herb and Animal Species – "Official Gazette of the Republic of Montenegro" No.: 76/06).

Apart from species diversity, there is also ecosystem diversity identified, including certain areas with large concentration of species, the so called bio-centres or "hot spots" of the diversity. Almost all kinds of ground biomes occur in Montenegro, with a large number of azonal and interzonal ecosystems. There are different elements of flora and fauna, beginning with Mediterranean, sub-Mediterranean thermophilic vegetation, mesophilic, xerophilic or frigorophilic deciduous forests, ending with evergreen forests from Euro-Northern-American region with different biological species. The bio-geographical location of Montenegro also influences occurrence of large number of migratory bird species, whose main migration directions are from continental Europe to the Mediterranean and further to Africa and Asia. There are many birds of international significance.

The biodiversity of cultivated autochthonous species, both herbal and animal (agro-biodiversity) is very important, beyond which species living freely in nature are included, as well as great but often forgotten genetic potential (genetic diversity).

As other natural resources, significant potentials of biodiversities are already in use (fishing, hunting, forestry, picking medical and edible herbs) or are to be used in the future. However, there are many limitations (protected species, utilization in protected natural areas), but on the other hand, limitations in usage are on a timely basis, regarding limited quantities and certain areas.

3.2.9 Landscape values

Variety of landscapes in Montenegro as an element of culture and identity –Variety of landscapes is of great value and represents the richness of any country. In Montenegro this diversity appeared in a combination of exceptional natural values alongside with different local traditions in spatial use, which resulted from reflection of cultural-historical and socio-economic circumstances.

Typical landscapes in Montenegro – landscape types/landscape units – With bio-geographical and environmental analysis of the Montenegrin territory, 10 landscape types can be recognized, as follows: E-Mediterranean, lower sub-Mediterranean, Mediterranean-flysh, flat land-swampy, higher sub-Mediterranean, hilly-silicate, mezophile, mountainous, high-mountainous and anthropogenic landscape type. Identification of landscape units should take into account natural spatial characteristics as well as the effects of human presence in the area so that in Montenegro, 21 basic landscape units can be recognized as follows: (1) Boka Kotorska Bay including peninsula Lustica; (2) Coastal area of the central and southern coastal region with Bay of Buljarica; (3) Tivatska Solila; (4) Ulcinj area dunes and Ada Island; (5) Bojana River Valley, Zogajsko Mud, Solana Ulcinj and Šasko Lake; (6) Mountain massifs of Orjen, Lovćen and Rumija; (7) Karst Plateau of western Montenegro; (8) Skadar Lake area; (9) Zeta-Bjelopavlići Plain; (10) Nikšić Field; (11) Canyon valleys in Morača watershed; (12) Cijevna Canyon; (13) Tara River Valley; (14) Durmitor and Sinjajevina; (15) Piva area; (16) Pljevlja Plateau; (17) Polimlje; and (18) Rožaje area (19) Prokletije Massif (20) Bjelasica and (21) Komovi. This division includes also some smaller landscape units, mostly including vulnerable ecosystems with outstanding specific features and identity.

Starting points for further spatial development from the aspect of landscape protection, encompass:

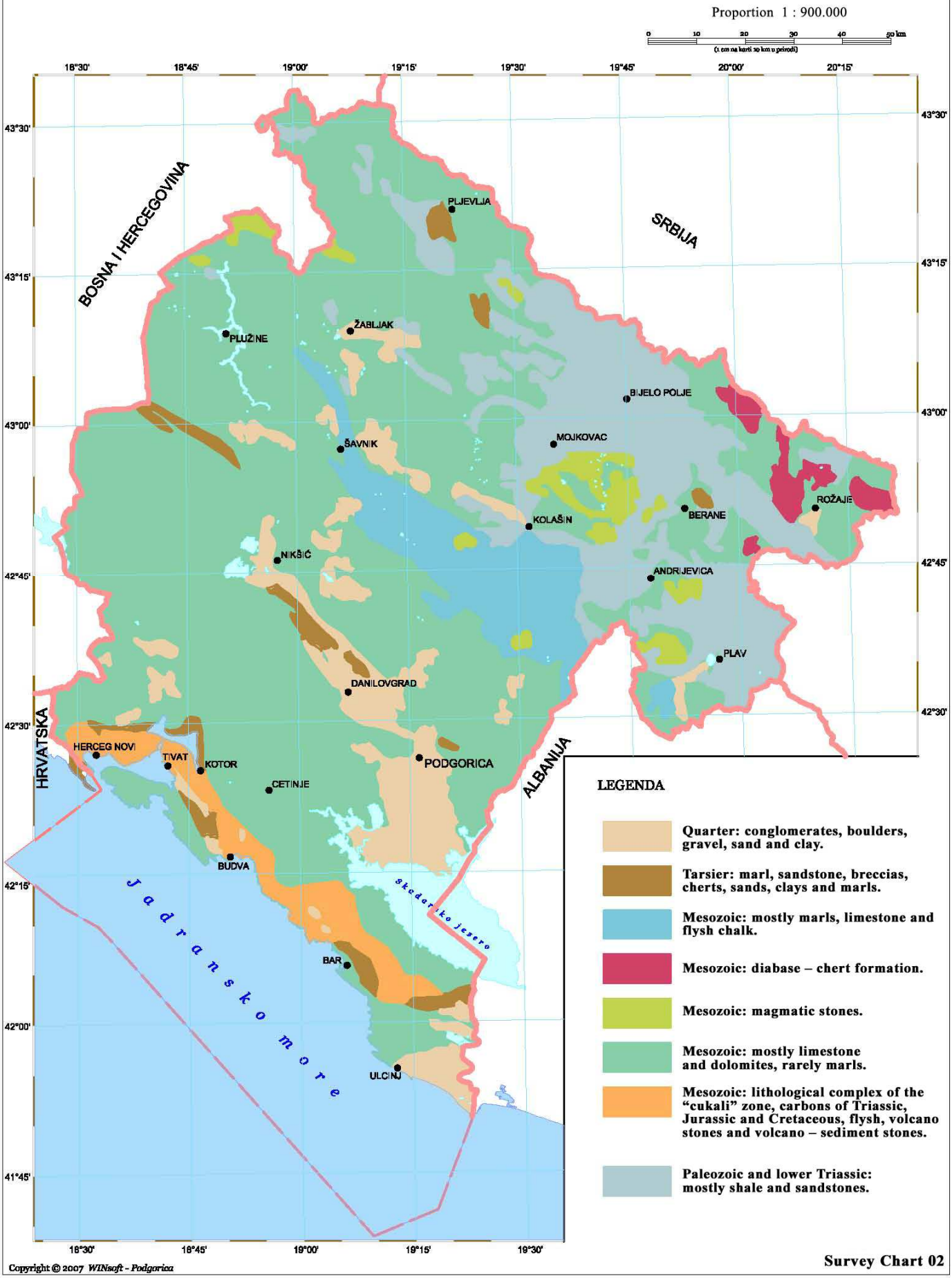
- Diversity of landscape types represents the basis for development of certain economy branches, in line with the principles of sustainable development;
- Protection of other valuable natural entities with original Mediterranean biodiversity, and preservation of landscape on the Montenegrin coast and in its hinterland.

Overview of existing protected areas of nature – Based on domestic legislation, protected areas of nature in Montenegro include 106,655 ha or 7.72% of the state territory. Out of it, the greatest part refers to 4 national parks: Skadar Lake, Lovćen, Durmitor and Biogradska gora, while the participation of other categories (monuments of nature, special natural landscapes) is large in number, but they do not cover much of the area. On the other hand, internationally protected areas of nature are: (1) Tara River Basin (UNESCO – World Biosphere Reserve); (2) Durmitor with the Tara River Gorge (UNESCO, World Heritage Site); (3) Kotor-Risan Bay (UNESCO – World Heritage Site) and (4) Skadar Lake (Ramsar Wetland Site) cover 237,899 ha or 17.2% of the national territory.

Sea coast – area of nature of special importance – is “a shore belt bounded by the line that is hit by the greatest waves during most severe storms, but also it is a part of the land which by its nature and purpose serves for using the sea for maritime traffic and sea fishing and other purposes related to the use of the sea, not narrower than 6 meters” (Law on Coastal Zone). Natural and landscape values of the coastal region have been suffering from pressure of increasing tourism and urbanization, which causes degradation of natural areas that give the Mediterranean character to this region. Increasing tourism and urbanization also endanger certain components of biodiversity.

SPATIAL PLAN OF MONTENEGRO TO 2020

LITHOLOGICAL – STRATIGRAPHIC MAP OF MONTENEGRO

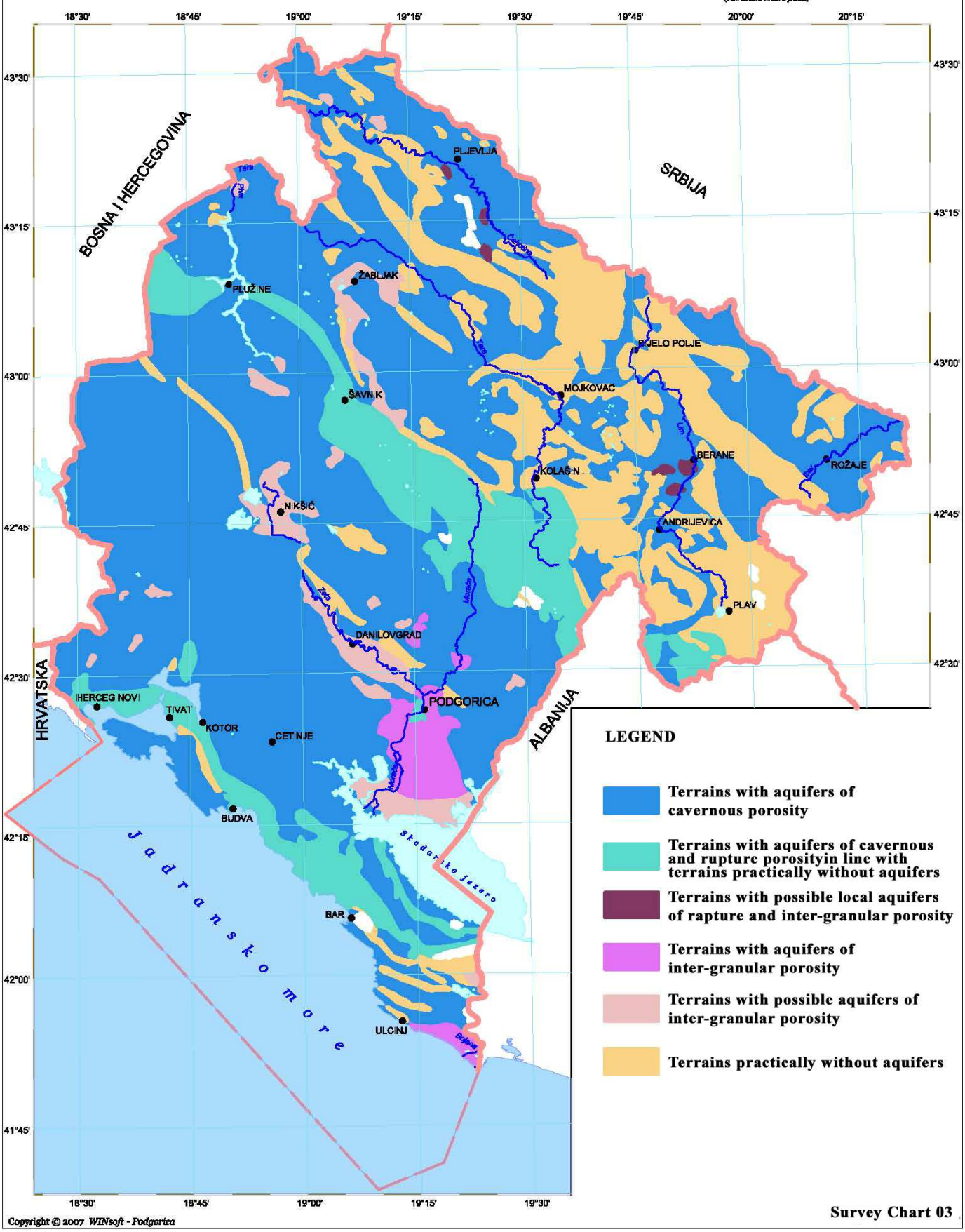


Survey Chart 02

SPATIAL PLAN OF MONTENEGRO TO 2020

HYDROGELOGICAL MAP OF MONTENEGRO
- HYDRO-GEOLOGICAL CLASSIFICATION OF STONES -

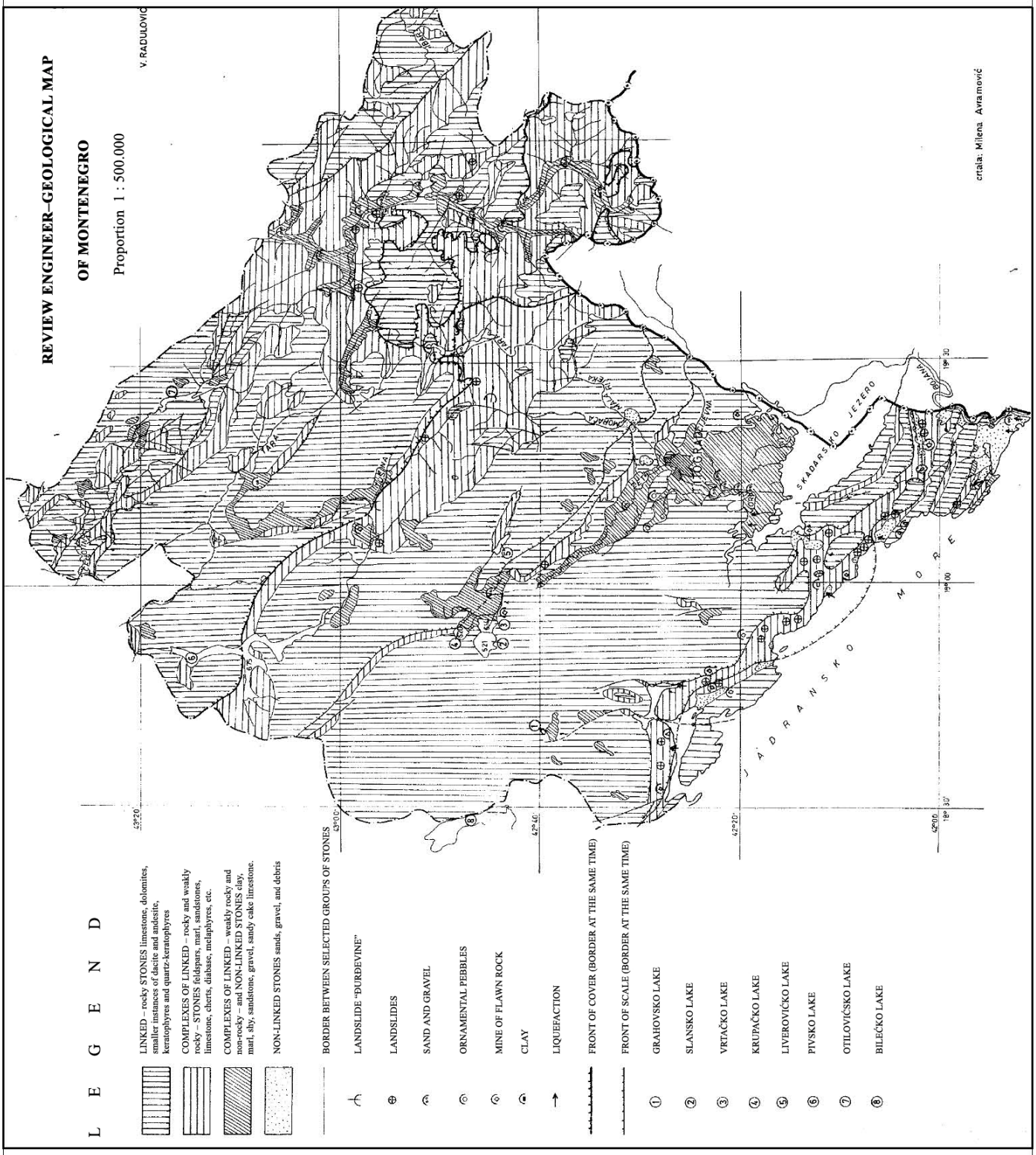
Proportion 1 : 900.000



Survey Chart 03

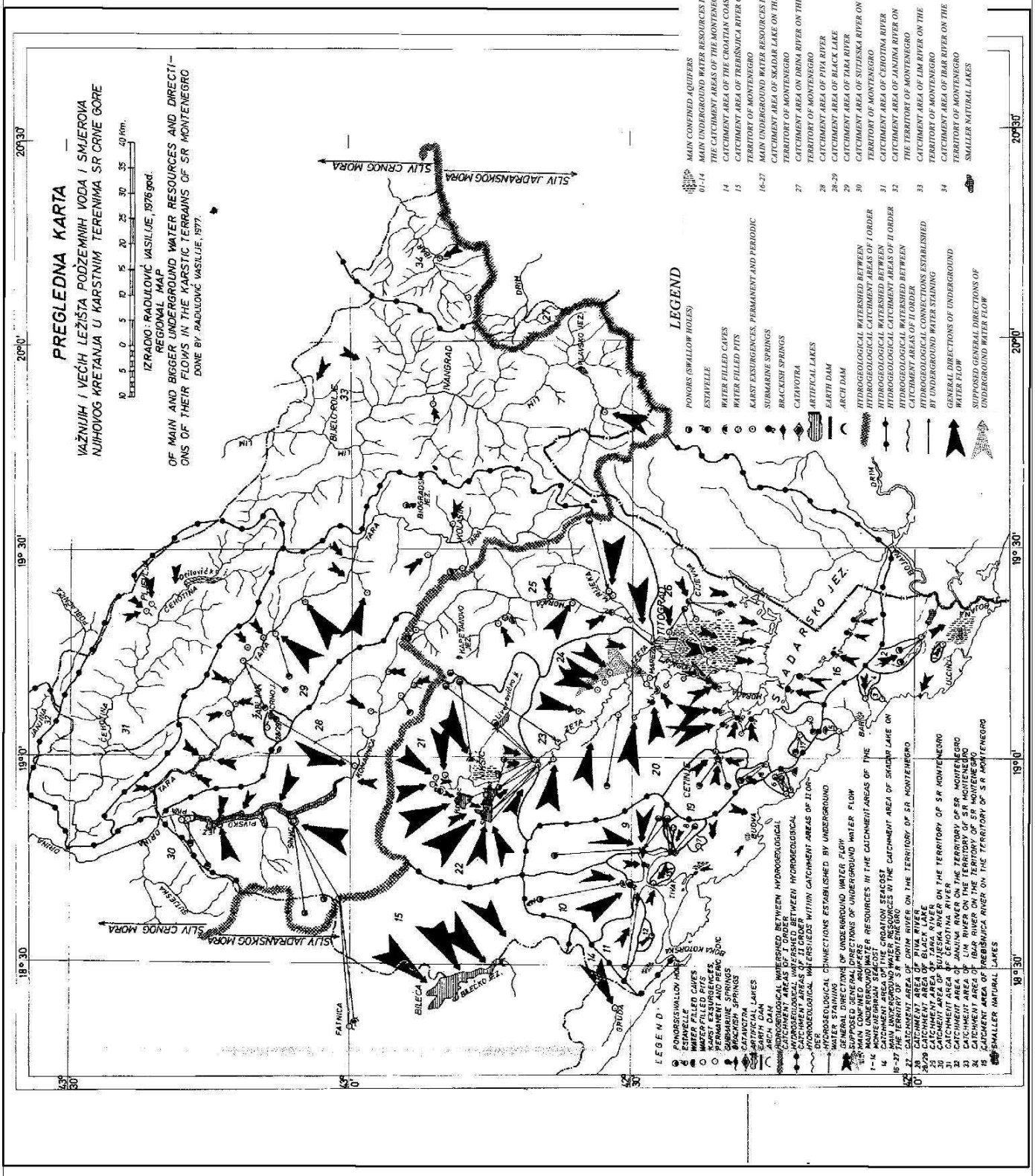
SPATIAL PLAN OF MONTENEGRO TO 2020

REVIEW ENGINEER–GEOLOGICAL MAP – CURRENT SITUATION



SPATIAL PLAN OF MONTENEGRO TO 2020

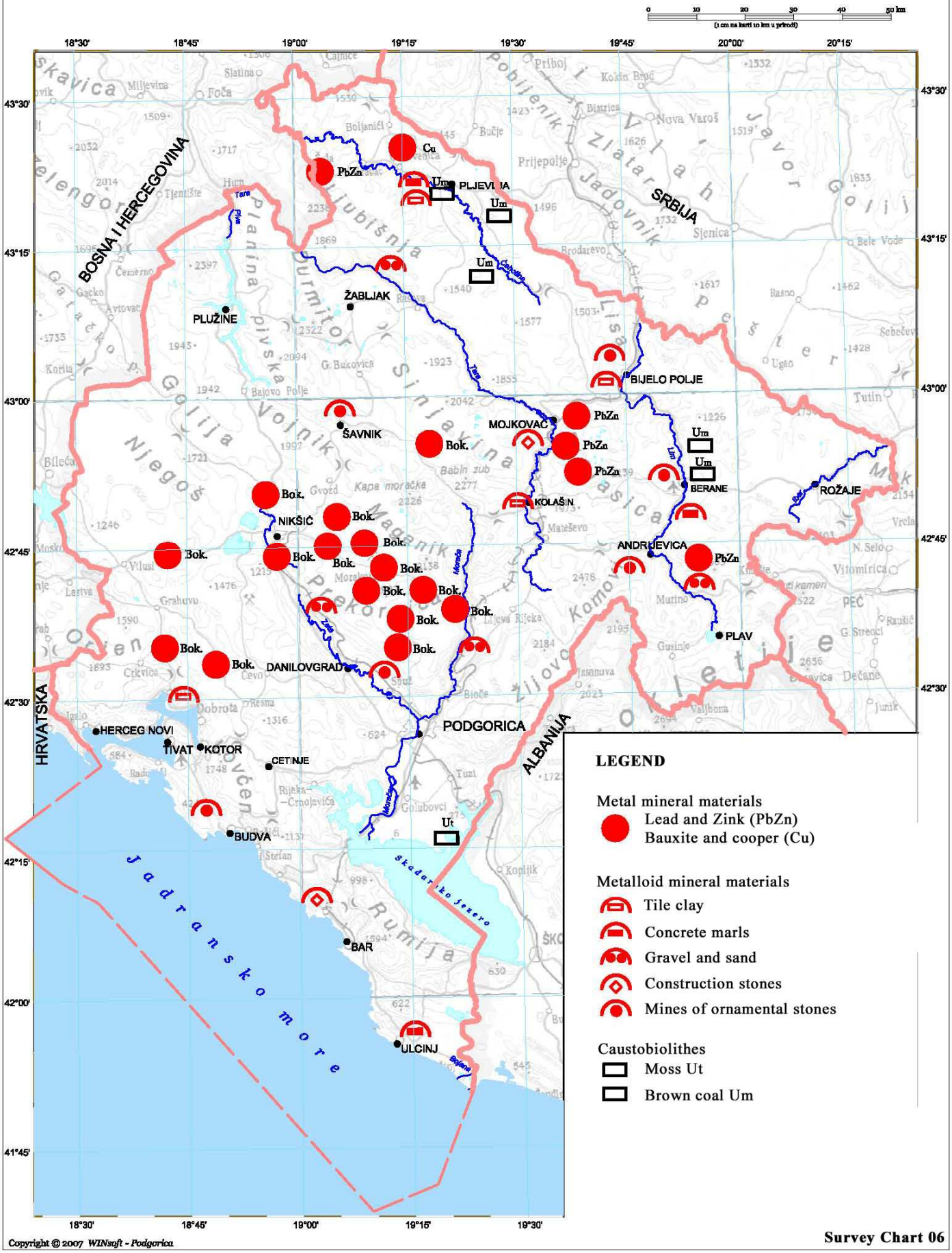
REGIONAL MAP OF MAIN AND BIGGER UNDERGROUND WATER RESOURCES AND DIRECTIONS OF THEIR FLOWS IN THE KARSTIC TERRAINS OF MONTENEGRO – CURRENT SITUATION



SPATIAL PLAN OF MONTENEGRO TO 2020

MINERAL RESOURCES – CURRENT SITUATION

Proportion 1 : 900.000

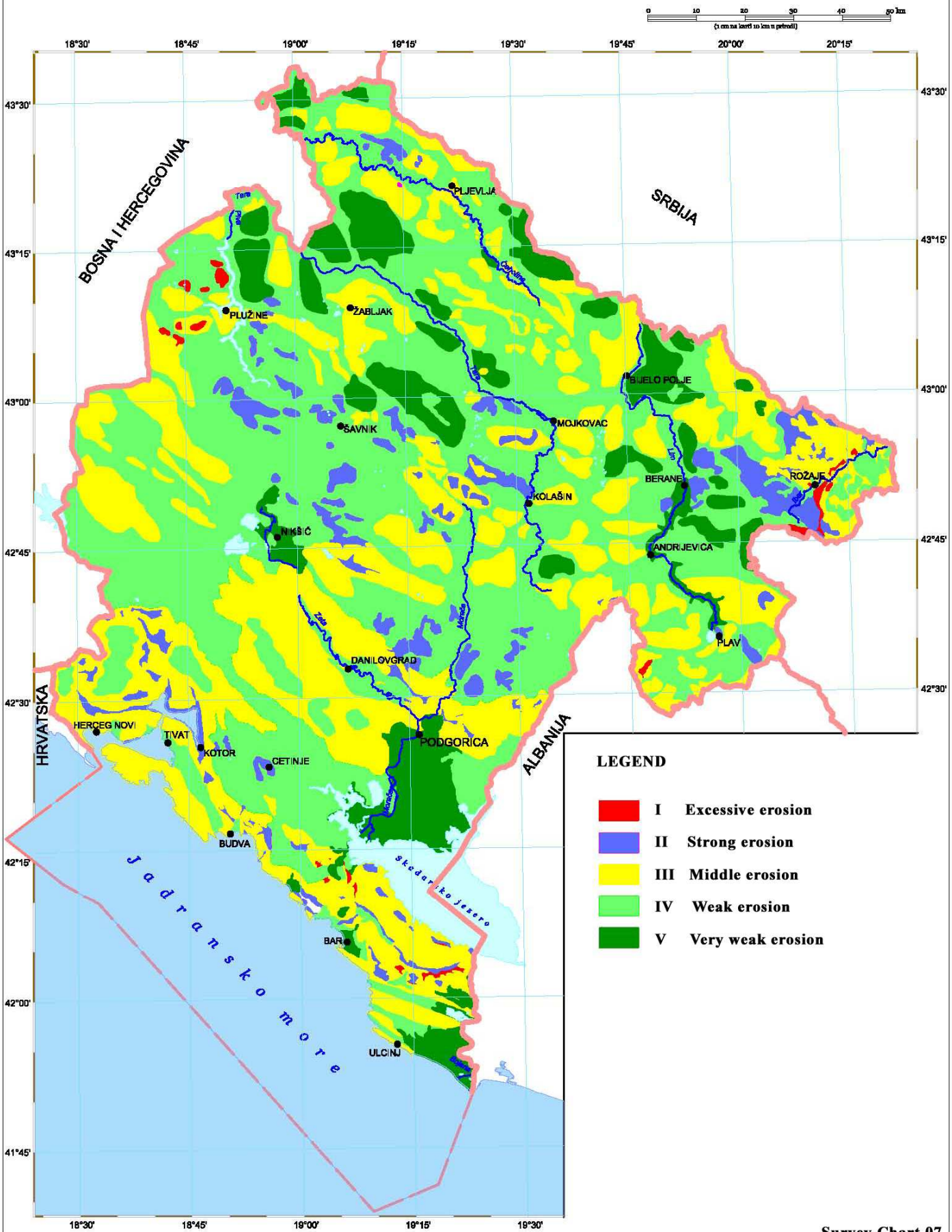


Survey Chart 06

SPATIAL PLAN OF MONTENEGRO TO 2020

EROSION – CURRENT SITUATION

Proportion 1 : 900.000

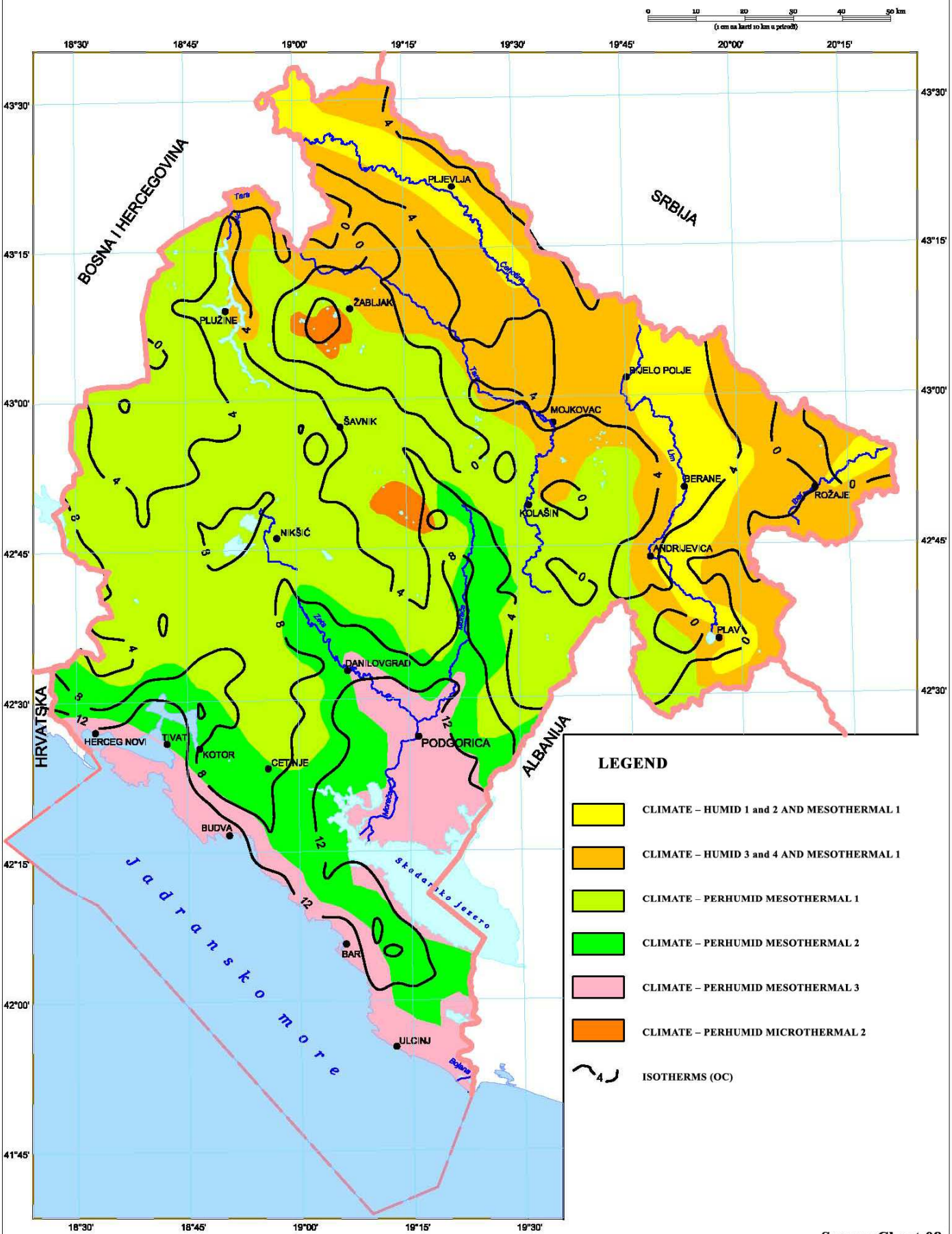


Survey Chart 07

SPATIAL PLAN OF MONTENEGRO TO 2020

CLIMATE ZONES – CURRENT SITUATION

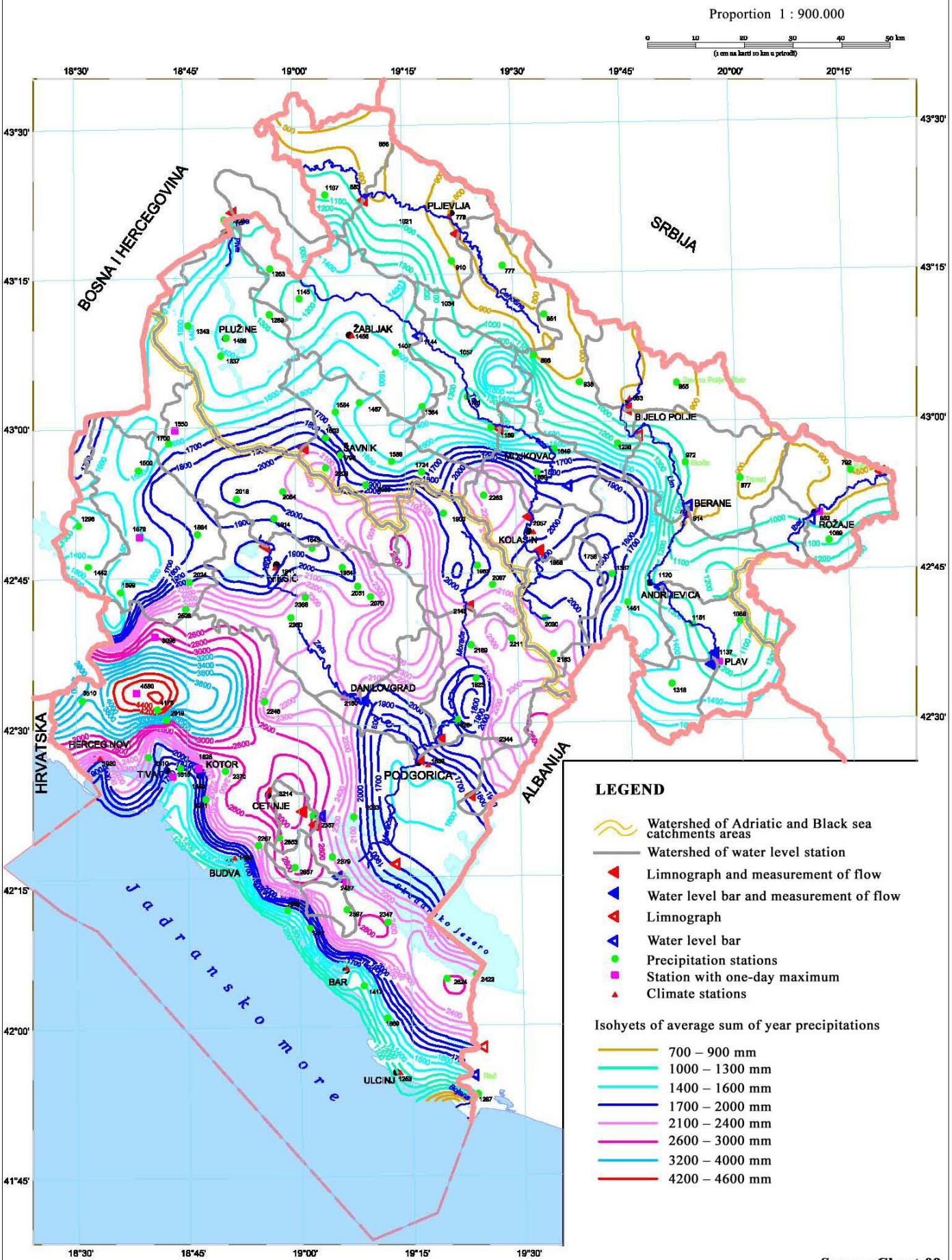
Proportion 1 : 900.000



Survey Chart 08

SPATIAL PLAN OF MONTENEGRO TO 2020

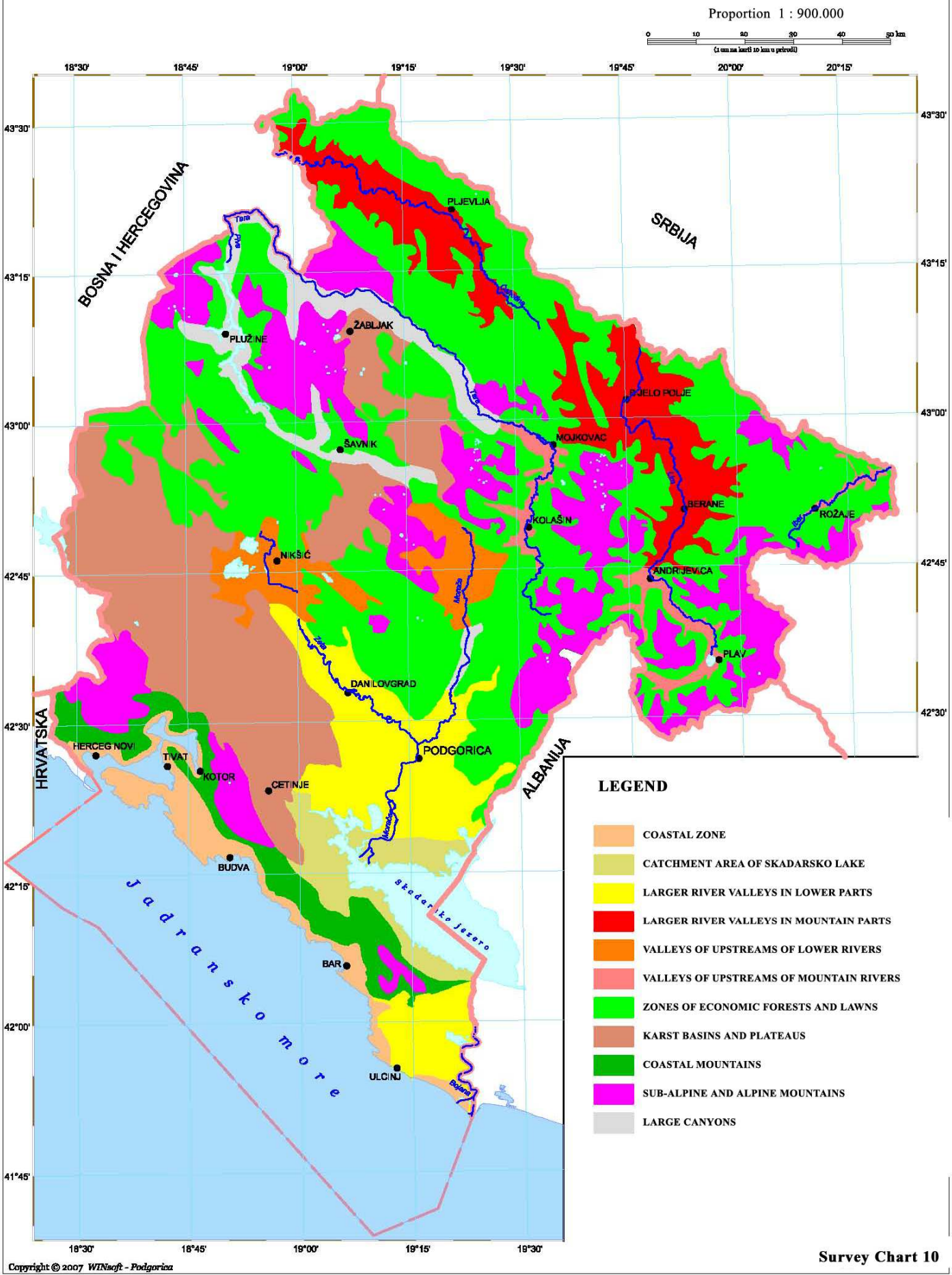
ISOHYETS MAP – CURRENT SITUATION



Survey Chart 09

SPATIAL PLAN OF MONTENEGRO TO 2020

AMBIENT ZONES OF MONTENEGRO – CURRENT SITUATION

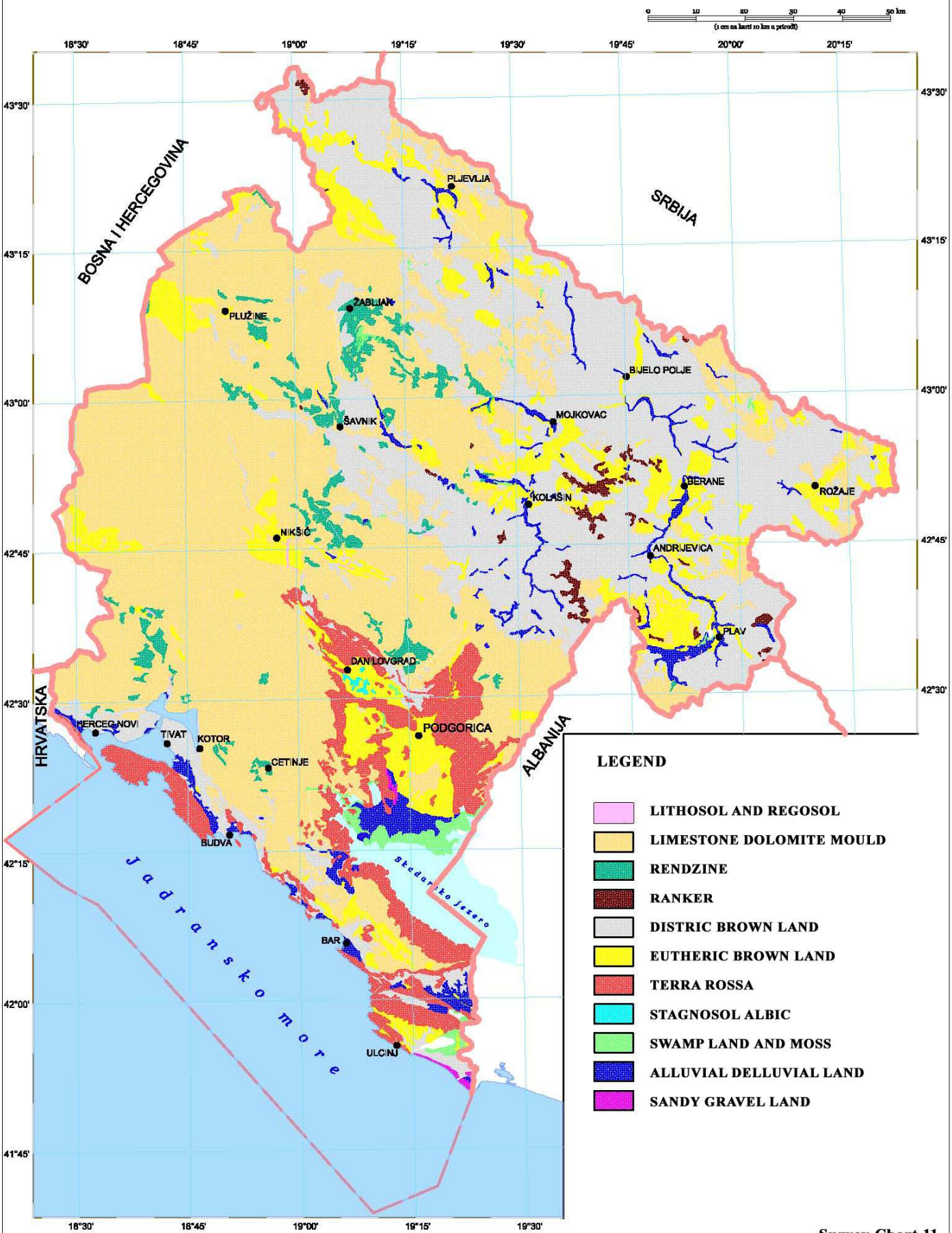


Survey Chart 10

SPATIAL PLAN OF MONTENEGRO TO 2020

PEDOLOGICAL MAP – CURRENT SITUATION

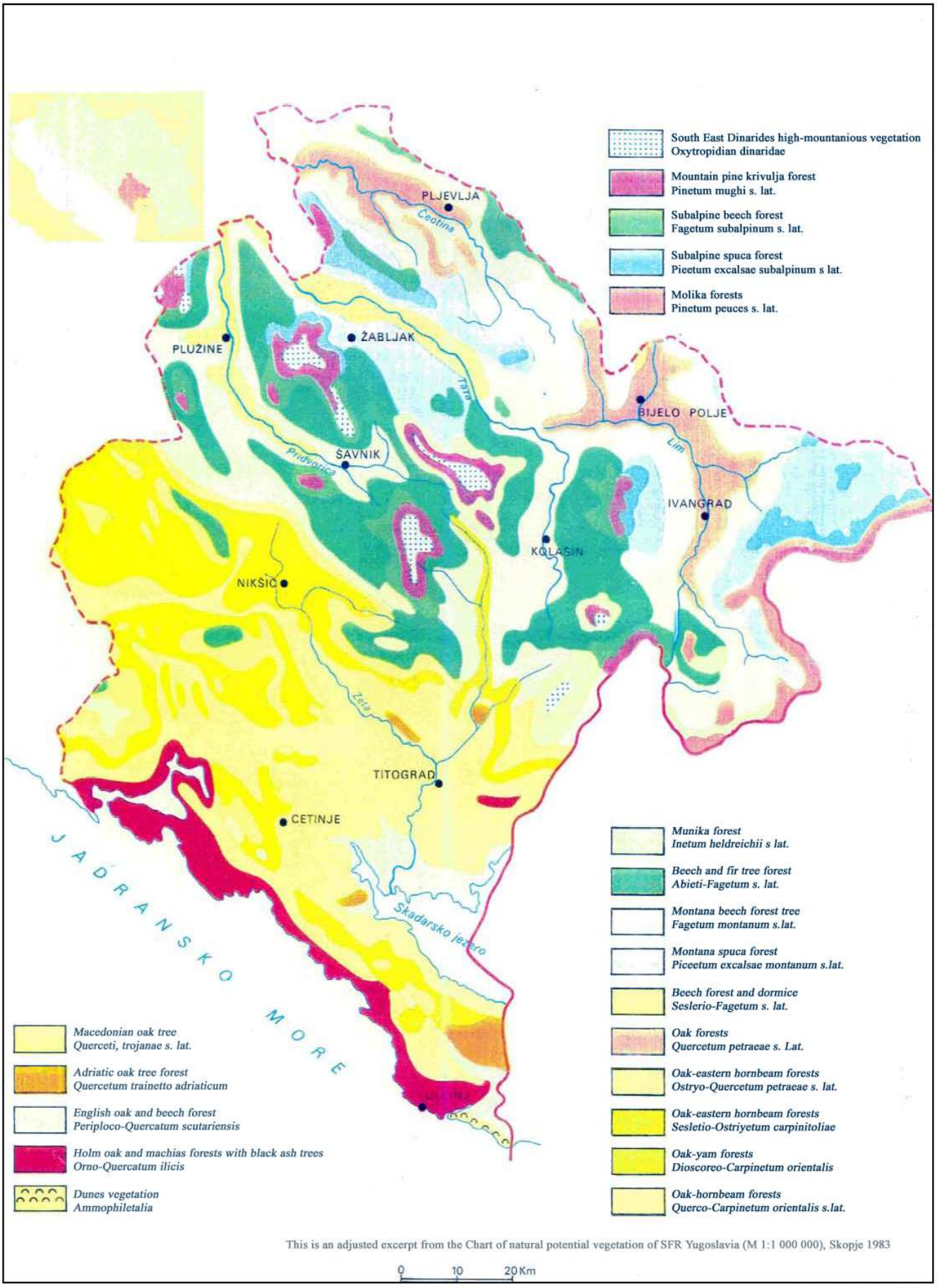
Proportion 1 : 900.000



Survey Chart 11

SPATIAL PLAN OF MONTENEGRO TO 2020

VEGETATION MAP OF MONTENEGRO – CURRENT SITUATION



This is an adjusted excerpt from the Chart of natural potential vegetation of SFR Yugoslavia (M 1:1 000 000), Skopje 1983

0 10 20 Km

3.3.1 Population of Montenegro by regions and municipalities

The last decade of the twentieth century was characterized by moderate positive trends of population changes in Montenegro. Within the period between two censuses (1991 – 2003) the population increased in total by 4.8%, or at an annual growth rate of 0.34%. Generally speaking, population growth was slowed down in this period comparing to the period several decades after World War II and at the same time was followed by the general trend of population aging.

Population density is very different in Montenegro, especially by regions. On the area covering 13,812 km² there are 620,145 inhabitants what makes an average population density of 26.6 inhabitants per km². Population concentration in the central and Southern region is also illustrated with the population density rates of 56.8 inhabitants per km^2 for the Central region and 91.8 inhabitants per km^2 for the Southern region. These are the processes largely stemming from the process of urbanization and mechanical population migrations from the Northern region towards the central and southern region.

Table 1 – Population of Montenegro according to the census data

	Population in the country (present population)	Population in the country (previous period=100)	Total population	Density (number of inhabitants per km^2)	Number of households	Number of female per 1000 male inhabitant
1921	311.341	-	311.341	22,5	55.463	1004,76
1931	360.044	115,6	360.044	26,1	62.836	1002,86
1981	565.467	-	584.310	42,3	142.692	1016,68
1991	591.269	104,5	615.035	44,5	163.274	1010,36
2003	**620.145**	**104,8**	**673.078**	**48,7**	**191.047**	**1031,76**

Source: Monstat, *Statistical Yearbook of Montenegro (2004)*

Internal migrations, i.e. population changes within Montenegro, are very intensive. In several municipalities in the northern region of the Republic (Šavnik, Žabljak, Plužine, Berane, Andrijevica, Pljevlja) the number of inhabitants has continually been decreasing, while Podgorica and coastal municipalities have a permanent mechanical influx of population. These are tendencies existing for a long time already, meaning depopulating of the northern region which covers 11 municipalities with almost 53% of the territory of Montenegro. On the other hand, Central and Southern region have been recording permanent increase of population in each census conducted after the World War II.

Table 2 - Regional population structure in Montenegro (1961 - 2003) percentages (%)

	1961	1971.	1981	1991	2003
Northern region	46,19	43,44	39,19	37,17	33,01
Central region	36,13	38,28	41,0	42,56	43,30
Southern region	17,68	18,28	19,81	20,27	23,69
TOTAL	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Source: GTZ, Government of the RoM, University of Montenegro: SS-AE Project, Sector study 4.9-Demographic development of Montenegro, June 2005.

Table 3 – Population of Montenegro according to census data and number of citizens living abroad

	Population			Number of Montenegrin citizens abroad			"ino" share in total (ino+dom)		
	1991	2003	2003/1991	1991	2003	2003/1991	1991	2003	2003/1991
Monte-negro	**591.269**	**620.145**	**4,88%**	**23.766**	**54.816**	**130,65%**	**3,86%**	**8,12%**	**110,17%**
Andrijevica	6552	5785	-12,01%	144	686	376,39%	2,15%	10,63%	394,48%
Bar	34.282	40.037	16,79%	3039	5502	81,05%	8,14%	12,08%	48,37%
Berane	37.473	35.068	-6,42%	1480	5922	300,14%	3,80%	14,45%	280,25%
Bijelo Polje	54.437	50.284	-7,63%	831	7015	744,16%	1,50%	12,24%	714,24%
Budva	11.538	15.909	37,88%	179	410	129,05%	1,53%	2,51%	64,46%
Danilovgrad	14.573	16.523	13,38%	145	119	-17,93%	0,99%	0,72%	-27,42%
Zabljak	4900	4204	-14,20%	14	39	178,57%	0,28%	0,92%	222,63%
Kolašin	11.044	9949	-9,91%	76	104	36,84%	0,68%	1,03%	51,37%
Kotor	22.112	22.947	3,78%	298	763	156,04%	1,33%	3,22%	142,00%
Mojkovac	10.725	10.066	-6,14%	105	251	139,05%	0,97%	2,43%	150,93%
Nikšić	73.878	75.282	1,90%	828	1522	83,82%	1,11%	1,98%	78,80%
Plav	15.684	13.805	-11,98%	3621	7879	117,59%	18,76%	36,34%	93,72%
Plužine	5219	4272	-18,15%	28	23	-17,86%	0,53%	0,54%	0,35%
Pljevlja	39.188	35.806	-8,63%	405	1098	171,11%	1,02%	2,98%	190,87%
Podgorica	145.696	169.132	16,09%	6329	10.352	63,56%	4,16%	5,77%	38,54%
Rožaje	22.330	22.693	1,62%	646	5003	674,46%	2,81%	18,06%	542,50%
Tivat	11.146	13.630	22,29%	283	510	80,21%	2,48%	3,61%	45,66%
Ulcinj	19.667	20.290	3,17%	4550	6202	36,31%	18,79%	23,41%	24,60%
Herceg Novi	27.006	33.034	22,32%	587	1137	93,70%	2,13%	3,33%	56,41%
Cetinje	20.139	18.482	-8,23%	168	243	44,64%	0,83%	1,30%	56,86%
Šavnik	3680	2947	-19,92%	10	34	240,00%	0,27%	1,14%	320,87%

The largest population outflow was recorded in the municipality of Bijelo Polje where the number of inhabitants living abroad increased for 714% compared to the year 1991. A similar trend is also present in other municipalities in Northern Montenegro (Andrijevica, Berane, Žabljak, Mojkovac, Pljevlja, Rozaje, and Savnik).

3.3.2 Level of development of basic demographic structures

The age structure of population has changed and the participation of population above 60 years of age increased from 13.3% (1991) to 16.8% in 2001. At the same time, the participation of population aged from 0 to 19 in the total population decreased from 33.9 to 28.8%, while the percentage of people aged from 20 – 59 increased for 1.6%.

In the upcoming period (until 2021), further aging of Montenegrin population, i.e. the increase of older population in the total population of Montenegro, can be expected. The average number of members per household decreased from 3.8 members in 1991 to 3.25 in 2003. In 2003, the number of household members in urban areas was 3.4, while in other areas it was 3.26. In some regions the decrease was very uneven and different.

As for the economic structure of the population, the prevailing category is active population, which makes 42.62% (2003), then the supported population – 40.58%, while the persons with their own income make 16.48% of the overall population. Within the active population, farmers participate with 8.86%.[3]

The population structure by education level had the fastest transformation compared to other structures and their changes, particularly relating to population with higher levels of education (secondary, college and university). The share of population with university degrees increased from 5% (1991) to 7.5% in 2003, with college degree from 3.8% to 5.09%, while the share of population who graduated at secondary schools increased from 34.9% to 48.44%. Illiteracy rate decreased from 5.6% (1991) to 2.5% in 2003.

3.3.3 Main demographic problems

From the aspect of demographic problems, several essential factors may be stated:

- The increase of the total number of inhabitants in Montenegro continued, but at a slower rate;
- Previously noted decrease in population growth continued due to the abrupt increase of mortality rate. As a result of such a situation there is a decrease of vital index (from 2.852 in 1980 to 1.458 in 2003, or 1,95 times lower);
- Decrease in the number of marriages. At the same time, there is an increase in the number of divorces (4.1 per family member according to census in 1981, 3.7 in 1991, 3.5 in 2003);
- There has been a migration of the younger population from rural into urban areas, and vice versa in the case of older population. This has lead to the changed structure of settlements. Out of the total of 1,256 settlements, there were 28 (2, 23%) unpopulated settlements, 100 settlements (7.96%) with less than 10 inhabitants, 175 (13.93%) settlements with 10 to 30 inhabitants, 123 (9,79%) settlements with 30 to 50 inhabitants and 23.486 settlements (18,63%) with 50 to 100 inhabitants. There were 596 settlements (47.45%) with more than 100 inhabitants.
- In the majority of municipal centres, the number of inhabitants increased: Andrijevica (15%) Bar (27.2%) Budva (51.5%) Danilovgrad (16.1%) Žabljak (5%), Kolašin (19.8%) Nikšić (4.9%) Plužine (2.8%) Pljevlja (6.8%) Podgorica (17.5%) Rožaje (3.8%) Tivat (16.2%) Ulcinj (8.3%) and Herceg Novi (13.1%). Other municipal centres, Berane, Bijelo Polje, Kotor, Mojkovac, Plav, Cetinje and Šavnik had the decrease of population;
- The trend of migrations from the northern to the southern region continued, and thus each coastal municipality has a positive migrations balance except Ulcinj. Positive migration balance is also characteristic for the municipalities of Podgorica and Danilovgrad. The municipality of Plav also records a slight positive balance;
- The trend of population aging continued;
- Further depopulation of rual areas (see table).

3 According to 1991 census, the participation of active population was 40.1%, supported population 47.26%, while persons with their own income participated with 12.6%. The participation of farmers was 9.38%.

Table 4 – Comparative overview of village categories by number of inhabitants (1948/2003)

Village category	Number of inhabitants	1948		2003.	
		Number of villages	Participation in total number of settlements in Montenegro (in %)	Number of villages	Participation in total nnumber of settlements in Montenegro (in %)
1.	**0 – 25**	7	0,6	260	21,4
2.	**26 – 50**	31	2,6	165	13,6
3.	**51 – 100**	174	14,5	234	19,3
4.	**101 – 200**	400	33,3	236	19,4
5.	**201 – 300**	260	21,7	112	9,2
6.	**301 - 500**	219	18,2	102	8,4
7.	**501 – 1000**	105	8,8	76	6,2
8.	**over 1000**	4	0,3	31	2,5
TOTAL		**1200**		**1216**	

3.4 Settlements

3.4.1 System and network of settlements

Network of settlements, urbanization and spatial processes – Since the early nineties, concentration and centralization of population and activities in some regions of Montenegro and faster development of certain municipal centres have intensified, while at the same time peripheral areas showed slower development. Inhabiting and settling in Montenegro has been characterized by process of internal and, to a minor extent, external migration changes. As previously pointed out, for some time already depopulation of the northern region has been taking place, with evident concentration in the central region and constant population growth in the southern region. Some towns, in particular Podgorica, Nikšić, Herceg Novi, Budva and Bar, keep growing due to the inflow of population, mainly at the expense of depopulation of their surrounding areas. As a consequence, the suburbanization trend is intensified; spatial intentedness is on the increase, followed by changes in the typological, environmental and spatial features of a large number of settlements. This is manifested through new spatial distribution of residential buildings and production and service locations in the suburbs of large settlements and towns. Suburbanized settlements develop as new agglomerations, mainly of private family houses of the non-agrarian population in the vicinity of urban centres, or structurally transformed former traditional villages, while on the coast these mostly refer to different types of secondary housing units. These settlements are independent of their rural hinterlands and mainly have residential functions, and only partly service and supply functions. In addition, most jobs remain in the closest larger settlement. This type of settlements is characterised by their mono-functionality, excessive use of space, low level of infrastructure and significant negative impact on the environment.

Urbanization level has reached 62.8% for the whole Montenegro, with significant regional variations.

Illegal and unplanned construction – risk factor for natural resources and economic development – Basically, any illegal construction means not only illegal usurpation of the right to use land but also, typically, avoiding paying charges for utilization of public infrastructure, and thus these costs are borne by those who build and work in accordance with the law. A special problem is illegal construction in the most attractive areas, for instance, along the sea coast and

in the protected natural areas, especially when it is mass building and when builders gain large profits, mainly at the expense of public interest and endangering public properties. It happens frequently that a major part of technical, traffic, environmental and other requirements are not respected and in such construction public interest is often neglected or ignored. Also, unplanned construction makes additional pressure on the natural resources and the environment, particularly regarding water pollution.

Changes of town structures – In some regions it is already possible to create certain town areas as a result of spreading of suburban areas and a possibility to connect specific functions and make mutual connection and links. Although there are no definite records showing that the urbanized areas in Montenegro are merging, except for some parts of the coastal region, it is already possible to forecast future creation and growth of urban agglomerations along the roadways Podgorica – Danilovgrad – Tuzi – Golubovci, Herceg Novi – Tivat, Budva – Petrovac and Sutomore – Bar – Ulcinj.

Grouping of jobs in the employment centres – Towns and other urban settlements are main employment centres. Most of the working places are in the biggest settlements. Such spatial disposition is the main reason for daily high participation of work migrations. Many employees do not work in the place of their residence.

Distribution of economic and social activities by towns and other settlements – Concentration and dispersion are also manifested through the distribution of activities by settlements. A major part of all activities has been recorded in urban and semi-urban settlements. As for the kind of activities, these are mainly tertiary and quartery activities in urban settlements (trade, hospitality, tourism, financial services, education, healthcare, social institutions, state administration, local authorities and bodies, culture and sport). In some towns industrial and other processing activities are still important although their participation in GDP has decreased after many years of non-operation or restructuring. The same goes for traffic and other services. In connection with that, during the last ten years, poor accessibility of certain peripheral areas, i.e. centres, was a significant limitation for economy restructuring or for introduction of new industrial programs. That caused an increase of daily work migrations and often moving out from these areas. Poor availability of the higher rank services (education, health care, etc) is especially characteristic for the mountainous and/or border regions.

3.4.2 Accomplished urbanisation level and main problems in towns

Towns as centres and main holders of economic development – Towns and other urban settlements in Montenegro are the centres and main holders of economic and social development, and in a smaller measure certain rural, tourist and areas of special natural importance. However, most of key development problems are concentrated there. The distribution, size and current situation of major (central) settlements within the urban network structure do not enable optimal economic development and higher density of public infrastructure. Many towns have unilateral functional structure with additional limitations arising from the economic, social and other crises and insufficient economic growth in the period since the early nineties i.e. with the decreased economic capacity. These problems were additionally aggravated by migration processes which led to the fact that the highest demographic pressure was in towns i.e. in the biggest urban settlements.

Unplanned growth of urban and other settlements and state of planning documentation and IT support for planning – Most often, growth and development of urban and other settlements is spontaneous, greatly influenced by illegal construction. This is mainly the consequence of insufficient and inappropriate planning documents, and partly of poor planning discipline in implementing current plans. Having in mind the time when they were adopted, the greatest part of municipal spatial plans and general urban plans were elaborated on the basis of previous development and social assumptions, considerably different from the current ones. Therefore, such plans could not prevent negative development trends in the space during the

SPATIAL PLAN OF MONTENEGRO TO 2020

NETWORK OF SETTLEMENTS – CURRENT SITUATION

Survey Chart 13

past period, and recently they have proved to be inappropriate in the changed social and economic conditions.

In addition, the old generation of plans, typically, does not contain all implementation mechanism tools necessary for consistent and efficient implementation of key planning provisions, which is also an important reason why a large number of these plans is less usable. Generally speaking, in a situation of radically changed prerequisites and conditions, often as a result of inappropriate plans and delays in adoption of planning documents, an irrational use of construction land can be witnessed in Montenegro. What is particularly unfavourable is frequent construction in areas which, judging by urban planning criteria, are not suited for specific activities, or for which appropriate planning documents are missing (plans, local regulations etc).

Degraded urban areas and areas not activated for modern development – Certain abandoned industrial, mining, military and other similar areas have still not been covered by local spatial and other development documents, although they may be of great importance for future development. This needs to be done as soon as possible, especially bearing in mind that in foreseeable future their primary purpose will not be renewed, in order to prevent dislocation of vital town functions from smaller urban centres. It is also necessary to protect suburban parts of town centres from the further uncontrolled suburbanization. Processes of the so called “urban recycling” should be accelerated and regulations on this issue should be incorporated in relevant plans and other local documents as soon as possible.

Housing issues – According to 2003 census, Montenegro had approximately 180,000 households and 240,000 apartments. Thus, it could be concluded that Montenegro has no housing deficit. However, the actual situation is quite different. A large number of apartments are intended for occasional use, while in the demographically endangered and economically peripheral areas there are many abandoned apartments. There are huge regional differences in apartment prices, following the demand, with prices in Podgorica and on the coast significantly exceeding the prices in other regions.

The maintenance of the housing fund has been insufficient what would have very unfavourable consequences in case of natural disasters. A specific aspect is the occurance of settlements for marginalised groups, typically with lower level of infrastructural facilities and inadequate quality of housing units.

At the end of April 2005, The Government of Montenegro adopted the Action Plan on Housing Policy in Montenegro (produced with consultant support provided by Stability Pact and with commitment to above-mentioned goals)

The most important problems characteristic for the housing field in Montenegro are the following:

- around 27000 households in Montenegro have not solved housing problems adequately and they are forced to pay very high rents in comparison with monthly salaries;
- until 1990, despite the fact that they allocated resources for housing fund, a significant number of employees have not succeeded in solving their housing issue;
- transformation in ownership structure in the housing fund from typically public to dominantly private did not ensure establishment of the housing Fund that would allow activities of the State in this field;
- inadequate maintenance and rapid collapse of the existing housing fund;
- unfavourable credits offered to citizens to solve their housing problems;
- inadequate solving of housing issues for socially endangered households;
- disrespect of existing regulations in relationships between tenants and lease-holders.

Basic starting points for further solving of housing issues are the following:

- Housing demand significantly exceeds the offer, especially in larger towns and coastal tourist centres;
- There is a noticeable lack of social housing owned and managed by municipal housing funds;
- In many areas demands and pressures for individual construction exceed spatial capacities.

3.4.3 Current state of rural settlements development

Rural areas are characterised by low population density and by mainly employment of population in agriculture and forestry. Settlements network in rural areas generally consists of smaller settlements with fewer services and urban activities. Most rural settlements in Montenegro can be classified as shattered settlements with shattered spatial structure as well as with a certain level of construction concentration in rural centres. Settlements located in plains, i.e. in the vicinity of larger towns have greater concentration of buildings and better infrastructure.

Montenegrin rural areas can be divided into five basic groups as follows:

- Rural areas in the vicinity of densely urbanized places or in the vicinity of larger towns;
- Rural tourism areas;
- Rural areas with mixed activities, which still depend on agriculture but with noticeable development of other activities, for instance tourism, industry and services;
- Primarily agricultural rural areas;
- Hardly accessible rural areas in the hilly and mountainous areas, where forestry and extensive cattle breeding are typical activities.

Basic assumptions for future spatial development:

- Significant part of rural areas has development limitations, partly due to unfavourable general trends regarding population, economic growth etc;
- Depopulation of a larger part of hilly and mountainous areas is a significant lilitation for overall development of Montenegro, which requires undertaking a larger number of new measures;
- In many rural settlements spatial structure has been significantly changed because of neglecting traditional cultural patterns.

3.5 Economic development

3.5.1 General features of economic development

Economic recession in the nineties, together with the lack of efficiency and structural adjustments inherited from the planned economy period, contributed to the unsatisfactory situation in Montenegrin economy.

However, the decline of economic activities was stopped during the second half of the nineties. After the year 2000 economic recovery was accelerated. Economic growth was more dynamic and stable. In the year 2004 GDP amounted to 1,565.1 million € (Monstat) and was 53.1% higher compared to the one achieved in the year 2000. Within the same period the overall number of employed population increased to approximately 144,000 by the year 2005. At the same time the number of the unemployed people decreased to approximately 49,000 (by which the unemployment rate was decreased to approximately 19%). The average net salary amounted to 213€. Visible progress was also achieved in curbing of grey economy, the share of which in the GDP was significantly decreased and didn't exceed 20% in the year 2004. The inflation rate was decreased to 4.3% in the year 2004 i.e. 1.8% in the year 2005. The share of the state budget deficit in the GDP was decreased below 3%.

Montenegrin economy went through significant changes in 2006 and 2007 comparing to the previous years, and they reflect in macroeconomic stability, strong growth of GDP, inflow of direct foreign investments, intensive development of real estate market and capital market, decrease in unemployment, structural reforms, budgetary surplus etc. In the year 2006

budgetary surplus of 3.4% of GDP was recorded for the first time, and positive trends have also continued in 2007. The inflation rate in 2006 amounted to 2.1%, and in the first nine months of 2007 3.5% compared to the same period last year. The average net salary in 2006 amounted to 246€, and for the first six months of 2007 it was 323€. Unemployment rate in 2006 was reduced to 14.6% and after first nine months in 2007 to 11.8%

3.5.2 Key processes in global economic development

The most important processes characterizing global development of the economy in the market environment are:

- The beginning of de-fragmentising of the ownership structures;
- Continuous fight against grey economy;
- Increasing presence of reputable companies and foreign investors;
- Liberalization of foreign trade traffic and prices promoted market conditions of economy and stabilization of the general price levels;
- Preparation of new legal provisions in this area, which will create framework for systematic control or elimination of limiting factors;
- Started initiatives and institution building necessary for the economic integration into EU and WTO.

3.5.3 Level of development by economic sectors and key problems

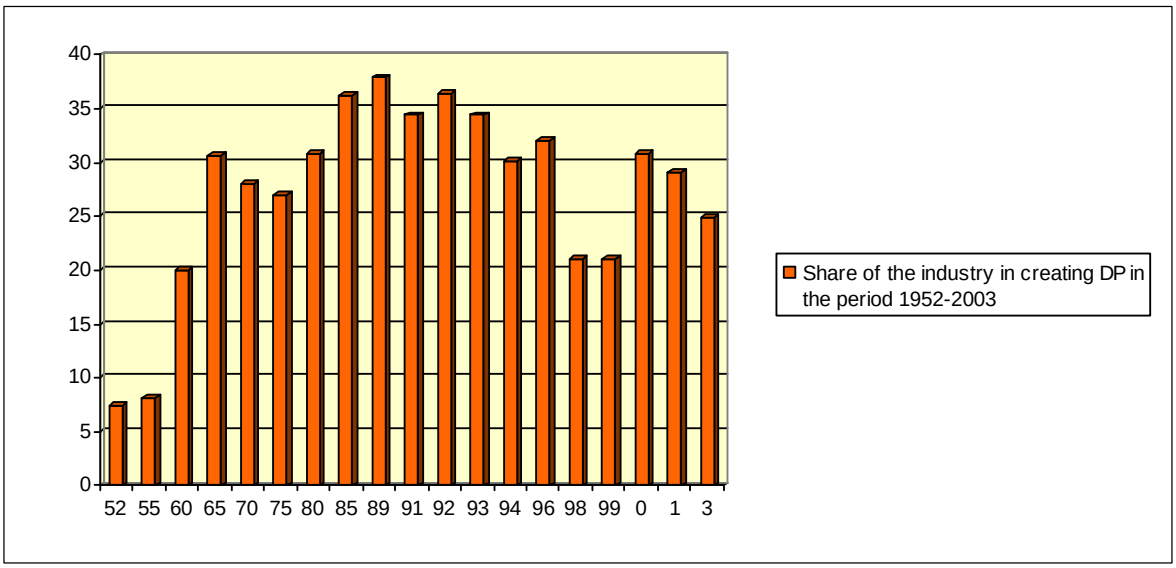
3.5.3.1 Mining and industry

After the fall of mining and industrial production, certain improvements were accomplished starting from 1996, which, after that, have been preserved without any significant oscillations.

From the end of the 1980s, the structure of the employment in mining and industry was significantly changed. In 1989 processing industry employed around 42,000 workers and in 2002 less than 17,000. In production and processing of metal, there were around 17,000 employees in 1989 and less than 11,000 in 2002.

In terms of structure of the industrial product, till the end of 1980s, production of steel and aluminum was predominant (25.44%), then production of machines and electrical devices (15.8%), production of different metal products (13.32%), production of electric energy (9.19%), production of textiles and cloths (7.35) and excavation of mine and stone (6.06%).

During the last 15 years, mining and industrial structure was significantly changed, so in 2002 production of steel and aluminum was predominant (43.5%), then production of electric energy (21.6%), production of food and beverages (8.2), production of salt (7.4%), extraction of mine and stone (7.2%) and production of tobacco products (6.4%)



Graphic 1 : Share of the industry in creating DP in the period 1952-2003

The basic characteristics of structural changes in mining and industrial production are the following:

- According to the situation in 2002, extraction of mines is still predominant, productions of metal, aluminum and energy as well as the industry which represents the basis for existence of population (production of food, beverages and tobacco)
- A part of industrial activities, some of which played an important role in generating income (for example, production of machines and electrical devices, production of final products in wood processing, textile industry etc.) is practically gone.
- One remaining part of the industry was privatized or is about to be privatized (e.g. metal processing, production of leather and leather products, chemical industry etc.).

During the significant fall during 90s, industrial production was preserved mostly in the energy production and in processing industry, on the basis of domestic raw materials and for the needs of domestic market.

As one of the main features of negative movements in the period 1989-2003, export of the industry was cut by half and in terms of structure the earlier level of diversification is lost.

3.5.3.2 Agriculture, forestry and fishery

In earlier base documents on agriculture development and in other strategic documents, agriculture was treated, together with tourism, as one of the priority directions of development. When planning for agriculture development, the starting point was its multifunctional significance, i.e. the fact that agriculture has much bigger significance than food manufacturing and ensuring food supplies. Agriculture was supposed to play an important role in realisation of the two basic principles defined by the Constitution – Montenegro as a social-market economy and Montenegro as ecological state.

Despite the fact that there were significant social-political and system changes which agricultural development benefited from, most of the proposals regarding agriculture in the previous Spatial plan were not realised. It is useful to note, that the environment and the conditions in which the development took place, of agriculture as well as of the complete economy, were much less favourable than it was expected. All these things contributed to keeping the main characteristics of agriculture as a traditional low productivity sector.

The main production subjects are a great number of private households. Within 60,043 households (2003) there is approximately 96.3% of cultivable land and just as much of stock breeding fund. Companies and cooperatives only possess 7,040 ha of cultivable land, out of which 828 ha of plough land, 376 ha of orchards, 1,891 ha of vineyards and 3,945 ha of meadows.

Despite of the decrease in agricultural and rural population, a number of rural households increased, which contributed to the deteriorating of already unfavourable owning structure. There has been further parcelling of properties and a large number of households which own a significant area of agricultural land, do not generate income from agriculture.

Due to the decrease in plough land area, planned production was not realised in range as well as in yields, especially with grains and forage plants, and there has been a significant decrease in the stock breeding fund – horn cattle and especially sheep and horses, which resulted in insufficient use of natural potentials - meadows and natural pastures and the recession of meat production and complete stock breeding industry as is the most important agricultural branch.

Water resources, which are significant for the overall agriculture, especially as objects and means for fish production have not been used efficiently.

Cultivable land fund remained at almost the same level (around 189,000 ha), but there has been a deterioration in its structure and the method of usage. The surfaces of plough land and gardens have decreased from 52,725 ha (1989) to 44,818 ha (2003) and the percentage of fallow land and uncultivated land has increased (from 6,400 to 14,826 ha). Plough land was turned into meadows and meadows into pastures. The trend of changing the purpose of agricultural land has continued, e.g. for residential building construction, especially after the restitution of land to former owners. During the last years the land is intensively being sold to foreign citizens, among others the land in most attractive locations, from narrower and wider strip of coastal municipalities, around Skadar Lake and in tourist centres in the north. The sale of land is followed by aggressive construction of new buildings which are very often illegally built and without any respect for building tradition. Through the change of purpose and permanent loss of land, the damage to agriculture is done and also other damages and negative consequences are evident - erosion of land, environmental pollution, destruction of cultural heritage and decrease in attractiveness of certain areas.

Inadequate socio-economic position of agriculture and villages was continued. It reflects, fist of all, in low budgetary allocations and low total investments in agriculture and rural development. Due to slow development and slow modernisation, the competitiveness of Montenegrin agriculture is low. The export of agricultural food products is small and import is increasing, so the foreign trade deficit is high (around 150 million Euros) and it keeps increasing.

The stagnation of agriculture and rural development, have resulted in increased regional differences at the expense of underdeveloped Northern region.

On the other hand, due to small investments and insufficient care for planning and protection of land, large areas of arable land are exposed to floods, excessive underground waters, ponded irrigation and salinisation. The situation is similar in protection against erosion, torrents, ensuring irrigation, recultivation and creating new surfaces by means of meliorations.

The breaking up of SFR Yugoslavia, war in the surrounding area and introduction of sanctions, led to a decline of the overall Montenegrin economy, increase in unemployment, decrease in incomes, fading of tourism, loss of traditional markets, which very negatively influenced on the development of agriculture and villages. On the other side, a sudden liberalisation of prices and imports, led to a sudden increase in imports and unloyal competition and additional difficulties in the development of agriculture.

In the last years, certain positive processes and changes happened. Thanks to the accepting and consistent application of principles and mechanism of modern agrarian policy, negative relation of population towards agriculture is starting to change gradually. As a result of the change in the mindset and measures undertaken, family farms of cattle and fowl are becoming more numerous; increase in the number of plantations of southern fruit, olives and vineyards; greenhouse areas are increasing; organised production of flowers and growing private seedling nurseries, breeding of fish; the number of beehives and production of honey is increasing as well as other mini farms. Meat and meat products industry is developing; milk processing and

milk products manufacturing is developing in private dairy farms, organising of manufacturers is beginning.

Forests and forest land in Montenegro cover the area of approximately 738,000 ha, or around 53.4% of the overall surface. Out of that, 622,000 ha are covered with forest vegetation which forms forested area of 45%. This percentage of forested area is estimated as very favourable, from the aspect of environmental protection and improvement.

Overall wood volume in all forests of the Republic counts 72.8 million m^3 and the annual volume increase is 1.5 million m^3. Of the overall wood volume, conifers form 40%, deciduous plants 60%. 67% of all forests and forest land area is owned by the state.

The quality of forest structure is not very high, because low productivity forests form around 54% (sprout forests, bushes, macchia and shrubbery) which reflects unfavourably on optimal usage of potentials of habitats, valorisation of its biological, economic, recreational and all other potentials.

Possible annual logging volume in all forests, based on current planning documents is around 800,000m^3.

Forests are divided into three categories according to their basic purpose (Law on forests, year 2000): industrial forests, protective forests and special-purpose forests. Industrial forests form 79% of the overall state forests, 18% form protective, and special-purpose forests 3%.

Priority objective in industrial forests is to achieve the maximum and appropriate quality of wood production and its continuity, as well as of other forest products with preserving the habitat's production power. Industrial forests with the selected system of managing ensure creation of selected structures, structures of similar form, with constant preservation of composition and density, at the same time performing all the other multi-beneficial functions.

Current state of industrial forests is not on a satisfactory level because, with average volume of 187 m^3 and volume increase of 3.9 m^3/ha, the production potential of the land is used with 65% capacity.

Protective forests include those that have a function to protect the land, watercourses, wells, protective zones along the roads and railways and forests on the upper border of forest vegetation. Protective forests cover the area of 76,000 ha.

Special-purpose forests cover forest communities in national parks, nature reservations, communities of rare and endangered species significant for preserving biodiversity and forest structure registered as the objects for production of forest seeds. The surface of these forests is approximately 13,000 ha.

14.3% of the area covered with forests is intended for protective forests and special-purposes forests.

Bear land in forest area, with surface of 115,000 ha, is divided into three categories: land adequate for afforestration (39,000 ha), non-arable land (45,000 ha), land for other purposes (31,000 ha).

The forests of southern forest area, made of forests at coastal and karst area, have an unfavourable structure because of their cultivation form (73% are sprout forests, bushes, shrubbery and macchia) and they are generally put into protective forests category.

The structure of forests in northern forest area is much more favourable than the southern area (tall forests in this area make 65%) and it contains forest ecosystems of best quality and highest productivity which present significant raw material resources.

Fishery as economic activity is based on potentials of the network of small springs, rivers, mountain and lowland lakes and accumulations. Total length of running waters is 1,715 km. These waters give very small quantities of fish compared to the quantities they are actually able to provide. The reason lays in irrational management and pollution of these waters (first of all industrial pollution). Surface of mountain lakes inhabited by fish is in total 547 ha, and surface of reeds, swamps and fish ponds is 995 ha. In the last 30 years several accumulations were built on the territory of Montenegro. Surface of these accumulations at medium water level is around 2,000 ha. Out of lowland lakes, fish is produced on Skadar and Šasko Lakes. Funds are

missing for more intensive fishing, therefore the catch is small (around 250-300 t annually). Trout breeding is being done in around 20 fish ponds and two cage systems.

In contrast to freshwater, marine fishing realizes annual catch in the amount of 477 t of fish. Fishing fleet comprises of 14 fishing ships and 170 motor boats. 7 companies i.e. cooperatives and 84 individual fishermen are in the marine fishing business. Marine fish catch, especially of blue fish, is below the possible, without any consequences of overcatch. Fishing fleet is technologically outdated.

Monitoring of resources of sea fishery has started in 1997, by the Institute for Marine Biology, bentonic and pelagic resources have been estimated and rates for catch of those resources have been suggested (600 tons of white fish and 15000 tons of small blue fish). Commercial fishery fleet for catch of bentonic fish consists of 17ships and boats, while the fleet for fishing of pelagic resources in fact does not exist, what enables and provides a big opportunity for development of this type of fishing. There is also an opportunity in forming a fleet of big and strong fishing boats which will be able to exploit resources at continental sea at 300-600m depth (epi-continental strip of Montenegro). Around 180 permits for small-scale coastal fishing have been registered.

120 fishers are employed in the sector of sea fishery and only 52 are qualified as fishers whose only occupation is fishing.

Defining of fishing ports must be taken into account, as well as their development, construction of capacities for repair of fishing boats, construction of modern centers for buying up fish at several places on the shore.

A special treatment and recognition in the document should be given to the area of the estuary of the River Bojana and port Milena as an area of special importance , as a place of spawing and feeding of young fish of economically important fish species.

3.5.3.3. Tourism

Statistically recorded capacity of accommodation does not suit the reality, especially regarding weekend apartments and houses which were, in the Master Plan of tourism development in 1997, estimated at around 90,090 beds, which then increased the estimated overall capacity to 242,998 beds. Estimations from 2005 showed the overall accommodation capacity to be from 295,987 to 397,589 beds, while, according to the statistics that is relatively accurate, there are 41,674 beds in basic accommodation facilities, which makes 10.48% and 14.08% of overall capacities.

In tourism, there is a misbalance between built accommodation capacities and insufficient development of the so called, additional tourism offer. In addition, special problem is insufficiently developed technical infrastructure, first of all roads and water supply, and then lack of developed waste waters channelling, treatment and disposal/releasing systems in the largest part of the Montenegrin territory i.e. in the majority of urban and other settlements.

Besides very successful results in modernization and construction of tourism superstructure during the last years, functional and technical condition of the majority of hotels and other accommodation facilities is still inadequate. Existing structure of accommodation capacities is contrary to strategic objectives of tourism development of Montenegro, especially in relation to planned increase in share of basic accommodation capacities (to app.40%). Weekend houses and apartments as a kind of non-optimal use of tourism resources, participate with even 44% in total accommodation capacities and basic accommodation capacities only with 13.62 % (hotels only with 9.68%).

Table 5– Distribution of accommodation capacities by regions and municipalities

			State in August 2004			%	%
No.	Region	basic	Complem.	total	No. of ho	total	basic

					and sim.		
I	Coastal	35193	76528	111721	159	96.18	88.16
1	municipality Herceg Novi	4843	16519	21362	28	19.12	13.76
2	municipality Kotor	1555	3094	4649	11	4.16	4.42
3	municipality Tivat	1820	1598	3418	12	3.06	5.17
4	municipality Budva	13751	16913	30664	56	27.45	39.07
5	municipality Bar	6414	19134	25548	32	22.87	18.23
6	municipality Ulcinj	6810	19270	26080	20	23.34	19.35
II	Central	1883	360	1523	23	1.31	4.72
1	municipality Podgorica	951	120	1071	15	70.32	50.50
2	municipality Cetinje	420	240	660	1	43.34	22.30
3	municipality Danilovgrad	60	0	60	2	3.94	3.19
4	municipality Nikšić	452	0	452	5	29.68	24.00
III	Northern	2845	66	2911	28	2.51	7.13
1	municipality Žabljak	968	66	1034	6	35.52	34.02
2	municipality Plužine	40	0	40	1	1.37	1.41
3	municipality Šavnik	57	0	57	1	1.96	2.00
4	municipality Kolašin	483	0	483	5	16.59	16.98
5	municipality Mojkovac	122	0	122	3	4.19	4.29
6	municipality Pljevlja	164	0	164	4	5.63	5.76
7	municipality Bijelo Polje	140	0	140	1	4.81	4.92
8	municipality Berane	275	0	275	3	9.45	9.67
9	municipality Andrijevica	99	0	99	1	3.40	3.48
10	municipality Plav	274	0	274	1	9.41	9.63
11	municipality Rožaje	223	0	223	2	7.66	7.84
IV	TOTAL	39921	76954	116155	210	100	100

Also, tourist offer if not sufficiently diversified, measured by existing potentials and tourist motives. Tourism is obviously lagging behind in the Northern region, although there are marvellous natural conditions for development of conventional forms of winter and mountain tourism as well as for numerous types of alternative tourism. To summarize, alternative i.e. newer types of tourism, are not sufficiently developed, especially cultural, religious, nautical, ecological etc.

Named trends became continuous, which lead to further deterioration in indicators of sustainability of tourism in Budva Riviera which expanded to neighbouring destinations (Boka Kotorska, especially Herceg Novi, Bar and Ulcinj).

3.5.3.4 Maritime economy

Maritime economy of Montenegro is servicing more than 2.5 millions tones of goods from the trade exchange and around 66,000 passengers annually. Better use of port, railway and road capacities is possible as well as the supplementary maritime economic activities. There are appropriate institutions for educations of marines in Montenegro. More than 4,500 marines of all qualification profiles are employed – mostly on foreign ships.

In the area of Morsko Dobro, there are two shipyards: in Bijela and in Tivat. Adriatic shipyard ”Bijela” covers 12.1 ha and surface of the aquatorium of 35 ha; it provides ship repair services and equipment maintenance (of motors, turbines, regulators etc.). Ship overhaul Institute ”Sava Kovačević” in Tivat was operational under the Army and was predominantly serving for military ships maintenance. Both shipyards are under restructuring and privatization process.

Other contents of maritime economy are elaborated in economic sectors of Montenegro.

3.5.3.5. Other economy

Trade reflects all the features of socio-economic environment, being the most vital sector during transition. In 2004, 7,275 enterprises were registered in trade sector, out of which wholesale 4,452, retail sale 2,787 and foreign trade 35 companies. Trade companies participate with more than 40% of total number of companies in Montenegro and employ around 11,000 workers or 10% of the total number of employed people in Montenegro. During the past ten-year period, trade had a share between 12 and 18% in DP of economy of Montenegro.

Basic current features of trade are:

- Fragmentized companies and facilities
- High costs of business and inadequate management
- High illiquidity and lack of working capital
- Irregular market conditions, especially presence of grey market
- General economic illiquidity and low standard level, directly impacting the trade.

Current **banking system** is reformed and economically complete, with larger private capital presence. Now, the banking market transactions are done by 8 banks. In the last three years, there has been a constant increase of depositary role of banks. Balance sums have been constantly increasing. In 2004 it was 27%. Liquidity is constantly growing, so by the end of last year it increased to 72%. Interest rates are still high but with the tendency of falling.

Free zones - Montenegro is oriented towards stimulating foreign capital inflow for which free zones would be particularly attractive. In this respect numerous customs, tax, location, organizational and other reliefs are expected, thus free zones will be highly demanded development centers but strictly directed towards sustainable spatial capacity.

Free zone Bar has great spatial conditions since, with the area of 250 ha and built space of 10,000 m^2 it now has, the overall area of 600 ha in hinterland is provided.

Free zone Kotor is comprised of two parts. The first part is business centre Škaljari of 20,000 m^2, where the old industrial zone was, which is planned for the construction of a modern business/trade center. Central position in settlement gives huge possibilities for development of this centre, especially because the zone leans on port Kotor. In Grbalj’s field, economic zone also covers around 20,000 m^2 and it is located in free area. The area of this zone can be used for production, processing, finishing and sorting of goods as well as for completing already existing industrial capacities. There is a possibility for organizing a free zone within port Zelenika but the bigger part of capacities should be planned in part behind Adriatic highway, not on the very shore which is already too congested.

3.6 Provision of the space with social services and achieved level of development

3.6.1 General state of provision and development

Personnel base and its qualification structure have been constantly changing with the tendency of decrease in total number of employees in a longer period and slight increase in the whole sphere in certain years. Out of all activities, only in the field of education there is a significant decrease in the total number of employees recorded. Total number of all employees in all social services is around 27,000. In 2003 it was 26,756, i.e. 23.9% of total number of employees in Montenegro. The largest number of employees is in education (13,016, 48.6%), then in health and social welfare (10,021 i.e. 37.5%), and in other activities 3,719, i.e. 13.9% of total number of employees in social services.

Material base was modest in comparison to needs, firstly as a result of modest allocations from the Montenegrin budget. Most of the funds were allocated for education, health and social welfare and protection, and the least for science. Planned allocations for social services are increasing, for 2005 they were 149.66 million €.

3.6.2 Level of development of educational pedagogical institutions

Pre-school education - In the past ten-year period, a number of positive changes was achieved, but still not enough:

- First of all, the overall number of pre-school institutions and users is increased (and in relation to appropriate group of citizens and employees) while at the same time the number of users per employee decreased. Besides that, the number of pre-school institutions in Montenegro is extremely small (75) and collectively insufficient , measured by the increase in number of children per one pre-school institution and coverage degree of this generation. Particularly insufficient is the coverage degree of children above 3 years of age.
- Mostly, pre-school institutions' buidings are located in the areas of larger towns (Podgorica, Nikšić, Bijelo Polje etc.), towns in coastal region (Bar, Budva, Kotor, Tivat, Herceg Novi etc.) and suburban settlements, and rarely in less developed municipalities, in rural area and in smaller places and settlements. There is an evident lack of pre-school institutions buildings thus insufficient space in comparison to needs in large urban agglomerations (Podgorica, Nikšić, Bijelo Polje and Bar).

Elementary education - The spatial distribution of schools, pupils and teachers is imbalanced on municipal and regional level. It follows basic demographic movements. In terms of regional distribution, since the population is concentrated mostly in Central region, the number of pupils per person of the area is increasing, while it is decreasing in the Northern and Coastal region. Share of the number of pupils in total number of pupils is significantly increasing in Central region (from 40.8% to 44.7%, in Southern region insignificantly (from 22.2% to 22.4%) and in the Southern region it is decreasing significantly (from 37.0% to 32.9%) in the observed period. While in Northern region, thus, both values are decreasing, and in Central both values are increasing, in Coastal region the trend is divergent (population increases while number of pupils decreases). In this respect, unfavourable trends in Northern region are already alarming, while in the other two regions a continuation or even intensification of the stated trends are expected. On the municipal level, the highest concentration of schools, pupils and teachers is in Podgorica, Bijelo Polju, Nikšić and Pljevlja, then in Bar, Rozaje.

Secondary education - In Montenegro, there are 44 schools for regular secondary education, that is, 1,151 classes and 31,257 pupils and 2,007 teachers. There are three specialized schools for secondary education in Montenegro (with 23 classes, 131 pupils and 48 teachers) in Podgorica and Kotor. These are schools for physically disabled, blind, mentally retarded, deaf and semi-deaf children and children with behaviour and personality disorders who are not able to attend regular curricula. For them, some kinds of boarding schools are organized with accommodation and workshops available besides the school premises. Pupils usually obtain all three levels of education in these institutions (pre-school, elementary and secondary). Coverage of generation from 15 to 19 years of age with regular secondary education is 63.3%, if we include special secondary schools it is 63.5%. Spatial distribution of secondary schools is imbalanced on municipal and regional level. The largest number of secondary schools is located in Podgorica (10), Nikšić and Berane (4 each) and Bijelo Polje (3 schools).

High (college) and university education - Existing educational system of the university education covers significant part of young population. In the school year 2002/2003, coverage was 21.0% of age group 20 to 24, i.e. 74.6% of graduated high pupils. Reform of the system according to Bologna declaration is ongoing and ECTS is applied at the University of Montenegro since 2003/2004.

The network of university units, with 10,270 students and 699 professors in 2005, consists of 11 faculties, 3 institutes, 3 academies and art faculties and 3 colleges. From school year 2004/2005 the first private faculties were starting to work in Bar and Podgorica with the establishment of the first private University (Mediteran) this year.

Informal education of adults - Extra-curricular and non-verified education of adults is ongoing in the scope of those educational centres from the previous system of People's and Workers' universities which were organized on the economic principles and survived on the market (Nikšić, Podgorica and Herceg Novi). In addition, the adults are educated in secondary schools and colleges, faculties and academies, in the training centres within the companies, Employment agency, some NGOs, professional associations etc.

Involvement of refugees and internally displaced persons in the educational system - Ever since the beginning of the refugees' influx in Montenegro, Ministry of education and science in cooperation with international institutions, NGOs and other actors, conducted their permanent involvement in all types of regular education system. Special decrees were enacted to make their involvement easier and to enable the continuation of their education. Refugees were allowed to continue education even without proper documentation necessary for continuation of education (if they left it in their places of origin). Due to already existing domicile population migrations in Montenegro from Northern region to Central and Coastal region, refugees' influx additionally burdened already crowded capacities in these regions. The schools are overloaded here, especially in the areas where the population of Roms is prevailing. The highest burden is on secondary schools in Podgorica while also the capacities vastly lacking in elementary and preschools institutions in municipalities of Podgorica, Bar and Budva.

3.6.3 State of development of scientific activities

As a result of unfavourable conditions for development of science (in comparison to other states – former SFRY Republics) Montenegrin science is significantly lagging behind in terms of extent of scientific research activities and results (especially in production of scientific works). Apart from general social crisis since the end of 1980s the latest isolation of the state and small and inadequate investments, instability of institutional frame from the beginning of the transition process had unfavourable impact on establishing permanently favourable conditions for the development of science.

Network of institutions and organizations in this field comprise of:

- Montenegrin Academy of Science and Art (CANU).
- University of Montenegro and belonging faculties
- Three scientific institutes (Historical Institute, Bio-Technical Institute and Institute for Sea-Biology).
- Special research centres: IRJ Institute for Black Metallurgy AD Nikšić which became an independent entity with defined ownership structure after reorganization and restructuring of the Steel Plant 'Željezara' Niksic), JU Center for Eco-Toxicological Researches of Montenegro (which is the only certified and authorized institution for implementation of the EU regulations for this field), JU Institute for Geological Researches of Montenegro, JU Seismic Institute of Montenegro etc.

Besides the named institutions, lately Dukljanska Academy of Science and Art (DANU) has already given significant contribution to the strengthening of scientific base and culture in Montenegro through its research and publishing activity, although it is registered as an NGO.

3.6.4 General state of culture and physical culture

Although the attention has been given to all kinds of cultural-historical production (i.e. literacy, scene and art, publishing, museum and archive and library activities, music culture, public information system, cultural-arts amateurism etc.), modest financial funds were selectively and cautiously used and predominantly directed to protection and revitalization of the monuments of culture and for the presentation and promotion of the cultural heritage of Montenegro. The strategy of cultural development policy of Montenegro is under preparation.

Transitional changes significantly influenced culture, firstly in terms of ownership and organizational restructuring of some types of cultural production and in particular informative activity. Numerous private TV and radio stations, newspapers and magazines are established. Beside the national radio-diffusion services "Radio Montenegro" and "TV Montenegro", there are 15 local radio-diffusion services, 40 commercial emmiters (29 radio stations and 11 TV stations) as well as a large number of daily newspapers and weekly magazines. Private initiative is especially visible in publishing activity, literature, painting and theatre activities. However, the predominant position in the area of culture is still with republic and municipal cultural institutions and organisations due to their tradition. Measured on the base of twenty relevant parameters, almost all kinds of cultural activities recorded progress.

In the observed period, several buildings of culture were built and reconstructed, most of them in Podgorica, Montenegrin National Theatre (5,300 m^2), The House of Culture in Tuzi (1,700 m^2) and House of Culture in Sukuruću (940 m^2). Construction of the Children's Theatre i.e. rehabilitation of the old facility and the change of its purpose is ongoing. In other municipalities or places the following facilities were built: House of Culture in Ulcinj (3,600 m^2); The House of Culture in Gusinje (1,040 m^2), and The House of Culture in Petnjica (850 m^2), Municipality of Berane. Construction of the House of Culture in Andrijevica has started, over the area of 1900m^2.

Development of **physical culture** is complementary with development of other social services, in particular education and health, and these activities are conducted on various levels (in schools, companies, municipalities etc.). However, there is still relatively small number of citizens using this kind of general culture for satisfying their needs in adequate manner, and insufficient sports and recreation activities have negative impact on population's health, especially children and youth.

Spatial distribution of the activities of physical culture is uneven, especially on municipal level. These activities are mainly developed in larger towns (Podgorica, Niksic, Bijelo Polje, Pljevlja and Bar), namely, where there is the highest concentration of professional personnel and closed and opened sports facilities. In the period 1993-2005, the following achievements were accomplished in the field of physical culture:

- Sports halls were built in Budva (4700 m^2), Nikšić (4900 m^2), Bijelo Polje (4500 m^2), Kolašin (4200 m^2) and Pljevlja (4500 m^2).
- Sports pool in Budva (4200 m^2), sports centre in Herceg Novi (4200m^2) and sports halls in Bar (5000 m^2) and Rožaje (4000 m^2) are still under construction.
- Upgrading and rehabilitation of the sports centre in Cetinje is ongoing (sports surface of 4500 m^2) and sports centre in Podgorica.

3.6.5 Level of development of health service

In the given frameworks, from the organizational, personnel and spatial aspect, aspect of professional capacities and effects of health protection, in this field significant results have been achieved. In last ten years, there have been many positive changes. The most important ones are the following: decrease of stillborns (in total and per 1.000 inhabitants); increase of the total number of doctors, dentists and specialists (per 1.000 inhabitants) and decrease of number of inhabitants per doctor and dentist. In total number of doctors, number of specialists increased to 890 (for 25.0%), and in hospital institutions to 416 (for 22.0%). Their share in total number is 75.2%, general practice doctors – 10.9%, while 15.9% are doctors on specialization. At the

same time a decrease of the number of hospital beds (per 1000 inhabitants) has to be counted. According to all key health indicators, Montenegro is lagging behind the EU countries.

As in other social services, capacities and services in the field of health service are spatially imbalanced (in certain municipalities and regions) although basic capacities of health protection exist in all municipalities. The largest number of doctors, dentists, pharmacists and other health personnel are placed in municipalities with largest population (in Podgorica, Nikšić, Herceg Novi, Bar and Bijelo Polje). Due to a large number of domicile population and influx of refugees, in these municipalities relation between the number of inhabitants and the number of doctors, dentists and health workers is more unfavourable than in other municipalities (like in Kotor). The highest number of doctors in relation to representative population number is located in the Central region of Montenegro (Podgorica, Nikšić and Cetinje) – mainly due to highest concentration of population and health facilities in state and private sector in these towns, and a little bit lower in the Northern region. In the Central region there is the highest increase in number of doctors, while in the Coastal region this number is decreased, which might be a limiting factor for future development of this region (in particular for tourism).

Basic health services for population of Montenegro are provided through the extended primary healthcare system (healthcare centres with their extended organizational units) the basic principle of which are equal accessibility. Hospital medical treatment is provided in seven general hospitals, three specialized hospitals and the Clinical Centre of Montenegro – Podgorica. Medical rehabilitation is provided in Institute for Physical Medicine and Rehabilitation: „Dr Simo Milošević"– Igalo.

3.6.6 State of development of social and children care

General aspects - Social and children care in Montenegro is provided through 17 different institutions financed from the budget. Within these there are six institutions for children and youth, one for care of adults and ten centres for social care. Apart from them, various non-governmental organisations (NGO's) are engaged too.

Protection of children and youth - While the number of pre-school institutions per 10,000 inhabitants is increasing, at the same time it is decreasing per 1000 employees, what shows that employees have more needs to use this type of children's care, and the capacities are insufficient. The number of students' and pupils' homes of smaller capacity is equal (4 and 4) but the number of users – students 5.5 times higher that the number of users – pupils. The network of institutions of social welfare is comprised of institutes of various purposes.

Protection of elderly - Montenegrin society belongs to a rapidly aging group, in the first thirty countries in the world. Average age is 35.9 years, average life-time 71 and number of inhabitants older than 80 is almost 13.000. Population over 60 forms more than 1/6 of total population, which became almost equal to the number of the youngest population, hence pyramid of total population gained drastic and unwanted shape. Those indicators are pointing at very complex, deep and durable problems of social protection. Existing institutional and non-institutional modes of protection are far below the actual needs and are not even comparable to the state in developed countries.

Protection of persons in social need – Besides the institutional support provided through social welfare centres, there are volunteering activities of support provided through NGOs as a supplement to the traditional system of help in Montenegro (relatives' and neighbourhood's help).

3.7 Provision of technical infrastructure systems in space and level of development

3.7.1 Transport

Existing transport subsystems in Montenegro were developed independently; thus, in their current condition they operate more or less independently. Namely, in current situation different transport subsystems do not operate fully as a unique transport system from the technical, technological and organisational aspect. A positive exception is technological connection of the intermodal transport systems in sea ports.

3.7.1.1 Road traffic

The total length of the **road network** in Montenegro is 6.928 km (846 km of main roads, 950 km of regional and 5132 km of local roads). Modern road surface covers 79% of main roads, 37% regional and 60% of local roads. In the period since the adoption of the SPR in 1986 until now, only one section of the primary road network has been constructed, the semi-motorway section with the “Sozina” Tunnel with temporary access roads to the existing network.

Considering the years needed for the construction (project period is 20 years) and the fact that little has been invested in maintenance, it becomes quite clear what the condition of the road infrastructure is like; in particular, bearing in mind that some 25% of the network is on the altitudes above 1000m. The fact that highways and regional roads pass through towns is additional problem. The 1986 Plan already highlighted the need to build by-passes. Postponement of the construction of bypasses makes their construction even more difficult later on, because of unplanned development of towns, and thus previously selected locations for by-passes are jeopardised and uncertain.

3.7.1.2 Rail traffic

The existing railway network in Montenegro consists of single track rails of standard width:

- Vrbnica – Bar, part of the Belgrade-Bar railway passing through Montenegro;
- Podgorica – Tuzi – state border (Podgorica – Shkodra railway section);
- Podgorica - Nikšić.

The total length of railways is 248.6 km, and together with station tracks it is 327.6 km, out of which 167.4 km are electrified, or 67.34%.

The Vrbnica-Bar line is fully electrified by mono-phase 25kV 50 Hz system, while Niksic - Podgorica and Podgorica –Tuzi -state border lines are not electrified.

The railway network also includes many station and commercial buildings. Important economic entities are connected to the railway network by industrial tracks in Bar, Podgorica, Spuz, Danilovgrad, Krusevo and Bijelo Polje.

The condition of the railway network in Montenegro is not satisfactory neither regarding its density, nor the network quality, with permanent danger of the system vulnerability, emphasized by the concentration of the road and rail traffic in the same corridor that passes through some extremely difficult terrains. The railway network density is 1.8 km/100 km^2.

3.7.1.3 Water traffic

Currently, there are several international maritime ports: the port of Bar, the port of Kotor, the port of Zelenika and the port of Risan, and ports for domestic maritime transport, marinas and docks. In the port of Bar, terminals are differentiated according to the characteristic types of cargo being handled. The scope of activities performed at the port of Bar includes: loading and discharging cargo, passenger terminal, cargo warehousing, additional cargo handling, piloting,

berthing and unberthing, ship supplying, maintenance of technical systems, trade, hotel business and tourism, and food production. The port of Kotor is used exclusively as a passenger terminal for liners and cruisers. It accounts for 100% of cruising vessels turnover and 84% of nautical tourism turnover in Montenegro. The ports of Zelenika and Risan have much smaller scope of services provided using own resources, compared to the port of Bar. The only difference between them is that the port of Zelenika offers warehouse facilities. The level of utilization of port facilities has been rather low recently, caused by numerous factors. The port of Budva has only recently acquired the status of an international port, primarily for nautical vessels. At the Montenegrin coast there is a certain number of built **marinas**, as well as a considerable number of development projects for new marinas. The most important existing marinas are as follows: **"**Sveti Nikola" in Bar, Marina in Budva, "Kaliman" in Tivat, Port of Kotor, "Kordić" in Prčanj, Town Port in Herceg Novi, Small Port Meljine and docks in Risan.

Waterways are divided into overseas, coastal and port waterways. The total length of waterways in the coastal zone of Montenegro is 66NM, or 122.2 km, which is the distance between its final ports, from Sv. Nikola (mouth of the Bojana River) up to Kotor. Out of the total length of the waterway, 50Nm (92.6 km) is in the open sea, and 16 NM (29.6 km) within the Boka Kotorska Bay. There are a number of navigation safety objects in Montenegro.

Considering the results of the **constructed port infrastructure** survey**,** provisions of existing spatial plans, conclusions of a number of studies, researches and officially adopted strategies, the following table gives basic elements of spatial features of Montenegrin ports.

Table 6 - Port infrastructure

Elements	Port of Bar	Port of Kotor	Port of Zelenika	Port of Risan
Wharf length (m)	3,484	512.6	267	75
Current port area (m^2)	1,300,000	4,000	25,000	2,320
As per current spatial planning documentations	600 ha reserved for the development of port industrial complex	- development of a nautical tourism centre with 1,300 m of wharves (near "Fjord" hotel); - development of a port building near the Harbour Master's Office; - 20,000 m^2 reserved for the development of a part of Free Zone Kotor (adjacent to the Port of Kotor); - the need of extending the operational shore	- development primarily as a passenger port with additional cargo facilities (special development study needed); - construction of a 200-berth marina;	- special study of development perspectives needed;

3.7.1.4 Air traffic

The primary airport network of Montenegro includes the airports of Podgorica and Tivat.

- The **Airport of Podgorica** has a 2,500m long and 45 m wide runway; generally, the airport complex has adequate spatial capacity for present needs.
- The **Airport of Tivat** has a 2,500m long and 45m wide runway..

The secondary airport network includes:

- The Airport of **Berane** was used in the period 1961-1976 for public air transport. Currently, it is used only as a sports airport. The airport has only the basic infrastructure: a runway with asphalt cover 1,900m long, a taxiway and a platform, also with asphalt cover.
- The Airport of **Niksic** (Kapino polje) is used as a sports airport; it has a 1,200m long grass runway.
- Landing ground **Ulcinj** has a 760m long grass runway and it is used for sports activities and agricultural aviation. The limitation of this airport is its location in the vicinity of the state border.

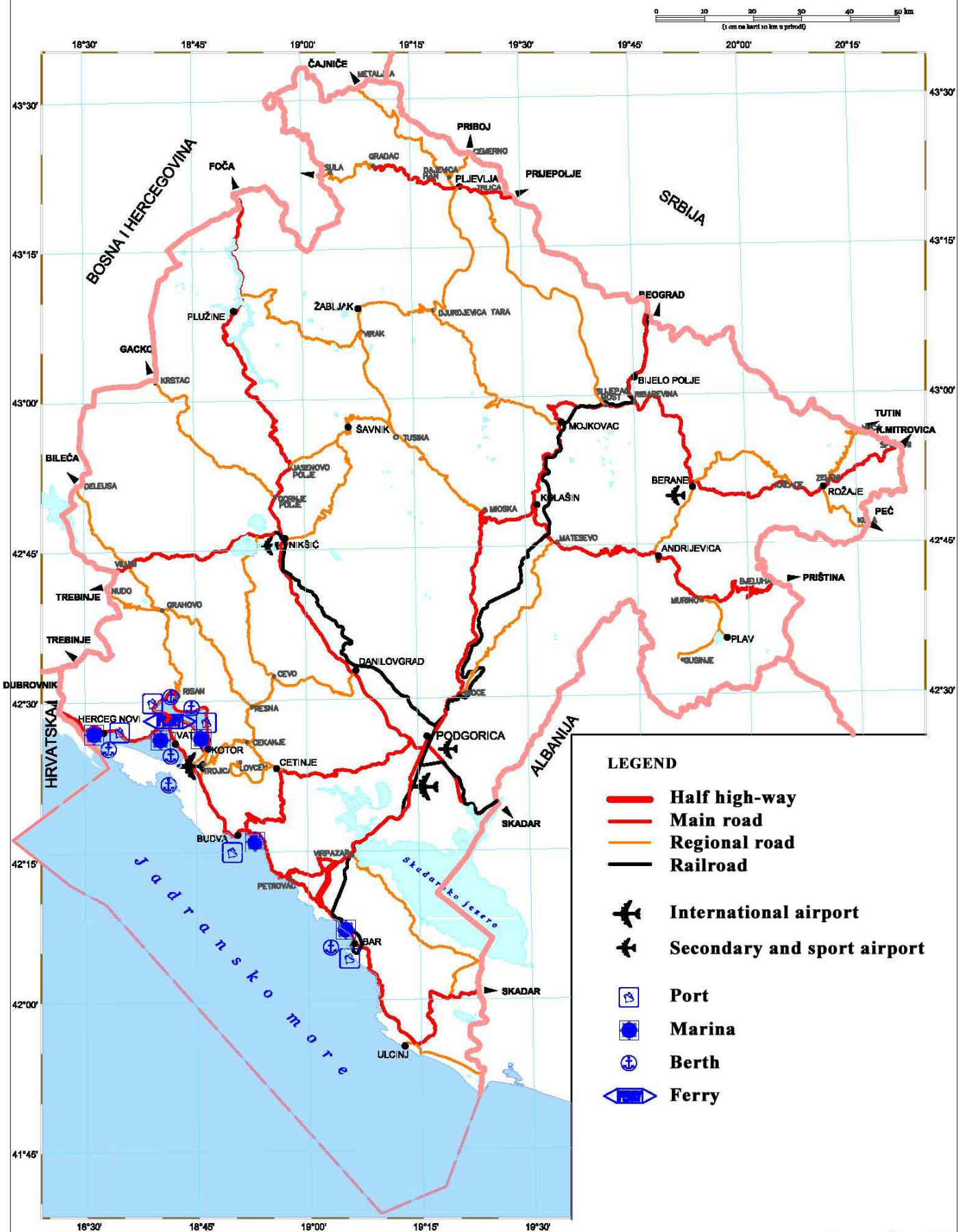
The Airport of **Zabljak** exists only as an intended site at the moment.

3.7.1.5 Telecommunications

SPATIAL PLAN OF MONTENEGRO TO 2020

TRAFFIC INFRASTRUCTURE – CURRENT SITUATION

Proportion 1 : 900.000



LEGEND

- Half high-way
- Main road
- Regional road
- Railroad
- International airport
- Secondary and sport airport
- Port
- Marina
- Berth
- Ferry

Survey Chart 14

The current situation in telecommunications is determined by the Law on telecommunications and Law on radio –diffusion as well as by actions of two regulatory agencies (Agency for Telecommunications and Agency for Radio-Diffusion)**.**
In the mentioned legal framework public telecommunication systems are being developed:

In the current legal framework the following public telecommunication systems are being developed:

- Land-line telephony (On the market there is competition – 5 operators with licenses for providing telecommunication services through land-line and land-line wireless access). The Land-line access is based on fibre-optical infrastructure and modern copper cables while land-line wireless access is based on WIMAX technology. Connections with neighbouring countries are realized through fibre-optical cables i.e. two cables with comparative capacity. The dominant operator in land-line access serves around 180,000 users.
- Mobile telephony (On the market there is competition – 3 operators with adequate licenses) with more than 1,000,000 users. Territory coverage by mobile telephony services is approximately the same for all operators and it exceeds 95%.
- Broadcast (On the market there is competition – state public broadcast services, local public broadcast services, commercial broadcasts (radio and TV stations) cable and wireless operators for distribution of radio and TV programmes to ultimate users etc. Services that include transmission and distribution of radio and TV signal for purposes of public broadcasting services of “Radio Montenegro” and “Television Montenegro” are provided by the Public Company - Broadcasting Center of Montenegro and its operational and positional cadre is made from substation relay locations on Lovćen and Bjelasica mountains. Radio Montenegro signals (1st program) are broadcasted from 18 locations and “Radio 98” signals are broadcasted from 13 locations. 1st Radio Program’s signals cover 97% of population while the 2nd Radio Program’s signals cover 95% of population, taking into account that the coverage on the North is considerably smaller (Šavnik and Plužine). First and second TV Program’s signals are broadcasted from 123 locations through two separate earth analogue networks. Both programs have national coverage and cover around 93% of the population. One program (combination of 1st and 2nd Program, as well as special broadcasts) is broadcasted through Hot Bitd13°E satellite, for the European region. Besides, 8 licenses are approved for cable TV.
- Internet (All operators in land-line and mobile telephony that possess licenses are potential providers of internet services and voice over internet protocol). So far, 13 licenses have been issued with authorization for provision of internet services. The number of internet users is estimated to be more than 100, 000. 5 licences are issued for providing the service of voice over internet protocol (VOIP). 2 licenses are issued for broadcasting radio and TV programs through new technological platforms – IP TV (Internet Protocol Television) i DTH (Direct to Home).
- Operational telecommunication systems with the aim to ensure access (leased lines, switched lines, DSL, etc) are mainly used by MIPNET (Montenegrin IP Network) in Telecom of Montenegro. In the territory of Montenegro 20 licenses are issued for taxi services.

Interconnection capacities with telecommunication resources of EPCG are realized on the basis of fiber-optical cables.

3.7.1.6 Postal traffic

By adoption of the Law on Postal Services (August 2005), the liberalization in providing postal services was done, so the Montenegrin Postal Service lost its monopole position on the market beside MPS. The license for providing these services is also issued to DHL – Podgorica, while the procedure of issuing licenses to a certain number of interested stakeholders is on-going.

Montenegrin Postal Service is still dominant regardless of the competitor because it covers almost all inhabited places.

3.7.2 Energy systems

3.7.2.1 Assessment of the development status

The Energy System of Montenegro was a part of the integral technical-technological energy system of former SFRY and it was built accordingly. A major energy network of voltage power 400 kV, 220 kV and 110 kV was built as well as transmission network that ensures that almost all settlements in Montenegro (save some hardly accessible villages in middle and northern part of the state) are supplied with electric energy. Long-distance networks with voltage power 400 kV and 220 kV and operative facilities are connected to existing power plants and a connection with energy systems in the surrounding is achieved. In that sense the construction of the long-distance network of voltage power 400kV Podgorica-Elbasan has started.

The energy problem is not anymore just an issue of energy potential, their exploitation, transformation and utilisation, but involves also the interdependence of triple E's: Energy, Ecology and Economy. Thus, EEE has become, not only in Montenegro, but internationally, one of the most important, unique and multi-dimensional development problems.

As for electric power system in Montenegro, from the surplus of 97 GWh in 1980 it now has the deficit of 1324 GWh in 2004. Power generation and consumption is shown in following tables:

Table 7 – Power generation in Montenegro according to amount and type in GWh

	Hydro-power plants	**Thermo-power plants**	**Total**	**Percentage in relation to consumption**
1998	1709	855	**2564**	72.37
1999	1693	924	**2617**	61.69
2000	1579	951	**2530**	66.09
2001	1768	647	**2415**	58.64
2002	1096	1099	**2195**	51.87
2003	1532	1074	**2606**	59.32
2004	2231	955	**3186**	70.64

Table 8 - Power consumption in Montenegro according to amount and type in GWh

	Direct consumers on 110kV	**Consumers on 35 and 10 kV**	**House-holds**	**Others on 0.4 kV**	**Distribution losses**	**Transmission losses**	**TOTAL**
1998	1581	263	940	223	409	127	**3543**
1999	1511	243	965	957	417	149	**4242**

2000	1711	256	1112	278	321	150	**3828**
2001	1885	344	1101	286	347	155	**4118**
2002	1999	373	1053	293	359	155	**4232**
2003	2025	363	1079	308	446	172	**4393**
2004	2105	332	1059	320	501	193	**4510**

Transmission network of Montenegrin Electro-Energy System consists of lines, transformer substations and other equipment of voltage levels 400 kV, 220 kV and 110 kV. At the end of 2005, 225 km of lines (voltage - 400kV) 348.1 km of lines (voltage -220 kV) and 601 km of lines (voltage -110 kV) were operational. Five lines of nominal voltage 110kV, 122.57 km long is operational under 35 kV voltages. In Montenegro there are 2 transformer substations of 400/x kV (one is TS 400/220 kV and the other 400/110 kV, 4 TSs 220/110 kV and 17 TSs of 110/x (15 TSs of 110/35 kV and 2 TSs of 110/10 kV). Distribution network of Montenegrin Electro-Energy System consist of 35kV lines, 35/10 kV transformer substations, 10kV installments in 110/10kV transformer stations, 10kv lines, 10/0,4kV TSs and low voltage lines. There are 16 local distribution centres supplying 285,000 consumers.

So far there is no gas line network in Montenegro, although several studies and analyses have been prepared aimed to prove the justifiability of such investments.

The main problems of the energy consumption in Montenegro at the time are the high losses in the transmission and distribution network as well as the low level of energy efficiency. The former mentioned losses (together 694 GWh in 2004) amount to some 50 % of the stated deficit of 1324 GWh in 2004. Taking “additional losses” into consideration, because of low energy efficiency, it is obvious that the solution of Montenegrin electricity supply also has to be sought in the improvement of the energy consumption (in terms of reduction of transmission and distribution losses, application of energy saving construction materials, changes in the attitude of energy consumption, etc.). By elaborating the Strategy on Energy Efficiency the Government already reacted to this situation.

With the Energy Development Strategy, the base for the future orientation will be provided.

3.7.2.2 Resources and limitations

Coal deposits in Pljevlja territory, both energy-wise and according to technical and technological units, may be divided into Pljevlja area basins and basin “Maoče”. Total balance reserves of coal are 216,516,242 t (Maoče basin: 118 882 670 t) and exploitation reserves are 200,557,014 t (Maoče basin: 112 938 000 t). Definition of the coal reserves in Pljevlja coal basin and degree of knowledge on capacity development give rise to forecasts of coal production, and thus energy sector development (power and thermal energy generation) in the coming period. Documentations on the reserves and quality of the coal in Berane and Policko coal basin are not on a satisfactory level. Exploitation reserves of Berane basin are estimated at the amount of 18, 511, 870 t.

Hydro-potential is the most important energy resource in Monetegro. Theoretically available hydro-power potential of the main watercourses is in the scale of 9,846 GWh/year. Total technically available hydro-power potential, which can be realized or has already been realized with hydro-power plants in and out of the territory of Montenegro following the natural watercourses is between 5219 GWh and 6202 GWh (depending on the option). So far, only 17 % of the potential is utilised. Regarding the availability of hydro-power resources, Montenegro is ranked very high, but at the same time the requirements of environmental protection and the seismic risks reduce the actual potential. The use of hydro-power potential must be handled with care and has to be seen as only one element of a mixture of energy sources.

The explorations so far indicate significant prospects for oil and gas deposits of economic interest in Montenegro, on-shore and off-shore. The on-shore and off-shore exploration area covers some 21,500 km^2, out of which ca 13,000 km^2 is on the land, and ca 8,500 km^2 under the sea. In all the undersea oil wells liquid and/or gas hydrocarbons have been registered: oil in

Eocene-Cretaceous carbonates, and gas in sandstones of Eocene age, which indicates high oil-source potential of the area. Since presently defined reserves are just potential (C2), prospective (D1) and assumed (D2), substantial funds are needed for the definition of this energy potential. (Oil exploitation in Albania, as well as discovered oil and gas undersea of the Italian part of the Adriatic indicate the prospects of the territory of Montenegro, especially under the sea).

Oil slates are registered as phenomenon in Montenegro and, according to current knowledge, it can be concluded that they are not an energy resource of economic importance.

In Montenegro, peat is registered in the localities Jezero on Lovcen, the Lake of Plav, along the Bojana River and in part of Skadar Lake. As an energy resource it is of no importance.

Beside renewable energy resources, solar energy, wind power and bio-mass have been used in Montenegro so far, but still not enough. In line with the sustainable development concept, renewable energy resources enable reduced consumption of conventional and non-renewable energy resources.

Technically usable hydro-power potential of the tributaries explored within studies for building small hydro-power plants is 599.2 GWh (65 mHE), and for tributaries which have not been studied so far from the point of view of energy utilisation, the indirect calculations indicate 358 GWh/year. Only seven small hydro-power plants have been built so far with annual generation of around 20 GWh.

Solar energy could be a very significant energy resource in Montenegro. Montenegrin territory is exposed to direct sunlight for about 1500 to 2550 hours per year. It particularly holds true for the coastal area of Montenegro and the territory around Podgorica. At the territory of Montenegro the average annual sum of global radiation is between 3500 and 4450 Wh/m^2 per day, while measurements show that in summertime it can be as high as 8 kWh/m^2 per day. This type of energy is increasingly more used for heating water, air-conditioning and heating, but with no significant impact on energy balance. However, by further development of techno-economic performances of solar collectors and with regard to a high degree of solarization in development propulsive areas of Montenegro, significant and balance relevant increase in the utilisation of solar energy is expected to meet part of the energy demands from industry and households.

In Montenegro the only relevant bio-mass is forest trees, especially beech. Around 6,750 km^2 of the territory is covered by forests, which is 42% of the total territory of Montenegro. Total quantities of the tree mass in waste, which comes out of exploitation of the forests, is 150-200,000 m^3 per year. Their collecting and usability as energy fuel is not economically justifiable. The waste created during processing in the lumber industry is already partly used as energy fuel for own needs.

So far in Montenegro there have been no extensive measurements aimed at determining the global wind potential. Although the analyses of wind energy potential in Montenegro are not complete, there are quite optimistic estimations of wind energy potential in Montenegro, conditioned by the combination of the mountainous area and Mediterranean influence. According to the studies conducted so far, based on the data from meteorological stations, potentially good areas for utilisation of wind energy are the following: areas around Niksic, south-west region, mountain chain and saddles above the sea and coastal area. The first wind power plant in Montenegro (Ilino brdo, Vucje near Niksic), with installed power of 500kW and expected generation of 1.25 to 1.8 GWh/year was built in 2004. Bearing in mind the world trend of developing wind power plants, it is necessary to conduct more intensive studies of wind potential in order to use it as much as possible in Montenegro.

Municipal waste is an environmental problem in Montenegro, and thus its utilisation would have both energy and environmental impact. It is estimated that in Montenegro 200-250,000 t of solid communal waste is generated per year (1kg daily per citizen). This amount is enough for 3-5 incinerators. Considering the fact that current economic limit for waste incinerators is a town with the population of 150,000. In this perspective Podgorica could be a location for a contemporary waste incinerator, because it already faces considerable environmental problems related to solid municipal waste.

According to available data, geo-thermal energy and sea energy are not of great importance for the time being.

A greater share of oil and natural gas in energy balance of Montenegro should be expected only after having discovered economically payable quantities, which requires substantial funds to continue explorations.

3.7.3 Water resources

3.7.3.1 Use of water as hydro-power resource

With two large hydropower plants ("Perućica" and "Piva") on rivers Zeta and Piva and seven small hydropower plants ("Glava Zete", "Slap Zete", on Zeta River, "Rijeka Mušovića" - Kolašin, "Šavnik", "Lijeva Rijeka", "Podgor" on Orahovštica River and "Rijeka Crnojevića" at Obodsko vrelo), some 1665 GWh (average generation for the period 1976-2004) are generated.

3.7.3.2 Use of water for water supply

According to available data, out of the total population of Montenegro, 65-70% are provided with water through water supply systems of municipal centres and significant local centres, while a bit more than 30% of population in villages get water from their own water systems and individually, by using springs, construction of wells for catchment of ground waters or construction of cisterns for collection of atmospheric water.

Town water supply systems mainly supply suburban and rural settlements from their area also. Some of them could be treated as municipal water supply systems since they cover almost all the settlements in the municipal territory. Town water supply systems include, apart from 40 town settlements, also 174 suburban and rural settlements – the total of 214 settlements.

Conducting measures for sanitary protection of water sources used for public supply, as envisaged by legal requirements, generally is far from the satisfactory level. So far there have been no surveys prescribed by the law conducted and determinations of protection zones for most water sources currently used. Since, in addition, we do not have water facilities registry, now it is not possible to give precise identification and mapping of water sources and their protection zones.

Regional water supply for the Montenegrin coast, based on the intake of water from Skadar Lake basin, has not been completed nor operational yet, although a number of facilities have been built (hydro-technical tunnel L=4.2km, distribution chamber "Djurmani" V=10000 m^3, chambers of 1000 m^3 each above Petrovac, St. Stefan and Radanovici, pump station "Bijeli Do" with a 1000 m^3 tank, and a 500 mm pipeline from Budva to Tivat 30 km in length and a 450 mm pipeline from Radanovici to the Vrmac tunnel).

3.7.3.3 Use of water for irrigation

Despite favourable natural conditions, irrigation as hydro-technical measure of land water regime is applied only to 2.000 ha. All irrigation systems developed earlier have never been put into use, many of them are degraded (for instance Sutorinsko polje, Mrčevo polje, Crmnica, Kokotsko polje, Bjelopavlići, Ovsine-Berane, Brezojevica-Plav). Due to such a situation, the water from water supply systems is not used in a planned manner, thus aggravating the problems in the drinking water supply.

3.7.3.4 Use of water for aquaculture

In the Coastal region fishing cooperative “K.Cvetkovic” in Baosici and fish processing plant “Ribarstvo”, Rijeka Crnojevica are in operation. Sea farming in Montenegro was only symbolic, with very little yields and effects, especially having in mind the great potentials. Researches conducted by the Marine Biology Institute from Kotor indicate that the aquatorium, especially the area of Boka Kotorska, has extraordinary natural conditions for natural and artificial marine cultivation. It applies equally to gathering of dark and red algae and breeding mussels and oysters. Thus, it is estimated that in Boka area it is possible to breed 2 500 tons of mussels per year. According to natural possibilities, it is estimated that the capacity of Montenegro for lagoon fish breeding is 3,000 t, while for cage breeding it is 2,000 t per year.

Freshwater fish breeding is done in 20 fish ponds and two cage systems for trout breeding. Nowadays, Montenegro is experiencing a shortage of fry for fish stocking of many species, and since it concerns specific Montenegrin species, their supply is not possible from other regions.

Montenegro disposes of significant and various water facilities where these activities are practiced. The total length of watercourses (large rivers and their tributaries) is app. 1,700 km. Mountain lakes have the area of app. 5.5 km^2 and they are used only for sports fishing, and lowland lakes app. 25,000 ha and accumulation of app. 3,000 ha.

There are also conditions for cage fish breeding in Montenegro, and hydro-accumulations are considered as the most convenient places. Especially convenient and of largest capacity is Piva, then Otilovici and Liverovici. Accumulations from Niksic region also have optimal conditions, but more modest capacities. Convenient places in Skadar Lake are sub-lacustrine springs (“oka”).

3.7.3.5 Use of water in industry

For the needs of industry and mining, including thermo-energy facilities, which used water for cooling in the period of their most intensive development and work (from 1978 to 1993), between 60 and 142 million m^3 of water was used per year. Average yearly water intake was app. 97 million m^3 (app. 3.1 m^3/s). Water consumption for the needs of industry from public water systems in the given period was app. 5-12 million m^3/year, on average app. 9.5 million m^3/year, and the rest was provided from own resources (including water recycling). Due to economic sanctions, and reduced operation of many industries, total quantity of water was significantly reduced, so that in 1996 it was app. 55 million m^3/year, 51 million m^3/year coming from own sources.

3.7.3.6 Bottling of water

Spring waters of Montenegro are minimally used for bottling. For the time being, there are only two bottling plants (Bukovica – Šavnik and Radigojno - Kolašin). Eight more concessions for water utilization and bottling have been approved. As for mineral water, the water from the springs in Bijelo Polje is only being used at the moment.

3.7.3.7 Protection of water against pollution

Prevailing pollutants are waste waters from concentrated sources – settlements and industry. In comparison to the quality classes envisaged by the Regulation on Water Categorization and Classification, water quality (of watercourses, lakes, sea and ground waters) is satisfactory.

The quality of ground water in natural conditions, with the exception of coastal aquifers influenced by the sea, is of class I for the biggest part of the year. In the mainland, natural

quality of waters in aquifers of inter-granular structure is jeopardized only at a few locations, downstream from larger settlements and industry.

Approximately 60% of urban population discharges waste water in public sewage networks, or 37% of the total population of Montenegro, which is far from satisfactory. Waste water treatment is in extremely bad condition, they are treated properly only in settlement Virpazar and partially in Podgorica.

In the Coastal area, waste waters are discharged directly into the sea (outlets in Herceg Novi L-1000m, bay Trašte L-3200m, Budva – Cape Zavala L-2500m, Bar Volujica and other smaller ones) also without prior treatment.

Industrial waste water treatment is done only at a few of industrial plants, and even then there are no guarantees that it is done properly.

For a long period now, this field has been characterized by the lack of investments, which caused the stated problems and low level of services provided. Taking into account, on one hand, the limitations of capacities available to local self-government units and the amount of investments needed, and, on the other hand, the necessity to preserve the environment and decrease the risk to public health, the Government of Montenegro, with the support of the European Agency for Reconstruction, developed two significant planning documents in the field of waste water management: Master Plan for Waste Water Collection and Treatment for the Coastal Region and Municipality of Cetinje and the Strategic Master Plan for Sewage and Waste Waters of the Central and Northern Region.

3.7.3.8 Protection against water

The need for **flood protection** is mainly related to areas around larger watercourses (the rivers of Moraca, Lim, Tara, Cehotina, Ibar and Bojana) and fields (Barsko, Cetinjsko, groves of the Matica valley etc.) The work done so far on regulating watercourses and protection against floods is rather modest, mainly of local importance and not adequate in size and functionality.

In Montenegro, there are most diverse forms of **erosion and torrents**, since all Montenegrin rivers, in the upper course, or throughout their length, are of torrential character. The works conducted so far to regulate torrential areas mostly relate to technical measures, while biological measures on erosion protection have only rarely been used.

Excess water of diverse origin puts in danger at the territory of Montenegro some 24,500 ha of farming and urbanized land (Cetinje). That phenomenon is particularly pronounced in the areas surrounding Skadar Lake and Bojana River, Zeta Valley, Bjelopavlići, Plav ravine and areas around Lim, Tara and Ćehotina river valleys. Most of the existing **land-reclamation systems** are currently not operational. A specific case for the need of protection against water is Kotor, which at times of heavy rains and south wind is partly flooded, because the level of its pavement is only 96 cm above the sea level, and the upper tide point is 130 cm.

3.7.4 Waste Management

Waste is a serious problem in Montenegro, with critical and long-term impact on both the environment, and public health. Waste means unnecessary exhausting of natural resources, unnecessary expenses and damages to the environment, and all that could be avoided by sustainable waste management and more efficient use of the resources.

Until the year 2004, there were no sanitary landfills in Montenegro, but only town and illegal dumpsites, without proper management or disposal control. There are no exact data on how many illegal dumpsites there are, but each urban settlement in Montenegro has at least one main town landfill and several scattered smaller ones.

Table 9 – Amount of waste per origin

Municipalities where waste is collected	Population (Monstat)	Amount t/year 2004 (Master Plan)	Amount t/year 2004 (Study authors)
Bar, Ulcinj	60,327	11,400	11,400
Berane, Plav, Andrijevica, Rožaje	77,351	7750	8350
Budva, Kotor, Tivat	52,486	13,200	13,800
Herceg Novi	33,034	7800	8000
Mojkovac, Bijelo Polje, Kolašin	70,299	6200	7000
Nikšić, Plužine, Šavnik	82,501	15,800	18,200
Pljevlja, Žabljak	40,010	4800	7100
Podgorica, Cetinje, Danilovgrad	204,137	41,600	76,700
TOTAL	**620,145**	**108,550**	**150,550**

Strategic orientation in waste management – There is a direct impact of uncontrolled dumps to surface and ground waters and air pollution. In order to improve the condition in this field, the Government of Montenegro adopted the National Waste Management Policy (February 2004), and National Master Plan for Waste Management (December 2004).

3.7.5 Defence and protection

In circumstances of a certain destructive natural or technological hazard, National Strategy for Emergent Situations represents one of the strategic documents of national security with the aim to establish the state's acting and efficient acting of other institutions in states of emergencies caused by all kinds of big natural accidents, technical and technological accidents and epidemic infectious diseases, in order to decrease number of accidents through prevention activities and mitigate their consequences.

An **emergency** is the state made by extraordinary circumstances` effects caused by natural or human factor, which directly endanger people's lives and health, their property, environment, cultural-historical heritage in certain areas and it also represents a situation when a community is not capable of combating the consequences on its own but it needs help of a state and sometimes of the international community. Numerous victims, great damages and need for help are main features of catastrophes. Suddenly and drastically, the catastrophes make social and ecological misbalance causing worsening of hygiene-epidemic situation in the area.

Emergencies are caused by uncontrolled effects of few natural phenomena. In the geographic area that Montenegrin territory belongs to those events are most often earthquakes, huge rockslides (landslides), floods, long lasting extreme meteorological phenomenon, snow slides, fires on regional levels and other big natural catastrophes. Big technical-technological accidents may result in catastrophes and emergencies and those are accidents caused by damages on oil and oil derivates` installations, transport accidents while storing chemical and toxic materials, explosive and radioactive substances, drinking water springs` contamination, big traffic accidents, mining accidents, industrial accidents caused by explosions, radiological, biological, biological-epidemical and other technical-technological accidents. The emergency can be caused by epidemic infectious diseases (epizooty and epiphytotic desease) – mass infections of people, animals and herbs.

The constant existence of a considerable level of hazards that can be caused by natural and technical factors in Montenegro is unarguably proven by numerous experiences accumulated for centuries. During the last few decades the following destructive hazards on Montenegrin territory have been manifested: earthquakes and follow-up events (landslides and rockslides), floods, fires and environmental pollution. It is realistic to expect for such natural phenomena to manifest themselves in the forthcoming period, but also for technical hazards as the consequence of the region's technological and industrial development of the region, not only on the territory of Montenegro but also of the influential neighbouring countries. Realistic natural hazards and consequent requirements and needs are the efficient response given by the community. Hazards represent unavoidable mutual life the human shares with nature, but human's behaviour towards hazards may change.

According to the recommendations from the **Yokohama Strategy and Plan of Action for a Safer World** defined by the UN member states: prevention of catastrophes and strengthening of preparedness in communities should be part of major integral aspects of development policies and planning processes on national, regional and international level. In that sense, the implementation of the Strategy has as the main goal defining considerable decrease of all kinds of losses, human, material, cultural and environmental – in circumstances of possible big catastrophes and technological accidents on short or long term basis.

It is well known that human and losses in economy caused by natural catastrophes have considerably increased during the last few years. As a rule, the most vulnerable categories are the poor and socially handicapped groups in developing countries, the consequence of poor preparedness in those groups for facing the challenges. However, hazards are inevitable and complete risk elimination is impossible, but there is a set of technical measures, traditional practices and experiences which when applied may reduce economic and social scope of a catastrophe. Therefore it is necessary to make a step forward from just reacting to an event to putting in place prevention practices. Prevention of accidents, preparedness in communities and providing efficient assistance are basic elements contributing to successful implementation of development of policies. These elements are closely connected with environmental protection and sustainable developing environment.

At the World Conference on Natural Disaster Reduction held from May 23 to May 27 1994 in Yokohama (Japan) in the scope of "The International Decade on Natural Disaster Reduction" UN member states set out the *Strategy and Plan of Action for a Safer World*, short name Yokohama Strategy, which defines strategic goals for active combating of damaging effects of natural catastrophes.

Preventing accidents by prevention activities, mitigation of damaging consequences and strengthening of preparedness in communities represent much more humane and multi-efficient approach then only reacting to the events. Above all, the prevention of catastrophes is a moral imperative and the process of preventing accidents should encompass three components: continuous technical monitoring of the process and events that may result in accident or catastrophe, simulation of accident scenarios based on realistic parameters and acquired experiences, definition of potential sources of accidents, and eliminating the found systems' weaknesses.

Appropriate information, knowledge and technology are necessary preconditions for successful reducing of damaging effects of natural and other catastrophes. As it is proclaimed in the Yokohama Strategy, each country is responsible for protection of its citizens from natural catastrophes, for building and development of national capacities, correspondent state legislation for control of damaging effects of natural and other hazards, enhancement of regional and international cooperation in activities aiming to prevent, reduce and mitigate natural and other catastrophes, whilst particularly pointing out human and institutional capacities, exchange of technologies, gathering and usage of information and resource mobilization.

With the aim to design justifiable optimal measures and processes of protection from catastrophes, and to mitigate consequences and prepare people for future catastrophes, this strategy comprises consistent structural analyses and quantification of the most significant types of natural hazards such as: severe earthquakes and following destructive events (landslides, liquefaction, rockslides etc), extreme meteorological events, regional fires, technical-technological hazards such as: damages from oil and oil derivates' installations,

transport accidents, explosions, big traffic accidents, damages on large electro-energy plants and hydro-technical facilities, chemical-radiological contamination as well as many types of biological hazards.

Data in historical records of spatial infrastructure in Montenegro, which is used for military purposes, are not identical in state and military cadastre. The changes in military were not entered into state cadastre. This situation has negative impacts on a great part of the Spatial Plan content. By the Belgrade agreement (March 2002) and Constitution Charter of the State Community of Serbia and Montenegro (February 2003), the condition in existing documentation did not get any better.

As a base for determining of the real condition, a document from the Ministry for defence of the former State Union of Serbia and Montenegro – Headquarters of the Army of Serbia and Montenegro "Scope and structure of immovable things necessary for military purposes".

Property on the whole territory of Montenegro, used by the Army and the Ministry of Defence of the former State Union Serbia and Montenegro is state property of Montenegro.

3.7.6 Seismic hazard and earthquake risk

Seismic hazard of the territory of Montenegro is determined by numerous autochthonous earthquake foci, but also a number of influential earthquake zones of the whole Western Balkans, especially from the territory of south-east Croatia, east Herzegovina, northern Albania and south and south-east Serbia. As extremely seismically active regions of Montenegro, we need to highlight part of the Montenegrin coast, which includes seismic zones around Ulcinj, Bar, Budva, Brajici, and Boka Kotorska, but also a seismic zone very close to Berane, then the entire region of the Zeta plain with Skadar Lake, the mountain massif of Maganik and many others, as testified by historical records, and even more so by seismic instrument data, on numerous earthquake devastations in these regions.

From the point of view of seismic re-ionization on the territory of Montenegro several active seismic zones are clearly distinguished:

- Coastal region, which includes: Ulcinj-Skadar seismic zone as well as the zones of Budva and Boka-Kotorska, which are characterized by possible maximum intensity of earthquake of IX degrees (EMS981);
- Podgorica-Danilovgrad zone, with possible maximum intensity of VIII degrees EMS98 scale;
- Central and Northern part of Montenegro which is characterized by moderate seismic hazard, of the intensity of VII degrees EMS98 scale.

Collectivelly, entire Montenegro, the people and their property, as well as all the public property, are constantly exposed to the activities of low- and medium-strong earthquakes, and occasionally even to the activity of the devastating earthquakes of large magnitude. Therefore, when defining expected vulnerability and acceptable seismic hazard, it is necessary to analyse the impact of the expected seismic hazard on vulnerability of the facilities, certain urban contents and infrastructure systems.

3.8 State of environment and cultural heritage, core problems

3.8.1 General state and problems of environment

Considered as a whole, **the quality of environment has been preserved**, which enables a comprehensive and dynamic sustainable development of Montenegro.

The quality of **air** in Montenegro, evaluated from the aspect of global indicators (sulphur dioxide and total nitrogen oxides) is of satisfying, i.e. very good quality, except regarding the content of dust particles. The basic indicators show the necessity to undertake measures for prevention of the pollution on some locations. This regards especially emission of the floating particles (of dust and aerosol) and limitation of the quantity of heavy metals and PAHs in them. Based on several years of research, it could be concluded that there is a trend of significant increase of the quantity of floating particles and PAH in them. Among specific polluting substances the highest level of air pollution is connected with the industrial production (Factory of Aluminium, TE Pljevlja and Steel Plant Niksic, Mojkovac), uncontrolled combustion of the waste at the town landfills and traffic, which significantly pollutes the atmosphere of the urban settlements with exhaust gases.

The condition of **soil** regarding the content of the dangerous and poisonous substances could be described as good. According to the performed monitoring, on objectively selected locations, the increased quantity of polluters (organic and non-organic) has been recorded in seven municipalities (Podgorica, Herceg Novi, Ulcinj, Bar, Pljevlja, Plužine). This is a result of inadequate discharge of communal waste. In the municipality of Nikšić, inadequate discharge of industrial waste causes increased quantity of non-organic (cadmium, lead, chromium, nickel, copper, zinc, molybdenum) and organic toxic substances (poly-aromatic hydrocarbons and poly-chlorine biphenyls). In most of the municipalities there is an influence of the traffic i.e. emission of the exhaust gases through increased quantity of both organic and non-organic polluters, i.e. polycyclic aromatic hydrocarbons (PAH), lead (Pb) and Cadmium (Cd).

Based on the reduced program of **water** examination in Montenegro, it is very difficult to come to a conclusion on the general state of their quality. So, based on the monitored parameters, the appraisal of the state is not totally objective. Besides the indicators which show individual aberrations compared to the requested classes, it could be concluded that the waters in Montenegro are of good quality. The fact that classification has been made according to the purpose of drinking water, goes also in favour of this statement, since our rivers, sea and lakes are not used for such purpose. The exception in this general good state of waters are waters of the river Cehotina and Vezisnica as well as the waters of Moraca and Ibar downstream from Podgorica and Rozaje during the low-water period. Ground waters of Zeta plain are dominantly full of nitrate and phosphate while the waters at the location of Vranj are of the worst quality.

The condition of **biodiversity** is being observed for six years, which means that the information gathered so far cannot be used for any serious trend analysis. Namely, only after the tenth year it would be possible to work on detailed trend analysis on condition of indicator species population, so it is necessary to continue monitoring of biodiversity status.

Radioactive burden of inhabitants, as the consequence of the exposure to radon, is at the level of European average. The activity of the natural as well as long-lasting artificial radio-nuclides (after the disaster in Chernobyl), in different types of samples (air, precipitations, soil, river, lake, marine and drinking waters, food, construction materials), was at low level, i.e. far below maximum of allowed quantity, and in many cases below the limit of detection. Based on executed and statistically treated results of the analyses, it could be certainly said that the state of environment, from the aspect of radioactive safety, is preserved in Montenegro.

3.8.2 State and problems of natural heritage

Based on national legislation in Montenegro 106,655 ha is protected, which makes 7.72% of the state territory. On the other hand, internationally protected nature areas cover 237,899 ha or 17.2% of the territory of Montenegro. In total, according to both aspects, protected area of nature covers 19.6% of state territory.

The existing nationally protected areas of nature in Montenegro are:
- **National parks** (total area of around 84.000 ha, or around 6.01% of the state territory): Skadar lake (40,000 ha), Lovćen (6,400 ha), Durmitor (32,100 ha), Biogradska gora (5.400 ha);

- **Rezerves of nature** (of total area 500 ha, or around 0.03% of state territory): in NP Skadar Lake: Manastirska tapija, Pančeva oka, Crni žar, Grmožur and Omerova gorica (total of 420 ha); in NP Durmitor: Crna Poda (80 ha)
- **Monuments of nature** (of total area around 7,700 ha, or around 0.6% of state territory): Đalovića klisura; Caves: Lipska, Magara, Globočica, Spila near Trnovo – Virpazar, Babatuša, Novakovića cave near Tomaševo; Cavern Duboki do in Njeguši; Canyons: of River Piva and River Komarnica; Communities of Mountain Pine *(Pinetum mughi montenegrinum)* on Ljubišnja, Durmitor and Bjelasica, Communities of Bosnian pine *(Pinus heldraichii)* on Orjen, Lovćen and Rumija; Skadar common oak in Ćurilac near Danilovgrad, Downy oak, in Orahovac near Kotor; Beaches: coast of Skadar Lake, Velika ulcinjska, Mala ulcinjska, Valdanos, Velji pijesak, Topolica in Bar, Sutomore, Lučice in Petrovac, Čanj, Pećin, Buljarica, Petrovačka, Drobni pijesak, Sveti Stefan, Miločer, Bečićka, Slovenska plaža in Budva, Mogren, Jaz, Pržno, Savinska Dubrava in Herceg Novi; Botanical reserve of laurel and oleander near Risan, Botanical garden of mountain flora in Kolašin, Botanical garden of general Kovačević in Grahovo; Park 13th July and Njegoš Park in Cetinje, Park near hotel „Boka“ in Herceg Novi, Town Park in Tivat, Park Castle on Topolica.
- **Area of special natural characteristics** (of total area 322.5 ha, or around 0.02% of state territory): Hill Spas above Budva, Peninsula Ratac with Žukotrljica, Old Ulcinj Island , Hill Trebjesa in Nikšić
- **Areas protected by municipal decisions** (of total area 15,000 ha, or around 1.08% of state territory):Kotor – Risan Bay, Municipality of Kotor
- **Internationally protected areas of nature**: Ramsar area (List of wetland areas of international significance, especially as the habitat of water birds): Skadar Lake; UNESCO world natural and cultural heritage: Kotor – Risan Bay in Municipality of Kotor, NP Durmitor with Tara Canyon; M&B UNESCO biosphere reserves: Confluence area of River Tare.

Natural heritage is still significantly conserved, but an increasing trend of the pressure on its values is present through: use of the natural resources, conversion of the natural habitats into half-natural and artificial, more intensive development in certain sectors (for example: tourism) and pollution (wastewaters and waste).

Concerning the period from the adopting of the first Spatial Plan of the Republic (SPR) 1985/86 and its Changes and Amendments in 1997, up to now, it could be concluded that there was a significant stagnation in establishment of the new protected areas of nature, especially those with larger surface. Due to that fact, it is concluded that the projection of the plan in this sector is not realized.

Concerning the management, a manager is established only for the category of national parks. For other categories of the protected areas of nature, municipalities are nominally recognized as authorities in charge of their establishment and management, as well as for the establishment of the manager. However, they are not established, except in rare cases.

Existing legal and institutional framework does not provide sufficient level of the efficiency regarding the protection of areas of nature, which are under protection. Besides the weak efficiency and insufficient enforcement of domestic legal provisions, there are numerous obligations from international contracts (conventions and protocols) which also wait for appropriate solutions in national regulations as well as in better institutional organization.

3.8.3 State and problems of cultural heritage

According to the current legislation, cultural heritage is made of 357 archeological, historical, artistic, building, ethnological and technical monuments of culture. The first category (monuments of exceptional significance, there are 35 of these) includes monuments of culture of exceptional significance, monuments registered in the List of World Cultural Heritage etc. In the Second category (monuments of great importance) there are 135, and in the Third category (monuments of local significance) there are 187 monuments.

Immovable and movable cultural heritage in Montenegro is in a very bad condition and unfavourable position, due to the fact that at its larger part, as well as at its most important

monument units, basic monument values have been jeopardized, with the tendency of the further change of integrity, loss of the monument values and historical origins.

The monuments of culture, i.e. some monument units which are not brought to their purpose, are in the totally neglected or ruined state, and due to the lack of organized and designed protective activities, they are left to the direct and unavoidable influence of the time and vandal actions of individuals.

Documentation basis and permanent researches are of crucial importance for the protection of immovable cultural heritage, and based on that, new documentation is formed and the existing is also supplemented with information on monument values and identity of monument units. The state of documentation indicates a need for exploring all monuments of culture, and especially of archaeological locations. Expert researches are the only right way to confirm foreseen monumental characteristics and to justify with material proofs their putting under the protection regime. In scope of that, it is necessary to create conditions that the documentation database is made in digital form and in line with European standards in this field.

Centre for archaeological researches has not formed documentation on archaeological researches and archaeological material, and in particular problem is the fact that recognition of the terrain has not been done nor the archaeological map of Montenegro, which as a strategic document should include overview of all existing and potential archaeological locations in Montenegro. In that way it would help enable their adequate treatment in the process of elaboration and adoption of the plans and investment programs.

Table 10 – Overview of protected cultural monuments by categories and types in municipalities

	Category			**Type of cultural monuments**									
Municipality	**I**	**I I**	**I I I**	**Urban unit**	**Old town**	**Sacr. Mon.**	**Prof. mon.**	**Fort. mon**	**Arch mon**	**Ethnm on.**	**Tech. mon**	**Mem. mon**	**Total**
Andrijevica	-	-	-	-	-	-		-		-	-	-	-
Bar	1	13	19	1	-	23	1	3	1	1	2	1	33
Berane	1	2	2	-	-	3	1	-	1	-	-	-	5
B. Polje	2	3	1	-	-	6	-	-	-	-	-	-	6
Budva	1	15	10	1	I	16	-	3	3	1	1	-	26
Danilovgrad	-	2	8	-	1	3	-	-	5	-	1	-	10
Žabljak	-	-	1	-	-	1	-	-	-	-	-		I
Kolašin	1	-	2	-	-	1	-	1	-	-	1	-	3
Kotor	10	30	23	2	-	33	22	1	4	-	I	-	63
Mojkovac	-	1	-	-	-	1	-	-	-	-	-	-	I
Nikšić	1	10	14	-		14	1	4	4	1	1		25
Plav	-	2	4	-		4	2		-	-	-	-	6
Pljevlja	2	4	-	-		5	-	-	I	-	-	-	6
Plužine	1	1	1	-	-	3	-	-	-	-	-	-	3

Podgorica	2	6	32	-		19	4	6	6	2	2	1	40
Rožaje	-	-	-	-	-	-	-	-	-	-	-	-	-
Tivat	-	4	6	-		7	2		1				10
Ulcinj	2	1	7	1	1	5	1		1		1		10
Herceg Novi	1	17	29	2		37	1	5				2	47
Cetinje	10	22	23	I	2	21	23	2	-	-	4	2	55
Šavnik	-	1	6	-		5					1	1	7
TOTAL	**35**	**134**	**188**	**8**	**5**	**207**	**58**	**25**	**27**	**5**	**15**	**7**	**357**

Inadequate communication of local government authorities regarding immovable cultural heritage is reflected especially through the process of elaboration of urban plans in which the institutions for protection of the monuments of culture are not included in due time. Producers of the plans, without respecting the principles of protection during the treatment of existing state, usually impose solutions for legalization of the illegal construction, inadequate upgrading of facilities, in that sense infrastructural and other development solutions for the settlements in relation to protected wholes or monumental units are not adequately treated regarding appearance, harmony and ambience.

The fact that borders of their protected surroundings have not been defined yet negatively influences protection of some monuments, monument units, sacral facilities and archaeological locations. This problem is even bigger regarding the archaeological locations, because their borders are not defined in the Act on establishment. The most drastic examples are the location of the archaeological deposit Duklja across which the rail Podgorica-Niksic is placed and Old town Kotor since the Adriatic highway is placed just beside its walls.

Existing solutions on archaeological researches and excavations are not comprehensive, and the issue of underwater archaeology is practically undeveloped.

A special danger and incoming problem for immovable cultural heritage, and especially for the protected area of Kotor, represents more and more uncontrolled urbanization which can endanger the values because of which Kotor has been included in the List of World Cultural Heritage (UNESCO). The activities and measures which should be undertaken in order to prevent negative trends are defined by “Management plan of the protected area of Kotor”, elaborated in February 2007 and adopted in July 2007 at the session of the General Assembly of UNESCO.

Although the period of institutional protection of cultural monuments is relatively long in Montenegro, enough emphasis was not given to the protection of traditional rural architecture (villages, houses, towers, economic facilities and appropriate rural settlements), although this category of the cultural heritage is very important.

The facilities which have been protected for decades, and have the value of traditional architecture, are primarily protected as historical monuments and memories of important persons from our past (mill Crnojevica, birth houses of Dynasty Petrovic, heroes from the past wars etc.). The exemption from the quoted is the Tower of Redzepagica in Plav, the Tower of Camovici in Vuksanlekici and the settlement of Vranjina at the shores of Skadar Lake.

Cultural landscape, as a special segment of the immovable cultural heritage, is not defined and protected by the Law.

3.9 Synthesized appraisal of the status by regions

3.9.1 Coastal region

Numerous **development and spatial-ecological problems** in the Coastal region impose a need to start finding the answers as soon as possible and to start real activities in order to find solutions**.**

A great seasonal anthropogenic pressure of the space, supported with the narrow character of the coastal strip and its weak communication link with hinterland is one of the core problems. Exceeded supra-structural and somewhere infrastructure development follows. The Coastal region is well known for illegal construction. Intensity of construction in some parts of the coast is already such, that it has all characteristics of so called “walling up” -what would lead, with this intensity, to the final loss of the attractiveness of coastal area.

Besides the problem of illegal construction and its consequences, there is also a great number of the problems in the field of technical infrastructure, in the first line in road traffic. Generally, the condition is not favourable, what makes the connection between the coast and the tourist hinterland more difficult: (a) The lack of bypasses around towns/settlements on the coast represents a big problem during tourist season. (b) The network of local traffic lines in the hinterland is insufficient, and besides that, a great part of the network consists of insufficiently maintained roads of poor quality. (c) Regional traffic lines are not at the satisfactory level neither in number nor in quality, and building of the newly planned and reconstruction of the existing ones is very late. (Part of the mentioned problems has been solved by construction of the tunnel Sozina and on-going reconstruction of the tunnel Vrmac).

Technical parameters of the railway Belgrade - Bar are sub-standard, especially in terms of expected expansion of the activities and traffic in the Port of Bar. The infrastructure for pedestrian traffic is incomplete and the network of energy infrastructure is significantly overloaded in some parts of the coast.

In addition to the quoted ecological and development problems, following should be emphasized:

- Difficulties in preservation of Mediterranean bio and geo-diversity, in first line due to the uncontrolled construction of facilities as well as illegal wood cutting in some parts of the coast, which must be only in the frames of sanitary and/or ecologically acceptable limits.
- -Illegal fishing activities at the sea, especially of the best quality species, gets proportions which threaten with large damages (the loss of the part of biological diversity of aquatorium). Urgent sanctions determined by law are necessary as well as other measures on one hand and incentive measures directed to the change of the structure of the catch on the other hand.
- High seismic risk, which demands undertaking of the standard measures which are foreseen for its decrease.
- Lack of the drinking and technical water (i.e. water for communal and technological needs) in the conditions of high neglecting of the systems for water supply, great loss of the water “at the network”.
- Insufficient treatment of the channelled wastewaters and the problems of pollution of aquatorium especially in Boka Kotorska and Port of Bar
- Danger and risk from forest fires, which demands maintenance, i.e. establishment of the system for protection which would be significantly more efficient than the current one, and especially at the most endangered areas (surroundings of Herceg Novi, Kotor and its surroundings, Luštica, Donji Grbalj, surroundings of Budva and Petrovac, surroundings of Bar etc.)
- Significant lagging behind of the maritime traffic compared to the needs, and especially of the coastal navigation. The international marine connections are developed only with Italy).

- Insufficient revitalization of the old urban settlements and removal of the consequences of the earthquake of 1979.
- The appearance of non-traditional architectural and urban forms in construction and development of the settlements and other space.

If the appropriate spatial planning, urban and ecological measures are not undertaken, following **conflicts in space of this region** should be expected:

- Further degradation of the aquatorium and parts of the coast in Boka Kotorska, as a consequence of the inflow of untreated communal wastewaters, industrial wastewaters and wastewaters from hotel complexes, ecologically dangerous processes (for example in Bijela and Tivat), disaster of the oil tanks and other traffic means, uncontrolled discharge of the solid waste, insufficiently constructed port infrastructure (international ports, marinas and shipyards) for acceptance of the ballast and other wastewaters and solid waste and goods in transport from the ships which could jeopardize environment etc.
- Development of the construction facilities (collective or individual, tourist and others) in Budva, Becici, St. Stefan and in the parts of the coast of Bar and Ulcinj, consequently continuing of the too high anthropogenic pressure on the space in summer months and lack of its regulating pollution of water, air and land, noise etc.
- Danger from spilling of oil derivates into aquatorium and danger from explosions and fires (warehouse of oil derivates Lipci in Boka Kotorska and beside the Port of Bar).
- Ecological risk from air pollution in the area of Bar, as a consequence of the transportation and reloading and warehousing of some materials (bauxite, sinter-magnesite, additives for Aluminium Factory etc.).
- Danger from unregulated land slides (for example on the territory of Herceg Novi, Babin Do in Budva).
- Maladjustment of the construction regarding the seismic risk.
- Although the reactivation of the villages in the coastal hills (and coastal hinterland) is still slow and not so expanded, in the majority of those villages rapid construction already starts, mostly without any direction and control. Since those settlements and spaces are of the the highest importance for preservation and increase of the attractiveness of Montenegrin coast in the near future and for a longer time, primarily through selective development of alternative and complementary types of very profitable tourism of best quality, this demands urgent undertaking of appropriate measures, and in the first line elaboration of the planning programs and projects of development, physical planning and ecological protection of those settlements (spaces). If that is not done, it is possible that numerous conflicts appear in activation, i.e. the use of this space, on one side, as well as the comparative advantages of the wider area of the coast could be rapidly decreased, on the other side (Luštica, Donji Grbalj, villages in Paštrovići, villages in the hinterland of Bar Riviera);
- Misbalance between new construction on one side and demands of the protection of cultural and natural heritage on the other side (e.g. endangered dunes of Ulcinj area and Southern part of Velika Plaza, which should be declared protected area).

3.9.2 Central region

The central region faces big and numerous **development and spatial-ecological problems**.

Migrations of population and de-agrarization are characteristics of this region, and they appear in rural settlements of the North-west area. It could be said that de-agrarization and depopulation is present in all parts of rural areas, except in Zeta plain, and on the other side, there is an on-going strong process of the migration of population towards Podgorica, as well as the expansion of suburbs.

Seasonal floods at the coast of Skadar Lake, of parts of the groves and Bjelopavlici plain, as well as polluting of this Lake by industrial-communal plants of Podgorica, Cetinje, Danilovgrad and Niksic and agriculture in Zeta plain, represent a problem in numerous spheres of development and ecology and requires solutions as soon as possible.

Waterless karst area and occasional floods in Cetinje plain and Niksic plain, as well as disappearing of the forests ("deforestation"), as well as the lack of good quality soil in Karst area are issues and difficulties characteristic of the Central region.

The whole territory of Montenegro is under the seismic risk, and in this region the most problematic areas are Cetinje, Zeta and Bjelopavlici plain.

The difficulties in realization of the broader and systematic protection of the vulnerable and fragile ecosystems can be emphasized as the main ecological problems, especially regarding the national parks Skadar Lake and Lovcen. The pollution of the river Zeta and ground waters (mostly from the industry in Niksic and town sewage) and pollution of the soil due to the insufficient control of the use of agro-chemical substances in Zeta and Bjelopavlice Plain, as well as the prolonged disappearing of the forests in Niksic Plain, then the pollution of air from mining and industrial activities in Niksic and Podgorica-represent ecological problems which have influence also on the development of this region.

If the appropriate spatial-planning, urban and ecological measures for environmental protection are not undertaken, **the following conflicts** could be expected:

- Further pollution from the activities of KAP, in first line air and water, as well as the unsolved problem of the landfill of red mud between Srpska and Botun and other landfills and waste disposal areas. The danger of possible uncontrolled spilling of the transforming oils remains. The Study of the zero emissions form Aluminium factory and Framework Program of Environmental Protection after the privatization.
- Unsolved problems of the air pollution in Niksic field and inexistence of heating systems for the settlements
- Further polluting of the river Zeta and spring of Rijeka Crnojevica, as a consequence of industrial and communal pollution in Niksic and Danilovgrad, i.e. Cetinje;
- Existence of high number of differing land-use interests in the valley and canyon of the river Moraca.

3.9.3 Northern region

Northern region encounters the same problems as Central and Southern Region, but because of its specificities, it is also characterized by problems that require answers in the sense of solving the **development and spatial-ecological problems**.

Like Central Region, this region also encounters emphasized depopulation and de-agrarization of the rural areas, as well as intensive migration towards municipal centers, what could partly be a consequence of high fragmentation of the territory and weak connections within this region. Insufficient protection of extremely valuable, sensitive and vulnerable eco-systems is also noticeable.

The lack of water on mountain surfaces and generally unfavourable climate conditions (inaccessibility during the winter period due to the snow) for functioning of the traffic system as well as for agriculture and cattle-breeding, are problems because of the specific characteristics of the region.

Inadequate use of abundant forest resources, and on the other hand, insufficient control of the existing exploitation of those resources, and expansion of the parasite diseases in forests' ecosystems are directives for solving the issues of underdevelopment of forestry and ecological problems.

Hot ecological topic is also high pollution of all elements of environment in Pljevalja basin, intensive erosion of the land and common landslides, especially in the watercourse of upper Tara and Lim as well as unsolved issue of polluting the River Tara from existing flotation, and landfill Gradac on Cehotina. Unregulated bed of the river Lim and its tributaries and necessity of conservation of agro-biodiversity would close the suggested list of issues for which the solutions should be found.

If the appropriate spatial planning, urban and ecological measures for environmental protection are not undertaken, the following **conflicts in this region** should be expected:

- Extended unfavourable state of environment in Pljevalja basin (from exploitation of coal, thermo energy capacities and potential reactivation of cement production);
- Danger from air pollution of ecologically-spatially uncontrolled production in the field of thermal-energy in Berane;
- Unplanned construction in Durmitor area which is threatening tourism development and ecological balance – soil erosion on Durmitor caused by deterioration of ski slopes;
- Danger for the river Tara from unsolved problem of flotation in Mojkovac, as well as from the possible reactivation of the mines and processing of the lead-zinc mine, although there is on-going realization of the project on repair of the flotation;
- Pollution of the environment due to the impregnation of the sleepers and asphalt base in Podbisce;
- Unfavourable ecological spatial influences from the possible intensification of the railway and road traffic on very valuable and fragile ecosystems in the valleys of the rivers Tara, Lim and other rivers;
- Danger for river Cehotina from unsolved issues of flotation in Gradac, as well as from the possible reactivation of the mine and processing of lead-zinc mine, which would not be spatially-ecologically controlled;
- Unfavourable ecological-spatial, social, climate and other influences from the possible construction of hydro-energy facilities.

3.10 Specific problems and conflicts of development

3.10.1 Problems of the level of openness towards the surrounding countries

There is a large number of limiting factors impeding functional, i.e. complementary connection of Montenegro with immediate surroundings, among which the most important ones are the following:

– Natural conditions, unfavourable topography of the terrain and mountainous ridges with difficult crossings, are limitations for connecting Montenegro with its neighbours;

– Insufficiently developed traffic infrastructure, rank and state of the traffic lines and insufficient number of border crossings;

– Inappropriate state of the railway Bar-Belgrade, which needs to be revitalized and modernized, while the railway Podgorica-Skadar needs to be electrified;

– Although it was foreseen by the Spatial Plan of Montenegro from 1986 and its changes and amendments from 1997, Adriatic-Ionian highway and motorway Beograd – Southern coast, have not been built yet. This is however necessary to be realized in order to enable connecting Montenegro with immediate and broad European neighbourhood;

– Lack of maritime navigation which would connect Montenegrin ports and marines with Dubrovnik and Duress;

- Insufficient access to information;
- On the interstate level, harmonization with European spatial and structural policies in the field of protection of nature and environment and the use of natural resources has not been done.
- Establishing of international water traffic on Skadar Lake

3.10.2 Problems of internal connection

Accomplished level of internal spatial connection is the basic reason for imbalanced development, both in the structure of economy and in the level of socio-economic development of different areas.

Planned level of development of transport system which has the main role in providing conditions for balanced spatial development through better international, regional, inter-municipal and local linking – has not been achieved.

Problems caused mainly due to the lack of realization of the current Plan, primarily in the area of road traffic (main road Boka- Kotorska - Nikšić – Pljevlja, Cetinje – Nikšić and others) and railway transport and less in the area of maritime transport, are partly alleviated by modernization of the sections of the highway Budva-Podgorica, Kolašin-Bijelo Polje, by construction of the tunnel Sozina and junctions to existing highways.

Integration of the organizational structure and usage of space stipulated by the Plan has not been fully accomplished in the part related to establishing and functioning of polycentric system of development of urban and rural areas, which is manifested through imbalanced development of urban centers and rural areas. There is a tendency for concentration of majority of economic activities and population in the towns while economy of rural areas has not been expanding and the development of sub-municipal centers has been lagging behind. Sub-regional inter-municipal cooperation, also cross-border cooperation, which in the initial phase might contribute to faster development of many areas facing joint problems and limitations and potentially having the same interests, has not been established yet.

Functional integration of the economy is not satisfactory. Development of the industry in the Central region has not been sufficiently reflected on the industrialization of the Northern region. Tourism and agriculture which might produce multiple effects are not appropriately linked. Development of the social infrastructure is oriented on fulfilling the local needs while inter-municipal institutions are rather uncommon. In the area of transport, necessary cooperation is missing thus formation of the integrated system is still far away.

Basic issues of forming functional integration of the space of Montenegro are the following: overcoming of the relative isolation of Pljevlja; strengthening internal integration of wider Durmitor area and its connections with the developed centres; providing better connections of Gornje Polimlje with the Central region and mutual connections of Pljevlja, Bijelo Polje and Berane, as well as connections of Boka Kotorska with Nikšić and Cetinje.

3.10.3 Control of the seismic risk management

The territory of Montenegro is exposed to significant seismic risk, particularly its Coastal region, Zetsko – Skadarska depression and Beranska valley. Going further to the north, i.e. moving away from the coast, seismic risk is significantly reduced.

Spatial distribution of material goods and population, within the territory of Montenegro, is completely opposite to the distribution of seismic hazard. Coastal region, with its old towns, tourism development and the Port of Bar has the highest population density, while in the Central region, especially Podgorica and Cetinje area, high concentration of population, industrial and

other economic, social and cultural activities are present. Therefore, the conclusion is that current structure of spatial organization and use of the space of Montenegro influences the increase of seismic risk, regardless of specific resistance of concrete objects to seismic impacts.

Seismologic activities in the space of Montenegro, particularly in the coastal region, Zetsko – Skadarska depression and Beranska valley with the surrounding terrains is one of complex specific limitations of spatial development, causing conflicts and requiring special activities and measures for accomplishing possible control of seismic risk management. In this respect, after the earthquake in 1979, improvement in institutional organization (Seismologic station is brought to the level of Institute) and provision of equipment and instruments for registration of earthquakes is apparent.

Contrary to this, all analyses, field and laboratory researches and examinations which would provide complete and versatile definition of seismic risk have been missing; based on which conditions would be created for defining its acceptable level and thus the control of its management.

3.10.4 Problems of sustainable development harmonisation

Previous spatial development, though planned, has not been based on the sustainable development paradigm, what is reflected in economic development, environment, natural resources and social development.

Despite the accelerated recovery of economy after the year 2000, large regional differences in the development level are still evident hence manifested in less developed Northern region in comparison to the Central region and the Southern region.

Northern region, which is a little bit more than half of the territory of Montenegro, is characterized by:

- Share of only 18% in GDP (at the beginning of the year 1990 it was 25.5%); municipalities (e.g. Andrijevica, Rožaje) with GDP per capita around or less than 500 EUR registered in 2002 belong to this region;
- Unemployment rate is near 30% (unemployment rate was a bit under 21% in the Coastal region, according to the same source)
- Depopulation – population number between the census in the year 1991 and the one in the year 2003 was decreased for 9 index points; less than one third of the total population lives in the Northern region;
- Significantly higher poverty rate in comparison to Montenegrin average – 19.3%;
- Underdeveloped transport (and other) infrastructure, particularly in the rural areas.

On the other hand, recourses located in this region are quite significant, especially in terms of agriculture (67% of arable land and 70% of the livestock fund) and forestry (71% of wood mass). Northern region also has significant potentials for different types of tourism development, especially the ones suitable for completing the tourist offer (currently dominant in the Coastal region) and overall sustainability of the tourism sector. Coastal region is at the same time the highly populated part of Montenegro, which is still receiving a significant number of residents.

Besides economic harmonization, sustainable development is represented through the environment and natural resources in terms of use and preservation of the land, use and the waters protection and the air protection.

Use and preservation of the land

The land is one of the most important natural resources. Out of the total surface of Montenegro, forests and forestland cover approximately 53.4%, where the forests cover approximately 45% of the total territory. Forests are particularly important both for the preservation of the natural

balance, biodiversity and environmental quality and for the economic development, especially in the northern, underdeveloped region. At the same time, forest ecosystems are exposed to multiple pressures threatening them with unsustainable use, firstly through uncontrolled, unplanned activity and then also through exaggerated exploitation of natural resources.

Problems having negative impacts on the forests in Montenegro are the following:

- Forest ecosystems are not managed in an integrated manner (hunting, fishing, tourism; forest products not made of wood – medicinal herbs and similar; development of agro-forestry);
- Means for the exploitation of forests are old and inappropriate for working conditions and needs, while the majority of works are performed by persons without necessary qualifications;
- Weak or inadequate openness of the forests;
- High quality species are not being used for regeneration of forests;
- Inadequate management of protecting zones;
- Inadequate fire protection system.

Special problem for management is lack of reliable and up-to-date data on forest resources i.e. non-existence of national inventory of forests. Monitoring system of the health status of the forests has not been established either.

In the aim of improvement of management and obtaining of the certificate on sustainable forestry, priority measures are enacting National forestry policy of Montenegro and the relevant legislation, the national inventory of forests, introduction of the geographical information system, improvement of planning, establishing a reliable monitoring system and control of implementation of plans and managing in forestry and hunting.

Montenegro has at its disposal a small part of the **agricultural land**. Despite the limitation of this resource, its permanent reduction is present (especially the reduction of its most productive part). Permanent conversion of the agricultural land is done by the change of its purpose to the construction land by construction of urban and rural settlements, traffic lines, industrial and other types of facilities.

Destruction of the valuable surface layer is done through the series of human activities including:

- Exploitation of sand and gravel at several places in rivers and karst fields (lower watercourse of Morača - Platije);
- Exploitation of solid mineral resources – bauxite, coal, stone, zinc, lead;
- Processing of mineral and other resources in industrial facilities;
- Production of brick and roofing tile of the resources from the surface mines in Tivatsko polje, Berane, Kolašin and Pljevlja;
- Mining waste disposals.

Exploitation of mineral and other raw materials in Montenegro is around 18.000 tons a year. Adding almost the same bulk mining waste quantity, around 25,000 cubic meters of land is devastated.

Important factors of land degradation are erosion (by water, wind) and *in-situ* (inside the very profile) damages of the land (physical, chemical, biological).

Reduction of the land fertility, degradation and inappropriate exploitation of the land resource leading to degradation of the ecosystem and endangering the biodiversity, are the categories of unsustainable or unstable development. Therefore, there is a reasonable need for optimal land management for the purpose of adequate protection, rational use and development.

The coast, as the area of specific value of Montenegro, is greatly “used up” for various economic and other human activity due to the fact that it has suffered a significant change of natural and landscaping values.

Very important source of pressures on resources and the quality of environment of the marine and coastal area are unsolved issues of waste and wastewaters treatment as well as the issues of ports and other infrastructure of maritime economy and a little bit less important issues of fishery, mariculture, agriculture and industry.

Use and protection of waters

When talking about water supply, it should be emphasized that the average consumption in Montenegro is extremely high, twice that of Western Europe (where the average consumption is around 150 l per capita daily). Higher consumption in Montenegro is a result (besides the climate conditions), of inappropriate use of water (in particular in households but also with other consumers) and unreasonably huge losses in water supply systems.

Besides irrational consumption, problems in water supply are related to the lack of water in the coastal region and in the majority of rural areas.

Industry is mainly supplied with water from its own sources. More than half of waters used in industry are ground waters. The largest industrial consumers are metallurgic facilities Aluminium factory, Steel Plant Nikšić and Thermal-energy Plant Pljevlja. Agriculture is not a significant water consumer.

Outflow of communal and industrial wastewaters into natural recipients is done mainly without any purification (with the exemption of some of the industrial facilities and a part of communal waste waters of Podgorica). Additional problem is also lack of pre-treatment of industrial wastewaters disposed into public sewage systems, with further problem of low level of connection of households to the sewage systems.

Surface waters are generally of good quality. However, at a certain number of watercourses, discrepancies from legally stipulated quality categories have been noticed (e.g. rivers Vežišnica and Ćehotina, rivers Ibar, Lim and Morača downstream from settlements/towns, Lake Skadar and Plavsko Lake, some parts of effluent sea), mainly due to the concentration of polluting substances coming from the sewage waters.

Ground waters are also of good quality but are endangered by urban sprawl, inadequate urban communal infrastructure, exaggerated use of chemicals in agriculture etc.

From the aspect of sustainable development, it is very important that current pollutions of surface and ground waters (due to low level of treatment of wastewaters and industry, inadequate waste disposal) are efficiently controlled and reduced.

Air protection

The main air-polluters in Montenegro are operating without or with out-dated devices for filtering gases, which are exhausted in the atmosphere. Natural factors such as thermal inversions in karst fields (Cetinjsko and Nikšićko) and in valleys (Pljevaljska, Beranska and Bjelopoljska) are preventing ventilation and elimination of polluting substances.

Average annual concentrations of polluting substances in the majority of settlements in Montenegro are way under the legally permitted pollution limits. The exception is the concentration of fluorides in Podgorica, Nikšić and Pljevlja, which are significantly exceeding the legally stipulated limits during the whole year, for even 3 times and more. Other parameters which occasionally go beyond the allowed concentrations are SO_2, resulting from exhaust gases of motor vehicles – maximal concentrations of nitrogen monoxide, nitrogen dioxide and overall nitrogen oxides which exceed instant allowed limits even up to 5 times. Also, the maximum of daily concentrations of ground ozone are higher than legally allowed norms in several towns– Berane, Budva, Herceg Novi, Kotor, Pljevlja, Podgorica, Tivat and Žabljak.

Social services

Majority of school facilities is in inadequate condition thus are not able to respond to current significant needs related to optimal conditions necessary for implementation of educational process. Having in mind constant population migrations, elementary education system is facing the problem of surplus of unused space of school facilities in the northern region, with the simultaneous overburden of capacities of the **pedagogical-educational facilities** in the urban areas, particularly in Podgorica.

After 1993, a few facilities of culture were built; the most important are the ones in Podgorica Municipality: Montenegrin National Theatre, houses of culture in Tuzi and Sukuruć, while the construction of the Children Theatre is ongoing i.e. change of the function of the previous facility. In other municipalities, houses of culture were built: Ulcinj, municipality of Plav-Gusinje, municipality of Berane - Petnjica, and in Andrijevica, the construction has started.

Health care sector has capacities in all municipalities (health centres, ambulances, personnel, equipment) where basic treatment is done. Hospital treatment is done in seven health centres and services, one clinical centre in Podgorica, three specialized hospitals (Nikšić, Kotor, Risan) and Institute „Dr Simo Milošević" in Igalo. For the health sector in Montenegro, a specific problem is the increase of old population in total population. According to all indicators, Montenegro is lagging behind the EU countries.

Social welfare is conducted through existing institutions. Indicators related to the users of the services of welfare institutions are showing that their number is constantly increasing, meaning that more and more people are in need of different social welfare services.

Some categories of **physical culture** are mostly developed in larger towns (Podgorica, Nikšić, Bijelo Polj, Pljevlja, Bar).

3.10.5 Mitigation of regional differences

The huge changes in political and economic sense in this region are the main reason why mitigation of regional differences in development of Montenegro is not realised, which was stipulated by the Spatial Plan of the Republic of Montenegro. On the other hand, it could be stated that in the named period, due to the termination of mining activities, industrial production and liquidation of some of the mining and industrial facilities and reduction of tourism activity, intensification of differences in development of regions took place. Investments for maintenance of infrastructure, tourism and other vital objects were reduced; unforeseen activities (related to care of refugees from the neighbouring republics) took place etc.

During the last five years, stabilization and economic recovery of Montenegro took place. Activities of improving economic development of Montenegro have started. This is manifested primarily through improvements of infrastructure, telecommunication, media, educational, social, sports and all other types of facilities. This has been followed by opening series of educational institutions, tourism facilities, extension and equipping of medical institutions etc. This trend of mitigation of regional differences in spatial development keeps improving.

3.10.6 Investment limitations

Change of social-political neighbourhood of Montenegro in the first 15 years after enactment of the Spatial Plan of the Republic of Montenegro caused necessary changes in all the fields, thus also in the investments for maintenance and construction of facilities foreseen by the Plan. Investment limitations caused standstill in the construction and development of tourism, educational and cultural institutions. This was a consequence not just of the reduced economic activity of the majority of organizations in Montenegro (own accumulation) but also of breaking the cooperation with external investors and banks and necessary reorientation of available funds for solving unplanned needs and circumstances. During the planning period, Montenegro will develop in a limited financial ambient.

3.10.7 Conflicts in use and purpose of the space

Conflicts identified in the use and purposes of the space were the subject of the analyses and a base for development orientations by fields (graphical annex: Areas with development limitations).

- **Orographic characteristics-urbanization -** Around 95% of the territory of Montenegro is hilly and mountainous, with numerous limitations from the aspect of building of hydro-technical and traffic infrastructure and at the same time, this is an advantage due to landscaping values.
- **Agriculture – urbanization –** The largest part of quality agricultural land (5,4% of the territory or 741 km^2) is located in municipalities: Podgorica, Pljevlja, Bijelo Polje, Berane, Bar, Nikšić, Ulcinj. Municipalities Podgorica, Nikšić, Bar and Ulcinj have positive demographic growth, which is showing possible trends of further transformation of agricultural land into the construction land.
- **Mineral resources deposits – urbanization-** Previous plans have not presented the overall balance of land surfaces that should be preserved for exploitation of mineral resources. Conflicts of urban plans and plans for exploitation of mineral resources (example of Pljevlja, changes in GUP in order to enable expansion of surface coal bed in the area of business urban zone). Areas for mining-geological activities that should be protected from further urbanization are the following: red bauxite – area of Nikšička župa, white bauxite - area Bijele Poljane, copper - village Varina near Kosanica, lead and zinc – mineral field „Šuplje stijene" and „Brskova".
- **Changes of property relations – planned reserved zones for defined purposes –** Conflicts due to change of proprietary relations in last ten years are reflecting on the possibility to preserve reserve zones (example: the land and facilities of previous military-civil airport in Berane are partly realized as residential zone; constructions along the shore of Morača are built without harmonization of infrastructural requirements.)
- **Protection of water catchments areas and springs – other land purposes –** Establishing wider zones of protection of water-catchments and springs is an important priority. Total surface of these zones is estimated at around 2000 km^2.
- **Waterless areas - tourism-** Direct hinterland of the coastal region and many mountain areas are facing this limitation factor. There is a high depopulation in these areas that are suitable for tourism development.
- **Uncoordinated planning of infrastructure systems–** uncoordinated plans and projects of infrastructure systems create conflicts and lead finally to a failure of the improvement of necessary infrastructure.
- **Energy – protection of natural environment –** The second phase of construction of TEP Pljevlja should be conditioned with prior solving of the current environmental problems. Construction of new hydropower plants also brings serious negative consequences on the environment, thus decisions on their realization should be made with detailed and comprehensive environmental impact assessment.

B – PROJECTION OF DEVELOPMENT AND CONCEPTS OF ORGANIZATION, DEVELOPMENT AND USE OF SPACE OF MONTENEGRO

1. BASIC POSTULATES OF THE SPATIAL PLAN (BASES OF LONG TERM ORGANIZATION OF SPACE)

1.1 Sustainable development as the guiding orientation of the Spatial Plan

Space of Montenegro is the basis for development of the whole population of the state, strengthening the self-essence, designed use of spatial potentials, as well as preservation of landscape diversity and biodiversity. Regional particularities are the basis for achieving local, regional and international identity of Montenegro and its integral areas. The position of Montenegro in Europe has always had a huge impact on spatial and socio-economic relations in the Republic. The way of using the space is an important element in determining national culture.

Main processes and factors influencing spatial development are globalisation, European integration, market economy, fast development of information technology, urbanisation trends, demographic changes, climate change and a general higher ecological awareness among the population. To consider the various processes and facts and to organise spatial development in the light of long-term requirements is only possible by following the orientation on sustainable development.

According to the National Strategy of Sustainable Development the vision of sustainable development in Montenegro includes:

- **Economic development vision**, which is based on the need to speed up economic growth and finalize the transition process towards market economy (stimulating innovations and productivity, strengthening entrepreneurship, preventing quality staff with good prospects for the future from moving abroad), but, at the same time, taking care of fulfilling the sustainability requirements through the integration of environmental policy and economic policy and through the mitigation of effects of economic growth on environment;
- **Social vision**, which involves poverty reduction and protection of the most vulnerable population groups, as well as securing more just distribution of benefits from economic development among all segments of the society;
- **Environmental vision**, that is, the necessity to protect the environment and sustainable management of natural resources, stimulating at the same time the synergy between development and environmental protection and having in mind the right of future generations to a quality life;
- **Ethical vision**, which involves improvement of management/administration through capacity building among all actors (central authorities, local authorities, private sector and civil society) and transfer from the centralized decision making process to negotiations, cooperation, coordinated action and decentralization, as well as implementation of the principle of unity and solidarity, and respect for human rights through re-affirming the right to development in a healthy and just environment;
- **Cultural vision**, that is, the necessity to protect cultural diversity and identity, while strengthening the cohesion of the overall society.

Following these visions, five general goals were defined in the National Strategy of Sustainable Development:

1. **Fast economic growth and development and reduction of regional development disparities;**
2. **Reduction of poverty; ensuring equality in access to services and resources;**
3. **Ensuring efficient control and reduction of pollution and sustainable management of natural resources;**

4. **Improving the system of management and public participation; mobilize all actors, with capacity building at all levels;**
5. **Preserve cultural diversity and identities**.

The vision and the general goals of sustainable development in Montenegro are treated as the guiding orientation in the preparation of the Spatial Plan. The formulation of general and sector specific principles, objectives and guidelines as well as the territorial provisions of the spatial development of Montenegro always reflect the stated requirements of sustainable development.

1.2. Projection of general development

1.2.1 Projection of economic and social development

Strategic priority of Montenegro is the process of European integration and full EU membership. Projection of the economic and social development within this framework requires realizing specific assumptions:

- ensuring of the more significant influx of foreign direct investments;
- increasing of domestic savings and its activation through banking and other investing mechanisms;
- maintaining the process of institutional and expert support to Montenegro (institutional-organizational, ecological-development, technical and economical assistance).

Projection of the GDP growth - Starting from the assumption that GDP for the year 2005 amounted to € 1,644 million, the population number in the same year was 623.199 and that GDP per capita amounted € 2,638, it has been estimated that an average annual growth rate of 6,5% can be achieved in a period of fifteen years.

Projection of growth of investments: The starting assumption of the projection is that, following the form which was realized in states that were successful in the first phases of transition, in Montenegro share of public expenditures in the GDP should be in the interval 30-35%, while share of investments in the GDP should be back to 15-20%. This requires an adequate adjustment of social needs and necessary fiscal responsibility.

Private capital is counted on as playing the key role in the increase share of investments, i.e. increase of the volume of direct foreign investments.

1.2.2 Economic trade abroad and projection of the import and export of goods and services

Economic policy of Montenegro, in the frames of open system, foresees export orientation of the economy as a permanent orientation. The strategy for encouragement of export in Republic of Montenegro has been prepared and the priority has been given to tourism, manufacturing and exporting of the products which passed higher processing stages as well as to ensuring participation in the business banking credit potential which is focused on the financing of export transactions.

1.3 Development objectives

The following objectives are organized according to their importance, but from broader to more detailed.

1.3.1 Global development principles and objectives

Montenegro is in the phase of post-socialistic (post-communist) transition, like other countries from similar political i.e. ideological circle. Reforms in great number of fields have been undertaken with the aim to change the social and economic institutions from its roots. The general direction of changes has been defined and the development of effective economy and a democratic and pluralistic („open“) society has been pushed. There are 2 key elements here. First, Montenegro will be exposed to more harsh international competitiveness, in the conditions of global political, economic and cultural match. Second, the scope and depth of state interventions in the field of planning and management of development will be significantly changed. Having in mind the level of development of Montenegro and the whole complexity of its development conditions, it is necessary that the state's responsibilities stay in creation of the preconditions for securing the economic and social development and equalization of infrastructural conditions, in order to mitigate regional differences, but at the same time to ensure the protection of natural resources and values as a basis for the future development of Montenegro.

The following general principles and general objectives reflect the mentioned key moments and responsibilities of the state in respect to spatial requirements. The general principles and general objectives are not structured by the rank of importance; each of them has equal significance.

Principles of spatial development provide clearly defined conditions and cornerstones which are not questionable and which have to be followed in case of determining of spatial development provisions and which form an inevitable part of any further elaboration of sector and more detailed planning documents. The spatial development of Montenegro is based on the following **general principles (GP's)**:

GP-1 The spatial development structures, fosters and improves the status of "Montenegro – an ecological State" by ensuring a rational use of land and space and by the valorisation of landscapes.

GP-2 The application of the principles of sustainable development, defined in the National Strategy of Sustainable Development, based on the Rio Declaration, Millennium Declaration and Johannesburg Plan for Implementation, is promoted consequently in all aspects concerning spatial development (see also chapter 1.1).

GP-3 All groups of the population are the target group for economic and social development; socially and spatially marginalized groups will be integrated.

GP-4 The spatial development contributes to the conservation and enhancement of the identity of its population, in particular regarding its cultural heritage.

GP-5 The widespread unplanned construction and misuse of land will be fought by the elaboration of more appropriate legal instruments and by improvement of control mechanisms and their enforcement

The spatial development of Montenegro until 2020 must be considered as a long-term obligation. It is obvious that the impacts of the provisions and period of achievement go beyond the planned period of this planning document. The general objectives of the Spatial Plan reflect these conditions. The following **general objectives (GO's)** are defined:

GO-1 Regional disparities in economic and social development will be mitigated.

Explanation: In order to mitigate severe regional disproportion of the development of Montenegro it is necessary to undertake specific activities for urgent resolving of this, perhaps the most important task:

1. More dynamic overall economic and social development of Montenegro has been discussed in more details in objectives and strategies of individual areas.

2. Decreasing differences in the level of development of specific areas can be ensured by creating conditions for permanent and sustainable development, according to development resources and potentials of specific area, decreasing differences between living conditions in those areas, developing network of social services in less developed areas, development of entrepreneurship and its promotion and so called "sustainable" economy and development of human resources, with emphasis on development of demographically endangered areas.

3. Harmonized development of areas with similar or common development possibilities and/or problems (rural areas, near-border areas, coastal and mountainous areas, protected areas and endangered areas anticipated for protection, broader areas of major cities, etc.)

4. Coordination of all management and decision making levels, primarily intersectoral harmonization of development decisions and their harmonization with requirements of regional and local development, establishing development agencies for supporting entrepreneurship and sustainable local development, and harmonization with already planned establishment of regional and local business centres for small and medium-sized enterprises.

5. Institutional and organizational adjustments, constructive participation of Montenegro in Euro-Atlantic and Mediterranean cooperation and integrations.

GO-2 Ensuring better quality of life in all parts of Montenegro.

Explanation: Balanced economic development with efficient and rational spatial development, preservation of nature and biodiversity, development of communal infrastructure, maintenance and increase of cultural diversity of the territory (cultural heritage) should provide at least minimal conditions and quality of living in all parts of Montenegro:

1. Directing spatial distribution of development efforts, to achieve maximum positive effects and minimize negative effects for spatially balanced and sustainable economic development, social development and cohesion as well as quality natural and living environment.

2. Ensuring rational use of space and population safety by applying relevant planning procedures, rational use of space and connecting and harmonizing sector policies.

3. Harmonization of spatial development with spatial limitations, primarily directing spatial development according to high risks from natural and other disasters (seismic, floods, erosion, fire, accidents, etc.) as well as risks from possible

negative impact of natural disasters in the first line conditioned by consequences influenced by climate changes.

4. Encouraging preservation of biodiversity, geodiversity and natural values and processes, as important elements of quality natural environment and natural distinctiveness of Montenegro, by ensuring appropriate inclusion of biodiversity, geodiversity and natural assets in management of natural resources and areas, particularly by establishing network of protected nature areas with specially valuable and/or vulnerable areas.

5. Priority protection and preservation of ecosystem of the highest rank (protection based on international and national documents).

6. Obligation to include appropriate measures of environmental preservation in spatial planning and distribution of activities.

7. Providing communal equipment of existing and newly planned urban/construction land for development of water supply, sewage, systems for waste waters treatment, air conditions system (in settlements), etc.

8. Rational management of communal and other waste.

9. Encouraging preservation of cultural diversity as a basis for quality national territorial reconcilability, quality of the environment and social integration.

10. Cultivating tradition and increasing identification, educational and economic potential and their sustainable use.

GO-3 Development of urban and rural areas with respect to their potentials and limitations.

GO-4 Rational use of natural resources through:

1. Limiting the expansion of construction land as much as possible**;**
2. Maintenance of production potential of land for different types of agricultural production, particularly “organic food” and agricultural products for which Montenegro has highest comparative advantages;
3. Rational use of space for urbanization and control and limitation of intensive expansion of urban areas;
4. Balanced and reasonable exploitation of minerals, applying prescribed measures of spatial and environmental protection;
5. Realization of territorial distribution of activities so as to ensure balance between the need for water with possibilities of adequate water supply;
6. Encouraging the use of renewable resources, before all hydro potential as well as usage of sun, wind and biomass energy, where it is spatially acceptable.
7. Sustainable development of coastal area with the applications of principles of sustainable development and instruments of integrated coastal area management as a public interest of Montenegro, including the priority of resolving the most important, numerous problems and contradictions, particularly regarding the spatial and planning direction of development of the sea aquatorium and better valorisation and use of particularly valuable resources and potential.

GO-5 Montenegro's integration into European Union

GO-6 Development and institutionalization of cross-border co-operations with neighbouring countries in important fields like regional economic development, infrastructure, environmental protection etc.

GO-7 Implementation of existing legal solutions and spatial planning documents as well as international conventions referring to spatial development in the wider sense which have been singed or adopted by Montenegro.

In order to achieve this strategic goal, it is necessary to realize certain adaptation of the institutional and organizational framework. The creation and application of instruments which enable durable and accelerated economic growth, social adjustment and environmental protection, is inevitable.

1.3.2 *Specific principles and objectives of the National Spatial Plan by sectors*

Whereas the above stated general principles and general objectives define the framework for the spatial development of Montenegro, it is also necessary to formulate specific principles and objectives for particular sectors. The NSP can't substitute sector policies, but it has to assure that spatially related measures of sectors follow adequate principles (P) and objectives (O) of the spatial development of the state.

1.3.2.1 Economic development

Strategic directions of development of the economy of Montenegro are defined in different documents of the Government of Montenegro. First of all, sector policies in which they define the main objective of development as sustainable economic growth, include the prevailing influence of private sector.

Perspectives of future social and economic development of Montenegro are laying in wider introduction of those principles which are dominant in the European Union i.e. competitiveness based on knowledge, innovations and entrepreneurship. In this sense, certain role should be expected from the state, more indirect, while traditional Governmental stimulating policy (through tax exemptions, different protectionism measures) should be less counted on.

Principles of economic development:

P1.3.2.1-1 Using comparative advantages of the area in which they are located

P1.3.2.1-2 Application of adequate technologies and production processes to minimise negative environmental impacts (air pollution, soil pollution, water pollution, noise, traffic)

P1.3.2.1-3 Defining the procedure for interruption of activities and preparation of the space for use after termination of the activity

P1.3.2.1-4 Protection of environment, bio-diversity and landscape

P1.3.2.1-5 Consolidation with principles and criteria of sustainable development

Spatially-related specific principles and objectives of economic development are defined by sub-sectors:

Industry and mining

Objectives

O1.3.2.1-1 The regional development should be strengthened according to existing structures and regional comparative advantages.

O1.3.2.1-2 Industrial facilities should be developed predominately within boundaries of already constructed areas by transformation of old industrial areas, areas of former military industry or areas of former traffic facilities (→ brownfield development); establishment of industrial facilities outside constructed areas (→ greenfield development) should be limited to the absolute necessary extent and must be based on strict assessments of environmental impacts and seismic risks.

Explanation: Areas for activities with risks of environmental and health pollution have to be identified and defined in more detailed local spatial planning documents. Only in those areas, will the location of this type of industry be allowed.

O1.3.2.1-3 The areas of mineral resources being of strategic importance for the economic development of Montenegro should be protected from uses which are contrary to or which will restrict the exploitation of the mineral resources.

O1.3.2.1-4 Any application for establishing or expansion of exploitation of mineral resources has to be complemented by an assessment of environmental impacts and seismic risks.

O1.3.2.1-5 For all existing and planned exploitation of mineral resources, a concept for the revitalization of the devastated landscape area is compulsory. With approval for use of future exploitation it is necessary to define the concept of revitalization of devastated areas after the exploitation. The exploiting companies are obliged to invest into a revitalization fund to finance the required activities according to the submitted concept.

O1.3.2.1-6 Exploration of oil and gas deposits off-shore and on-shore should be continued.

O1.3.2.1-7 Development of industrial capacities for processing and usage of secondary raw material, particularly from the energy aspect.

Agriculture, forestry and fishery

Principles

P1.3.2.1-6 Development of agricultural activities as a main source and/or additional income of rural population in order to stop negative trends of depopulation

P1.3.2.1-7 Promotion of bio-agriculture in all of the various fields of agriculture

P1.3.2.1-8 Development of food processing activities in the areas of agricultural production in order to strengthen regional value chains and the value added

P1.3.2.1-9 Preservation and improvement of forests as important habitats and nods in a wider network of green corridors

P1.3.2.1-10 Commercial use of forests based on the approach of sustainable forestry economy, i.e. a balance between logging and re-afforestration

P1.3.2.1-11 Revitalization and re-afforestration, should be done only with autochthon tree species

P1.3.2.1-12 Strengthening of applied research and development (R&D) in the agriculture and forestry, including improvement and dissemination of knowledge in bio-agriculture, preservation of natural resources and sustainable forest management

P1.3.2.1-13 Develop fishery and fish breeding at individual production level in accordance with requirements for long-term protection of the aquatorium and the landscape.

Objectives:

O1.3.2.1-8 Strict protection of the existing potential of agricultural land in particular in the vicinity of urban settlements (peri-urban zone). The conversion of agricultural land into construction land should be carried out through strictly controlled procedures.

O1.3.2.1-9 Improve the regional marketing of agricultural products by strengthening the links between agricultural production and tourism within the same or wider area.

O1.3.2.1-10 Strengthening the role of agriculture as a predominant component in the preservation of the richness of cultural landscape in Montenegro.

O1.3.2.1-11 Sustainable management of natural resources through adequate use of land as well as the prevention of pollution of the soil and water resources (e.g. by applying appropriate fertilizer and techniques).

O1.3.2.1-12 The preservation and creation of large forest areas is an objective of priority for the spatial development in Montenegro

O1.3.2.1-11 Define concept of forest management for commercial purposes which the owner respectively concessionary has to submit to the relevant state authority for approval.

Tourism

Principles

P1.3.2.1-14 Extension of the tourism season by widening the tourism offer and improvement of accommodation facilities to meet the requirements of colder periods

P1.3.2.1-15 Promotion of a multi-segment tourism offer in line with international standards to establish Montenegro as a destination for various target groups

P1.3.2.1-16 Improved and widened linking of tourism sector with other relevant sectors of the economy like agriculture, services and transportation

P1.3.2.1-17 Any aspect of tourism development should aim on the preservation of natural values which form the main base for the tourism in Montenegro; this includes the respect of architectural structures as well as the carrying capacity of the respective areas.

P1.3.2.1-18 The improvement and the development of additional accommodation facilities should focus on the following criteria: (a) revitalization of existing buildings, (b) following principles of contemporary architecture of tourism objects and systems, harmonized with existing settlement structures bearing in mind the traditional urban and natural setting, (c) focus development in existing settlements to avoid unnecessary land consumption and to increase the efficiency of communal infrastructure and services (water supply, sewage system, energy supply, waste management).

Objectives:

O1.3.2.1-12 A medium and high standard tourism will be developed on the expense of low standard tourism offer;

Explanation: According to the Master Plan for Tourism Development, the strategic goal is to increase capacity of high standard hotel beds to 50 000 accommodation units in 2010 and to double the figure until 2020, in order to realize economic potential in the tourism sector. The increase of high standard hotel beds must be linked with the decrease of the number of low standard hotel and apartment beds which still make a big part of accommodation facilities. It should be expected that a total number of beds will be decreased while income generated per bed will be increased. The number of beds proposed in the Master plan for tourism development has to be seen as the possible maximum; the realisation of real constructions and expansion depends on the actual carrying capacity of the respective areas (natural resources, water supply, waste water treatment, waste

treatment, etc.) and the results of the assessments of the expected environmental impacts.

O1.3.2.1-13 In mountainous areas, winter-tourism will be developed according to the carrying capacity of the respective areas and following the principles and objectives of sustainable development.

O1.3.2.1-14 In rural areas, adequate kinds of agro-, adventure-, extreme sports-tourism and alike will be developed according to the carrying capacity of the respective areas and following the principles and objectives of sustainable development.

O1.3.2.1-15 In adequate locations, health and wellness tourism will be developed according to the carrying capacity of the respective areas and following the principles and objectives of sustainable development

O1.3.2.1-16 All investment applications in larger tourism facilities must be complemented by assessments of expected environmental impacts, expected regional economic effects, social impacts and seismic risks.

O1.3.2.1-17 In protected or planned protected areas, investments in new, additional or extension of existing tourism facilities (hotels, marinas, skiing infrastructure, etc.) can only be conducted on the basis of spatial planning and the urban documentation and management program which are the result of it.

Explanation: So far, no reliable and robust bases for the development of protected or planned protected areas have existed, which provides clear guidelines for the particular areas. This includes also provisions for the ecological and social carrying capacity particularly bearing in mind the requests of sector development.

Maritime economy and traffic

Principles

P1.3.2.1-19 Modernization of ports' capacities according to international standards and modern technology

P1.3.2.1-20 Enhancement of necessary services for maritime transport and port operation

P1.3.2.1-21 revitalization of Montenegrin trade fleet

Objectives:

O1.3.2.1-19 Harmonization of maritime legislation and legislation on the protection of sea from pollution from ships with the requirements and rules of IMO (International Maritime Organization) and other relevant UN Conventions and regulations of the European Union

O1.3.2.1-20 Defining waterways for international sea traffic (cargo, ferries) in a way not to cause negative impacts on marine ecosystem, particularly on nature protected areas and protected areas in terms of preserving cultural values as well as areas assigned for nautical tourism.

O1.3.2.1-21 Restriction of maricultural activities to areas which are not protected, or planned as areas of nautical tourism, and which in general do not disturb natural and cultural resources as well as living conditions of the population.

Explanation: The exact locations of possible areas have to be defined in respective more detailed planning documents.

1.3.2.2 Social development

Principles

P1.2.3.4-1 Expansion and intensification of political pluralisation and democratization and human rights

P1.2.3.4-2 Strict linking of political and economic decisions and interventions with the principles and objectives of the Strategy of Development and Poverty Reduction

P1.2.3.4-3 Strict commitment to the Millennium Development Goals (MDGs) adopted by the Assembly of the United Nations, adapted to the conditions, potentials and needs of Montenegro.

Pedagogical-educational activities

Principles:

P1.2.3.4-4 Establishment of network of schools in line with the needs of demographic structures and regional development taking into account the impact of demographic changes.

Objectives

O. 1.2.3.4.1. All centres from the settlement network of Montenegro, except local, must have established pre-school education function.

O. 1.2.3.4.2. All centres from the settlement network of Montenegro, except local, must established elementary education function. In cases when the number of inhabitants justifies the existence of elementary school, local centres can have established functions of elementary education as well.

O. 1.2.3.4.3. All centres from the settlement network of Montenegro, except significant local ones, must have established secondary education function. If demographic structure in the municipal centre does not enable this, the function will not be established in this municipality.

O. 1.2.3.4.4. All centres from the settlement network of Montenegro, except municipal, important local and local centres, must have established function for academic

and/or other post graduate education. In cases when the number of inhabitants in municipal centres, their gravitation area or specific local advantages justify the existence of academic and/or other post graduate education, these centres can have established these education functions as well.

Science

Principles:

P1.2.3.4-5 Definition of scientific and research priorities in international cooperation of Montenegro through suitable projects and programs (ESPON, COST, UNESCO/HP, UNESCO/OECD, FPG, CEI, TEMPUS, INTERREG, etc.)

P1.2.3.4-6 Creation of new institutional and organizational arrangements for connecting the research and development with economic enterprises, in particular small and medium enterprises, and social institutions

Explanation: A base for economic and social development is the direct co-operation between institutions for applied research and the actors in economy and social system. In particular small and medium enterprises are not in the position to realize own researches to improve the quality and range of their products and services. To improve the framework conditions for economic development and better living conditions the link between R&D and potential users is an appropriate tool to enhance the development. This is valid especially for areas beside the existing growth poles and economic centres. The development of the Northern part of Montenegro depends on such an improvement of business-related framework conditions.

P1.2.3.4-7 To improve the structures of applied research, the establishment and improvement of additional research institutes is required in the fields of seismology, sustainable development and bio-diversity

Explanation: Education for sustainable development should be implemented in accordance with UN declaration on decade of education for sustainable development.

Objective:

O. 1.2.3.4.5. New objects for scientific activities will be placed in the centre of national importance, the centre of special importance or the centres of regional importance.

Culture

Principles:

P1.2.3.4-8 Creation of more favourable framework conditions for the establishment and development of cultural activities and cultural services in Montenegro

Objectives:

O1.2.3.4-6 The cultural heritage in all existing forms (monuments, architecture, traditional cultural activities, etc.) has to be preserved by creation of adequate framework

conditions; this includes establishment of adequate legal bases, promotion programs, and international exchange.

O1.2.3.4-7 The cultural diversity as a base for national identity shall be preserved.

O1.2.3.4-8 In less developed municipal centres cultural activities will be enriched by various mobile forms of cultural activities**.**

Physical culture

Principles:

P1.2.3.4-9 Development of a network of facilities for physical culture as a base for the further development of popular and professional sports.

P1.2.3.4-10 All primary and secondary schools should dispose with sport facilities to attract sport activities among the youth and to increase the health conditions of children and youth.

P1.2.3.4-11 Each municipality and settlement should dispose with objects for physical culture.

Health care

Principles:

P1.2.3.4-12 Establishment of network of health services in line with the needs of demographic structures and regional development; impacts of demographic changes have to be considered.

P1.2.3.4-13 Further strengthening and improvement of the system of ambulant health care, in particular in remote areas in order to ensure the health care for complete population regardless of residential location.

P1.2.3.4-14 Further strengthening and improvement of the system of mobile care for the elderly, in particular in remote areas to ensure the care in their usual community (this responds to expected changes in demographic structures as well as changes in traditional family systems).

Objectives:

0.1.2.3.4-9 All important local centres must have primary health care facilities.

0.1.2.3.4-10 All centres of municipal importance must also be locations for health care centres and pharmacies have to be equipped in accordance with respective local conditions.

0.1.2.3.4-11 A centre of national importance, a centre of special importance and all centres of regional importance have to be locations for general hospitals.

Social and children care

Principles:

P1.2.3.4-15 Adaptation of system and practice of social care to the standards determined by European legislation, economic possibilities of Montenegro, demographic changes, changes in the poverty level, fast urbanization etc.

P1.2.3.4-16 Strengthening of the social care system for achieving higher degree of social security of financially unsecured persons and methods which would speed up the development of the contemporary types of preventive social protection of the part of population that would not be able (due to natural causes) to work and earn with that work the minimal needs for living.

P1.2.3.4-17 Development of institutions and services for social care, especially in the field of preventive protection and prevention of the occurrence of social need, due to the fact that the trend of the increase of old people households is noticeable as well as increase of poverty among bigger part of population.

P1.2.3.4-18 Accelerated development of institutions and social care services, especially in the field of preventive protection and prevention of occurrence of social needs, due to the fact that the trend of increase in aging families is noticeable as well as the increase in poverty of the major part of population.

1.3.2.3 Technical infrastructure systems

Objectives:

O1.3.2.3-1 Develop systems of technical infrastructure in order to support polycentric network of towns and other settlements and their more qualitative development.

O1.3.2.3-2 Develop technologically and spatially, infrastructure systems, as part of European networks, namely compatible and connected in the networks of surrounding region.

O1.3.2.3-3 Development of grid-bound infrastructure should be directed toward joint corridors, respecting the limits which come out from the demands for conservation of biological diversity, natural values and protection of natural resources cultural heritage and relief characteristics.

Explanation: Corridors for certain infrastructure systems (road network, railroad, electric long distance line, gas pipeline etc.) are defined as frameworks and guidelines for lower level planning documentation, by which they will be defined in more detail. In certain, justified, and documented cases, these routs can go even beyond the corridors defined in the Spatial Plan.

Traffic infrastructure

Objectives:

O1.3.2.3-4 Improving safety and security of traffic in existing road network, which implies adequate maintenance, protection and recovery of existing roads, as well as modernization of certain parts of the road (eliminating black spots, improving elements of the road etc.) and enabling safe road use during the whole season.

O1.3.2.3-5 Development of road network so as to achieve better integration of space which has specific importance for further development of Montenegro after its independence and while facing new spatial determinations.

O1.3.2.3-6 The main requirement of the main roads is to have a controlled access, similar to highways. Number of cross roads should be minimized, so as to ensure safe traffic and to re-levelling of crossroads.

O1.3.2.3-7 Development of local roads should also provide good availability to all rural areas, tourist, agricultural and other complexes, national parks, namely it should support planned development, which will be defined by lower level plans. With local roads particular emphasis should be put on roads which pass through territory of two or more municipalities, and therefore they have higher importance. It is necessary to harmonize technical elements with the level of municipalities in question.

O1.3.2.3-8 Establishing pedestrian and bike lanes within settlements (particularly in urban centres) to allow a secure pedestrian and bike traffic within settlements.

O1.3.2.3-9 Improving roads, such as “panoramic roads” which should be treated as means for tourism development.

Explanation: Special landscapes are one of unique attractions of Montenegro. By establishment of panoramic roads, attractiveness of tourist destinations will be increased.

O1.3.2.3-10 Construction of settlements bypasses (particularly urban centres), to minimize negative impacts on the environment caused by pollution from transit traffic. This refers in particular to the urban centres along the main car traffic corridors; highway Bar – Podgorica – Boljare, Andrijevica – Bjeluha, Adriatic-Ionian-Highway and the fast road in the direction Debeli brijeg – Ulcinj - Albanian border. These by-passes will be part of the mentioned roads.

O1.3.2.3-11 Connecting road network with the network of Pan-European multi-model corridors.

O1.3.2.3-12 Improving quality of existing railroad network, quality of transport services and network capacities.

O1.3.2.3-13 Improving the multi-modal transport network to mitigate negative environmental impacts and to increase efficiency of transport of goods.

O1.3.2.3-14 Providing adequate port facilities and maritime services in order to increase the scope of coastal shipping and international sea traffic. Development of Port of Bar is a priority.

O1.3.2.3-15 Assign lakes and rivers for commercial water traffic exclusively for tourism purposes and only in limited scope for the transport of goods and persons. For the use of lakes and rivers, detailed regulations on particularities have to be elaborated by the national authority responsible for supervision of lakes and rivers.

O1.3.2.3-16 The air traffic shall be further developed according to the needs of spatial development of Montenegro: The infrastructure and management of the international airports in Podgorica (class 4E) and in Tivat (class 4D) will be improved according to the international standards. Runway in Pljevlja, Berane and Niksic (lowest class 3C) shall be established for small tourist and business planes.

Telecommunication infrastructure

Principles:

P1.3.2.3-1 Further development and improvement of telecommunication infrastructure (satellite networks, networks of landline and mobile phones, speaking networks, networks of radio-television diffusion (emission) and networks of cable television) is one of the main generators of development at national, regional and local level as well as for the needs of protection and defence.

P1.3.2.3-2 When drafting relevant more detailed spatial planning documents or sector planning documents special attention should be paid to:

- Planning and construction of basic telecommunication infrastructure along new international and main transport routes.
- Ensuring reliable functioning of international telecommunication traffic of Montenegro by connecting to international telecommunication networks (Serbia – through Pljevlja and Rožaje, Bosnia and Herzegovina – through Nikšić and Herceg Novi, Croatia – through Herceg Novi and Bar by maritime international connections to Dubrovnik – Zagreb, Albania – through Plav and through Bar – by maritime and land connections, Italy – through Bar to Bari by submarine connections and through Bar and Krf).
- Ensuring enough capacities in new telecommunication infrastructure for the needs of larger number of telecommunication operators, its distribution will be taken care of by the responsible public administration authorities and local self-government through issuing the appropriate permits for construction.
- Providing sufficient capacities in new telecommunication infrastructure for needs of bigger number of telecommunication operators; competent state administration and local self-administration will take care of their disposition by granting adequate permits for construction.

Postal network

Principles:

P1.3.2.3-3 Maintenance and improvement of postal network with a high quality level in all segments of the network, including providing of qualitative service to residents in remote areas.

Energy infrastructure

Principles

P1.3.2.3-4 Electric energy system should be developed in a way to represent the basis for total economic development of Montenegro, as well as to enable secured and sufficient supply of energy in all areas and settlements in Montenegro. It should also comply with international recommendations and standards in terms of secure energy supply.

P1.3.2.3-5 Development of **energy infrastructure** should follow the realization of objectives of spatial development, environmental protection and spatial planning in Montenegro.

P1.3.2.3-6 Development and use of infrastructure systems (production, transmission, distribution and use of energy) should be carried out in accordance with the principles and criteria of sustainable development, particularly when they can cause undesired consequences with long-term negative effects.

P1.3.2.3-7 Providing increase in energy efficiency in all segments of energy use (traffic, households, industry and economy).

P1.3.2.3-8 Adequate combination of methods of energy production by valorization of available resources in accordance with energy policy has to be promoted. This combination should be selected according to the principles of sustainable development, namely the priority should be given to production of the energy from renewable resources at the lowest cost.

P1.3.2.3-9 Increase the share of renewable energy resources in the total energy production; besides hydro energy particularly solar energy, winds and biomass. Promotion of renewable energy resources should be included in energetic plans of towns and local communities (e.g. as a part of local sustainability strategies – Local agenda 21).

P1.3.2.3-10 Improvement of systems for transfer and distribution of electric energy, in order to to significantly decrease losses.

P1.3.2.3-11 Development of small systems of centralized supply of heat energy for residential and business areas.

P1.3.2.3-12 Use of construction material of adequate isolation characteristics and their application in construction of objects (low-energy-houses)

Objectives:

O1.3.2.3-17 In accordance with existing potential, the use of hydro potential for production of electric energy is the main element in electric energy production of Montenegro and it represents renewable energy resource; adequate locations must be preserved from other uses which are contrary or which disturb the planned use of hydro-potential.

Explanation: Selection of locations for production of energy through use of hydro-energetic potential has to be carried out carefully in order to protect the natural resources and values in closer and wider area; long term and far-reaching impacts must be evaluated and documented and they shall serve as a basis for approving planned investments by responsible authority.

O1.3.2.3-18 All planned investments in energy production, as well as the selection of locations, should be regarded as integrated projects and assessed from the aspect of regional and state economic effects, social impact, environmental impact and seismic risk.

O1.3.2.3-19 The construction of small hydro-power plants (SHPP - capacity ≤10 MW) will be determined by detailed spatial planning documentation (see Small Hydro-power Plant Development Strategy Montenegro).

O1.3.2.3-20 The construction of the second block of Thermo Power Plant in Pljevlja together with the reconstruction and modernisation of the existing block.

Explanation: It is necessary to use the technology which shall not imply exceeding of the allowed negative environmental impacts.

O1.3.2.3-23 Develop production of electric power by using wind power while reserving adequate locations and preserving them from other purposes which are contrary or which disturb planned purpose.

Explanation: Due to the current lack of data, detailed determination of adequate locations will have to be done only after the finalization of further examination. Revision of this plan is supposed to define adequate areas larger then 10 ha and present them on the map; smaller areas will be presented in detailed planned documentation.

O1.3.2.3-24 Infrastructure of energy, oil and gas transmission will be directed in joint infrastructure corridors as often as possible, i.e. along traffic corridors, in order to respect objectives of environmental protection, to reduce investment capital and to increase the accessibility throughout the year.

O1.3.2.3-25 Introduction of contemporary centralized heating systems in the zones with large number of consumers (central zones of urban settlements linked into a common

system with concentrated production zones) supplied through the central energy source (thermo electrical plant or industrial energy plant) render possible the combined production of heating and electrical energy with all economic, energy and ecological advantages; in that respect, great importance should be given to the connection of Pljevlja to the nearby thermo-electrical plant by means of a distant heat line. Other towns should use the heat emitted by industrial and energy facilities or the energy from combustion of municipal waste for centralized heat energy supply.

O1.3.2.3-26 While planning and developing new residential and industrial areas, the most adequate mode of energy supply has to be provided in order to minimize negative environmental impacts and to increase energy efficiency. Beside increase of energy efficiency and undertaking of activities which would provide energy efficiency (supply, big industrial consumers, sector of all consumers, building sector, public sector, household sector, traffic sector) it is necessary to revitalize and optimise existing production of systems, as well as to intensify use of renewable energy sources (hydro energy, wind energy, solar energy, biomass, biogas, etc.)

Hydro-technical infrastructure

Objectives:

O1.3.2.3-27 In the area of water supply, the objective is to supply the whole town population and around 90% of rural population with high quality water, through public waterworks. Within 5 years of the adoption of this Plan the concepts of municipal, namely regional, water supply systems should be elaborated. Important elements of these municipal or regional water supply systems are measures for the reduction of losses and the rationalization of consumption.

O1.3.2.3-28 For technological needs of industrial users the water supply shall be enhanced by capturing primarily surface waters.

Explanation: Support application of technologies for recirculation and decrease of water consumption level in technological processes shall occur, e.g. by information campaign, promotion programs, credit arrangements etc.

O1.3.2.3-29 For high quality land and the one intended for agricultural use irrigation concepts shall be elaborated. It is estimated that irrigation is required on about 80% of the surface area and drainage of excessive quantities of water for about 50% of the surface area.

O1.3.2.3-30 The protection and improvement of the quality of surface, ground waters and sea water at the level of prescribed quality classes is a main task. It is compulsory to respect the criterion of the quality of waste waters from settlements depending on the type and character of natural recipient, and the waste waters from industries even at joint public sewers system. It is necessary to connect at least 80% of the population of Montenegro to public sewer systems. All urban settlements having more than 1000 inhabitants should have possibility for waste water treatment. For smaller settlements and buildings outside of settlements decentralized solutions for sewage treatment shall be applied (septic tanks, etc.).

O1.3.2.3-31 Municipal waste water treatment concepts have to be elaborated within 5 years after adoption of this plan. These concepts can be prepared in conjunction with the concepts for water supply systems.

O1.3.2.3-32 Atmospheric waters will be evacuated from urban settlements by sewerage systems with the appropriate filtering before discharging them into recipients.

O1.3.2.3-33 Waste water purification facilities shall be constructed in the basins of fresh water sources, Skadar Lake and Boka Kotorska Bay, as well as in the areas of protected natural heritage (national parks and nature reserves). It is necessary to establish the zones of sanitary protection at all used and potential sources.

O1.3.2.3-34 For the protection of settlements and agricultural land from floods, adequate provisions will be introduced into local spatial planning and appropriate retention areas will be identified and prepared; the construction of hydro-technological infrastructure has to be reduced to the possible minimum and directed to areas where the use of retention areas is not possible, effective or not sufficient.

Waste management

Objectives:

O1.3.2.3-35 To mitigate the negative environmental impacts of waste, the municipalities as the responsible authority for waste disposal shall elaborate waste management strategies. These strategies must include approaches for waste collection and waste disposal in accordance with established inter-municipal cooperation.

O1.3.2.3-36 The volume of waste shall be reduced by the introduction of systems of waste separation so as to exclude those components of the waste which can be reused (recycled) from these components which have to be dumped. Concepts for waste separation systems have to be elaborated in accordance with general waste management strategies of the municipalities.

O1.3.2.3-37 Special areas should be defined for collection, i.e. primary disposal of solid municipal waste, so that complete functional areas are established, with waste management centres as integral parts. The areas are determined on the basis of the corresponding number of potential users, homogenous internal transportation link, as short as possible distance and the existing disposal system, i.e. waste management.

O1.3.2.3-38 Existing, mainly inappropriately organized dumps which represent the greatest danger as potential pollution source shall be closed down or rehabilitated, if possible. The locations have to be secured from further potential pollution of natural resources by conducting appropriate ecological-technical measures.

O1.3.2.3-39 Low and medium radioactive waste should be disposed and treated in accordance with the regulations on the protection from ionizing radiation and international conventions and treaties, to which Montenegro is a signatory. In accordance with

international guidelines, location are defined through the research of variants, with careful evaluation of options from the point of view of environmental impact and urban development, economic effects and general social acceptability. The selection of sites should be defined on the basis of detailed and comprehensive studies including environmental impacts assessments (also considering transport requirements) and potential seismic risks.

1.3.2.4 Specific aspects of spatial development

Protection against natural hazards and industrial damage

O1.3.2.4-1 For the protection against natural hazards and industrial damages an early warning system and a network of protective facilities and services has to be established.

Seismic risks

Objectives:

O1.3.2.4-2 Future spatial development and construction shall be adapted to conditions of **seismic risk**. In this sense, it is necessary to formulate general policy for decrease of possible seismic risks, based on integrated approach.

Explanation: Seismic management of the fund of existing structures (in the sense of defining their seismic safety) will be introduced into the standard urban planning. These issues should represent the area of true and long-term care of the community, at all levels (from local to state level), and they should be treated urgently, in an organized manner, efficiently and effectively. In this way, a systematic approach will be taken to solving three key problems: 1) insufficient seismic safety of the majority of the existing structures; 2) insufficient respect for the requirement of earthquake resistance and safety when changing the purpose, additional construction and reconstruction of buildings; 3) lack of adequate legal and technical regulations, which can respond to the modern concepts of seismic evaluation and strengthening of these buildings, as well as lack of spatial and urban plans in which this problem is solved properly.

O1.3.2.4-3 A seismic risk management system shall be established and strengthened; this system includes the identification of the elements of seismic risk, research and determination of vulnerability of these elements, control of seismic urban planning, projects and construction, establishment of the system of comprehensive promptness for earthquake as well as raising the awareness in the society regarding the seismic risk.

Explanation: Determining macro and micro zoning and mapping of vulnerability (based on adequate research). Apart from the use of other ordinary maps, in planning of earthquake protection at the urban level, it is necessary to also use: **1)** Maps of seismic macro and micro zoning of the secondary seismic hazards (for the cases of liquefaction, rockslides, landslides, etc); **2)** Maps of seismic vulnerability of buildings and other facilities of communal infrastructure, which present properly the

current state, with the use of modern methodologies of research in this field. The basic areas of integrated approach to the reduction of seismic risks are:

- Defining seismic risk and its acceptable level.
- Non-seismic designing and construction of buildings and infrastructure systems.
- Spatial – urban planning in seismic conditions.
- Mitigation of seismic risks through the legislative and institutional-organizational adjustments.
- Preparedness for earthquakes, in a wider and contemporary meaning of the term.
- Use of integrated information system with the database on space and developed areas (like GIS).

Defence and protection

As most important and potentially most dangerous risks on the territory of Montenegro are considered to be: risk from destructive and catastrophic earthquakes, risk from other geological hazards, risk from extreme meteorological phenomena, technical and technological hazards that comprise possibilities for causing the following huge accidents: fires on regional level, damages from oil and oil derivates` installations, in transport, explosions, radiological and other accidents, a damaging influence on environment, big traffic accidents, damages on large energy and hydro power plants, chemical and radiological contamination, other technical and technological accidents, combined effects of technological accidents, radiological contamination and other dangerous contaminations caused by chemical substances. As something that is considered to be of particularly high risk is epidemic infectious diseases with large number of diseased and dead.

The analyses of all kinds and the scope of possible hazards reliably indicate a significant level of risk for people, material goods, cultural and historical heritage and environment in Montenegro that may be jeopardized by the above mentioned events.

Based on the confirmed hazards` components, the Strategy for Emergencies has as a goal the definition of basic elements of organized acting by state and other institutions in overcoming urgent situations caused by all kinds of big natural accidents, technical and technological accidents and biological hazards. This is in order to decrease the number of accidents through prevention activities, mitigating their consequences as well as through development of preparedness of relevant state and institutional capacities and all social community in all cases that might happen in the future.

The basic concept of the National Strategy for Emergencies caused by natural or other catastrophes may be seen in the following defined priorities:

- Normative regulation of the area of rescuing and preventive activities with the aim of protection from natural catastrophes, technical and technological accidents and biological hazards by adopting a set of necessary laws and technical norms for facilities` constructed in seismic areas (in line with EU Norms EUROCODE 8) as well as technical norms for osculation of all bigger hydro –technical facilities.
- Establishment of national protection system that will functionally integrate all relevant institutions that are involved in the process of monitoring of natural and technical-technological hazards, protection and rescuing and development of detailed and comprehensive national action plans for all kinds of emergencies separately and for any form of quantified hazards;
- Initiation of social processes with the aim to achieving long term development of scientific researches related to phenomena of the cause of natural catastrophes and their influence on social community.
- Strengthening of general preparedness of communities and raising awareness about the significance and necessity of having organized and efficient social activities in prevention

and mitigation of damaging effects and emergencies, with active and organized participation of citizens themselves in the processes both on regional and local level.

- Enhancement of the continuous monitoring system of all important natural, technical and technological, and biological hazards so as to reliably and efficiently reveal what the state is as well as to duly inform on the state and events, in order to prevent their damaging effects and their immediate dangerous impact on people's lives and health, property or significant danger to environment and cultural and historical heritage.
- Provision of equipment and trainings for specialized institutions and individuals responsible for protection and rescuing in conditions caused by emergencies.
- Taking all necessary preventive measures in order to prevent catastrophes and reduce damages caused by catastrophes.
- Creation of formal foundations and establishing international cooperation with other systems of protection and rescuing in the region in order to create conditions for having regional urgent assistance in great scale emergencies.

1.3.3 General objectives of spatial development of Montenegro

1.3.3.1 Development of settlement structure

Objectives:

O1.3.3.1-1 The settlement structure of Montenegro is based on the encouragement of development of urban centres of national, regional and local importance and providing connection with their surroundings through efficient mobility of population, reliable transport of goods and efficient service where the priority is given to public transportation**.**

O1.3.3.1-2 As an important approach to balanced development of Montenegro the approach of a polycentric network in particular of centres of regional importance has to be applied. This "second level" of centres in Montenegro will have the main responsibility for providing development impetus in the different zones and sub-zones of Montenegro**.**

Explanation: Polycentric model of spatial organization is based on network of settlements, which consists of cities with different level of centrality, and settlements in their gravitational area. Establishing real polycentric model of spatial organization reflects in affirmation of middle and small settlements with functions according to centrality level, especially in low density, with a huge distance between settlements and on areas beyond main traffic, development corridors. This form of spatial structure is the most suitable for mitigation of territorial disparities of socio-economy development, activation of local natural resources and reduction of migration flows.

O1.3.3.1-3 Functions of urban and rural areas have to supplement each other mutually by use of spatial potentials of rural areas for development of economic activities and by completing functions of the individual urban centers and their rural area through development of complementary activities.

O1.3.3.1-4 Development of the settlement structure shall be based on rational use of space for urbanization and strict control and restriction of intensified expansion of urban areas.

O1.3.3.1-5 Qualitative development and attractiveness of towns and other settlements shall be achieved by ensuring qualitative environment, revitalization, rehabilitation and further development of urban functions and physical structures by strict consideration of cultural heritage as one of main aspects of national and local identity.

O1.3.3.1-6 Corresponding with recent experience the preservation of biological diversity, of natural values, of cultural heritage has to be a focus in planning and development of the settlements. Especially cultural heritage has to be considered as a factor which seriously determines the development potentials of settlements.

O1.3.3.1-7 The urban and construction identity of settlements have to be preserved.

Explanation: Regarding the spatial planning and development in towns and other settlements contemporary architectural identity should be provided, which starts from the existing quality and characteristics of the space, i.e. construction (cultural) heritage, and is harmonized with most recent technological-architectonic solutions. Height and size should be adapted to the existing, inherited structures. The conservation of architectural identity is realized by planned development and renewal of settlements, through preservation of areas. Contemporary technological solutions and designer's interpretations should be used as recognizable construction of settlements. Detailed directions are determined in relevant expert bases, during elaboration of lower level planning documents.

O1.3.3.1-8 Settlements are planned in such a way that consequences of possible fires, floods, earthquakes, erosions and military conflicts are minimized. In settlements not connected to a water supply system it is necessary to foresee water reserves for putting out fires.

O1.3.3.1-9 For existing settlements, the protection from floods should be improved by planning measures and arrangement of running and stagnant waters in the wider surrounding of the settlement.

O1.3.3.1-10 The spatial development of the settlements has to provide for preservation of fresh air corridors and has to consider impacts on micro climate conditions.

O1.3.3.1-11 Settlements have to be planned in a way that energy consumption is reduced to minimum by defining urban standards and normative, choice of architectonic solutions and choice of building material, principles and criteria of rational use of electricity. Besides planning of new, more energy economic objects, rationalization of use of energy is provided through continuous planning, that is through planning of buildings, i.e. facilities, and efficient realization of those plans and programs.

O1.3.3.1-12 Inner development of towns by better use of unoccupied and inadequately used land inside the settlements has priority in relation to spreading over new areas (for example, abandoned locations, previously unfavorable locations, conversion of previous industrial, traffic or military complexes etc.). Also, inner development of town and rational use of land are realized through change of the way of use of the existing objects and land, through renewal, so called re-urbanization ("new

urbanization") and reconstruction and rehabilitation of the degraded areas ("transformation"). Besides spatial and social criteria and objectives the quality of living, protection from potential dangers` risks` and achieving balance between constructed and green areas in towns should be comprised.

O1.3.3.1-13 Renewal of a settlement is a form of the urban settlement development which includes, besides spatial criteria and goals, possibilities for economic development, solving of social problems, better living conditions and potential threats. It is being planned and done in areas morphologically and functionally encircled. By the renewal of settlements, a part of settlement or an individual building, quality of environment is preserved and improved, re-use of the abandoned areas is provided and degraded areas are rehabilitated.

O1.3.3.1-14 With the renewal, the preserved identity of a settlement or part of a settlement is taken into consideration and balanced in relation to constructed and green areas in the settlement.

O1.3.3.1-15 Renewal of the cultural and architectural heritage in settlements has to be done in all areas with a good quality architectural heritage. When arranging and planning the development of settlements with a good quality architectural heritage both protection and development principles are applied.

O1.3.3.1-16 Renovation of degraded urban surfaces is carried out in urban areas with decreased i.e. limited development and other potentials, whether it is abandoned area, desolated surface or surface with polluted environment. Above all, this implies surfaces on which construction or mining activities were performed, surfaces on which warehouses are located, military objects, railroad infrastructure and surfaces with degraded residential and business objects.

Explanation: Renovation has to include economic and social aspects. Important aspect of renovation is the intention to offer new opportunities and possibilities to the population settled in these areas by creating conditions for living and generation of income. Integrated systems of communal infrastructure have to be considered in order to satisfy quality standards and to reduce the environment pollution to lowest possible degree.

O1.3.3.1-17 The expansion of a settlement is acceptable if it is in accordance with basic objectives of spatial development, with principles of development guidelines referring to a specific settlement, with adequate program for infrastructure development and assessment of environmental impacts and of the threats of natural and other disasters, i.e. hazards.

O1.3.3.1-18 When planning widening of settlements concepts for the integration into public transport systems has to be provided at the same time. Suburban settlements can be expanded only in those areas where efficient public passenger transport can be organized.

O1.3.3.1-19 In principle, construction outside of populated areas is forbidden. Construction can only take place according to an urban plan or an urban project based on the principles of sustainable development. When arranging populated areas outside of settled areas, size and disposition of buildings in space are considered, as well as criteria for forming of new structures. New construction should achieve recognizable order in space and rational spatial organization of activities.

Explanation: Main purpose of construction outside of populated areas is to increase quality of living conditions and to improve possibilities for employment. When making adequate decisions, state and local government bodies and other participants should also take into consideration historical heritage. This is especially important for successful development of rural areas and areas with development problems, where high level of quality of urban and architectonic solutions should be achieved, which should provide formation of valuable and interesting settlement.

O1.3.3.1-20 Construction of facilities for sports and recreation purposes outside the settled areas is allowed if such spatial development is in accordance with basic purpose of that area, as well as with spatial conditions and carrying capacities.

O1.3.3.1-20 In rural areas, villages and hamlets, construction is permitted inside the existing construction parcels, with the aim to improve conditions for living and performing of agricultural and additional activities. The advantage is given to renewal and reconstruction, which is directed towards modernization of agriculture and to creation of conditions for development of additional activities. When planning and developing rural areas and villages, different motives should be considered, but at the same time their traditional structure should be preserved.

O1.3.3.1-21 When developing tourist facilities in settlements of adequate type, adequate communal infrastructure have to be provided for in the respective planning document and has to be constructed before the tourist facilities start operating. In village settlements and in villages in which tourism is developed, identity of dominant urban and architectonic forms and landscape patterns should be preserved, i.e. promoted. Construction of secondary apartments should be completely forbidden in this area, with the exception of the consistent restoration of old villages. Tourist facilities are possible to be constructed only in line with urban plan or project. Otherwise, the area is to be considered as protected zone.

1.3.3.2 Cultural heritage

Principles:

P1.3.3.2-1 It is necessary to take a very significant step forward in the field of integrated protection of nature and cultural heritage, which is nowadays practically a unique term. Different forms of traditional way of living as an integrated part of construction heritage and natural ambient are added to the protection of natural and cultural heritage.

P1.3.3.2-2 The areas of national importance are defined according to the number, structure and quality of architectonic heritage; recognizable cultural heritage; quality of ethnographic space; preservation of the space; and spatial identity and representation of a concrete area in Montenegro.

P1.3.3.2-3 It is impossible to divide the cultural landscape and architectural surroundings. On the contrary, insisting on integrated approach contributes to the increase of the importance of whole space, authentic values of the landscape, which was created also by human and by other categories of cultural heritage as the resource of sustainable development. Development of landscape is reflection of civilization

development, its level, social arrangement, orographic and climate characteristics and the most important condition for the survival of the ecosystem.

P1.3.3.2-4 Protection and improvement of authentic cultural landscape and ambient, provides integrated protection of spatial entireties and of separate complexes and facilities having characteristics of cultural heritage.

P1.3.3.2-5 Historic towns of Montenegro, as the part of the cultural heritage, make its most representative part, and at the same time a very important resource of spatial development. High monumental value and potential of old towns lies in diversity of cultural goods, which they own.

P1.3.3.2-6 Old urban settlements include, besides the urban values, numerous categories of architectural heritage, movable monument fund, facilities and spaces with conserved original disposition and purpose. The issue of sustaining the authentic purpose or selection of the appropriate new perspective and compatible purpose is one of the crucial things in the procedure of protection and revitalization of old urban settlements. Contrary, inadequate selection of the purpose in the practice consequently brings degradation of monumental values.

Objectives:

O1.3.3.2-1 The sea i.e. marine aquatorium of Montenegro has a special cultural and symbolic importance, so its conservation, protection and sustainable use have priority before compare to all other uses.

O1.3.3.2-2 Considering the alarming condition of the cultural heritage, as well as the fact that its further preservation has been made uncertain by an irresponsible attitude of different subjects, it is necessary to undertake adequate measures for preparing good quality documentation on cultural heritage created on modern basis.

O1.3.3.2-3 Furthermore, it is necessary to create conditions for undertaking necessary research of monuments and especially of archaeological sites, so that the made documentation is based on reliable data. Gathering and preparing documents on archaeological researches for the needs of making the Archaeological Map of Montenegro, its elaboration and measures for digitalization of the documentation on cultural heritage are steps which lead towards more complete protection of cultural heritage.

O1.3.3.2-4 Protection of underwater archaeological sites is one of the primary tasks, considering their current complete exposure.

O1.3.3.2-5 When elaborating urban plans, local authorities have to include competent services dealing with protection of cultural heritage. Borders of protected area for all registered and newly named monuments should also be determined, and those whit undetermined purpose and which are in ruins, have to be reconstructed and revitalized.

O1.3.3.2-6 Illegal construction endangers cultural heritage; therefore appropriate measures of protection of traditional architecture have to be established based on international experiences and modern standards.

O1.3.3.2-7 The visibility of cultural monuments and protected urban ensembles has to be ensured and promoted by measures foreseen in local spatial planning and construction regulations.

1.3.3.3 Natural heritage

Principles:

P1.3.3.3-1 One of the preconditions for realization of sustainable development is efficient protection of natural heritage. This precondition can be achieved by enlargement of national protected natural areas provided with efficient management.

P1.3.3.3-2 The concept of the natural heritage protection is based on a model of sustainable development that should be specific for certain areas of Montenegro, harmonized with local conditions and based on physical capacities.

P1.3.3.3-3 The development has to be compatible with ecological values and their improvement and implementation anticipated in the spatial plans and urban plans have to be worked upon.

P1.3.3.3-4 In relation to the further integration into the European Union, the water resources should be managed in a way to correspond with legal regulation and the adopted Conventions and Directives.

P1.3.3.3-5 When identifying new protected areas knowledge gained in the framework of national doctrine on natural heritage protection will be applied which will enable all representative eco-systems in Montenegro to be present. European typologisation of habitats EMERALD, Natura 2000, will be subjected to further analysis and possible application in Montenegro.

P1.3.3.3-6 Landscape forms are the base for the development of particular economic sectors respecting principles of sustainable development.

P1.3.3.3-7 Consideration of the link between the protection of certain valuable natural entities and the preservation of environment (example: the character of the landscape of the Montenegrin coast will be preserved by the protection of the mountainous hinterland with its genuine Mediterranean bio-diversity).

P1.3.3.3-8 Parts of the coast, constructed and not constructed, have been defined by spatial planning and urban documentation. Further elaboration of spatial planning documentation should take into consideration the use of especially sensitive areas immediately along the coast.

Explanation: The coast and the Adriatic Sea are one of the most important development potentials but also one of the most important eco-systems of

Montenegro. Coast and the sea have to be seen as an entity. Any further devastation of the areas which are not planned for construction would cause a decrease of the value and the attractiveness of this area, therefore this space has to be protected as a priority and completely.

Objectives:

O1.3.3.3-1 Concept of protection of natural heritage is based on sustainable development model, which for certain areas of Montenegro has to be specific and harmonized with local conditions and based on characteristics of the space.

O1.3.3.3-2 The development has to be compatible with sustainable characteristics of the space and has to promote them, while spatial and urban plans have to be based on sustainable development and promotion of environmental quality.

O1.3.3.3-3 The consumption and degradation of land has to be reduced by the establishment and application of effective control mechanisms and procedures.

O1.3.3.3-4 River banks, lake shores, flood plains and meadows have to be protected and constructions have to respect the adequate distance, in particular in case of uncontrolled construction.

Explanation: “Adequate distances” have to be defined in the respective more detailed spatial planning documents on the base of appraisal of the existing flora, fauna and habitats (FFH).

O1.3.3.3-5 The rehabilitation of devastated and/or polluted land as one of the instruments of natural heritage protection has to be further developed and applied by the respective authorities at national and local level.

O1.3.3.3-6 In order to solve conflicts between natural heritage and development projects the following will be provided:

1. In nationally and internationally protected areas, by implementation of mechanisms for assessment of environmental impacts which will respect defined standards and norms of natural heritage protection;
2. Locations for big development capacities and projects (so called “large infrastructure”) – roads, water pipelines, railroads, airports, landfills, water accumulations etc.) will be planned as a priority outside of protected areas and particularly outside of those having international importance;
3. Rehabilitation of degraded and endangered environment.

O1.3.3.3-7 The status of the existing protected natural areas has to be revised and establishment of adequate national categories of protected areas is one of the steps in measures for protection of natural heritage.

O1.3.3.3-8 In accordance with the integration into the European Union, a decision should be made on establishment of network of protected areas, based on the principles of the Directive on Birds and EU Directive on Habitats.

Explanation: For the protection of species and habitats/eco-systems, the European Union requests establishment of national network of protected areas of European significance NATURA 2000.

O1.3.3.3-9 Areas of callow rocks and pasturages have to be treated as protected areas until legally set spatial planning documentation is elaborated.

Explanation: In Montenegro callow rocks and pastures cover considerable area. Often, these areas have unfavourable conditions for development. But some areas are already target areas for development activities; some might be of interest for the future for example for tourism development. Any possible form of development may endanger valuable habitats. So far, little if any accurate information has been available on the actual status of bio-diversity. Only by providing a proper base it is possible to determine the future use of those areas.

O1.3.3.3-10 As for the National Parks, also for the management of Regional Parks and international protected areas (Boka Kotorska) it is necessary to define management mechanisms within the years after adoption of this plan.

O1.3.3.3-11 The actualization of red lists and the inventory of the bio-diversity has to be completed and institutionalized, i.e. to be established and conducted as permanent activities.

O1.3.3.3-12 Catchments areas of springs and water courses have to be treated as integrated projects with necessary protection level. Details on the method of use and limitations have to be definedby relevant sector planning documents and validated in terms of legislation.

1.4 Starting points and principles of organization, development and use of space

Montenegro is in the transition phase, same as other countries from the similar political environment. In the large number of areas reforms have been implemented in order to thoroughly change social and economic institutions. General direction of changes has been defined and development of efficient economy and democratic and pluralistic (open) society has been emphasized. Two moments are important:

1. Montenegro will be exposed to a more severe international competition in the course of further opening of the state and participation in globalization.
2. Volume and depth of government intervention in the area of planning and development management will change significantly.

Those two facts provide starting points of the spatial development of Montenegro:

P1.4-1 Implementation of sustainable development principles has been consistently promoted in all aspects related to spatial development (see chapter 1.1).

P1.4-2 All population groups represent a target group for social and economic development; socially and territorially marginalized groups will be integrated.

P1.4-3 Spatial development contributes to preservation and development of population identity, particularly regarding cultural heritage.

P1.4-4 In relation to development/establishment of new economic public infrastructure, priority should be given to management and efficient use of the existing infrastructure as well as to development in order to achieve the EU development level.

P1.4-5 Development of several adequate legal instruments and improvement of control mechanisms and their implementation will help combat widely dispersed illegal construction and inadequate land use.

1.5 Position and directions of development of the Republic of Montenegro in relation to the surrounding

Directions of spatial development of Montenegro compared to the surroundings are determined through overcoming of the existing limiting factors and through mechanisms of internal development, as well as through future development of cross-boundary development zones.

O1.5-1 Improvement of the road traffic infrastructure linking Montenegro with the neighbouring countries;

O1.5-2 Increase of the number of border crossings;

O1.5-3 Reconstruction and modernization of railway lines linking Montenegro with the neighbouring countries;

O1.5-4 Establishment of coastal navigation, which would connect Montenegrin ports and docks with ports in neighboring countries;

O1.5-5 Harmonization at interstate levels in the field of nature protection and environmental protection and use of natural resources with European spatial and structural policies;

O1.5-6 Stronger integration into regional energy system and joint use of available resources;

1.6. Use of international conventions in spatial development

In elaboration of the Spatial Plan of Montenegro relevant provisions from numerous international documents and initiatives in the broader area of sustainable development, spatial and urban development and environmental protection have been used, some of its elements appropriately incorporated and implemented in the Plan. They will be realized by applying the

guidelines and measures for realization of the Spatial Plan, as well as by the realization of given recommendations.

Of particular importance is the more recent generation of international (''global'') documents: Millennium Development Objectives of the UN; Declaration from the World Summit in Rio de Janeiro (1992), and its supplementary documentation (conventions, etc.); decisions from other world summits under patronage of UN agencies, as the decision on population (Cairo, 1994), social development and human rights (Copenhagen, 1995), women issues (Bejin, 1996), settlements (Istanbul, 1996), air protection (Kyoto, 1997) and management of water resources and use and protection of water (Johannesburg, 2002); Convention on International Trade with Endangered Species (CITES) (2001); etc.

Of particular importance for the development of Spatial Plan of Montenegro are numerous European documents, initiatives and schemes of the EU, such as: European Spatial Development Perspective/ESDP (1999); EUROPE 2000 and EUROPE 2000+; Alborg Convention; Lisbon Strategy (2000; 2005); Leading Principles of Sustainable Spatial Development of European Continent (CEMAT, 2000; 2003); Resolution of Ministerial Conference on Forest Protection (2003); Strategy of Sustainable Development of the EU (2001; 2006); Territorial Agenda of the EU (2007); Leipzig Charter on Sustainable Cities of Europe (2007); Barselona Convention (1976-1995) and four related protocols etc.

In addition to the above-mentioned, Montenegro will adjust its statistical system to European scheme/system of statistical territorial units (NUTS), and will apply for membership in ESPON2 (2007-2013), which is the main research and information program of support in the area of spatial and urban development and environmental protection.

Most relevant regional documents for Montenegro are: regional initiative INTERREG III; Mediterranean Strategy of Sustainable Development; CADSES/VISION PLANET; ESTIA-OSPE-SPOSE; PLANET CENSE; Agreement on Energy Community, CEFTA 2006 etc.

1.7 Areas and models of cross-boundary cooperation in the field of spatial planning

Establishment of cross border cooperation in the area of local economic development, infrastructure connections, tourism, energy, environmental protection, etc, is of critical importance for Montenegro. During the previous spatial planning practice, institutional cooperation was realized in the frame of the state union with Serbia. In the planning by other neighbours there was no institutional connection so the planning decisions were analyzed with an insight into spatial plans of the neighbours, except in case with Albania which does not have a Spatial Plan.

P1.7-1 For the sake of the future European and regional cooperation in the field of use, organization and development of space, it is necessary to implement European principles on sustainable spatial development from the documents of the European Council and European Union into national documents.

P1.7-2 Realization of the spatial planning in cross-boundary regions should be done together with neighboring countries, and based on the suggestion for cooperation and joint interest shown through seven defined cross-boundary zones.

2 CONCEPT OF ORGANIZATION AND USE OF SPACE

2.1 General structure and strategy of balanced spatial development

The spatial development of Montenegro has to respond to actual needs of population as well as to recent changes and future trends. The general structure and strategy of a balanced spatial development is based on two pillars which seem to be in opposition to each other but describe only different requirements of the same process:

- regionalization of the development perspective and
- further integration of the Montenegrin space.

a) The regional structure of Montenegro can be differentiated according to geographic characteristics, disposition of natural conditions for development, existing linkages of the economy and settlements structures, general level of development and perspectives for further development. These factors cause a certain regional homogeneity which distinguishes parts of Montenegro from each other. Although the term "region" doesn't correspond with the requirements of statistical, administrative or political purposes, it is applied in order to structure spatial development of Montenegro according to shared potentials and limitations of areas. A balanced spatial development does not imply seeing Montenegro as a unique territory showing the same problems and opportunities, but it means to support spatial development focusing on regional specificities and by this to mitigate development disparities. On the basis of these, regional homogeneities three characteristic regions are recognized in Montenegro:

   - **Coastal Region** is composed of development zones of Boka Kotorska Bay, Central coast and Southern coast. It is relatively densely populated and its economy is based on tertiary activities; The GDP amounts to 3,666.00 EURO per capita which is somewhat lesser then in the Central Region and twice higher then the GDP per capita in the Northern Region. Most of the activities are linearly located along the coast line. Investment pressure is high in this area, which also causes uncontrolled development of the area. The development of the settlements along the shore shows already forms of co-urbanization endangering the natural resources. The present spatial structures and conditions in the Southern Region require an appropriate organization of the space and a steering of the future spatial development.
   - **Central Region** is composed of development zones of Zeta and Bjelopavlice plane, Niksic and Cetinje field, made in the most impressive lowland area surrounded by karst areas. The largest part of industry, the best agricultural land and the main centres of services, cultural and other tertiary activities, excluding tourism, are concentrated in this region. The present spatial structures and conditions in the Central Region require an appropriate organization of the space in the light of industrial restructuring processes and pressure on agricultural land.
   - **Northern Region** is composed of development zones formed in valleys of rivers Lim, Tara and Ćehotina, Piva and Ibar with adjacent mountain areas. Even though agriculture engages significant part of inhabitants, it is insufficiently developed, and other natural resources are still not sufficiently activated. Concentrations of inhabitants are present in several urban centers formed in valleys of mentioned rivers. The GDP per capita amounts to 1.800 EURO and is much smaller than in the other two regions. The present spatial structures and conditions in the Northern Region requires a spatial orientation which offers development inputs that will mitigate emigration processes, considering environmental protection.

(GDP calculation is based on EUROSTAT and MONSTAT figures)

b) For the further spatial integration of Montenegro a frame of inter- and intra-regional connections will be dominantly established by relying on existing and future network of traffic lines.

Objectives:

O2.1-1 **Development corridors** describe areas along which major development activities are focused. These corridors are an appropriate instrument to concentrate infrastructure and to create conditions for economic development. By this approach, resources can be applied more effectively. Important economic centres are much more integrated which can also promote functional specialization. The locations of the development corridors are determined by the geographic structures as well as by the necessity to preserve areas in between, as large as possible for the purpose of natural protection, the promotion of tourism, and agricultural development. The determination of development corridors does not imply that areas will be neglected for future development efforts; the concept supports the approach of spatial integration of Montenegro. The following **development corridors** are defined:

1. Bar – Podgorica – Mateševo – Andrijevica - Berane – Boljari;
2. Risan – Grahovo – Nikšić – Šavnik – Žabljak – Pljevlja;
3. Ulcinj – Bar – Budva – Boka Kotorska;
4. Tuzi – Podgorica – Danilovgrad – Nikšić – Plužine;
5. Rožaje – Berane – Bijelo Polje – Pljevlja
6. Mateševo – Kolašin – Boan – Šavnik;
7. Budva – Cetinje – Nikšić

Explanation: The part Šavnik – Žabljak – Pljevlja of the development corridor 2 (Risan – Grahovo – Nikšić – Šavnik – Žabljak – Pljevlja) passes through the National Park “Durmitor” and its sensitive eco-system. The need to define this development corridor is reflected in the position of the area of Pljevlja which has to be connected to the economic centre Nikšić and from there further to Risan on the one side and to Podgorica and Bar on the other side, as to integrate better the North-western part of Montenegro into the economic space as a whole. The development of the part passing through the National Park “Durmitor” has to be realized according to the specific needs and limitations of this area. This refers to appropriate traffic lines (roads) as well as the development of economic activities. The development corridor 3 (Ulcinj – Bar – Budva – Boka Kotorska) shows obvious flaws of existing structure. Further development within this corridor must take in consideration the already existing limitations and must be implemented through better organization and management.

O2.1-2 **Development zones** are areas of interlinked cities and settlements, in which the activities are spatially located in such a way that they are mutually complementing, so that the settlements involved strengthen their role in complete urban systems and also respond to the dynamics of development between urban and rural areas. In Montenegro those are the following:

1. Boka Kotorska,
2. Budva- Petrovac Coast,
3. Bar- Ulcinj Coast,
4. Zeta-Bjelopavliće zone,

5. Cetinje zone,
6. Area of the Skadar Lake,
7. Nikšić zone,
8. Upper and Central Potarje,
9. Polimlje zone,
10. Piva zone,
11. Area of Durmitor,
12. Pljevlja zone
13. Rožaje zone

O2.1-2 **Cross-border development zones** are areas of broader scope along state's borders which can consist of towns, settlement and municipalities with similar development potentials and/or problems which are present in the neighbouring states. Those are:

1. Berane, Andrijevica, Rožaje – Peć, Kosovska Mitrovica;
2. Pljevlja, Bijelo Polje – Prijepolje, Priboj;
3. Pljevlja, Gradac – Foča;
4. Plužine - Maglić - Bioč –- Foča valley of Sutjeska;
5. Nikšić, Vilusi - Trebinje, Bileća, Gacko;
6. Boka Kotorska – Dubrovnik - Trebinje;
7. Basin of the Skadar Lake (Podgorica, Danilovgrad, Bar, Ulcinj – Skadar, Koplik);
8. Cross-boundary Park Prokletije (Plav, Gusinje - Albania);

2.2 Projection of the population and its distribution

Basic objective of demographic policy of Montenegro that should be defined by separate strategy is to mitigate negative demographic trends in the past 20 years, particularly regarding regional distribution of population.

Using extrapolation method (1991 - 2003) and a combined analytical method (linear and parabolic trend), the projection of permanent residents of Montenegro by the year 2021 has been made, considering natural components of population migration.

Projection of population migration by municipalities in the same period and using the same methodology demonstrates that if appropriate development measures are not undertaken, population number will decrease in the following municipalities: Andrijevica, Berane, Bijelo Polje, Žabljak, Kolašin, Mojkovac, Plav, Plužine, Pljevlja, Cetinje and Šavnik.

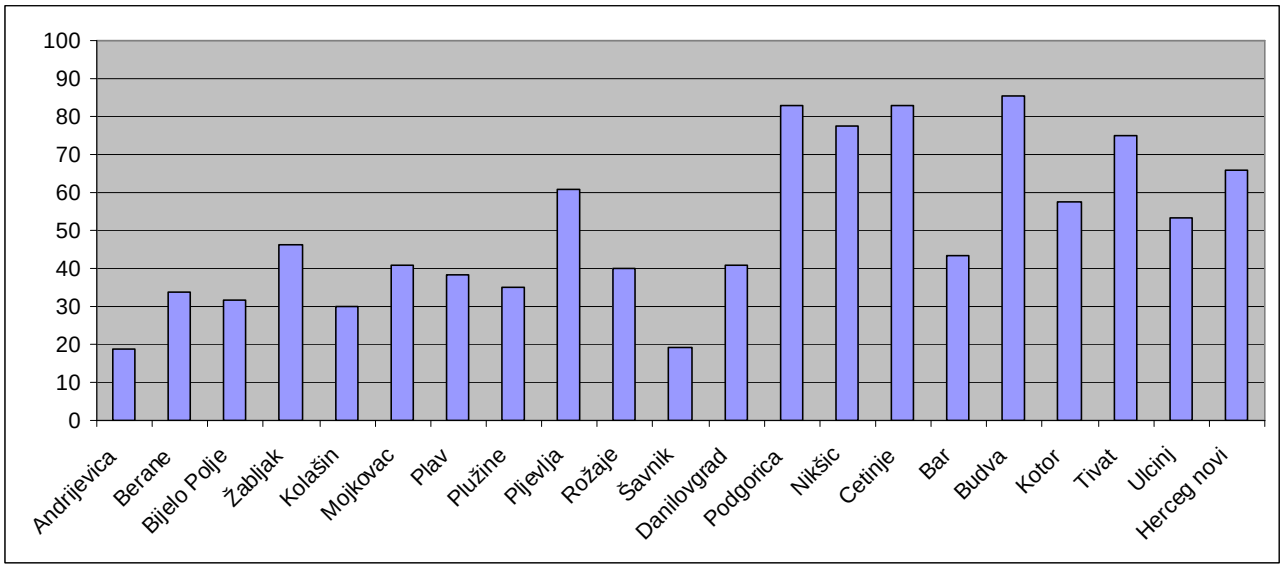
As this projection has pointed out negative situation in those municipalities, II version of projection has been done, on the basis of planned spatial and development model until 2020, with the following assumptions:

1. Natural change of population will keep the trend from 2001-2005;
2. Internal migration will be neutralized from 2003 to 2021;
3. Average annual migration is 0.02%;

Based on the above-mentioned, II version of the projected population number is presented in the table.

Table 11 – Projection of existing population by municipalities

	2003 (situation)	Urban population 2003	Existing population – 2021	Urban population – 2021. god
Andrijevica	5,785	1,073	5,802	1,610
Bar	40,037	17,347	43,692	34,991
Berane	35.068	11,776	40,053	15,450
B. Polje	50,284	15,883	56,166	34,020
Budva	15,909	13,585	18,069	18,630
Danilovgrad	16,523	6,737	16,819	8,790
Žabljak	4,204	1,937	4,129	3,190
Kolašin	9,949	2,989	9,778	4,469
Kotor	22,947	13,176	23,719	15,090
Mojkovac	10,066	4,120	10,853	3,296
Nikšić	75,282	58,212	82,802	63,131
Plav	13,805	5,319	15,609	11,230
Plužine	4,272	1,494	4,203	1,530
Pljevlja	35,806	21,741	37,019	24,361
Podgorica	169,132	140,262	197,973	177,445
Rožaje	22,693	9,121	29,212	12,520
Tivat	13,630	10,200	14,358	13,570
Ulcinj	20,290	10,828	22,000	17,670
Herceg Novi	33,034	21,685	34,083	33,701
Cetinje	18,482	15,353	18,240	15,353
Šavnik	2,947	570	2,787	813
TOTAL	**620,145**	**383,408**	**687,366**	**510,860**



Graph 2. – Urbanization degree by municipalities

Projection of population migration in Montenegro anticipates the increase of population number up to 687.366. Increase of population is noted in all regions, with different growth rates.

Table 12 – Projection of permanent population by regions

	2003 (situation)	Existing population – 2021	Growth percentage from 2003 to 2021
Northern region	194,879	215,611	10.64%
Central region	279,419	315,834	13.03%
Coastal region	145,847	155,921	6.91%
Total	**620,145**	**687,366**	**10.84%**

Table 13 – Projection of major functional age population groups by municipalities

Municipality	Existing population	Preschool children 0 - 6 years	School children 7 - 14 years	Working age population 15 - 65 years	Women of fertile age 15 - 49	Senior population 65 years and over
Andrijevica	5,802	541	651	3,700	1,451	910
Bar	43,692	4,191	5,152	27,282	10,929	7,067
Berane	40,053	3,640	4,523	25,812	10,038	6,056
Bijelo Polje	56,166	5,271	6,282	36,202	14,055	8,412
Budva	18,069	1,708	2,369	11,668	4,560	2,548
Danilovgrad	16,819	1,563	1,895	10,897	4,169	2,464

Municipality	Existing population	Preschool children 0 - 6 years	School children 7 - 14 years	Working age population 15 - 65 years	Women of fertile age 15 - 49	Senior population 65 years and over
Žabljak	4,129	375	459	2,669	1,084	626
Kolašin	9,778	848	1,098	6,336	2,494	1,497
Kotor	23,719	2,164	2,721	15,211	5,936	3,623
Mojkovac	10,853	994	1,223	7,032	2,751	1,605
Nikšić	82,802	7,510	9,318	53,389	20,500	12,585
Plav	15,609	1,428	1,745	10,073	3,886	2,364
Plužine	4,203	369	472	2,714	1,062	649
Pljevlja	37,019	3,310	4,436	23,869	9,232	5,404
Podgorica	197,973	18,033	22,616	127,725	49,316	29,600
Rožaje	29,212	2,922	3,525	18,698	4,904	4,067
Tivat	14,358	1,293	1,616	9,240	2,969	2,210
Ulcinj	22,000	2,212	2,686	13,508	4,977	3,594
Herceg Novi	34,083	3,103	3,800	21,760	8,505	5,420
Cetinje	18,240	1,608	1,996	11,765	4,657	2,872
Šavnik	2,787	255	348	1,812	813	372
TOTAL	**687,366**	**63,337**	**78,931**	**441,358**	**168,290**	**103,942**

Regarding projection of age structure of population (basic functional groups) at Montenegrin level, further increase of old population share is anticipated, as well as the increase of working age group and women of fertile age. Projection is based on the slight increase of relative share of preschool children and school children compared to previous period.

2.3 Concept of spatial development of the networks of settlement and public infrastructure

2.3.1. Bases of long-term urbanization policy

Urban development is planned in accordance with spatial possibilities and limitations so as to prevent as much as possible spatial conflicts and to provide better quality and more attractive natural and created environment as well as to create conditions for economic development that is to be as just as possible in a social sense. The long-term urbanization policy has to provide rational expansion and inner development of the settlements. Within the creation of new quality structure of the urban space, preservation and improvement of cultural heritage and preservation of natural values and biological diversity are most important.

The long-term urbanization policy will be based on stimulation of development of polycentric system of settlements, composed of a network of centres with different hierarchy ranks and

harmonized development of wider urban areas. Development of vital and urban cities and settlements and rational use of land and facilities in settlements will have priority.

2.3.2 Polycentric development of urban system and rural settlements

The conception of development and arrangement of settlements is based on strengthening of polycentric system of centres, similar to the system in the valid plan, which makes the basic subject of the strategic direction, with an aim to realize adequate structure and functions of settlements' system in the long-term. The base of centres` network is:

O2.3.2-1 **Centre of state importance**, the most developed type of urban settlement. Besides the functions of lower rank centres, it also provides functions of the highest urban level, as well as certain state and international functions;

1. Podgorica (capital of Montenegro, constituted as a community of municipalities Podgorica, Golubovci and Tuzi)

O2.3.2-2 **State centre of special importance** in sense of functional characteristics and size of gravitational area, has special importance due to the administrative, historical, symbolic, and cultural-ethnical and other specific reasons;

1. Cetinje (old capital of Montenegro)

O2.3.2-3 **Centres of regional importance** provide adequate activities for wider regional areas. Functions of a centre of broader regional importance, located in municipality's centre and its surroundings comprise typically: ecological-spatially acceptable production activities; higher rank education; activities of cultural centres; adequate health services; social care services; special sport and tourist programs; and develop trade and other commercial activities. Those are settlements which serve gravitational areas with over 40.000 inhabitants

1. Bar and Ulcinj
2. Bijelo Polje and Berane
3. Nikšic
4. Pljevlja
5. Herceg Novi, Kotor and Tivat
6. Budva

Explanation: (a) Bijelo Polje and Berane form a centre of regional importance. Both towns share the functions of a centre of regional importance. (b) Herceg Novi and Kotor in conjunction with Tivat and the entire Kotor Bay form a centre of regional importance. This conurbation shares the functions of a centre of regional importance. It is also possible to locate particular functions in other settlements of the Kotor Bay area. c) Bar and Ulcinj form centre of regional importance on the Southeast part of the Montenegrin coast. Both centres share function of the regional importance.

O2.3.2-4 **Centre of municipal importance** is a type of developed urban settlement which comprises compact town area and which has service function for municipal area and in certain cases for narrow or, not as often, wider regional area. Different urban functions in these centers comprise housing areas with higher density and different forms, industrial zones, constructed green areas, areas for recreation and entertainment, etc. Municipal centre has to be formed as a physical structure with

its own identity, gravitational area and relatively self-sufficient functional system in field of education, health services and supply. Gravitational area of municipal centre comprises larger number of lower rank centers, as well as individual populated areas. As a rule, a municipal centre has more than 5000 inhabitants, and its gravitational area comprises up to 20.000 inhabitants. If in a municipal centre the functions performed exceed its functional level and size of gravitational level, it gets regional interest.

1. Andrijevica
2. Danilovgrad
3. Kolašin
4. Mojkovac
5. Plav
6. Plužine
7. Rožaje
8. Šavnik
9. Žabljak

Explanation: Municipal centres Andrijevica, Plužine, Šavnik and Žabljak do not reach the standards described; therefore it is necessary to develop them in accordance with the possibilities of functional – gravitational surroundings.

O2.3.2-5 In **more important local centres**, which are urban or rural settlements or tourist settlements, the development of adequate services and supplying functions will be stimulated, as well as creation of working places for inhabitants of that centre and of its surroundings. A more important local centre has to provide basic educational, health and social services, as well as adequate sport and cultural activities. In more important local centres development of tertiary and quaternary activities and employment in different fields should also be stimulated, in order to have its own foundation for economic growth and development formed.

1. Gradac in **Pljevlja**

2. Petnjica in **Berane**

3. Gusinje in **Plav**

4. Petrovac in **Budva**

5. Risan, Perast and Radanovići in **Kotor**

6. Bijela and Igalo in **Herceg Novi**

7. Spuž in **Danilovgrad**

8. Sutomore and Virpazar in **Bar**

9. Rijeka Crnojevića in **Cetinje**

10. Grahovo and Velimlje in **Nikšić**

O2.3.2-6 **Local centers** are smaller settlements with only the essential supply for inhabitants, through which the traditional system of settlement of rural area is reflected.

1. Ostros in the Municipality of **Bar**

2. Dragalj and Crkvice in the Municipality of **Kotor**

3. Radovići in the Municipality of **Tivat**

4. Vladimir in the Municipality of **Ulcinj**

5. Sutorina and Kruševice in the Municipality of **Herceg Novi**
6. Vilusi, Vraćenovići, Krstac, Miolje Polje and Vir in the Municipality of **Nikšić**
7. Ubli and Lijeva Rijeka in the Municipality of **Podgorica**
8. Njeguši, Čevo and Trešnjevo in the Municipality of **Cetinje**
9. Tomaševo, Pavino Polje and Lozna in the Municipality of **Bijelo Polje**
10. Njegovudja in the Municipality of **Žabljak**
11. Manastir Morača, Mateševo and Dragovića Polje in the Municipality of **Kolašin**
12. Brezna and Trsa in the Municipality of **Plužine**
13. Vrulja and Kosanica in the Municipality **Pljevlja**
14. Boan in the Municipality of **Šavnik**
15. Biševo in the Municipality of **Rožaje**
16. Lubnice in the Municipality of **Berane**
17. Murino in the Municipality of **Plav**

2.3.3 Urban and construction identity of urban and rural settlements of Montenegro

C2.3.3-1 Regarding the spatial planning and development in towns and other new settlements, applying of the most contemporary trends of the architectural identity should be provided as well as establishment of a new visual identity. Special attention should be paid to landscape development (bypasses, street, road and spaces along the roads, green areas and other open areas).

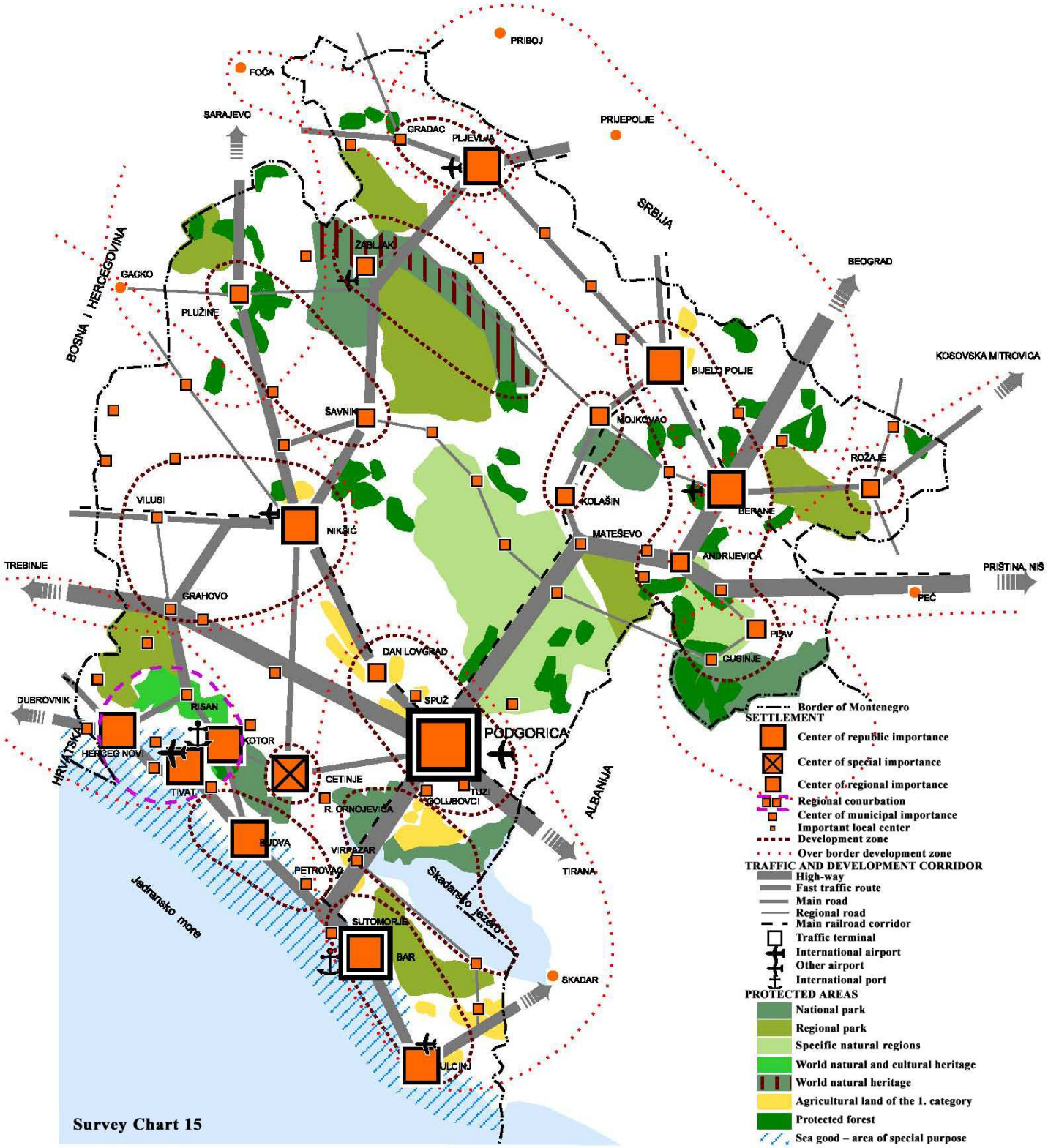
In rural settlements architectural identity should be provided, which starts from the existing quality and characteristics of the space, i.e. from architectural (cultural) heritage. Regarding the height, size should be adapted to the existing, inherited structures.

C2.3.3-2 The conservation of architectural identity is realized with planned development and renewal of settlements, and is realized through preservation of areas.

2.3.4 Bases for housing development concept

Objectives of the new, active housing policy in Montenegro are defined so that they start from modern development principles and directives that are accepted by adequate international development documents (such as, Agenda Habitat, European Social Declaration, etc.). In those documents, the accent is put on seven groups of questions:

- Development and providing high quality housing services;
- Protection of users in exercising housing rights;
- Protection and exercising of human rights;
- Different forms of partnerships with non-profit sector in this field;
- Preventing, i.e. reducing and gradual elimination of homelessness (number of homeless people);



- Providing “affordable” housing, regarding the price, especially for those people who do not have adequate financial means;

At the end of April 2005, the Government of Montenegro has adopted the Housing Policy Action Plan in Montenegro. The Action Plan defines major directions of development in this field in order to establish market mechanisms in field of housing:

- Establishment of a precise record of real estate (number, size, market value, legality of construction, purpose of a facility– housing, vacation etc.).
- Creating legal assumptions for establishment of relations which would improve conditions in the field of housing (changes and amendments to the existing regulations and eventual adoption of some new in the field of construction land management; enacting of new regulations related to illegally constructed facilities; institutional strengthening of the existing and forming new institutions, which should deal with matters of housing sector development; changes and amendments to the existing and enacting of new laws in the field of fiscal policy);
- Providing institutional means for financing housing market (giving bank loans through banks, insurance companies, direct crediting, mortgage credits, etc.);
- Providing system for housing savings (stimulation of saving for an apartment by favourable loans – mortgage loans, with reduced interest);
- Housing subventions (activities of market economy should be directed towards public intervention).

The Housing Policy Action Plan for Montenegro defines large number of activities both on state and local level. The priorities are:

- Modifying of existing and establishment of new rules that can create a legal framework for realization of the Action Plan for the Housing Policy.
- Establishment of the special subject for housing policy. It is necessary to consider, from one side, possibilities that will appear in front of Montenegro after the adoption of the Action Plan, and on the other side lack of experience and capacities which would create an assumption for its successful and efficient realization;
- Establishment of the National Housing Fund, that implies funds on local (municipal) level and a special fund on the state level;
- Realization of the Action Plan trough the pilot project in the 5 units of local self-government;
- Realization of the project “Solidarity Apartments”, etc.

2.4 Spatial concept of development of economic activities

2.4.1 Spatial concept of development of industry and mining

In all regions, it is of crucial importance to provide balance between development needs and principles and criteria of ecological and spatial protection in development and growth of industrial and mining capacities.

2.4.1-1 In accordance with available resources (natural and human) along with protection of environment, cultural and urban landscape for different regions and sub-regions of Montenegro as well as for individual municipalities and their wider surroundings, exploitation and mining activities are recommended in the following municipalities:

1. Bar – construction stone;
2. Berane –coal mine, construction stone;
3. Bjelo Polje – construction stone and sand;

4. Danilovgrad – decorative and construction stone, brick clay and limestone;
5. Kolašin – construction stone, decorative stone, brick clay and sand;
6. Nikšić – bauxite, construction stone, decorative stone and sand;
7. Plav – construction stone;
8. Pljevlja – coal mine, zinc, lead, antimonies, barite, gypsum, quartz, brick clays, marlstone and other construction material;
9. Podgorica – decorative stone and sand;
10. Herceg Novi – construction stone, technical stone, stone aggregates;
11. Cetinje – white bauxite and construction stone;
12. Andrijevica - construction stone and decorative stone;
13. Pluzine – construction stone;
14. Savnik - construction stone, decoration stone;
15. Ulcinj – construction and decorative stone, silicium sand;
16. Tivat – decorative stone;
17. Herceg Novi – decorative stone;
18. Mojkovac – construction stone and sand;
19. Zabljak – construction stone and gravel

Explanation: For future exploitation of mineral resources surfaces need to be reserved to be secured from other uses which can hinder or contradict the foreseen use. Due to lack of accurate data exact locations for exploitation and mining activities have to be defined in adequate sector and more detailed spatial planning documents; areas defined in this way have to be forbidden for any other construction purposes.

2.4.1-2 Special attention has to paid to requests for production and permits for exploitation and controlled in regards to legality of work.

Explanation: Due to inappropriate exploitation, i.e. application of outdated technologies and use of inadequate traffic infrastructure, in many cases exploitation lead to significant pollution of the environment and nature (coal mine, zinc, lead, antimonies, barite, gypsum, decorative construction stone, clay, gravel and sand etc.)

2.4.1-3 Strategy and projections of development of the industry in the Coastal region have to be dealt with in a very sensitive way which is generally determining the overall development strategy of this area, considering harmonization of extremely conflicting interests and development orientations.

Explanation: Considering all factors of risk and orientation of Montenegro as ecological state it is necessary to strictly define conditions of protection of environment for each development program proposed, in order to fit the economy field into the general development strategy of the Coastal region. If not, consequences would be devastating for the overall development of the area.

2.4.1-4 Strategic industrial locations in the coastal region are: Port-industrial complex in Bar with free zone, and industrial and free zone in Grbaljsko field. Zones of local importance for industrial development are smaller locations in Tivat, Sutorinsko and Ulcinjsko field.

2.4.2 Spatial concept of development of the agriculture and forestry

Agriculture

Natural and other conditions have influenced rather clear differentiation of production orientation in agriculture, in most important regions. Thus, in the Southern region predominant agricultural activities and orientation are directed towards production of citrus fruits, early vegetables, olives, medical herbs and planting material of subtropical plants as well as greenhouse production; in the Central region production of continental fruits and vegetables, seedling material, flowers, greenhouse production and gathering of medical herbs and fruits of the forest are dominant and in the Northern region - production of milk, meat, potatoes, wool, fish breeding and gathering of fruits of the forest. The market as well as other logics implies further use of comparative advantages in the future, which means that in the above mentioned regions the existing or slightly changed production orientation will be dominant. Therefore, it should be expected that the local self-government authorities will take these facts and goals into consideration when defining the development policy and conducting incentive measures on their territory and try to realize the largest scope possible. Wherever possible, especially in the Northern region, the production of healthy food and organic agriculture should be stimulated; in the Southern region these should particularly be the production and processing of Mediterranean cultures.

2.4.2-1 In the Southern region for zones of intensive agriculture a minimum of 11.900 ha have to be preserved whereas a minimum of 8900 ha has to be located in Vladimirsko and Ulcinjsko fields and a minimum of 3000 ha has to be located in Grbaljsko, Mrčevo and Tivatsko fields.

2.4.2-2 In the Central region for intensive agriculture a minimum of 40,500 ha have to be preserved, whereas a minimum of 33,000 ha have to be located in Zeta and Bjelopavliće and a minimum of 7,500 ha have to be located in Nikšić field, Župa and Grahovsko field.

2.4.2-3 In the Northern region for intensive agriculture a minimum of 47,000 ha of the best agricultural land have to be preserved, whereas a minimum of 19,000 ha have to be located in the valley of the rivers Lima i Ljubovića, the same figure in the area of Plav-Gusinje Basin and in the area of Ibar Valley, and a minimum of 9,000 ha have to be preserved in the area Pljevlja and Kosanica. For other agricultural production (organic agriculture and healthy food) land in the areas of Gornja Tara, Polimlje, Plav - Gusinje Basin and Valley of the Ibar River and Cehotina has to be preserved.

Forestry

2.4.2-4 Managing forests in the southern part has to be oriented towards the strengthening of protective and regulatory as well as social and cultural functions

Explanation: Southern (coastal) forest area includes forests on the territory of the following municipalities: Podgorica, Cetinje, Danilovgrad, Kotor, Herceg Novi, Tivat, Budva, Bar and Ulcinj. These are mainly, low productivity areas, grown with sprout forests, bushes, shrubbery and other degradation stages which cover 73% of total forest surface of this area. They cover the surface of approximately 305,000 ha, out of which bare forest ground forms around 64,000 ha. They cover mountain

massifs of Orjen, Lovcen, Rumija and the coastal strip. These forests mainly have a protective role.

2.4.2-5 Forestry in the Northern part has to be based on sustainable forestry. In the Northern area, potential conflicts between commercial forestry and future national and regional parks (Prokletije, expansion of NP Durmitor, Komovi, Sinjajevina, Maglić /Bioč/Volujak, Turjak with Hajla) which are situated in the zone of commercial forests have to be considered in the detailed definition of the borders and the management plans for the protected areas.

Explanation: Northern (continental) forest area includes forests on the territory of municipalities: Plav, Andrijevica, Berane, Rožaje, Bijelo Polje, Mojkovac, Kolašin, Nikšić, Šavnik, Plužine, Žabljak and Pljevlja. Besides the dominant, uniform and combined communities of beech, spruce and fir, there are occurrences of relict and endemic communities of Macedonian and Bosnian pine. They cover the surface of approximately 318,000 ha, out of which bare forest ground forms about 51,000 ha. Forests of this area spread over the region of high mountains and surfaces on the mountains: Durmitor, Sinjajevina, Ljubišnja, Kovač, Smiljevica, Hajla, Maglić, Bjelasica, Prokletije, Komovi and other mountains. The Northern area is primarily intended for production for the largest forest surface due to its good quality forests and optimal ecologic conditions for forest cultivation. In this area, protective forests form 16% of forest surface. The largest part of these forests is in canyons of rivers Lim, Tara, Ćehotina, Piva etc. and on the upper border of forest vegetation.

2.4.3 Spatial concept of tourism development

According to natural conditions, level of development, type of tourist activities the area of tourism has a recognizable regional differentiation. The need for balancing tourism development with social and ecological requirements is a condition of all regions:

2.4.3-1 All investments applications in larger tourism facilities have to be in line with expected assessments of sustainable development, with expected economic impact on region and complete social impact.

2.4.3-2 In protected or planned protected areas, investment in new, additional or extension of existing tourism facilities (hotels, marinas, skiing infrastructure, etc.) can only be conducted on the base of spatial and urban plans for the respective area.

Explanation: So far, there were no reliable and solid bases for development of protected or planned protected areas, which could provide clear guidelines for particular areas. This also includes provisions for the development, social and ecological capacity and carrying capacity.

2.4.3.1 Coastal region

2.4.3.1-1 Total **camping space** on the coast will be reduced to 3000 camping places. Allocation of space should ensure the construction of modern and internationally competitive **auto-camps** for transit caravans and campers with modern sanitary

facilities, shops, contents for recreation and fun. Locations for development of camps should be defined by more detailed spatial planning documents in line with the principles of sustainable development. All camp sites out of operation should receive a different purpose during the period of five years from adoption of this Spatial Plan.

2.4.3.1-2 **Golf courses** must be built in line with the standards for the professional courses, with approximately 150 ha and with the accompanying infrastructure. In Montenegro, up to 10 such courses should be planned for construction, for which it is necessary to produce development programs for golf sites, which will, in line with sustainable development principles, define locations.

2.4.3.1-3 **Transformation of military complexes into tourism zones.** Termination of industrial and military activities will provide potentials for establishment of new tourist zones within the coastal area. Those locations might include: Kumbor, Remontni zavod – Tivat, complex behind Krašići in Tivat, across Kumbor, on Luštica - Pristan, Rt Trašte beside Bigova, Ostrvo cvijeća, Platamuni, Maljevik/Crni rt, part inside Port of Bar, Volujica, Valdanos, Karaula on Bojana, Mamula, Donja and Gornja Arza, Ada Bojana, Solana (Saltworks) Ulcinj, Exportbilje in Risan, Workshop and warehouses in Zelenika, etc.

2.4.3.1-4 The development of tourist accommodations along the coast has to be handled with extraordinary care because the carrying capacity of the municipalities in this region is already almost exhausted. The number of tourists during the peak July-August causes negative impacts like overburdened traffic infrastructure, congested urban centers because of lack of parking places, lack of water, polluted beaches and roadsides, etc. Development of tourist accommodation will be focused:

- In the area of **Herceg Novi** municipality mainly in locations; Kobila, Njivice, Savina, Meljine-Lalovina, Zelenika, Kumbor, Baošići, Arza-Mirište-Žanjice, and Luštica.
- In the area of **Tivat** municipality mainly in locations Pržno-Plavi horizonti, Župa and Bonići, revitalization of village settlements foreseen by adequate planning documentation, "Ostrvo cvijeća" and "Sveti Marko"; additional capacities based on transformation of military port and releasing other locations for tourist purposes.
- In the area of **Kotor** municipality in the locations Rtac (Risan), Raškov brijeg (Ljuta), on the shore of the open see in Bigova, on locations above cliffs from Žukotrlice to Trsteno in Donji Grbalj, in Perast, Gornji Stoliv and captains palaces in the bay.
- In the area of **Budva** municipality mainly in the locations Bečići, Kamenovo-Miločer, Lučica, Buljarica, Jaz and in revitalized villages in Pastrovici.
- In the area of **Bar** municipality in the locations Čanj, Veliki pijesak, Utjeha and Maljevik.
- In the area of **Ulcinj** municipality in the locations: Valdanos, Velika plaza with its deep hinterland, and also Solana and Ada Bojana with respect to sustainable development principles and natural values.

Explanation: The development of tourist accommodations has first of all to be understood in a way that existing spatial planning documentation (PPPPN Morsko Dobro and GUPs of several municipalities) have to be implemented and elaboration of planning documentation of the lower level has to be accelerated. The quality of the accommodation facilities should be improved to a medium and high standard on the expense of existing low standard accommodation facilities; using plans for urban and construction recovery complementary capacities should

be transformed into basic accommodation capacities of higher quality as much as possible. The scope of capacity per municipality will be defined by the updated Master plan of tourism development, and distribution and other elements are defined by planning documentation.

2.4.3.1-5 **Health and wellness tourism** will be developed in the scope of the program "Sunčana obala zdravlja" – Sunny coast of health. Suitable locations of health and wellness tourism are Igalo, Prčanj, Petrovac with perspective for development in Solila zone (in case it is compatible with strict protection regimes) and in Ulcinj.

2.4.3.1-6 **Nautical tourism** is a selective, favored type of tourism, for which reason this type of tourism should be pushed for further development due to natural values, advantages of the sea and lakes' shores, the position of the Montenegrin coast, constantly increasing demand and especially due to economic effects realized by the realization of this type of tourism. Special attention is paid to transformation of former military and industrial facilities and devastated areas into marinas which show positive impacts to ecology (because the function of marina is less harmful for the environment than their current function and no additional land is used), image of the destination and investment capital (because they already have solved communal infrastructure). A disadvantage of those areas is the usual need for extended and capital-intensive cleaning up of the brown-field. With regards to ensuring sustainable development and preserving ecological balance, avoiding usage of beaches and other important tourist resources and estimating economic justification, the following locations for marinas will be secured from requirements and uses which contradict or disturb the foreseen use:

- Priority will be given to reasonable **equipping of existing nautical points** which are located in the scope of constructed and operationally enabled parts of the shore, such as Kotor, Tivat, Bar and Budva. The construction of the marina inside the Port of Bar has to be completed.
- **Larger service marinas** with sufficiently large capacity should ensure nautical experts all necessary contents: Bar Municipality and Tivat Municipality.
- **Standard marinas** with capacity to satisfy the needs of nautical experts in all other key locations: Cape Kobila, Liman in Ulcinj, Bigova, Kumbor, Bonici and Zelenika Port.
- **Specialized marinas** are related to locations for which there is a high interest from nautical experts but due to certain ecological limitations, planning of construction should be extremely cautious: Ada Bojana, Buljarica, Rijeka Crnojevića and Virpazar (for Rijeka Crnojevića and Virpazar this means mainly the revitalization and equipping of the quays).
- Existing ports and marinas will be improved in the quality of the service.

Explanation: Details of locations, structure, offered services of individual marinas are to be elaborated in sector planning and more detailed spatial planning documents.

2.4.3.1-7 Along the coast a network of bicycling-walking trails will be established; the individual trails have to fulfil the following main criteria:

- trails separated from roads
- trails designed and constructed in an environmentally sound way
- trails linked with services required by bikers and walkers
- the network is linked with trans-national (European action EuroVelo, Mediterranean route number 2.0) and interregional biking and walking trails.

Explanation: Details of individual trails and the networks are to be elaborated in sector planning and more detailed spatial planning documents.

2.4.3.1-1 Further development of bathing places for swimming, sunbathing and other types of recreation is an important element of development of the tourist offer in the coastal area. During designing, planning and realization, the principles of sustainable development have to be strictly considered.

Explanation: Details of locations, structure, offered services of individual bathing places are to be elaborated in more detailed spatial planning documents.

2.4.3.2 Central and Northern region

Specific role of mountain tourism is primarily to ensure creating potential additional activity for generating income and employment, strengthening of rural development, avoiding further migration and protection of the so-called “cultural landscape”.

P2.4.3.2-1 Linking development of tourism in the Central and Northern region tightly with other sectors of the rural economy, in particular agriculture, food processing and handicrafts.

P2.4.3.2-2 One of the most important elements of attractive winter tourism is the surroundings and the atmosphere of the destination. This means the appropriate environment protection, architecture, physical planning, urbanism etc. It is especially important to ensure the protection against the uncontrolled building activities, as it is the case in Durmitor at the moment.

P2.4.3.2-3 When planning ski tourism development, negative effects of global warming should be taken into consideration, which will, in the long run, be a limiting factor in development of this kind of tourism.

Based on the earlier mentioned criteria, in mountain tourism development there are differentiated following **tourist areas**: Durmitor, Bjelasica and Komovi, Moraca mountains, Prokletije, between rivers Tara and Cehotina and coastal mountains (Lovcen and Orjen).

C2.4.3.2-1 In the **area of Durmitor and Sinjajevina** the development of the following segments of tourism should be particularly supported:

1. Walking and climbing
2. Ski tourism, focusing on the slopes of Sljeme and Ivice (towards Bukovica) as well as in the area of Mali Štuoc, Savin Kuk, Javorovača
3. Mountain biking
4. Hunting and fishing tourism, e.g. in the Savnik area
5. Agro-tourism, e.g. in the area of Piva, Komarnica
6. Sightseeing authentic natural values, diverse biodiversity and ecological particularities offered by mountain landscapes, rivers, lakes in the NP “Durmitor”

7. “Active & Extreme”, for example in the NP Durmitor and the river Tara,
8. Religious tourism, for example the church Ruzica, on Sinjajevina.

Explanation: The development of tourist accommodations has to be handled with extraordinary care because of the limited carrying capacity in this eco-sensitive area. The development of medium and high standard accommodation has to be prioritized, possibly on the expense of existing low standard accommodation facilities. Unregistered accommodation facilities have to be closed. The extent and distribution of capacities by municipalities will be defined by spatial – planning documentation, plans for tourism development. Regarding tourism development, use of resources of existing and new energy objects should be anticipated.

C2.4.3.2-2 In **areas of Bjelasica and Komovi** the development of the following segments of tourism will be promoted:

1. Sightseeing of the authentic natural resources, various biodiversity and ecological specific characteristics that mountains, rivers and lakes offer, and especially the National Park »Biogradska gora«
2. Various wellness programs for improving of physical and mental health by the use of the relaxing influence of the climate and preserved nature
3. Ski tourism
4. “Active & Extreme”
5. Tracking and mountaineering
6. Mountain biking
7. Programs and excursion tours on the relation sea-mountains, which are especially interesting for foreign tourists

In the territory of these areas, in the process of elaboration or amendments to the existing municipal spatial plans the functional **differentiation of certain micro locations** as Marinkovac, Suvodo-Siska (which covers attractive high-mountainous space of the second chain Bjelasica with its highest peaks), Jelavica, Jezerine – Ključ – Vranjak, Kolašin (which includes town territory and numerous rural and weekend settlements in surroundings) in the development of tourism should be considered.

Explanation: The development of tourist accommodations has to be planned with extraordinary care, in line with carrying capacities. The development of medium and high standard accommodation has to be prioritized, possibly on the expense of existing low standard accommodation facilities. The extent and distribution of capacities by municipalities will be defined by the updated Master Plan of Tourism development in Montenegro.

C2.4.3.2-3 In the **area of Montenegrin Prokletije** the development of the following segments of tourism will be promoted:

1. Ski tourism, focusing on Cmiljevica – Turjak, Rožaje – Hajla – Štedin, Plav-Gusinje, Verusa-Mokro
2. Sightseeing of the authentic natural resources, various biodiversity and ecological specific characteristics that mountains, rivers and lakes offer
3. Tracking and mountaineering
4. Mountain biking
5. “Active & Extreme”

Explanation: The development of tourist accommodations has to be planned with extraordinary care because of the limited carrying capacity in this area. Medium and high standard accommodation needs to be developed.

C2.4.3.2-4 The **area of Moraca Mountains** covers the area of the large and typical surfaces and high-mountainous chains in the sources of the rivers Moraca, Bijela, Gračanica and Mrtvica, and which eventually will become an important tourist base. Tourist valorization of this attractive space should be expected in the distant future, after traffic opening, infrastructural equipping and valorization of the hydro-energy potential of the river Moraca.

C2.4.3.2-5 In **area between rivers Tara and Ćehotina** the development of the following segments of tourism will be promoted:

1. Potential for creating the ski tourism
2. Summer mountain tourism

Explanation: The development of tourist accommodations has to be handled with extraordinary care because the limited carrying capacity in this eco-sensitive area. The development of medium and high standard accommodation has to be prioritized, on the expense of existing low standard accommodation facilities.

C2.4.3.2-6 **Tourist area of coastal mountains** has potentials for additional bathing tourism offer with tracking, mountaineering, mountain biking, as well as skiing tourism (Subra on Orijen and Ivanova korita on Lovcen).

For the **Central Region** specific segments of tourism like cultural and religious tourism have an important potential. Problems occur because of the widespread transit and excursion tourism in this area.

C2.4.3.2-7 The transit and excursion tourism in the Central Region, in particular in Cetinje and in the area of the Skadar Lake has to be substituted by other forms of tourism which will lead to the increase of the length of the stay of tourists in this region.

Explanation: Transit tourism and excursion tourism creates less income in the region than tourism based on accommodation in the region. While the benefit for the local residents is restricted the pollution of the environment by required traffic infrastructure and by waste is considerable.

C2.4.3.2-8 Cultural and recreational tourism, particularly in Cetinje, has to be developed further.

C2.4.3.2-9 For the whole region, religious tourism has to be developed further (Ostrog Monastery, Cetinje monastery, monasteries and churches on the archipelago and the shores of Skadar Lake etc.).

2.4.4 Spatial concept of development of maritime economy

C2.4.4-1 The Port of Bar will be further developed as the main international port of Montenegro; the facilities and operational management will be enhanced to meet international requirements for cargo, ferry and cruising demands and will take over other commercial functions (transport logistic terminal, free customs zones, manufacturing functions) and it will also be transformed into an important inter-modal transport centre.

C2.4.4-2 The ports of Bijela and Tivat marina will be further specialized on regional level according to their comparative advantages. The services of their facilities have to be harmonized in the sense that they offer complementary services which also includes an adjustment of the capacities to the future services; an expansion of the existing capacities is not foreseen.

C2.4.4-3 Existing ship-maintenance and service capacities in Bijela and Tivat will be increased in their effectiveness.

C2.4.4-4 Further exploration of oil and gas on the base of the results of previous explorations on the land and undersea will be supported.

Explanation: The Southern Adriatic with close hinterland is recognized as a possible zone for deposits of oil or gas.

2.5 Spatial concept of social services development

2.5.1 General starting points of spatial development concept

C2.5.1-1 The spatial development of social services has to be oriented in line with the following criteria:

1. Projections of the demographic changes till 2020 and related expected needs
2. Instruments for stimulating regional development
3. Ensuring access to social services for all areas

2.5.2 Spatial development concept of educational-pedagogical institutions

C2.5.2-1 The centre of national importance, the centre of special importance, centers of regional importance, centers of municipal importance and important local centers have to have facilities for pre-school education.

C2.5.2-2 The centre of national importance, the centre of special importance, centers of regional importance, centers of municipal importance and important local centers have to have primary schools; in case the demographic structure of the residential population justifies the existence of a primary school, then local centers can have primary schools.

C2.5.2-3 The centre of national importance, the centre of special importance, centers of regional importance and centers of municipal importance according to the actual need have to have secondary schools.

C2.5.2-4 The centre of national importance, the centre of special importance, all centers of regional importance have to be a location for facilities for academic and/or other post-graduate education.

2.5.3 Spatial development concept of scientific activities

O2.5.3-1 New facilities for scientific activities will be located in centers of national importance or in centers regional importance.

2.5.4 Spatial development concept of cultural and physical culture

P2.5.4-1 Each municipality and settlement should have physical culture facilities

C2.5.4-1 In less developed municipal centers cultural activities will be enriched through various mobile types of cultural activities.

2.5.5 Spatial development concept of health institutions

C2.5.5-1 All important local centers must have primary health care facilities (e.g. dispensaries).

C2.5.5-2 All centers of municipal importance have to have health care centres, pharmacies equipped according to the particular local conditions.

C2.5.5-3 Centres of national importance, centres of special importance and all centres of regional importance have to have general hospitals.

2.5.6 Spatial development concept of social and child protection

P2.5.6-1 Each municipality and settlement has to have facilities for social and child protection

2.6 Spatial development concept of technical system infrastructure

2.6.1 Spatial development concept of transport infrastructure

Road network development concept

The road network concept has been defined having in mind the objectives of the development of Montenegro, as well as the role that the road network has in the realization of the same, and with regards to the existing conditions of the road network and the expected transportation flows until the year 2020.

O2.6.1-1 The following proposed **motorways** corridors have to be secured from requirements and uses which contradict or disturb the foreseen use (indicated in the map):

1. Part of the motorway Beograd – south Adriatic through Crna Gora: Boljare-Andrijevica-Mateševo-Bratonožići-west bypass of Podgorica – Sozina tunnel - Bar (Đurmani)
2. Part of the motorway from the connection to the highway Beograd - Bar to the border with Serbia (Kosovo and Metohija): Andrijevica – Murino – Čakor - Bjeluha.
3. Part of the Adriatic-Ionnian motorway: border with Bosnia and Herzegovina (in region of Nudola) – Grahovo–Cevo – Podgorica (bypass – it is necessary to check the route in details) – the tunnel through Dečić (border with Albania).

Explanation: As a consequence of the regional European initiative, which has been partly realized on the sections of the motorways in Croatia and Albania, corridors through Montenegro have been analyzed. The connection points will be defined by means of inter-state agreements of Montenegro, Bosnia and Herzegovina and Albania. The starting points for the determination of the corridor was proposed (one out of three considered in previous Spatial Plan, and proposed by means of Study basis) in the direction of the wider Nudola region (border towards Bosnia and Herzegovina), Grahovo– Čevo–Podgorica – northern from Bozaje (border with Albania). The route has been determined on the basis of the criteria of minimum terrain violation, environment protection, positive impact on the established network of settlements and roads. The proposed route passes through sparsely inhabited and arid area. The motorway shall primarily be in the function of transit international transport. It will boost the existing activities (trade, storage and other services), considerably improve the international position of Montenegro and increase the accessibility of Montenegro as a tourist destination.

O2.6.1-2 The following proposed **highways for fast motor vehicle traffic** corridors have to be secured from requirements and uses which contradict or disturb the foreseen use (indicated in the map):

1. Adriatic highway for fast motor vehicle traffic: Debeli brijeg (border with Croatia) – Herceg Novi (crossing over Bokokotorski Bay)– Tivat – Budva – Bar – Ulcinj – Fraskanjela region (Albanian state border).
2. Šćepan Polje (border with Bosnia and Herzegovina) – Plužine – Nikšić – Podgorica.

O2.6.1-3 The following **highways (main roads)** will be constructed, reconstructed, expanded, or improved:

Road mark	FROM – TO	SUGGESTION FOR CHANGE
M – 2	Debeli brijeg (border with Croatia)-H. Novi (entrance)-Petrovac-Podgorica-Kolašin-Mojkovac - Bijelo Polje – Berane -Rožaje-Špiljani (border with	

	Serbia)	
M – 2.3	Zavala-Cetinje-Podgorica	
M – 2.4	Petrovac – Sutomore – Sukobin (border with Albania)	
M – 6	Vilusi (border with BiH)-Nikšić	
M – 8	Gradac-Pljevlja- border with Serbia	Continuation of the road to the border with BIH is suggested
M – 9	Kolašin - Mateševo- Andrijevica – Murino- Bjeluha (border with Serbia)	Section of the road from Mateševo to Bjeluhe gets regional road rank after the construction of the motorway section
M – 18	Šćepan Polje (border with BiH)– Nikšić - Podgorica - Božaj (border with Albania)	Part from Scepan Polje to Podgorica gets the highway for fast motor vehicle traffic rank
M – 21	Dobrakovo (border with Serbia)-BijeloPolje- Ribarevina	
M	Herceg Novi-Petijevići- Sitnica (border with BiH)	New main road
M	Sula (border with BiH)–Pljevlja-BijeloPolje-Berane-Rožaje-Bać (border with Serbia)	New main road which will use parts of the existing main roads
M	Priboj(border with Serbia)-Pljevlja–Žabljak–Nikšić–Boka Kotorska	New main road which will use parts of the existing main roads, and which will be completed by the missing sections Pljevlja – Niksic with construction of the road arm from Poscenje to Savnik, and continuation of the road Niksic-Trebinje from Podbozur, over Grahovo to Boka Kotorska
M	Cetinje – Nikšić	New main road which will use parts of the existing regional road
M	Osjecnica-Vilusi-Deleusa (border with BiH)	Existing regional roads are becoming main roads

O2.6.1-4 The following **regional roads** will be constructed, reconstructed, expanded, or improved:

Road Mark	FROM - TO	SUGGESTION FOR CHANGE
R – 1	Cetinje-Čekanje-Kotor Trojica-Radanovići	
R – 2	Berane – Andrijevica	
R – 3	Pljevlja-Metaljka (border with BiH) and Dajevića Han-Čemerno (border with Serbia)	Pljevlja- Dajevića Han-Čemerno gets the main road rank
R – 4	Pljevlja-Đurđevića Tara-Mojkovac	Section Pljevlja-Đurđ. Tara gets the rank of main road
R – 5	Đurđevića Tara-Žabljak-Šavnik-Nikšić	
R – 6	Vir - Krstac (border with BiH)	Existing connection to Gacko over Avtovca
R – 7	Most Zeleni-Vuča (border with Serbia)	
R – 8	Rožaje-Kula (border with Serbia - AP Kosovo and Metohija)	
R – 9	Murino-Plav	

Road Mark	FROM - TO	SUGGESTION FOR CHANGE
R – 10	Slijepač Most-Trlica	Instead of M8 it is connected to the road Pljevlja-Đurđevića Tara (Mijakovica region)and gets the rank of main road
R – 11	Risan-Grahovo-Vilusi	On the central part of the road new section of the main road Pljevlja-Boka Kotorska overlaps it and part Osječenica – Vilusi also gets the rank of main road with construction of the planned main road Osječenica-Vilusi-Vraćenovići-Deleuša (B&H border)
R – 12	Vilusi-Deleuša (border with BiH)	Gets a main road rank
R – 13	Cetinje-Lovćen-Krstac	Part from Lovcen to Krstac is the new regional road
R – 14	Virak (Žabljak)-Trsa-Plužine	
R – 15	Čekanje-Čevo-Riđani	Loses rank, and the main road Cetinje-Nikšić partially overlaps it
R – 16	Virpazar-Ostros-Vladimir	It continues over Rijeke Crnojevića to the main road Podgorica-Cetinje
R – 17	Ulcinj-Ada	
R – 18	Mioska-Tušina (Boan)	
R – 19	Bioče-Lijeva Rijeka-Mateševo	
R – 20	Rudeš (Berane)- Kalače	
R – 21	Gradac-Poros-Šula (border with BiH)	It is in the corridor of the main road
R – 22	Kotor – Trojica - Radanovići	Section from Kotor to the highway for fast motor vehicle traffic gets the rank of main road
R – 23	Danilovgrad-Markovina-Čevo Resna- Grahovo-Nudo (border with BiH)	
R	Berane-Kolašin	New regional road
R	Berane-Mojkovac	New regional road – necessity to check the route in more details with regards to space and design
R	Danilovgrad-Gostilje-Semolj-Njegovuđa	New regional road – necessity to check the route in more details with regards to space and design
R	Maočići-Velimlje-Petrovići	New regional road
R	Gusinje/Plav-border with Albania	new regional road - necessity to check the route in more details with regards to space and design
R	Verusa - border with Albania	new regional road - necessity to check the route in more details with regards to space and design
R	Plav-Bogićevica (border with Serbia)	new regional road - necessity to check the route in more details with regards to space and design
R	Podgorica – Danilovgrad (old road) – Glava Zete – Bogetići-Cerovo	new regional road
R	Plužine - Lipnik (B&H border)	new regional road
R	Kosanica–Glibaći-Meštrevac (B&H border)	new regional road – necessity to check the route in more details with regards to space and design
R	Pljevlja – Žabljak – Nikšić – Boka Kotorska Bay	Reconstruction to achieve main road standard (rank) over complete length
R	Golubovci - Tuzi	New regional road - necessity to check the route in more details with regards to space and design
R	Podgorica – Dinoša- Albanian border	new regional road - necessity to check the route in more details with regards to space and design

Road Mark	FROM - TO	SUGGESTION FOR CHANGE
R	Niksic – Zupa – connection to the region road Danilovgrad – Gostilje – Semolj - Njegovudja	New regional road - necessity to check the route in more details with regards to space and design
R	Trpezi – Petnjica - Bioca	new regional road - necessity to check the route in more details with regards to space and design

With further development of the planning and project documentation routes of new roads will be defined.

Railway network development

In planning a railway network the principle used is the one of maintaining the corridors of all formerly discontinued tracks. One of the priorities in Serbia is the construction of Valjevo-Loznica section, which is of strategic importance for Montenegrin railway network and the Port of Bar. Albania is planning the modernization of the railroad Drač- Tirana and Tirana–Skadar-state border (connection in Podgorica with the railroad Belgrade-Bar), as well as the creation of certain studies relating to the corridor VIII. The plans and concepts of the development of the neighboring countries railway networks are also of essential influence on the development of the railway network in Montenegro:

O2.6.1-5 The following proposed **primary network** corridors have to be secured from requirements and uses which contradict or disturb the foreseen use unless a final decision is made against construction or reconstruction (indicated on the map):

1. Reconstruction of the Montenegrin part of the railroad Belgrade – Bar;
2. Branch line Podgorica – Nikšić (with displacing the part of the route through the Duklja zone);
3. Branch line Podgorica – Albanian border (connection to Skadar).

O2.6.1-6 The following proposed **secondary network** corridors have to be secured from requirements and uses which contradict or disturb the foreseen use unless the final decision is made against construction (indicated on the map):

1. Pljevlja – Bijelo Polje
2. Bijelo Polje – Berane – Peć
3. Nikšić – Bileca

O2.6.1-7 The potential establishment of inter-modal terminals, locations have to be secured from requirements and uses which contradict or disturb the foreseen use unless the final decision is made against construction:

1. Bijelo Polje
2. Podgorica
3. Bar

Explanation: Identification and determination of suitable locations has to be done in more detailed spatial planning documents.

Development of water transport

For the development of port facilities see also objectives O1.3.2-1, -19; -20; -21;

O2.6.1-8 The further development of the ports inside the Kotor Bay will be assessed in accordance with the limitations related to the protection of the environment, natural and cultural heritage and international heritage zone Kotor-Risan Bay (UNESCO, World natural and cultural heritage, the most important port is the Port of Bar).

O2.6.1-9 The development of nautical tourism facilities along the coast will be conducted in accordance with ecological and spatial possibilities of suitable locations which have been envisaged by the Special Purpose Spatial Plan for the area of the Coastal Zone. Also, there should be intensive work on the development of the traffic along the coast and additional infrastructure.

O2.6.1-10 On Skadar Lake and Bojana River tourism and excursion water traffic will be developed to a limited extent and in accordance with the ecological conditions and should provide conditions for development positioning of this area; the existing berthing places which should be developed are in Plavnica, Rijeka Crnojevića, Virpazar, Krnjice and Ckla.

Explanation: Guidelines for the regulation of boating on Skadar Lake and river Bojana have to be developed with clearly defined protected areas, boating areas, maximum size of boats, etc. and in line with spatial planning documentation.

Development of air travel infrastructure

O2.6.1-11 The airport in Podgorica has to be further developed as the main international airport (4E class), which will render service to 60-70% of total air transport and which has to be able to render service to all types of air transport, starting from the regular, charter, and business aviation to the transport of goods.

O2.6.1-12 With regards to its importance, the airport in Tivat is the second airport in Montenegro which provides direct access to tourist resorts on the coast and has the key role for the development of tourism. Apart from this basic role, Tivat is the alternative airport for the airports in the region, and especially for the Podgorica airport.

O2.6.1-13 For the potential development of airfields locations have to be secured from requirements and uses which contradict or disturb the foreseen use unless the final decision is made against construction or reconstruction:

1. Berane
2. Nikšić
3. Pljevlja
4. Ulcinj

Explanation: The airport in Berane will be developed to 4D category while other airports (with the category of at least 3C) will be developed primarily as the airports for special purposes: recreational flying, sport flying, (seasonal) regional transport, and also for small business planes. In order to secure spatial conditions for the location of airports it is necessary to anticipate maximum airport category in the

future. Identification and determination of suitable locations has to be done in more detailed spatial planning documents.

2.6.2 Spatial concept of energy infrastructure development

The following spatial determinations are defined in order to support the achievement of the set sector-specific objectives. Final decisions on construction have to be based on the general principles and objectives and sector principles and objectives stated in chapter 1.2 and 1.3.2.3 as well as on capital investments aspects.

O2.6.2-1 For **transmission and distribution lines** the following corridors have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction (indicated in the map):

1. location of electrical substation Ribarevina
2. transmission line Tivat – Kotor and electrical substation Kotor,
3. transmission line Trebješnica – Berane with electrical substation Andrijevica
4. transmission line 220 kV Podgorica – Mojkovac –Pljevlja with electrical substation Mojkovac
5. electrical substation Podgorica 5 and cable corridor to electrical substation Podgorica 3 and transmission line to plant APP- which would close the circle around Podgorica.
6. transmission line Bar – Ulcinj 2 or Ulcinj – Albania
7. transmission line HPP Perućica – Kotor or HPP Perućica – Tivat,
8. transmission lines Berane – Rožaje, Nikšić – Brezna, Pljevlja – Žabljak and Mojkovac – Kolašin with locations of electrical substation Rožaje, Žabljak and Kolašin
9. transmission line Podgorica 1 – Podgorica 2
10. transmission line Podgorica 1 – Podgorica 4
11. transmission line Podgorica 1 – Virpazar with location for electrical substation Virpazar (road route over Tuzi and Golubovci)
12. connection of transmission line Podgorica 2 – Bar with electrical substation Virpazar
13. transmission line Herceg Novi – Igalo with location for electrical substation Igalo.
14. Connection of transmission line Nikšić – Bileća with electrical substation Vilusi
15. transmission line Rožaje –Tutin (if electrical substation Tutin in Serbia is constructed)
16. transmission line Nikšić – Kličevo with location for electrical substation Kličevo.
17. transmission line Pljevlja 2 – Višegrad
18. transmission line Virpazar – Ulcinj
19. transmission line Podgorica – Elbasan
20. transmission line Herceg Novi – Tivat with location for electrical substation Bijela
21. transmission line Budva – Bar with location for electrical substation Buljarica

22. transmission line Virpazar – Ulcinj
23. to plan, in Montenegrin coast region, an electric power plant 400 kV which would be connected by transmission line 400Kv to electrical substation 400/110 Kv Podgorica 2 and to create preconditions for realization of the project of connecting transmission systems of Montenegro and Italy by the undersea cable.

O2.6.2-2 To keep the option of improved gas supply, for **possible gas pipelines** the following corridors have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction (indicated in the map):

1. Niš – Priština – Berane – Podgorica – Bar ("Southern main gas line") (the foreseen corridor of Niš – Podgorica motorway will be used)
2. Užice – Prijepolje – Podgorica – Bar (the foreseen corridor of Beograd-Podgorica-Bar motorway will be used)
3. Dubrovnik – Podgorica (the foreseen corridor of Adriatic -Ionnian motorway will be used or alternatively the corridor of the highway for fast traffic or motor vehicles along the coast). The corridor of this gas line should provide connecting of connection points on the border with Croatia and on the border with Albania.

Beside the mentioned corridors, a sufficient location for possible LNG terminal has to be secured in the Port of Bar.

Explanation: Identification and determination of suitable location for the possible LNG terminal has to be done in more detailed spatial planning documents.

O2.6.2-3 For generation of **thermal electrical power**, suitable locations for objects and raw mineral materials have to be secured from any other requirements and uses which contradict or disturb the foreseen use in the following areas, providing in that way the preconditions for construction of:

1. Block II of Thermo-electrical power plant „Pljevlja"
2. Thermo power plant Berane

Explanation: By building Block I of the thermo power plant "Pljevlja" significant investment works have been done and for Block II with output power of 210 MW (coal depot, accumulation lake, HPV, chimney etc) which gives priority to constructing a new energy source from coal in the area of Pljevlja, for combined production of electrical and thermal energy. Besides that, supplying Pljevlja with thermal energy would be solved, with the accompanying technology measures for improvement and protection of life environment. For Berane, the already given concession for the operation of the coal mine includes also the operation of a thermo energy power plant. Concrete decisions have to be made in more detailed spatial planning documents and sector planning documents where it is necessary to define necessary preconditions for exploitation of coal reserves in Pljevlja and Maocki basin.

O2.6.2-4 For optimal use of water potential and the construction of necessary facilities the following locations for potential **hydro-power plants** have to be secured from requirements and uses which contradict or disturb the foreseen use. Locations of the power plants on Moraca and Komarnica are presented graphically in line with the Energy Development Strategy till 2025 while additional researches for Piva and Bilecko Lake are anticipated:

1. Komarnica river (HPP Komarnica)
2. Moraca river (HPP Andrijevo, HPP Raslovići, HPP Milunovići, HPP Zlatica)

3. Piva river
4. Bilecko Lake

Explanation: The production of electrical energy using hydro-potential of water flows is the „purest" form of energy generation, which is particularly important with regards to the adopted Development Strategy for Montenegro as an ecological state. The most important facilities for extended hydro-energy utilization of water flows are accumulations, without the construction of which it is not possible to use hydro-potential to a significant degree. The construction of adequate accumulations, which can level annual unevenness of water flows, is the joint interest both of electrical and water supply companies within the framework of the integral water supply system of Montenegro. But, accumulations create both positive and negative environmental impacts. Before any construction may start, detailed studies of geomorphologic and hydro-technical adequacy of the foreseen location should be submitted to relevant authorities for purposes of assessment of environmental impacts on the location, but also on the wider area for the assessment of seismic risks and potential impacts and the assessment of social impacts.

O2.6.2-5 Suitable locations for small hydro-power plants (SHPP's – capacity ≤10 MW) are to be defined in more detailed spatial planning documents, in line with the guidelines of this Spatial Plan and activities defined by the Energy Development Strategy till 2025 and Strategy for development of Small Hydro Power Plants.

Explanation: Generally the SHPP's should be run-of-river plants. Depending on the final size of SHPP's and the necessary facilities for connecting these locations with the distribution network and availability of road access all adequate rivers could be considered as potential locations except the rivers protected by national law or international agreements. In case of several SHPPs` construction on the same river their cumulative social impact as well as impact on environment should be examined.

O2.6.2-6 Based on further detailed researches and defining locations, for the establishment of **wind power plants** all surfaces larger than 10 ha have to be secured from other requests and usages which contradict or disturb the foreseen use until the final decision of the realization of possible construction of facilities. In priority, researches should be conducted in the following areas:

1. The Niksic area
2. The South-west region
3. The mountain chain in the hinterland of the coast
4. The surroundings of Zabljak

Smaller suitable locations have to be defined by more detailed spatial planning documents. It is necessary to create preconditions for larger i.e. more intensive valorisation of renewable energy sources (sun, biomass, bogas etc.)

2.6.3 Spatial concept of hydro-technical infrastructure

O2.6.3-1 For regional water supply for Montenegrin coast area suitable or agreed corridors and locations will be secured from other purposes and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction (as indicated on the map).

Explanation: The system includes corridors for pipelines along the road and railroad bridge on Tanki Cape on Skadar Lake leading to the spring Karuc, for the pipeline route towards the spring Bolje Sestre in the basin of Malo Blato. Since the Karuc spring is also one qualitative spring the access and usage of both, the access and usage of both, Bolje Sestre and Karuc, has to be secured.

2.6.4 Spatial concept of waste management

O2.6.4-1 For **inter-municipal landfills** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction for the following municipalities:

1. Bar and Ulcinj
2. Kotor, Tivat and Budva (with the possibility for the inclusion of Herceg Novi)
3. Herceg Novi
4. Podgorica, Danilovgrad and Cetinje
5. Nikšić, Plužine and Šavnik
6. Pljevlja and Žabljak
7. Kolašin, Mojkovac and Bijelo Polje
8. Berane, Rožaje, Andrijevica and Plav

Explanation: Concrete determinations must be done in more detailed spatial planning documents.

O2.6.4-2 For **inter-municipal recycling centers** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in the following municipalities:

1. Bar and Ulcinj
2. Podgorica
3. Nikšić, Savnik and Pluzine
4. Bijelo Polje, Mojkovac and Kolasin
5. Berane, Andrijevica, Plav and Rozaje
6. Pljevlja and Zabljak
7. Kotor, Budva and Tivat

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-3 For **reloading and transfer stations for the collection of solid waste** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in all municipalities in Montenegro where intermunicipal waste landfill is located:

1. Berane, Andrijevica, Plav and Rozaje
2. Bijelo Polje, Mojkovac and Kolasin
3. Niksic, Pluzine and Savnik
4. Pljevlja and Zabljak

5. Podgorica, Danilovgrad and Cetinje

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-4 For **composting centers** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in the following municipalities:

1. Berane, Andrijevica, Plav and Rozaje
2. Bijelo Polje, Mojkovac and Kolasin
3. Niksic, Pluzine and Savnik
4. Pljevlja and Zabljak
5. Podgorica, Danilovgrad and Cetinje

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-5 For **medicinal waste landfills** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in the following municipalities:

1. Kotor
2. Podgorica
3. Nikšić
4. Berane

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-6 For **landfills of hazardous waste coming from households** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in the following municipalities:

1. Bar
2. Herceg Novi
3. Podgorica
4. Nikšić
5. Berane
6. Pljevlja

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-7 For **construction waste, debris and excavation material landfills** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in all municipalities.

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-8 For **disposal of mud from faecal waste waters** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in all municipalities.

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-9 For **disposal of mud from industrial waste waters** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction in the following municipalities:

1. Ulcinj
2. Bar
3. Kotor
4. Herceg Novi
5. Podgorica
6. Nikšić
7. Berane
8. Pljevlja

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-10 For **disposal of vehicles which are out of use** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction for the following municipalities:

1. Bar
2. Podgorica
3. Nikšić
4. Berane
5. Pljevlja

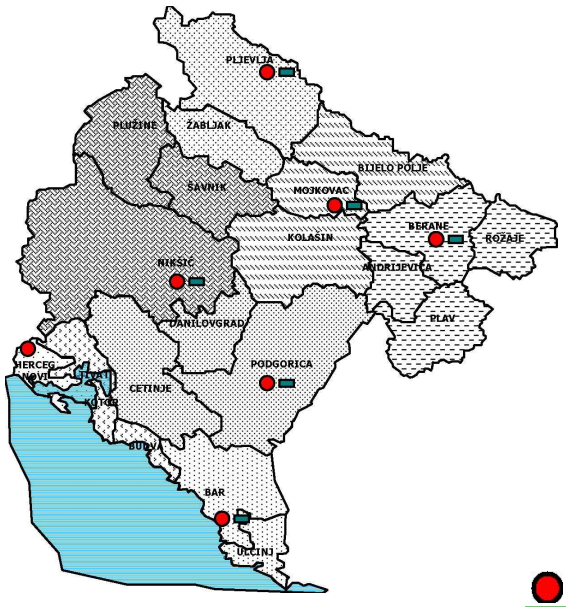
Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

O2.6.4-11 For **disposal of animal waste** suitable locations have to be secured from requirements and uses which contradict or disturb the foreseen use until the final decision of the realization of the construction for the following municipalities:

1. Bar
2. Podgorica
3. Nikšić
4. Bijelo Polje
5. Pljevlja

Explanation: Concrete determinations must be done in more detailed spatial planning documents and sector planning documents.

Figure 3: Inter-municipal landfills for solid municipal waste and recycling centers



2.7 Areas and zones of public interest

Areas of public interest are all areas protected by national, regional and international documents, as well as those which have become protected on the base of the legal regulations (Law on Nature Protection, Law on National Parks, Law on Spatial Planning and Development, Resolution on Recording in Central Register of Protected Nature Objects).

Areas of public interests are:	national parks; regional parks; coastal zone; areas under protection of UNESCO (World reserves of biosphere, World natural and cultural heritage); urban settlement areas of General Urban Plans; corridors with infrastructural systems (highways, motor ways, railroads, highline etc.); accumulations, barrages and additional objects; banks of rivers, lakes and sea shore.
Zones of public interest are:	special natural sites; nature reserves; nature monuments; protected objects of cultural heritage; mining fields and deposits (coal, bauxite, lead, zinc…); springs of potable water; airports, ports and harbors, free custom zones and zones for country defense, as well as all those zones with objects of public interest.

2.8 Concession areas

Natural resources and other state - national assets, can be given for a concession use if it is of interest for development of economy, citizens' standard, or of some other interest. Those interests are defined by competent state bodies, as well as conditions for the realization of concession right. Regarding conditions for use of the space, the concessionaire has all rights and obligations as all other investors, i.e. economic entities.

Natural resources having potential economic value, or are already providing means for life, such as lumber, minerals, oil, water, flora and fauna, attribute of man's surroundings which

contribute to welfare of the community or serve in recreational purposes, such as parks – can be given for concession use for definite time, as well as public services.

Public services are project or any kind of services usually financed or performed by public sector, such as power plants, highways, ports, airports, channels, barrages, hydro power plants, water supplying, irrigation, telecommunication, railroads and railroad transport, transporting systems, housing activities, state's buildings, tourism projects, markets, cleaning of towns, education and health institutions, as well as other services that the Government can define.

2.9 Spatial concept for the protection of cultural and natural heritages

2.9.1 Concept for the protection of cultural heritage

O2.9.1-1 Borders of cultural monuments have to be defined.

Explanation: Cultural monuments can't be seen without their surrounding. It is obvious that proper protection of cultural monuments requires the consideration of the area around. Hereby, the range of this area and the actual need differs significantly. A detailed assessment and mapping of the required areas and borders of the cultural monuments must be conducted. Additionally, adequate measures and criteria for protection have to be elaborated for each monument respecting the particular conditions of the surrounding. The defined areas and borders have to be considered in relevant more detailed spatial planning documents (especially in local spatial planning documents).

2.9.2 Concept of protection of natural heritage

C2.9.2-1 Program for protection with the revision of existing and proposal of future protected areas should be prepared, that would be incorporated into the spatial planning documents of the lower rank.

Explanation: Although the existing network of protected nature areas comprises protected areas that are recognizable biodiversity centers, their strengthening as well as proclaiming other new protected areas in nature will be based on the phase-approach.

Expanding of the existing protected natural heritage areas with new areas will take into account socio-economic consequences and related to that, the protection of acquired rights of local population in those areas. Establishing new protected areas of nature will not jeopardize development opportunities of the area, but it will cause relevant limitations with the aim to achieve sustainable development in those zones. During the phase of search for best options for the management for new protected areas, the advantage will be given to those management models that will gather and connect all stakeholders (a cooperative model - with clearly shared responsibilities and rights). Such management models will provide a participative and transparent approach in preparation, development and implementation of management plans for the protected areas.

The process of management establishment, development of plans for managing each protected area in nature will be accompanied by the status` revision process, the process of categorizing protection concept and existing protected areas` borders, as well as by a constant process of

revising a list of protected biodiversity species. In the revision of protected areas` borders, based on knowledge and results gained from targeted research, not only options for changing borders in order to exclude some parts will be analyzed, but realistic options for changing borders for inclusion of some part will be considered as well, for example:

- expanding bordures of the National Park Durmitor and the planned Regional Park Maglic, Bioc and Volujak so to connect them with the National Park Sutjeska in Bosnia and Herzegovina,
- expanding UNESCO`s Kotor –Risan Bay to southern slopes of Vrmac
- inclusion of Komarnica Canyon / Nevidio Canyon into National Park Durmitor,
- expanding borders of the National Park Skadarsko jezero (Skadar Lake) to the Regional Park Rumija or the area of Šasko Lake / the River Bojana Delta or
- connecting the National Park Biogradska Gora with a mountainous massif of the planned Regional Park Komovi, etc.

However a priority zone for implementing revision of protected areas is Montenegrin coast due to already seen changes in existing protected areas in that zone.

Apart from applying of standard evaluation techniques, knowledge gained in traditional practices, and previously mentioned revisions (of protected areas, a list of protected biodiversity's species) of the implementation of IUCN criteria and standards will be analyzed:

- for defining adequate management categories for protected areas and
- for implementation of the red list criteria / protected flora and fauna on national level.

The implementation of expansion of the protected natural areas network will be supported through more detailed spatial planning documents and sector planning documents.

The proposals for a long-term projection/network of new protected natural areas are given according to the following protection categories:

O2.9.2-1 Nature Reserves

The existing network of nature reserves has to be analyzed in accordance with the outcomes of the revision of protected natural areas.

O2.9.2-2 National Parks

Beside the existing National Parks "Lovćen", "Biogradska Gora", "Durmitor" and "Skadar Lake" the following is foreseen:

1. establishment of a new National Park Prokletije
2. expansion of borders of the National Park Durmitor and the planned Regional Parks Maglic, Bioc and Volujak so to connect them with the National Park Sutjeska in Bosnia and Herzegovina.
3. establishment of a new National Park Orjen.

All three proposals should ensure creation of cross-border protected areas with neighboring areas in Albania (Tethi), Bosnia and Herzegovina (Sutjeska and Orjen), and Croatia (Snjeznica-Orjen).

O2.9.2-3 Regional Parks / Parks in Nature: For additional analyses, in order to be protected as regional parks, the following are suggested:

1. Rumija
2. Komovi
3. Sinjajevina
4. Bioč, Maglić i Volujak
5. Ljubišnja
6. Turjak with Hajlom

O2.9.2-4 **Monuments of Nature and Areas of Special Natural Features:** Areas to be protected under these two categories are subject of special legal procedure and of lower spatial planning documentation. The management is realized on the local level.

O2.9.2-5 **Water spring areas** have to be protected and secured from risks of pollution (areas are indicated in the map).

The areas with special protection with status of national and regional parks form **basic points of the ecosystem network** in Montenegro.

The Montenegrin part of South-East Dinarids is mainly located in the northern region of the Republic and it takes part in the large bio-corridor of South-East Dinarida ("Dinarski luk"), that extends from the Alps to Prokletije and Sarp- Pindor Massif. In the zone of Prokletije this bio-corridor is connected also with a large regional bio-corridor called «Green Belt». This corridor marks the former border between the former socialist countries and the communist countries; in the area of Montenegro it covers the entire border with Albania. Due to a specific regime of use in the past this zone has become a harbor and a corridor important for biodiversity.

The well known corridor of costal mountains Orjen – Lovćen – Rumija is associated with this corridor.

Mayor part of junction areas of ecosystem is included in two primary ecological corridors. The third corridor is established in the direction of Orijen - Pusti Lisac - Maganik – Sinjajevina – Kovren.

Secondary corridors, dividing functional entireties improve natural resistance of the system to negative effects of human activities.

2.10 Concept of development of degraded and endangered environment

In the areas where the environment is degraded and endangered (the hot-spots), it is necessary to undertake adequate activities through the projects that will cure the consequences of their work and improve the technology up to the level that it does not pollute the environment (application of BAT / BREF). According to the legal obligations, as well as the established ownership relations for the following priority hot spots, it is necessary to initiate projects to solve the causes of their degradation of the environment.

O2.10-1 Mitigation of environmental pollution of **industrial hot spots**

1. Aluminum Factory in (KAP) – change of technology and urgent solution of the problem of pollution of land, surface and underground waters with red mud, and other solid, liquid and gas waste.
2. Thermo Power Plant in Pljevlja – priority: filtering devices for exhaust gases, and solving the problem of provision of heath for the town of Pljevlja from the thermo power plant
3. Steel mill in Nikšić – complex solution to the sources of pollution of land, water and air, solving the problem of waste, changes and improvements of technology

O2.10-2 Rehabilitation of degraded environment at **mining hot spots**

1. Active lignite excavation sites in the Pljevlja basin: Borovica and Potrlica, as well as the inactive sites Maoče, Mataruge and Otilovići;
2. Inactive underground exploitation of dark coal in Berane / Polika;
3. Inactive excavation sites of lead-zinc mine: in Pljevlja („Šuplja stijena“, Gradac), Mojkovac (Brskovo, Bjelojevići, Razvršje and Žuta prla);
4. Excavation sites of red bauxite in the northern edge of Nikšićka župa (Đurakov do, Štitovo);
5. Quarries in Pljevlja (Pliješ), Ulcinj (Brivska gora), Sutomore (Haj Nehaj), Bar (Volujica), Budva (Brajići, Nalježići), Nikšić (above Carev most), as well as the quarry of ornament stone in Andrijevica (Žoljevica), Spuž (Visočica, Vinići) and Luštica (nearby Opatno), etc.

Degradation of environment due to wastewaters and solid waste are subject of principles and objectives mentioned in chapters 1.3.2, 2.6.3 and 2.6.4.

2.11 Protection against natural hazards and industrial disasters

2.11.1 Physical limitations to development in the areas of potential natural disasters, hazards (risks) or other disasters

O2.11.1-1 **Implementation of protection against flood** should be based on an integrated solution of protection against flood, defined at the level of a river basin, and not through partial solutions with local capacities. Only in this way is it possible to define the technically feasible, economically and environmentally justified and sustainable solution for the protection against flood.

O2.11.1-2 **Protection against water erosion in order to prevent losses in land,** the addition of sand on the accumulations, which will protect transportation lines and other facilities, will be implemented in an organized manner and through systematic technical and biological measures.

O2.11.1-3 **Special measures to reduce risk of fire and explosions** include:

- Spatial and urban planning should be raised to a higher level, through the involvement of experts in the field of protection against fire in the activities related to drafting of all these acts;
- Strengthening the inspection control at the level of local self-government and at the level of the Republic;

- When planning neighborhoods, residential complexes, several-story buildings, etc, it is mandatory to include in the activities an expert in the field of protection against fire;
- Adoption of a decision at the state level about the measures of conservation or removal of explosive and fire hazardous devices from abandoned and closed plants;
- Preparation of plans of protection against fire in national parks and forest complexes in Bjelasica, Turjak, Smiljevica and Mokra mountain and others;
- When preparing project documentations it is mandatory to secure: a provision of fire extinguishing water, prescribed width of access roads and free areas, active measure of protection against fire in buildings where a larger number of people usually gather (automatic fire alarm, automatic fire extinguishers, evacuation lines, prescribed water-resistance of constructions, indoor and outdoor hydrant network, ventilation network and smoke removal network, etc).
- Preparation of new legal acts regulating these issues.
- Protection of natural disasters, stating the primary influence of climate changes, as the cause (sea level raising, extremely high and low temperatures, etc.).

2.11.2 Measures to reduce seismic risks

O2.11.2-1 The municipalities have to define procedures that seismic risks are assessed and considered in when elaborating local planning documents and urban development.

2.12 Bases of protection of interest for defense

2.12.1 Defense and protection

O2.12.1-1 Selection and determining of complexes and locations necessary for functioning of defense system will be done on the base of legal and strategic documents regulating the defense in Montenegro.

O2.12.1-2 Reduce areas for complexes of security forces of Montenegro and make their restructuring for civil needs of urbanization.

O2.12.1-3 Establishing a national protection system that will functionally integrate all relevant institutions that are involved in the process of the monitoring of natural and technical-technological hazards, protection, rescuing and development of detailed and comprehensive national action plans for all kinds of emergencies separately and for any form of quantified hazards.

O2.12.1-4 The general preparedness in communities will be strengthened and awareness will be raised about the significance and necessity of having organized and efficient social and community` activities in prevention and mitigation of damaging effects and emergencies, with active participation by citizens in the processes both on regional and local level.

O2.12.1-5 Organize integrally and conduct in a planned way preparations for defense and civil protection, as a comprehensive system, in peace as well as in times of jeopardized security.

Explanation: Lower ranked spatial plans define the need of shelters, type of shelters, capacity, resistance, microlocation, uses during time of peace, position in relation to land surface, etc.

Through spatial and urban planning problems of the location for gathering places, i.e. places for gathering of population foreseen for evacuation, traffic capacity and type of traffic, which will be used for the transport of population, planning of the territory and other contents in line with planning documentation should be resolved.

Radiological-chemical-biologic (RHB) protection is established through developed traffic network for fast evacuation from areas jeopardized by RHB elements, locations of health and other institutions for acceptance and hospitalization of the contaminated persons, through planning of the water supply for decontamination, for construction of objects, for decontamination of laboratories, etc.

Protection and saving from fires will be conducted through urban solution of fire protection roads and access to water objects, reduction of fire load of fire protection obstacles, conditions for efficient intervention of fire protection units, well dimensioned water and hydrant network, locations of fire estingushing objects, securing liason systems, etc.

Protection and rescue from ruins will be organized through characteristics of town traffic lines, characteristics of estimated ruins and other elements given through development of urban structure.

Protection and rescue from floods will be organized through provision of access for quick interventions on flooded area, through construction of objects for efficient protection from floods and defense from floods, especially for the flooding zones downstream from accumulations, etc.

3 GUIDELINES AND MEASURES FOR REALIZATION OF THE SPATIAL PLAN

3.1 Ways, phases and dynamics of realization

The Spatial Plan will be realized by considerations of objectives and principles in sector planning documents, by more detailed spatial planning documents and by realization of projects of municipal and inter-municipal development according to the development zones.

Dynamic of realization of the Physical Plan will depend on numerous factors, which might be caused internally as well as externally. The Parliament of Republic of Montenegro will decide on phases for the Plan realization, for the period until 2020, by enacting a five-year program. In the first five-year program the most important issues are: improving traffic network, improving environmental conditions, establishing and/or improving central functions, development of water supply systems and sewage systems in towns and settlements, development of energy system and development of high class tourist capacities. It is important to establish an information system of the Physical Plan, for keeping record and monitoring of the spatial planning data as well as on future spatial development. In this way appropriate structures for a spatial information system will be created, as well as the base for future amendments and revisions of the plan.

Guidelines for the realization of these planning provisions are:

- Middle-term plan objectives, priorities and development policies with their integrated measures;
- Respect and applying of the obligations originating from international contracts and conventions;
- Organizational-institutional support to realization of the Spatial Plan, in first line of competent state bodies, local self government, scientific and professional institutions authorized for performing the work on monitoring and realization of the plan;
- Formulating way of reporting on conditions of spatial development according to the Article 13 of the Law on Planning and Spatial Development, regulating procedures, determining competent bodies, authorized organizations and institutions;
- Creating data bases and systems of indicators for monitoring and evaluation of realization of the Physical Plan;

For realization of development determinations that are defined in the Physical Plan, following approaches are set as priorities:

- Integrated development of the Northern region, which comprises traffic connection, energy development and enabling of the new, innovative and long-term perspective economic branches in accordance with human resources;
- Improvement of environmental conditions with infrastructural communal equipping through the construction of a system for refining wastewaters, by construction of inter-municipal sanitary landfills for solid waste and reduction of air pollution by big industrial systems;
- Achieving an agreement between Montenegro with neighboring countries on traffic directions, joint protection of environment and development of energy system;
- Implementation of directives of the Plan with detailed determinations in more detailed spatial planning documents and sector planning documents.

3.2 Guidelines for the implementation of the Spatial Plan

All of the affected actors in the process of implementation of the determinations defined in the Spatial Plan, as general bases of spatial organization and development, should respect guidelines and fulfill preconditions, as follows:

- Respecting and implementing obligations originating from national legislation, as well as from international contracts and conventions.
- Harmonization of physical plans of local self-government units with determinations from the Spatial Plan, so as to, encircle system for spatial planning in Montenegro and ensure complementariness of functions of spatial planning on all levels, with respect to certain specificities. That imposes the need for determination of unique content of all spatial plans, as a condition for implementation of joint parameters, criteria and standards in planning, developing and using space in function of development.
- Harmonization of development of economy and of social activities with determinations from the Spatial Plan, in order to provide harmonized development and eliminate conflicts in their development;
- Harmonization of development plans of certain activities with determinations from the Spatial Plan, with due respect to principles and goals of sustainable development. In accordance with that, it is necessary, before realization of some large facilities starts, and particularly facilities from field of capital infrastructure (traffic and energy), to conduct a study research of justification and feasibility of such objects, not only from aspect of socio-economic justification, but also from the aspect of expediency of spatial disposition of those objects and of their influence on the environment.
- Singling out in spatial plans of local self-government units, in accordance with determinations from this Plan, of construction land, agricultural land and land covered with forest and determining conditions for their development and use. In frames of so defined purpose of space, in spatial plans local self- government unit should precisely determine: zones of environmental protection; zones with specific purposes (e.g. infrastructural corridors), zones with intensive agriculture, zones with intensive tourism and recreation as well as zones of interest for defense.
- Implementing determinations from this Plan should follow harmonization, i.e. the changes and amendments of provisions regulating conditions and the way of use of space, and especially those on agricultural land, forest, construction land, on protection of nature, waters and the coastal zone.
- Realization of this Plan's determinations greatly depends upon the activities and realized cooperation of all bodies and institutions, which operationally and competently participate in the process of realization of the Plan.
- Continuity of planning process has a special importance, as well as the fact that spatial plans are made only by specialized institutions being it their basic activity, and which are capable, when preparing and making the plans, through application of scientific methods, to provide permanent value and quality of the plans as well as to offer the most contemporary solutions.
- Measures of economic policy on level of Montenegro must be in function of realization of determinations of this Plan. They, above all, need to provide steady regional development, primarily through adequate development of the Northern region and of villages.
- Inventorying of the space and forming of a unique information system are important assumptions of modern planning, organization and control of the realization of the spatial development, which require adequate harmonization, personnel and technical provision of organs and institutions for successful and qualitative practice of this work.
- Reduction of the seismic risk through application of appropriate urban planning, projecting and construction.

3.3 Guidelines for the land use and land management policy

Land is the main natural resource of Montenegro. Planning task is its rational use, implicating at the same time its preservation, protection and promotion.

It is necessary to protect agricultural land and forest land, landscape, especially the land on territory of national parks and natural parks, spring confluences and catchment areas, water courses, and particularly their border parts, all coastal areas of lakes and sea, places of

archeological findings, cultural heritage and what is equally important, to protect productive land in urban and rural settlements;

Land promotion is necessary to be undertaken in order to use and protect it in future. The priority in sense of revitalization and rehabilitation here has land for excavation, chats, quarries and borrowing areas for construction materials, as well as land devastated by erosions and water courses. On polluted land, it is necessary to take all measures for further prevention of that process.

Land policy is state's prerogative, in the field of realization of national (state's) spatial policy (for example through urban or regional planning), as well as in the field of organization of market relations. For its active policy it is of a decisive importance that public sector, i.e. the state and the local communities, provide efficient treatment of the land used for construction which is necessary for development of social infrastructure. In Montenegro there is still no defined and consistent land policy, thus for determination of everything which needs to be encompassed by a policy (basic principles, objectives, instruments, institutional support, etc.) it is necessary to undertake the following:

- Undertake the analysis of conditions and trends in the field of spatial planning, turnover, management and land owning.
- Identify, describe and analyze possible objectives of land policy.
- Identify and define general and individual instruments possible to be used for achieving of the determined land policy objectives.
- Study feasibility and efficiency of different measures and instruments in relation to the set objectives, by evaluation of the socially reasonable costs and benefits.

Major number of the quoted tasks should be performed by state bodies and bodies of local self-governments, based on independent and impartial experts' insights and evaluation of competent professional and scientific-research institutions and organizations. Before that, however, it is necessary to urgently start establishment of adequate state record (or more of them), i.e. data necessary for evaluation of the existing real-estate fund. The priority here is organization of the real-estate cadastre and other records on real-estate, because without that it is not possible to efficiently make decisions on investments using land space and on construction land management.

3.4 Guidelines and assumptions for elaboration of spatial plans of municipalities and general urban plans

3.4.1 Policies for spatial development of Montenegro

Development zones are defined based on the previous trends and patterns of development, and especially on bases of local potentials and limiting factors. For each zone, only the leading priorities of development, limitations, conflicts, environmental challenges, thresholds and preconditions for development have been stated. Problematic issues and components of development, usual for all development areas, for example: housing, public and communal infrastructure, services, regular environmental protection, etc. are not the subject of consideration, with the exception of those cases where just those components are having the leading strategic role in the global development process. Eight specific characteristics are defined:

Under ***Resources and potentials*** – only those natural and created resources and potentials are presented, which determine major components of development program, recognized in priorities and functions. That can be a specific climate and natural beauty – which presents an advantage for development of tourism, as well as natural mineral resources, which presents an

advantage for development of some industries or a high quality land, which represents the base for agriculture.

Under ***Development priorities*** – only the type of program for development and functions that can play the role of the most important promoter of development on local level is presented. These programs (components) should be given the priority when selecting the location, when resolving development and ambient conflicts, as well as by subordinating of general concept of spatial development to their needs.

Under ***Limitations*** – it is pointed to those types of development and functions for which the zone has to close. It refers to programs for development and activities that can be in strong conflict with the priority function.

Under **Conflictc** – those conflictual situations and/or areas of conflicts, where it is impossible to avoid differences in interests due to specific development alternatives, local characteristics and ambient limitations, are emphasized.

Under ***Thresholds*** – it is pointed to those natural and/or created thresholds of spatial development that can limit development of priority functions, whose overcoming should be planned and harmonized with phases of priority functions development.

Under ***Environmental Requests*** – the most important steps are defined, oriented towards protection of ambient, natural and created values, limited only to those requests caused by the development of priority functions.

Under ***Control of the seismic risk*** – general amount of the risk (for priority function) and its consequences are presented.

Under ***Preconditions*** – it is pointed to those actions and/or projects conditioning regular introduction of development programs and/or proper acting of the priority function and the whole system.

3.4.2. Development zones of the Coastal Region

3.4.2.1 Policies for spatial development of the Coastal Region

- Harmonized development of towns in bay of Boka Kotorska should be provided through adequate spatial plan and strong inter-municipal cooperation. It is anticipated that the following towns will establish strong conurbation, based on well-coordinated programs for development: Kotor should be center for cultural, business and scientific activities; Tivat, whose development will be connected to the development of air traffic and nautical tourism, as well as center for development of tourism in area of Luštica with Herceg Novi; Herceg Novi will be the main tourist center, specialized in health tourism, with cultural functions as an important component of its development.
- Rural settlements should be protected from further degradation, and those on slopes should be revitalized for living of population dealing with agriculture as well as population working on the shore.
- Water quality of the sea in coastal zone should be controlled. Besides the obligatory construction of sewage system with treatment of wastewaters, discharge of wastewaters from ships directly into the sea must be prevented.
- In order to protect environment and special landscape values, special attention should be paid to ecologic corridor along coastal mountains (Orijen, Lovćen and Rumija) and green corridors connecting it with the shore (parts of the Boka Kotorska shore – Orijen and Lovćen; parts of the shore between Budva and Petrovac – Paštrovačka Gora; parts of the shore between Bar and Ulcinj – Rumija). The greatest threat for these values has the current trend of continuous construction (walling up of the shore), as well as the construction of the future main road for speed traffic at the coastal area.

3.4.2.2 Development zones of the Coastal Region

Development zone: BOKA KOTORSKA

This zone, homogeneous from geographical, environmental and cultural-historical point of view, comprises sub-zones Herceg Novi, Kotor and Tivat.

Sub-zone HERCEG NOVI

With areas having specific problematic comprises: Njivice, Igalo and Sutorinsko field (A), Herceg-Novi (B), Zelenika—Bijela (C), area along the shore on open sea, peninsula Lustica (D), mountainous hinterland (E).

Resources and potentials: constructed capacities of health resort, and complex of arable agricultural land, technical construction stone (A); attractive town ambient with old historical core, monument of nature Savinska Dubrava, constructed medical-rehabilitation complex – Meljine (B); picturesque row of small settlements along the shore, and constructed capacities of shipyard (C), picturesque ambient of villages in Lustica with non-constructed areas for development of high class tourism with accompanying contents (sandy beaches and rocky shores), traditional agricultural production of Mediterranean type, fortification facilities on Arza and Lastavica, free complexes which are no longer used for military purposes (D), traditional village ambience in the Herceg Novi hinterland with its agriculture (E).

Priorities of development: tourism function with health component and intensive agriculture (A); cultural and service center function and year-round tourism, health and rehabilitation tourism and hospital - medical center's functions (B); production function related to shipyard, production crafts and housing, nautical tourism and tourism capacities in settlements along the Riviera (C), high class tourism and specialized agriculture (D and E).

Limitations: In Njivice, Igalo and Sutorinsko field (A): strictly limit any industrial functions and limit further expansion for tourism; limit all programs for development (including living) in zone of health center; in Sutorina, implement only programs closely connected to land cultivation and use in sport recreation purposes, without construction of facilities for living.

In Herceg Novi (B): limit location of new industrial plants; existing activities having industrial character should be approached to move in area E; limit further increase in density by housing and tourist construction.

In area Zelenika – Bijela (C): preserve the Port of Zelenika capacities at the level that will not jeopardize the environment and in the same sense limit further development of shipyard Bijela.

On peninsula Lustica (D): take care and limit construction of objects and infrastructure that can threaten the high value of natural and cultural landscape.

Limit construction of objects and infrastructure, which would jeopardize function of hospital – medical center "Meljine" (B).

Conflicts: In the whole sub-zone there is conflict between construction and level of concentration of different functions on one side, and high seismic hazard on the other, as well as the conflict between limited space and need for expansion and modernization of the traffic system (including continuous pedestrian communication from Igalo to Zelenika threatened by beach facilities).

In Igalo and Sutorina Field the following is present: conflicts between extreme attractiveness of areas for intensive, multifunctional development and requests of health center; conflict between architectonic ambitions and values of natural landscape and conflict of interest and priorities between health and other types of tourism.

In Herceg Novi the following is considered: conflict between the already existing density of construction and expectation of tourists, regarding ambient values and landscape values; tourist accommodation capacities and housing construction, contrary to beach capacities; conflict between trends of further growth and the existing limitations of the space; different conflicts in

everyday activities having priority functions, caused by too much construction on certain localities.

In sub-zone Zelenika and Bijela the following is recognized: conflict of Port Zelenika with settlement, traffic, and tourist infrastructure, as well as with environmental protection; conflict between already developed shipyard functions, environmental protection and tourism; conflicts between landscape and ambient of Boka and development industry along the shoreline and wide scale conflict between the general needs for protection of the unique environmental qualities and destructive industries.

Thresholds: In the whole sub-zone, lack of land for development and need to locate part of the planned housing construction on the lower slopes of the hill, will request essential restructuring of the system of communal infrastructure. The most critical functional threshold is water supply, as well as inadequate traffic network, including transit traffic line – Adriatic highway. Until the traffic problems are resolved, justification of realization of all major projects should be considered.

Demands of the surroundings: full protection of local microclimate, the change of which can occur due to bigger construction density, and change of spatial characteristic of Sutorina Field and protection of local surroundings from pollution and noise (A); protection and revitalization of the Old Town and other cultural and architectonic characteristics (B); protection from noise and pollution from activities in the shipyard and in the port, as well as control of waste disposal (C); landscape revitalization – quarries Podi i Đurići (E); forming of National Park "Orijen" with adequate cooperation with the neighboring municipalities and states; protection of marine water from pollution (A, B and C).

Seismic risk control, control of technical accidents and natural disasters requests fulfillment of certain conditions: improving accessibility, organizing opened spaces and isolation zones, evacuating dangerous activities and storehouses of inflammable materials and explosives from area, limiting construction of new facilities – without simultaneous creation of neighboring opened areas; projecting facilities and buildings in accordance with demands of simplicity and resistance to earthquakes; elaboration of plans for preparation in cases of earthquake, and establishing systems and mechanisms for preparations, which is, considering fragility of urban system of the whole Boka Kotorska, especially important.

Preconditions: defining zones under special protection in zone of mineral sources and mud (A); establishing special bpdy with authorization to control development activities and measures of protection.

Sub-zone KOTOR

With areas of specific problems, it comprises: inner part of the Bay, with town Kotor and other settlements (Perast, Risan, Prčanj etc.) (A); Fields of Grbalj and Mrčevo (B): and costal zone of the municipality along the open sea with settlements Trsteno, Žukovica and Bigovo (C).

Resources and potentials: large number of cultural-historical monuments, town Kotor with status of cultural asset of world's importance and capacities of special health institutions, technical construction stone (A); established production and social functions, services and equipment of the area including port capacities and good connection with the airport Tivat (A); complexes of arable agricultural land (B), area at disposition for industrial zone, which is being established in field of Grbalj in the Municipality of Kotor(B), picturesque ambient of village Donji Grbalj with non-constructed areas for development of tourism, traditional agricultural production of Mediterranean type and sea fishing (C).

Priorities of development: tourism, including specific type of health tourism in the area of Prcanj; functions of cultural and academic center with broader importance, as well as functions of service center; navigation and navigation economy, with technical improvements of the Port of Risan (passenger, tourist and limited traffic of goods) and the Port of Kotor (for passenger and tourism traffic) and their specialization (A); technologically highly specialized and safe industry, intensive agricultural production with orientation towards export (using vicinity of the airport Tivat) and wider tourist market of Grbalj field (B); tourism and specialized agriculture (C).

Limitations: Limitation of housing, tourist and other construction that jeopardizes recognizable values of cultural – historical heritage and worth. Further limitation of development of industrial

and processing functions, excluding local craft plants – small economy, limitation of development of the Port Risan and the Port Kotor to activities which are not endangering elements of the environment (A). Limitation of urbanization in the industrial zone for all programs, except of the industrial one (B). Limitation of housing construction – only for the needs of agricultural producers, as well as prohibition of construction of houses for vacations (B). Limitation of construction of objects that can in any way endanger high value of natural and cultural landscape (C).

Conflicts: In the whole sub-zone there is a general conflict between needs of development on one side, and protection of environment and natural and cultural landscape of Boka Kotorska on the other, conflict between the needs of traffic and limitations of construction of main connections on one side and the landscape value of Boka Kotorska on the other.

Through the previous development the following conflicts have been established between: intimacy of historical urban ensembles and needs for transit traffic; conflicts between unique mixture of natural landscapes and land landscapes created through history on one side and modern patterns of construction and architectonic/construction forms on the other; conflict between requests for protection of cultural-historical values (and forms) and modern functional demands; conflict between interest and emphasized wishes of private owners of the land and facilities on one side, and broader social interests in the sense of proper management and maintenance of the historical characteristics on the other; conflict between poor land quantity and needs (and ambitions) of development (A), conflict between airport and economy construction of infrastructure outside of the industrial zone, and especially along Adriatic highway and environmental protection (B). By the improper and mass construction of weekend houses the recognizable development potential in tourism and agriculture of the picturesque ambient of village Donji Grbalj is directly endangered (C).

Thresholds: Modernization and expansion of the complete urban system and development of priority functions depends on construction of a complex system for water supply and drainage system which directs wastewaters into the open sea. General threshold for spatial and functional development of all systems in Boka Kotorska reflects in the capacity of the existing traffic network. That very limited capacity increases seismic vulnerability of all coastal functional and economic systems. Operational needs of the airport impose the thresholds in relation to widening and patterns of industrial zone development.

Environmental requests: protection of marine water from pollution, land protection against contamination with wastes, reduction of noise level and protection of natural and cultural landscape.

Seismic risk control, control of technical accidents and elementary disasters: application of all measures recommended for sub-zone Herceg Novi and measures formulated by UNESCO for Old town Kotor and its direct surroundings.

Preconditions: elaboration of a unique policy program for spatial development of the whole zone, including all three sub-zones, solutions for crossing of Boka Kotorska with a road, as well as opening of Donji Grbalj in traffic sense.

Sub-zone TIVAT

With specific problematic comprises: inner part of the Bay, with town Tivat and neighboring settlements (A), Tivat field and part of Grbalj field (B), coastal zone on the open sea, bay Traste (C).

Resources and potentials: The shores inside the Bay that are suitable for swimming and other nautical activities and for development of maricultures, formed the production and social functions and a good connection with Kotor, along with having technical construction stone and various kinds of clay (A); Airport Tivat, formed production functions, services and equipment of the area, sets of arable agricultural land, space available for industrial zone which is formed in Grbalj field (B) and formed tourism capacities in inlet Przno (C), freed complexes which are no longer used for military purposes (A,C)

Development priorities: Technologically highly specialized and non-harmful industry, tourism, intensive agricultural production with orientation to export (using vicinity of the Airport) and broader tourist market Grbalj field.

Limitations: Excessive construction of housing and tourist facilities on the coast and preventing "walling up" of the shore and development of industrial and processing functions, with the exception of local craft plants – small economy.

Conflicts: In the whole sub-zone the following conflicts are recognized: general conflict between development needs on one side and protection of environment and landscape of Boka Kotorska on the other; general conflict between traffic needs and the idea of construction of bridge on Verige with access roads, on one side and landscape values of Boka Kotorska on the other; conflicts between tourism and some specific functions in the area; conflict between private owners of the land and their wishes on one side and spatial-planed development of urban and suburban zones on the other side and conflicts between transit traffic and local needs.

Thresholds: Modernization and expansion of all urban systems and development of priority functions depends on construction of a complex system for water supply and drainage system that purifies wastewaters directing the treated water into the open sea. General threshold for spatial and functional development of all systems reflects in the capacity of the existing traffic network. That very limited capacity presents a threshold and increases seismic vulnerability of all coastal functional and economic systems.

Requests of the environment: protection of marine water from pollution, protection of land from contamination with industrial wastes, reduction of noise level and protection of natural and cultural landscape.

Control of seismic risk, technical accidents and elementary disasters: application of all measures recommended for sub-zone Herceg Novi.

Preconditions: elaboration of a unique policy program for spatial development of the whole zone, including all three sub-zones and solutions for crossing of Boka Kotorska with a road.

Development zone: BUDVA – PETROVAC COAST

Narrow zone in the middle of Montenegrin coast between seashore and costal mountain chain in the hinterland.

Resources and potentials: constructed tourist capacities, tradition and created reputation of Budva, Bečići, Miločer, Sveti Stefan and Petrovac; indented coastline, with specific ambient characteristics of sandy beaches; historic urban center of Budva and archeological localities.

Priorities of development: exclusive tourism with various offer in non-constructed zones (Jaz, Lučice and Buljarica), construction of high category hotels, as well as raising the level of quality of tourist offer in already constructed hotels.

Limitations: complete zone has to be closed for industrial functions. Location of quarries and landfills on slopes of the mountains and other exposed places should be forbidden. Besides that, also forbidden should be construction of weekend houses in the zone, with the exception of intervention in the scope of rural settlements structure in the hinterland of the coast, but only in accordance with the plans for revitalization of this heritage.

Conflicts: Leading conflict occurs between high attractiveness of alluvial flat areas along the beach (Slovenska Beach, Jaz, and Bečići) for development of tourist accommodation and locally the highest level of seismic hazard in the area. Also recognized is the conflict between interests of tourist organizations to have high concentration of tourists in all new hotel settlements and in the zone as a unit, on one side and expectation and wishes of tourists to enjoy in the landscape and in the contact with nature, on the other side. There is also the conflict between trends of aggressive new development (near Old Town of Budva and Sveti Stefan) and requests for protection of the authentic landscape.

Thresholds: The existing sources for water supply are insufficient, even for current needs. The most important functional threshold is the capacity of the Adriatic highway, which is along all of this area turned into primary settlement network. A narrow road in Boka Kotorska limits access from the north. In the zone itself, the need for construction of the road that would bypass coastal urban area is already imposed. For realization of planned purposes and construction of tourist capacities, it is necessary to meliorate wetlands in part of alluvial plains in Jaz and Buljarica. Specific threshold is the lack of labor for development of priority function.

Environmental requests: Protection of landscape of the whole zone, especially of olive groves; protection of sea from pollution; protection and revitalization of important cultural heritage in the hinterland.

Control of seismic risk, technical accidents and natural disasters: harmonization of construction of new and reconstruction of the existing tourist and settlement structures on level of seismic hazard, paying respect to acceptable seismic risk. This means full application of all urban-architectonic and measures for construction in order to reduce seismic vulnerability of buildings.

Precondition: Resolving issues of water supply and channeling of wastewaters and initiating construction of a speedway along the Montenegrin coast.

Development zone: BAR – ULCINJ COAST

Zone of the narrower part of Montenegrin coast with Bar field and spacious Ulcinj field. It is made of two sub-zones Bar and Ulcinj.

Sub-zone BAR

Resources and potentials: constructed complex of Port of Bar with additional contents, established social functions, established university institutions, services and equipment of the zone; gravitational area, relied on constructed railroad and highway through tunnel Sozina; available land for expansion of port's functions, and for development of industry; area for marina; couple of sand beaches and accessible parts of low stone shore, as well as constructed accommodations for tourists; agricultural land on terraces (for production of olives, citrus fruit, etc); development of agro-forestry, hothouse production, technical construction stone, historical heritage, including Old Bar.

Priorities of development: Port of Bar, industry with free industrial zone; nautical and bathing tourism, sea fishing, agriculture with Mediterranean and subtropical character.

Limitations: Limit development of tourist capacities in influential zone of the Port and industrial activities to the needs of transit tourism. Limit industrial activities in accordance with the needs of environmental protection and excessive construction of housing and tourist facilities in the coast and preventing "walling up" of the shore.

Conflicts: The most important conflict appears between quality of natural and urban ambient on one side and widened industrial and port's function on the other. In resolving of the conflict the priority should be given to the needs of the Port and to the needs of the industry, which is conditioned by elaboration of adequate patterns for spatial development and by application of more efficient measures of pollution control. A conflict exists between Adriatic highway and urban functions.

Thresholds: Limited quantity of free land for development of the Port and urban development; need for new sophisticated system for water supply once the planned functions are widened; need for system for refining of waste waters; widening of public transport system, connecting Bar with areas which have labor potential.

Environmental requests: Protection of the sea from pollution caused by the activities of the Port, industrial and city wastewaters; protection of Old Bar complex and olive groves; protection of coast from uncontrolled construction of housing facilities; protection of landscape in total.

Control of seismic risk, technical accidents and natural disasters: high level of seismic hazard and high concentration of equipment and population put forth the fragility of a complete system with implications to Montenegro's economy. Seismic risk will still grow stronger due to the inevitability of location of port's and industrial capacities on alluvial land along the shore, and partially on land covered with sand (port's moles). Therefore, it is necessary to elaborate a complex study, which would define all preventive and control measures in the field of earthquake engineering, spatial planning and construction designing.

Preconditions: defining mutual relations of functions of the Port, industry and the town by an adequate urban planning documentation and harmonization with relevant international and Republic regulations, so as to meet international standards for work of free industrial zones, as

well as preparation of adequate urban documentation for Dobre Vode, Sutomore and Čanj in order to form the settlements as comprehensive tourist centers. Realization of transportation bypass should be done within the speedway in the hinterland of the coast.

Sub-zone ULCINJ

Resources and potentials: Constructed tourist capacities and reputation of Ulcinj as a potential international tourist center; very long sand beaches with healing qualities and healing mineral waters; ethnographic specificities and historic urban core of Ulcinj; complexes of arable agricultural land including valuable complexes of olive grove; rich fauna habitats, especially for birds and fish; technical construction stone; sea saline.

Priorities of development: Construction of tourist facilities in the area of Velika Plaza with its deep hinterland; Valdanos and specific tourist offer on Ada Bojana; construction of a marina; intensive agriculture; sea fishing and salt production and refining; airport.

Limitations: For location of any type of hard and/or harmful industry; opening of quarry and landfills on exposed slopes of the surrounding hills; housing construction in agricultural complexes, except for the needs of agricultural producers and excessive construction of housing and tourist complexes on the coast.

Conflicts: Generally speaking – this is a zone with relatively limited number of development conflicts. In some areas, conflicts can appear between processes of urbanization and agricultural land. Big attractiveness of the seashore, northeast of the town, can cause uncontrolled housing and tourist construction in that area creating conflict with the priority request of the environment. Conflict between the rights and wishes of private owners of land and of facilities on one side and comprehensive concept of development of the zones emphasizing especially the need for reconstruction of the Old Town, on the other.

Thresholds: Limited capacity of the existing systems of communal infrastructure, especially of systems for water supply and system for drainage and refining of wastewaters.

Environmental requests: Complete protection of coastal line and landscape zone; protection of the sea from pollution; preservation of character of town Ulcinj, through finalization of renewal of Old Town and of complete urban structure; support for establishing Regional Park “Rumija” with adequate collaboration with municipality Bar.

Control of seismic risk, of technical accidents and natural disasters: Application of all urban architectonic and constructive measures for reduction of seismic risk.

Preconditions: The attention should be paid to flooding of arable agricultural land and melioration works, including desalinization of agricultural land complex alongside Saline.

3.4.3 Development zones of the Central Region

3.4.3.1 Policies for spatial development of the Central Region

- Development of Podgorica, Danilovgrad, Nikšić and Cetinje should be mutually coordinated and complementary. Vicinity and position of Nikšić, as an industrial and educational center, Cetinje as cultural and education center and the royal old capital, and Danilovgrad as an agricultural center should reduce the pressure of expansion of Podgorica and should help in putting the development of Podgorica in the scope anticipated by this Plan.
- Tuzi, Golubovci, Spuž and Danilovgrad should become part of the urban agglomeration Podgorica, thus preventing too large concentration of the population in the capital.
- Natural and ecological values (Green corridor in Montenegro) along the line of mountains Visitor, Komovi and Prokletije, rim of the valley of Zeta and Skadar Lake, along Rumija to Ulcinj shore should be preserved. For recreation of town population, areas in national and

regional parks and recreational zones, such as Glava Zete, Mareza, lakes in Nikšićko Plane, etc. should be provided.
- Protect settlements and land from flooding waters of Morača, Zeta, Matica and Skadar Lake and from erosion in Gornja Moraca and along the borders of Bjelopavlicka Plain.
- Protect underground waters for purposes of water supply of the population in the region.
- In the basin of Skadar Lake regional system of water quality control should be established.

3.4.3.2 Development zones of the Central Region

Part of the central valley of Montenegro, which is the greatly emphasized feature in Montenegrin space and in Dinarides in total. It comprises of Zeta Plain and Bjelopavlici Plain and in functional sense two sub-zones: Podgorica and Danilovgrad.

Sub-zone PODGORICA

Presents the area of Zeta Plain northern from the Skadar Lake, with the belonging important local centers Tuzi and Golubovci.

Resources and potentials: existing industrial complexes; formed social services and general equipment of the zone; arable agricultural land and plantation complexes of orchards and vineyards; development of agro-forestry, hothouse production; technical construction stone; socio-political, economic and cultural role of Podgorica – as capital of Montenegro and abundance of quality underground waters.

Priorities of development: political, administrative, scientific and cultural functions of the centers of the state importance; functions of a service center of the highest rank; industry, with assuming of the leading role as a carrier of development in other areas of Montenegro; intensive agriculture; functions of traffic center and center for transit tourism, disposition with highly qualified labor.

Limitations: Control of location of dangerous industries and industries requiring large land areas; limitation and control of further growth of base aluminum industry.

Conflicts: Leading conflict appears between trends of further growth of the town, trends of concentration of political and economically important functions and further concentration of population on one side and high level of seismic hazard on the other and need for proportional regional development of Montenegro. Sharp conflict exists between urbanization and agricultural land of extra quality. The conflict between industrial activities and agriculture (air, water and land pollution) has also been noticed, as well as a conflict between highway roads and urban functions.

Thresholds: Lack of energy; very limited capacities of town's public traffic system; limited capacities of the existing basic system of infrastructure; weak accessibility and impossibility of intensively cultivating parts of the wetlands and occasionally flooded area of Mareza and land in the hinterland of National Park Skadar lake (along the north border).

Environmental requests: strict control of disposal of waste materials from KAP/Factory of aluminum and all factors which cause active and potential pollution, regarding great hazard of pollution of air, land and water, due to microclimate conditions, especially in the area of Zeta**;** suspension of further degradation of landscape and of picturesqueness of town by uncontrolled construction; protection of the unique remains of old town Duklja and their adequate exhibition in concept of urban plans with dislocation of railroad; equipping with adequate filter devices of a plant for production of construction materials (Cijevna, etc.), which cause pollution with dust, or dislocation of the same from urban zones.

Control of seismic risk, technical accidents and natural disasters: Harmonization of the purpose of the areas with recommendations from studies on seismic micro-regions; anticipation of construction densities lower than usual, with application of all known measures for control of

fragility and risk in urban planning and architectonic designing; establishing a system and mechanisms for the preparation of an earthquake.

Preconditions: Elaboration of a unique policy program for spatial development of the whole sub-zone, including contact areas with Danilovgrad (Spuz, Mareza, etc) and Skadar Lake; prohibiting construction on agricultural land, with exception of facilities serving as agricultural services; achieving bilateral agreement with Albania on regulation and protection of Skadar Lake, in order to activate significant complexes of arable agricultural land.

Sub-zone DANILOVGRAD

Represents the area of Bjelopavliće Plain, with the belonging important local center Spuz.

Resources and potentials: The existing industrial complexes, especially in field of construction material and mill industry; formed social services and general equipment of the zone; arable agricultural land with farms (pork, poultry breeding, etc.); development of agro-forestry, greenhouse production; religious and transit tourism and richness in underground waters.

Development priorities: Political, administrative, educational and cultural functions of a municipal center and specialized high school institution of state interest (Police Academy); functions of a service center; industry; existing construction material industries in area of Danilovgrad and Spuz; agriculture; functions of a traffic center and center for transit tourism.

Limitations: Control of location of dangerous industries and industries requiring a large area of land.

Conflicts: Between urbanization and agricultural land of extremely high quality; conflict between industrial activities and agriculture (air, water and land pollution).

Thresholds: Limited capacities of the existing basic infrastructure system; occasional flooding of the land in the valley of River Zeta; system for drainage of excess of waters and irrigation of agricultural land.

Environmental requests: Strict control of the disposal of waste materials from industry plants and all factors causing active and potential pollution, considering the great hazard of air, water and land pollution, due to the microclimate conditions, restraining further degradation of the landscape and of the picturesqueness of the plain by uncontrolled construction and stone processing; equipping plants for production of construction materials (Spuz, Danilovgrad etc.), which are causing dust pollution, with adequate filtering devices.

Control of seismic risk, technical accidents and natural disasters: Harmonization of the purpose of areas with recommendations from the study on seismic micro-regionalization with the application of all known measures for control of fragility and risk in urban planning and architectonic designing; the establishing of a system and mechanisms for the preparation of an earthquake.

Preconditions: Elaboration of a program for a unique policy of spatial development of the whole sub-zone, comprising contact area towards Podgorica (Mareza, etc.), Niksic (Glava Zete, Begetici and Ostrog), Cetinje (Cevo) and Kolasin; prohibition of construction on agricultural land, except of the facilities which serve as agricultural services.

***Development zone*: CETINJE ZONE**

Resources and potentials: Cultural-historic heritage of Montenegro and specific character of the town ambient (spatial and cultural); existing complex of electro-industry which has not been operational for a long period; technical construction stone; established services function and equipment of the zone.

Priorities of development: Function of the old capital, cultural and academic center of state's and broader importance, closely connected with functions of Podgorica; highly specialized programs in field of preservation of cultural and historical values (old urban core of Cetinje); specialized tourist offer of National Park "Lovcen" and its development zones (Ivanova korita, Mausoleum on Lovcen, etc.).

Limitations: Prohibition of introduction of environmentally dangerous and heavy industry; strict limitations for new constructions and control of architectonic forms in order to preserve spatial dimension and protect the character of the urban complex;

Conflicts: Leading conflict appears between requests for preservation of cultural heritage and trends of further economy development. Conflict is possible between "modern" architectonic approaches and character of protected urban tissue. Sharp conflict has been created also between unplanned urbanization and agricultural arable land, the size of which has been significantly reduced.

Thresholds: Construction of the system for drainage of atmospheric and wastewaters with a device for refining must be considered as a first threshold which needs to be overcome on the way of further development of the priority functions and the town as a whole. Water supply, particularly technical water supply, as well as lack of labor in the direct gravitational area is threshold that needs to be overcome in order to enable development of primary functions. Small quantity of plain ground for the development of the town is combined with the requests for preservation of agricultural land and natural and cultural landscape, presents spatial and technical threshold for expansion of the town. Alternative direction of town development can be directed towards lower sides of surrounding hills.

Environmental requests: Protection of free natural landscape around the town and panorama along the access roads from Podgorica and Budva, as well as along the panorama routes towards Lovcen and Kotor; protection of created rural ambient; control of all factors causing air pollution; providing adequate disposals for solid waste, evacuation of waste wasters and particularly of atmospheric waters, which occasionally cause flooding of part of Cetinjsko Polje, by application of adequate technical solutions.

Control of seismic risk, of technical accidents and natural disasters: reduction of fragility of all components of urban system, by the implementation of additional measures for protection of historical and cultural values.

Preconditions: control of purpose and use of land; connection with Niksic by construction of highway; improvement of accessibility of settlements in gravitational area, and provision of minimum services.

***Development zone*: AREA OF THE SKADAR LAKE**

Resources and potentials: National park and internationally protected area (the Ramseur Convention on Protection of Wetland Habitats), high ambient, ecological, landscape and cultural-historical value (Rijeka Crnojevica, Vranjina, Lesendro, Zabljak, Virpazar and monastery's complexes on the archipelago), important for Europe and interesting for the whole world, complexes of agricultural land along the north shore of the Lake; rich flora and fauna, especially with fish: connection with the Adriatic sea through navigable routes of River Bojana.

Priorities of development: tourism and recreation, agriculture and strictly controlled fishing, in order to preserve ecological balance.

Limitations: Prohibition of placing industries, which can endanger the ecological system of the zone; prohibition of use of motor vessels in protected natural reservations, as well as along the north shore with the exception of the designated corridors.

Conflicts: The most important conflict appears between traffic network (road and railroad), which passes through the area of NP Skadar Lake dividing it to two parts. A conflict is possible between potential urban widening caused by the vicinity of a future agglomeration of Podgorica on one side, and requests for protection of agricultural land and the ecological entirety, on the other.

Thresholds: the most important threshold in the development of recreational objects is the inexistence of a sewage system and system for the refining of wastewaters (except Virpazar). Direct emission of wastewaters into the Lake should be strictly prohibited.

Environmental requirementss: Complex protection of environment, especially of ecosystem of the Lake (birds habitats and fish nursery) and slopes of the surrounding mountains; protection and renewal of the historical and architectonic monuments and attributes, including the preservation of the picturesque ambient of settlements; protection of chestnut woods on slopes

along the Southern shore of the Lake; reconstruction of the polluted and devastated shore zone of the Lake caused by illegal construction, as well as prohibition of construction of dirty service zones, reconstruction of regional road along the borders of the zone (Vladimir - Ostrog – Virpazar – Rijeka Crnojevića – Ulići).

Control of seismic risk, technical accidents and natural disasters: Application of all regular control measures in the condition of a high seismic hazard.

Preconditions: Signing of agreement with Albania, which implies establishing of integrated regime of protection and use of Skadar Lake and River Bojana; due to sensitivity of the area on regional level (Niksic, Danilovgrad, Podgorica and Cetinje) conditions should be provided for maintaining water quality, adequate traffic infrastructure should be provided within the zone.

***Development zone*: NIKŠIĆ ZONE**

Comprises Niksic field with its direct surroundings.

Resources and potentials: Already established industrial complexes, constructed electric-energy capacities, established social functions with university units, technical construction stone; services and equipment of the zone; reserves of qualitative bauxite; important complexes of agricultural land; greenhouse production and medicinal herbs; availability of highly qualified and professional labor.

Priorities of development: Industry, especially metal-processing and machine construction, taking over the role of carrier development of metal-processing in Montenegro, based on steel; mining of bauxite; intensifying of agricultural production; food industry; functions of service center of high rank.

Limitations: Further expansions of the steel industry should be limited only to those activities that are dependable on the full use of the current capacity.

Conflicts: The most important conflict can appear between urban and industrial expansion and protection of agricultural land.

Thresholds: Lack of energy presents the most important threshold of the development; the capacities of the existing town infrastructure system; limited traffic accessibility from the north and northwest.

Environmental requests: Re-cultivation of open pit mines of bauxite, as well as of areas endangered by erosion; reduction of the already present air pollution and contamination of agricultural land and artificial lakes to an acceptable level, solving the problem of waste waters and solid waste.

Control of seismic risk, technical accidents and natural disasters: Application of spatial-planning and projecting measures in order to limit fragility of the urban system and of the economy system components.

Preconditions: Providing sufficient quantities of electricity; improving accessibility to Gacko and Foca, over Durmitor, towards the basin of Pljevlja, as well as towards Boka Kotorska and Cetinje, by construction of planned highways and speedways; equipping of settlements in gravitational area with necessary services; strict control of land use and prohibition of construction of agricultural land, with the exemption of those supporting the agriculture.

3.4.4 Development zones of the Northern Region

3.4.4.1 Policies for spatial development of the Northern Region

- The towns around the Bjelasica Massif, together with Plav and Rozaje, should form a system of complementary centers. Bijelo Polje and Berane, which have inter-municipal

functions of centers with municipal services, would be strong industrial, agricultural and main traffic centers. Kolasin, Mojkovac and Andrijevica, with good location in relation to NP “Biogradska Gora”, would assume the function of leading centers in the field of tourism development. Plav and Rozaje should be centers with general services, economy and agricultural services, promoting and supporting development of small-scale industry and tourism in the area of Komovi, Hajla (localities Skrivena and Turjak), Prokletije and Plavsko Lake.

- Pljevlja should be strengthened as a mining and industrial center, but at the same time its comprehensive development is necessary. Distance from other centers requires fast development of business functions, trade, cultural, education and scientific activities. Starting of railroad construction towards Bijelo Polje and a main road towards Bijelo Polje and Zabljak, i.e. Niksic, is of particular importance.
- Towns around Durmitor Massif, Pluzine, Savnik and Zabljak, should be functionally integrated. A base of economic and social development should be created through tourism development on Zabljak, agriculture and energy development in Savnik and Pluzine, all in combination with development of small economy.
- Plav and Rozaje should be centers of general services, industry and agricultural services, improving and supporting development of small economy and tourism in areas of Komovi, Hajla (localities Skrivena and Turjak), Prokletije and Plavsko Lake.
- Intensification of agriculture, especially cattle breeding, should be the main direction for development in the Region. Already developed cattle breeding in the area of Piva should be promoted, and the process of development continued also on Jezerska area, Sinjajevina, as well as in area of Bihor, where larger farms would represent a base for this activity. In other areas of the region, with smaller complexes of pastures, development of small farms should be supported.
- Valley of River Lim should be a zone of intensive development of agriculture. Plain agricultural land in this valley should be used for breeding of crops and provender, and more inclined slopes, terraced in an adequate way, for development and rehabilitation of continental fruit plantations. Mixed agricultural activities should be still further developed in the wider area of Pljevlja and particularly in the basin of Pljevlja. By defining zones of protected mineral deposits, conflicts should be solved between exploitation of minerals and agriculture.
- Consolidation of wooden complexes and forestation, which has as it’s objective protection of the woods, should be the main direction for development in the field of forestry. Regardless of important wood resources of the region, forestation and improvement of the degraded woods is necessary, both from the aspect of reproduction and from the aspect of protection from erosion and land sliding. Integral development of the region through the use of energy potential, primarily in Pljevlja Basin and the rivers Moraca and Komarnica, with the use of mini hydro power plants, in compliance with the Energy Development Strategy.
- Good preservation of ecological corridor (Corridor of Sought-East Dinarides in Montenegro) which covers the zone of National Parks Durmitor, Biogradska Gora, Prokletije and Regional Parks Ljubišnja, Sinjajevina with Šaranci, Komovi and Visitor with Zeletina.
- Development of year-round tourism in the Region should be directed towards the establishing of centers strong enough to attract tourists, providing them with appropriate level of services. Development should be directed towards three main centers, one of them Žabljak, for the area of Durmitor, the other Kolašin, for the area of Bjelasica and Komovi and the third in Plav for the area of Komovi. In other areas appropriate forms of activities and tourism should be promoted and developed, using resources of natural and cultural assets having national and international importance (NP Durmitor, NP Biogradska Gora and planned NP Prokletije as well as area under UNESCO protection - valley of the river Tara).

3.4.4.2 Development zones of the Northern Region

***Development zone*: UPPER and CENTRAL POTARJE**

This zone is divided into two sub-zones: Kolašin and Mojkovac.

Sub-zone KOLAŠIN

Comprises areas of valley of Upper Tara to Matesevo, part of NP Biogradska Gora and southeast slopes of Bjelasica.

Resources and potentials: Constructed tourist capacities in the tradition and reputation of a resort for two-season use; important forest complexes; decoration and technical construction stone, clay, gravel and sand; greenhouse production; resources of drinking water and hydro energy potential; complexes of quality mountain pastures in the direct gravitational area, and preserved arable land in the valleys of Tara and its confluences; water quality for fish breeding; constructed capacities for processing industry and already established social functions and services; vicinity of the National Park "Biogradska Gora"; good accessibility of the zone.

Priorities of development: tourism directed towards establishing of specialized offer, with facilities and equipment for winter sports, use of hydro power potential of Moraca River and its tributaries; agriculture oriented towards development of cattle breeding and specific farmer production (seed potatoes, etc.); water bottling, fish production and smaller scale processing industry.

Limitations: Prohibition of urban development in area of potential hydro-accumulations; limitation and strong control of further industry development, especially of those which can influence the requested quality of waters, of Tara – in the first place, as well as the air quality.

Conflicts: Main, possible conflict is between the development of hydro energy system on the River Tara and existing network of settlements and traffic. Additionally, there is a potential conflict between proposed accumulation and seismic hazard, where two new major components should be added to existing hazard level: impact of induced seismic and impact of destructive consequences of the land sliding into the Lake, which could be caused by an earthquake. A smaller conflict between urbanization and agricultural land is also evident.

Thresholds: Further urban development of the town depends on the adequate solution of the system for drainage of wastewaters – including also adequate devices for their refinement.

Environmental requests: Protection of River Tara, where it is imperative to preserve the highest water quality, considering the fact that, further downstream, the river enters the zone of the National Park "Durmitor", and protection of landscape, in which construction of high and architectonically aggressive buildings should be prohibited. River Tara has been protected by the Parliament Declaration from construction of energy facilities.

Control of seismic risk, technical accidents and elementary disasters: Application of spatial-planning and projecting measures, in order to limit vulnerability of components of urban and economy systems in the sense of seismic risk. Establishing control measures still paying special attention to the wood impregnation plant in Kolašin.

Sub-zone MOJKOVAC

Comprises areas of the valley of Upper Tara, part of NP Biogradska Gora and part of Tara Canyon in the area of Crni Podi.

Resources and potentials: Minerals of poly-metal, and future plants for primary processing; technical construction stone, clay, gravel and sand; hydro energy potential of small rivers, position of main gate for area of National park "Durmitor", in relation to formed traffic connections; complexes of qualitative mountain pastures in direct gravitational area, and the preserved arable land in the valley of Tara and of its confluences; constructed capacities for processing industry and already established social function and services; vicinity of National Park "Biogradska Gora"; good accessibility of the zone.

Priorities of development: Agriculture, orientated to development of cattle breeding and specific farmer production (seed potatoes, etc.); mountain tourism; mining and primary processing; smaller scale processing industry.

Limitations: Limitation and strong control of further industry development, especially of those that can influence the requested quality of waters, in the first place of Tara, as well as the air quality.

Conflicts: Conflict between landfills for waste materials from mine “Brskovo“ from the flotation process and demands of protection of River Tara.

Thresholds: Further urban development of the town depends on the adequate solution of the system for drainage of wastewaters, also including adequate devices for their refinement, as well as opening to traffic of the brim mountain areas envisaged for development of tourism.

Environmental requests: Protection of River Tara, where the imperative is to preserve the highest quality of water, considering the fact that, further downstream, the river enters the zone of the National Park “Durmitor”, and protection of landscape, in which construction of high and architectonically aggressive buildings should be prohibited.

Control of seismic risk, technical accidents and elementary disasters: Application of spatial-plan and projecting measures, in order to limit vulnerability of components of urban and economy systems in the sense of a seismic risk. Establishing control measures still paying special attention to the bank of segment basin for wastewaters from the process of flotation of the mine “Brskovo”.

Preconditions: Providing water supplying for Mojkovac and traffic for regional connection within highway ring of Bjelasica.

***Development zone*: POLIMSKA ZONE**

River Lim is the life line of the whole zone, and water quality of Lim is the condition for biological and economic development of this zone, which is, due to its specificities, divided in four sub-zones: **Plav, Andrijevica, Berane and Bijelo Polje**.

Sub-zone PLAV

Covers the area of Plavsko Lake, including the plain terrains along the spring course of Lim.

Resources and potentials: Attractive natural landscape, including prospective National Park “Prokletije” and Plavsko Lake, specific architectonic heritage and constructed tourist capacities; agricultural land, forest complexes and occurrence of deposits of mineral raw materials; constructed wood processing and other industrial capacities; available labor; resources of drinking water; hydro power potential of the river Lim and its confluences for building of mini hidro-power plants; seedling potential and water quality for breeding salmon and other kinds of fish species.

Priorities of development: Better traffic connection with the surrounding; agriculture oriented to farmer production, cattle breeding and fruit production; tourism, directed to two-season use of capacities and valorization of the Plav Lake; wood processing industry, food industry, water bottling and use of hydro power potential through construction of small hydro power plants.

Limitations: Prohibition of locating of all industries in confluence of the Plav Lake; emission of untreated polluting wastewaters into the Plav Lake, Lim and its confluences; limitation of development of urban and industrial functions in the area of prospective hydro-accumulations.

Conflicts: Conflict between urban expansion and individual usurpation of location exposed in the space and requests for preservation of natural beauty and agricultural land is evident. Similarly, conflict between natural character and attractiveness of the ground water system and measures for improvement of use of arable land potential – melioration scopes of wetlands south from the Plav Lake are significant, as well as the conflict between commercial exploitation of forests and requests for protection of environment and landscape.

Thresholds: Very limited accessibility in the sub-zone in the established traffic network in Montenegro, especially of the part of Plav-Gusinje basin; inadequately solved and/or lacking systems of communal infrastructure.

Environmental requests: Protection of landscape, water, air, land, as well as chosen compositions of traditional architecture.

Control of seismic risk, technical accidents and elementary disasters: Application of spatial planning and projecting measures in order to limit vulnerability of components of urban and economic system in sense of seismic risk.

Preconditions: Improvement of accessibility by constructing new or modernization of existing traffic connections and development of functions of social infrastructure.

Sub-zone ANDRIJEVICA,

Covers confluence area of Lim between Plav and Berane

Resources and potentials: quality agricultural land, forest complexes, decoration stone, technical construction stone, clay, gravel and sand; industrial and tourist capacities; established social functions, services and equipment; attractive mountain areas of Bjelasica and Regional Park Komovi.

Priorities of development: agriculture directed to production of fruit and cattle breeding; industry with orientation towards finalization; mountain tourism; functions of service center with broader importance and small hydro power plants.

Limitations: Emission of untreated polluting wastewaters into the Lim and its confluences.

Conflicts: Conflict exists between need for efficient use of potentials and present tendency of migration of population capable for work, emphasized by evident disparity in the current level of socio-economic development of this sub-zone and the state's average. With the passing of the highway a conflict has been created between the highway and functions of the urban settlement. Further conflict exists between commercial exploitation of forests and requests for protection of environment and landscape.

Thresholds: Very limited accessibility of the sub-zone in the established road network in Montenegro, especially of the part of Lim basin; inadequately solved and/or lacking communal infrastructure systems.

Environmental requests: Protection of Lim waters and control of all factors causing pollution of air and land; defining and reserving corridors for construction of roads (highways, etc).

Control of seismic risk, technical accidents and elementary disasters: Application of spatial planning and projecting measures in order to limit vulnerability of components of urban and economic system in the sense of seismic risk.

Preconditions: Improvement of traffic connection and development of functions of public infrastructure.

Sub-zone BERANE

Encompasses central basin part of the river Lim from Andrijevica to confluence of the river Lješnica.

Resources and potentials: Deposits and reserves of brown coal; gravel and sand; quality agricultural land and forest complexes; constructed industrial capacities; established social functions; services and zone equipment; attractive mountain areas of Bjelasica and Smiljevica, constructed tourist accommodation capacities and equipment; quality water for fish breeding and hydro energy potential of the river Lim for building of mini hidro-power plants.

Priorities of development: Industry with orientation towards finalization; agriculture directed to production of fruit and cattle breeding; fish breeding; mining; functions of service center with broader importance; transit and mountain tourism; airport and small hydro power plants.

Limitations: Increase of the capacities and realization of other development program are conditioned by the application of technologies that would not pollute the environment; limitations of urbanization, development of industrial functions and technical infrastructure in the areas of prospective hydro-accumulations and recognized deposits of brown coal.

Conflicts: Conflict between urbanization and agricultural land. There is also a conflict between the need of valorization of potentials and the available part of population able to work due to the

evident disparity in the present level of socio-economic development between this sub-zone and state's average. The conflict of the non-regulated course of River Lim and activities in its valley (agriculture, fishing, local traffic, etc) is occasionally present.

Thresholds: Threshold for industrial development is the current traffic connection with central part of the Republic and a road for regional connection within the highway ring of Bjelasica, as well as regulation of the course of River Lim.

Environmental requests: Protection of Lim from pollution and establishing mechanisms for continuous monitoring and control of all factors causing pollution of water, air and land (area where temperature inversions occur).

Control of seismic risk, technical accidents and natural disasters: Application of all regular measures for risk control in urban and architectonic projecting; establishing systems and mechanisms for activity in case of earthquake; the upstream location of the urbanized zone only of those plants which are not threats to the town by the pollution of water and air.

Preconditions: Reconstruction and rehabilitation of the surroundings, as undertaking with large importance, including regulation of River Lim in Berane area and its stream through Berane Basin; improvement of the road traffic connections with the central part of the state, Bijelo Polje and area of Bjelasica with the roads for regional connection within the highway ring.

Sub-zone BIJELO POLJE

Covers the lower part of the river valley up to the border with Serbia, including the valley of River Ljubovića, as well as the valleys of other confluences of Lim.

Resources and potentials: Agricultural land, pasture terrains and complexes of outgrowing forests; rich cattle fund; mineral water springs; gravel and sand; natural conditions for development of tourism (Bjelasica and Ćalovića Gorge); cultural-historical and architectural heritage; constructed capacities for processing industry; established social services of broader importance; position in relation to main roads.

Priorities of development: Processing industry; agriculture directed towards cattle breeding, farming and fruit production; nursery production in forestry and fruit growing; transit, mountain and specialized forms of tourism; functions of a service center with a broader importance including transportation.

Limitations: Prohibition of development of urban and other functions on agricultural land with the exception of those in function of agriculture. Prohibition of placing of heavy and/or hazardous industry.

Conflicts: The conflict between urban and industrial development along the valley of Lim and requests for preservation of the most valuable agricultural land. The conflict between the urban zones and the transit traffic – passing of the Adriatic highway is emphasized.

Thresholds: The first threshold in urban development is the limitation of equipped construction land in the valley, which imposes the need for development along the lower slopes of the hills, and with that for new communal infrastructure systems. Insufficient accessibility and undeveloped service function – especially related to agriculture in gravitational area of the sub-zone.

Environmental requests: Strict control of the impact of all types of polluters on land degradation and contamination of agricultural products.

Control of seismic risk, technical accidents and natural disasters: Application of all regular measures for control in urban and architectonic planning and projecting; establishing a system and mechanisms for actions in the case of an earthquake.

Preconditions: Improvement of accessibility and provision of minimum of necessary services for rural settlements, as a support for the development of agriculture, cattle breeding and tourism in this mountainous area, as well as dislocation of transit traffic of the Adriatic highway outside the urban area.

Development zone: PIVA ZONE

This zone, which encompasses valleys of rivers Piva (with hydro-accumulation Piva Lake) and Komarnica with confluences, is divided in two sub-zones: Šavnik and Plužine.

Sub-zone ŠAVNIK

Resources and potentials: Hydro energy potential of river Komarnica and its confluences; high mountain pastures; forest complexes in wider area of the zone; National park “Durmitor”; developed tourist capacities, quality springs of drinking water and capacities for water bottling.

Priorities of development: Agriculture directed to cattle breeding; mountain tourism; use of hydro-potential of Piva confluence and water bottling.

Limitations: Limitation of development of economic activities that could endanger the quality of environment.

Conflicts: Conflict can appear between the way of use of hydro-energy potential and the current determination in development planning. Potential conflict exists between the limitation of area of town settlement on one side, and adequate development of urban functions on the other.

Thresholds: Inadequate traffic accessibility and occasional blockades (especially in winter periods) is the first threshold on the way to further development, not only of priority functions, but also in general; inappropriate solutions and insufficient capacity of the water supply system; inexistence of adequate system for electricity supply.

Environmental requests: Protection of complete landscape, particularly along the highways and accumulations; protection of waters of accumulations up to a quality which can enable recreational use and fish breeding.

Seismic risk control: Monitoring of induced seismic aspect from future accumulation lakes and defining the resulting seismic hazard in the area of hydro-accumulations.

Preconditions: Improvement of accessibility of the sub zone by construction of new highway and regional roads; improvement of local accessibility and provision of necessary services for settlements.

Sub-zone PLUŽINE

Resources and potentials: Hydro energy potential of upper Piva and its confluences; constructed accumulation and hydro power plant “Piva”; cultural-historical heritage (monastery “Piva“); planned Regional park "Maglić, Bioč and Volujak"; high mountain pastures; forest complexes in wider area of the zone; National park “Durmitor”, developed industrial and tourist capacities, quality water for fish breeding.

Priorities of development: Agriculture directed to cattle breeding and fishery; transit and mountain tourism; processing industry; use of hydro potential of the Piva confluence.

Limitations: Limitation of development for industries which could endanger quality of the environment.

Conflicts: Morphology, configuration and limitation of town land on one side and function of urban and economic development on the other; potential conflict arises from disrespecting the regime of emptying of hydro-accumulation and the natural landscape.

Threshold: Inadequate accessibility is the first threshold on the way of future development, not only of the priority functions but also in general; inadequate solutions and insufficient capacity of the system for water supply and inexistence of an adequate system for electric power supply.

Environmental requests: Complete protection of landscape and particularly along the highways and accumulations; protection of waters of accumulation up to a quality which can provide recreational use and fish breeding.

Seismic risk control: Monitoring of induced seismic aspect from the Lake and defining resulting seismic hazard in the area of hydro-accumulations.

Preconditions: Improvement of accessibility of the sub-zone by the construction of a new highway and regional roads; improvement of local accessibility, and provision of necessary infrastructure (electricity and water supply) and services for settlements.

***Development zone*: AREA OF DURMITOR**

Resources and potentials: National Park "Durmitor" with Canyon of Tara; constructed tourist capacities and the tradition and reputation of **Žabljak** as a resort for two-season use; significant forest and pasture complexes.

Priorities of development: Tourism, including specific offer of agro tourism; agriculture oriented towards cattle breeding; wood-processing industry (on the existing location).

Limitations: Prohibition of introduction of new industrial and processing functions, except for small-scale economy plants oriented to local and broader tourist market and needs of population; limitation and strict control of forest exploitation implying absolute prohibition of wood cutting in the zone of the park; limitation and strict control of development of organized cattle farms which could, by their location and size endanger established the natural balance of the zone, especially the quality of the zone of the park; limitation of the development of heavy and transit traffic in the zones under strict nature protection with necessary control of conduction of the traffic routes and in the scope of a wider protection zone of the park.

Conflicts: Conflict between the need for providing continuity of technical infrastructure lines – roads, highways, etc. and need for preservation of continuity of the ecosystem under protection. Conflict exists between pressure of tourists and ecosystem sensitivity. Conflict between "modern"- aggressive and unusual architectonic forms of tourism facilities and beauty and refinement of the landscape.

Thresholds: The most important threshold is limited accessibility of the zone, from south (Niksic) and west (Pluzine) direction, inadequate solutions and insufficient capacities for water supply.

Environmental requests: Complete protection of environment, with underlined preservation of its integrity and integrity of the existing ecosystems.

Seismic risk control: Application of all measures in construction of buildings and other engineering facilities.

Preconditions: Functional connection of this zone with Piva Zone, keeping in mind previous integrated development of the wider Durmitor sub-region.

***Development zone*: PLJEVLJA ZONE**

Encompasses Basin of Pljevlja with its wider surroundings.

Resources and potentials: Formed industrial capacities, construction material, water bottling, social functions, services and equipment of the zone; determined reserves of coal (Pljevlja and Maočko Field), hydro energy potential, poly-metal and nonmetal minerals (Šuplja Stijena, Kovač, etc.) large reserves of marl; agricultural land; cultural-historical heritage; forest complexes and areas suitable for mountain tourism.

Priorities of development: Mining, production of energy and of cement; agriculture, tourism, wood processing, brick production and other processing industry with orientation to a higher level of finalization, employment of labor and heating of Pljevlja.

Limitations: Limitation of development of industry that demands large areas of city land, as well as industries that can contribute to degradation of environment; strict control and plan directed development of urban functions in order to protect agricultural land.

Conflicts: Sharp conflict exists between industrial development and mining on one side and agriculture and requests for environmental protection on the other. Very sharp conflict exists between the existing cement industry and urban area of Pljevlja. There is also conflict between industrial development, mining and energy sector and potentials for development of tourism and recreational functions. Conflict between archeological sites and the surrounding urbanization can also be noted.

Thresholds: The most important threshold is general limited accessibility to the zone. Reason for this is inadequate traffic system and limitation of its operational capacity, especially in winter conditions; realization of heating for Pljevlja represents a threshold without which it is not possible to achieve a satisfying level of air quality.

Environmental requests: Healing of environment**,** from the currently already high level of pollution caused by industry; construction and realization of the complex program of rehabilitation and re-cultivation of space degraded by surface diggings of coal, with particular accent on reconstruction and cultivation of landfills of ashes and wastes; control of all factors causing pollution of water, air and land and establishing of Regional Park "Ljubišnja".

Preconditions: Improvement of connection with the surroundings and in that way general accessibility, construction of roads towards Zabljak – Niksic and Bijelo Polje and forming railroad connection with railroad Belgrade — Bar; improvement of accessibility of settlements in rural area and equipping them with minimum services, with the basic aim to reduce or stop further flux of population and concentration in the municipal center.

***Development zone*: ROŽAJE ZONE**

Encompasses valley of Ibar in the wider area of Rožaje.

Resources and potentials: Complexes of high quality forests; significant areas covered with pastures; constructed industrial capacities; established services; constructed tourist capacities and equipment; availability of labor; hydro energy potential of the river Ibar for building of mini hidro-power plants, water bottling.

Priorities of development: Forestry; industry, with orientation to finalization; mountain tourism and tourism oriented towards specialized offers with facilities and agriculture, orientated towards cattle breeding.

Limitations: Limitation of development for industries that could endanger the quality of environment.

Conflicts: Conflict between scope of woodcutting and protection of environment is noticeable, as well as between urban construction land in relation to urbanization and functions of economic development. The existing solution of the passing of a highway is in direct conflict with the settlement's structure.

Thresholds: Undeveloped network of facilities of social and technical infrastructure and services in the settlements of the gravitational area, and limited local accessibility.

Environmental requests: Avoiding risk of deforestation and its consequences, particularly in areas attractive for development of tourism; establishing of Regional Park "Turjak with Hajla"; control of all factors causing pollution of water, air and land.

Seismic risk control: Application of regular measures through urban plans and architectonic projects.

Preconditions: improvement of social and technical infrastructure and of local accessibility.

3.4.5 Functional entireties – cross-boundary development zones

Cross-boundary development zone is a zone of wider scope around state border, which can be made of towns, settlements or municipalities with similar development potentials and/or problems in the neighboring states.

Cross-boundary development zone: Berane, Andrijevica, Rožaje – Pec, Kosovska Mitrovica

It covers area of development zone of Rožaje and part of Polimlje development zone and cross-boundary area of Pec and Kosovska Mitrovica in Serbia.

Development priorities: traffic integration, primarily by construction of motorway Andrijevica - Pristina – Nis and by construction of a railroad from Bijelo Polje over Berane to Pec, economic cooperation in fields of industry, tourism and trade and cultural cooperation and cooperation in the field of environmental protection.

Cross-boundary development zone: Pljevlja, Bijelo Polje – Prijepolje, Priboj

Covers area of development zone of Pljevlja and part of Polimske development zone and cross-boundary area of Prijepolje and Priboj in Serbia.

Development priorities: traffic integration, primarily by construction of part of the motorway Belgrade-Bar and energy distribution infrastructure, economic cooperation in the fields of industry and trade and cultural cooperation.

Cross-boundary development zone: Pljevlja, Gradac – Foca

Consists of development zone of Pljevlja and cross-boundary area of Bosnia and Herzegovina.

Development priorities: traffic integration, primarily by construction of part of the highway Pljevlja - Gradac – Šula – Foča and further towards Sarajevo, energy distribution infrastructure, economic cooperation in the fields of industry and trade and cultural cooperation.

Cross-boundary development zone: Maglic - Bioc – valley of Sutjeska (Plužine - Foca)

Consists of parts of development zones Piva and Durmitor development zones and cross-boundary areas of Foca in Bosnia and Herzegovina.

Development priorities: traffic integration, primarily by construction of the part of speedway Nikšić – Plužine – Šćepan Polje, economic cooperation in the field of waterpower and energy, tourism, agriculture and trade, environmental protection (planned Regional Park Maglić-Bioč-Volujak with National Park “Sutjeska” and ecological corridor of southeast Dinarides) and cultural cooperation.

Cross-boundary development zone: Nikšic, Vilusi – Trebinje, Bileca, Gacko

Consists of area of development zone Niksic and cross-boundary areas of Trebinje, Bileća, Gacko and Nevesinje in Bosnia and Hercegovina.

Development priorities: traffic integration, primarily by construction of the part of Adriatic-Ionic motorway, construction of rail from Nikšić to Bileća, economic cooperation in field of industry, waterpower sector (regulating relations regarding the use of Bilece Lake waters), energy, trade and social activities.

Cross-boundary development zone: Boka Kotorska – Dubrovnik - Trebinje

Consists of area of development zone of Boka Kotorska and cross-boundary area of Konavle and Dubrovnik in Croatia and Trebinje in Bosna and Hercegovina.

Development priorities: traffic integration, primarily by construction of fast road in the coastal hinterland, development of navigation near the shore and cooperation of airports Cilipi and Tivat, economic cooperation in the area of tourism, trade, water supply sector and environmental protection (coastal zone and ecological corridor of coastal mountains), cultural cooperation, especially in the field of protection of cultural-historical heritage of coastal towns.

Cross-boundary development zone: The Skadar Lake basin (Podgorica, Danilovgrad, Bar, Ulcinj-Skadar)

Consists of area of development zones of Zeta-Bjelopavliće Plain, the Bar-Ulcinj coast and Skadar Lake and the cross-boundary area of Skadar in Albania.

Development priorities: traffic integration, primarily by construction of the part of the Adriatic-Ionnian motorway, fast road in the coast hinterland and navigable roads on Skadar Lake, economic cooperation in the field of industry, energy, tourism, agriculture, trade and environmental protection (Skadar Lake and ecological corridors: coastal mountains and green zone).

Cross-boundary development zone: Cross-boundary Park Prokletije (Plav, Gusinje - Albania)

Consists of the area of parts of the development zone of Polimlje and cross-boundary area of Massif Prokletije in Albania.

Development priorities: economic cooperation in the field of tourism and environmental protection (planned National Park "Prokletije" and ecological corridors: green area and South East Dinarides).

3.5 Guidelines for elaboration of special purpose areas plan.

Common characteristics of spatial entireties defined by the previous Spatial Plan, study base for elaboration of the new Spatia; Plan, Evaluation of the Conditions and Perspectives for Spatial Development – Strategy based on specific, professional, scientific researches presents a frame for establishing unique criteria of the use of space.

Guidelines for elaboration of special purpose (public interest) area plans are given through the following categories of the defining of space:

- Coastal zone of the Adriatic with the Coastal Zone (Special Purpose Area Spatial Plan Coastal Zone, adopted by the Parliament of Montenegro in 2007);
- Central – continental parts of Montenegro;
- Areas with special natural values;
- Areas with specific problems and limitations in development;
- Rural areas in need of revitalization;
- Areas along state border (boundary areas).

a) **The Costal zone of Montenegro's part of The Adriatic Sea** spatially belongs to development entirety of state and area of the Mediterranean. By insuring a unique planning scope, a system of integrated costal zone management should be established based on the Spatial Plan of special purposes of the Costal Zone, municipal plans of coastal municipalities, all in accordance with international activities and conventions for the Mediterranean.

Costal zone spatial development should be based on the following basic guidelines:

- Construction and development of the space should be planned and implemented in a way that natural, cultural and traditional values of the shore and costal landscape are preserved, as well as implementation of measures of rehabilitation and revitalization of endangered and valuable areas of natural and architectonic heritage;
- When it is necessary to enlarge i.e. spread construction areas of towns and settlements located in the costal zone near the sea shore by rule it should be done on areas

distanced from the shore, exceptionally along the shore and in such a way that creation of a continuous construction zone is avoided;
- Access to the shore and public interest for the use of the space should also be provided as well as a possibility for priority use for recreation and naval activities, and especially introduce adequate regimes for preservation and use of natural beaches;
- Determination of a unique entirety of development and protection of the shore line as well as borders of costal zone on the land, must be based on functional criteria and natural conditions in a way that entirety of the plan scope and regime of use of areas of morphological units is insured and
- Protection of "green corridors" which connect mountain hinterland with the shore against construction and intensive land use.

b) **Central – continental parts of Montenegro** belong to spatial – development entirety made by Niksic Field, Nikšićka Zupa, Bjelopavlići Plain, Ćemovsko Field and Donja Zeta, of big rivers Morača and Zeta, transitional areas hilly-mountain entireties (Prokletije, Veliki and Mali Garač, Lovćen). Main guidelines for planning and planning of the area refer to:

- Preservation of wholeness of agricultural land complex and forest areas,
- Preventing process of creation of continuous construction lines along roads;
- Ensuring quality of ground and underground waters by measures of protection;
- Direction and control of exploration of mineral wealth;
- Protection and preservation of natural structure and values of space along water courses and lakes (Skadar Lake, Krupac, Slano, Vrtac, Liverovići, etc.)

For areas with special values of continental Montenegro measures of protection should be investigated and determined in order to preserve important global ecological functions of large complexes and river confluences and preservation and use of natural parts in areas with larger concentration of settlements.

c) **Areas with special natural values** which present natural assets and require unique management in the state are:

- natural parks and sites (national parks, regional parks, parks of nature and special natural sites);
- natural reserves (general and special);
- natural monuments;
- memorial monuments;
- habitats of certain types of flora and fauna.

In national parks priority is:

- To preserve nature, develop scientific-educational and excursion tourism which must be controlled and organized,
- To define and develop existing stationary, service, and other capacities primarily in frames of the existing space occupation, in accordance with interests of protection of nature;
- To remove or change contents which are in conflict with the protection of nature and environment, and to locate the new ones outside of parks so as to stimulate development of settlements outside of park borders.

Of all other valuable spaces it is important to preserve natural characteristics of contact areas along protected entireties and values of unprotected parts of space such as natural sea shore and riverbanks, natural woods, meanders, swamps, river branches, cultivated landscape, since they belong to complete natural and created heritage as well as state systems of agriculture, waterpower engineering and forestry with special conditions and

requirements. It is especially necessary to systematically research and implement measures of protection of areas of Montenegrin karst, because of its complete sensitivity and especially because of threats for underground water pollution.

For all areas of special natural (and/or cultural) values – protected by national law or international agreements – management plans have to be elaborated and appropriate management structures have to be established.

d) **Programs for development of areas with special problems and limitation** such as hilly-mountain and scarcely populated areas, should emphasize components of spatial development from aspect of optimal capacities and disposition of social services, specific and flexible spatial forms of services and activities, and strategic priorities in creation of conditions for stimulation of development using experiences of economies of areas with scarce resources.

   In areas with limitation in development and degraded environment, chats, opened mining places, urgent measures should be implemented to stop emigration of population and degradation of resources and to ensure necessary infrastructure. In the first phases of complex programs for those areas, priorities should be determined to improve conditions and research possibilities provided by spatial conditions in valid plans.

   Implementation of national programs for areas with difficult development conditions (Northern region), will be done based on provisions of valid spatial plans with necessary changes and amendments, as well as elaboration on lower plan levels.

e) **Revitalization of rural areas** is preferentially based on stopping of the process of depopulation of villages. Systematic measure should slow down emigrations and create legal-state's favorable working conditions, and especially stimulate survival and development of initially small but effective investments in the standard of life in villages, including cultural and recreational needs of population and urban living conditions. At the same time, basic values of rural heritages, spiritual and material assets and tradition should be promoted, and connection between towns and villages enriched.

   Conditions for revitalization of qualitative facilities should be provided for rural population, but with due respect to traditional architecture reflecting in respect of size, shape and construction materials. In whole, a rural area modern infrastructural standard should be provided. Telecommunication and informatics are the basis for desired changes in rural areas, so their development should be particularly stimulated.

   Agricultural production should be organized according to characteristic of the landscape, systems for market, processing and services should be stimulated, with necessary education and realization of traffic –infrastructural connections.

   Impact of contemporary information technology should be used to neutralize many advantages of urban areas. The emphasis should be on raising the value of local primary products and use of traditional skills.

   The aim should be to harmonize income and standard of living in rural areas with that of more developed areas, while conditions of living of rural population should come close to that of urban population.

   Revival of rural economy should be based on creative integration of contemporary consumer and production trends, local heritage, resources, culture and skills.

   It is necessary to take more stimulating measures for development of tourism on village estates, but also of other types of tourism offered in rural areas. The policy of planning of land cultivation and revitalization of settlements should also consider tourism capacities of rural areas.

   The hill-mountain area of Montenegro presents an area with the biggest problems of agricultural activation. Part of the development issues is comprised of special programs such as those for development of areas along state borders, development of infrastructure, rehabilitation of individual farms and ecological rehabilitation.

f) **Areas along the state border** depend on conditions and organization of relations of Montenegro and surrounding countries. Major development directions relate to organization of border crossings, development of borderland households and dynamics of exchange of goods, counting on border zone traffic, joint state's programs, visiting and employment, cultural and economic manifestations, etc.

Since border areas are in a different position, measures will refer to:

- Strengthening of functions of settlements and services, particularly those contributing to development of individual farms, as well as reduction of imbalance of development of border and other areas of the state (incentive measures, directed investments, agricultural programs and infrastructure);
- Gradual establishment of complete border functions (from opening of traffic border crossings up to higher levels of cooperation) and further promotion of the achieved level of exchange;
- Establishment of common ecological criteria for use and protection of border resources (water courses, natural entireties, fishing, etc.);

During the course of elaboration of spatial plans of lower level, directions and recommendations of international conventions used for elaboration of the Plan have to be consistenly implemented (see chapter 1.7).

3.6 Guidelines for selection of sustainable development program

Principles and criteria for selection of sustainable development program are presented in the Chapter "Sustainable Development as a Guiding Principle of the Plan", and will be implemented according to the National Strategy of Sustainable Development of Montenegro (NSOR CG) (see chapter 1.1).

The principles stated in the NSOR present a prism through which the existing problems and challenges for sustainable development of Montenegro are seen, that is a frame in which the objectives, tasks and measures for implementation of policy for sustainable development are defined. They also present guidelines for a complete process of implementation of the Spatial Plan of Montenegro.

Starting from the previously quoted, sustainable development (in Montenegro as well as globally) implies:

- Balanced and fair economic development which is sustainable in a long term period;
- Poverty reduction, by strengthening of poor population and providing them with better access to the necessary services and facilities;
- Participation of all stakeholders in the process of decision making (central and local government, non-government organizations, private/business sector, professional organizations, trade union) with construction of dialogue and trust and with development of social capital;
- Careful management and preservation (in greatest measure possible) of non-renewable resources;
- Rational/sustainable use of energy and natural resources (water, land, woods, etc.);
- Minimization of wastes, efficient prevention and control of pollution and minimization of ecological risk;
- Improvement of education and health systems and improvements regarding gender equality;
- Protection of cultural identities.

3.7 Guidelines for the local self-governments for the implementation of the Plan

Besides the obligations defined by the Law on Planning and Spatial Development, primarily in the respect of hierarchy and harmonization of plans, this Plan defines the obligations of reserving and protection of space for planned purposes on the state level (infrastructural corridors, construction land, protection of environment and of cultural assets, of agricultural and wood land, of waters, exploitation of raw mineral resources, waste management, and internal and cross-boundary regional cooperation). That means that local self-governments when elaborating their spatial and urban plans use excerpts from the Spatial Plan of Montenegro as a starting ground for their territories. Obligation of elaboration is to be compatible in its contents and form with contents and form of the Spatial Plan. During the course of elaboration of spatial plans of lower level, directions and recommendations of international conventions used for elaboration of the Plan have to be consistenly implemented (see chapter 1.7).

3.8 Institutional information support for realization of the Physical Plan

Having in mind needs of application, monitoring and innovation of the Spatial Plan, as well as the needs of spatial and urban planning and environmental protection on other levels of management, based on results of adequate expert and scientific research, systematical work on introducing and development of spatial (geographical) information system, harmonized with informational system on environment should be started. Elaboration of the project of development of information system on space (and mutual harmonization with information system on environment) will have the priority. The project will have three parts: (1) diagnosis of the condition of informatics on space and environment, statistical and other information systems; (2) concept of development of information system on space of Montenegro and (3) concept of development of information system of the Spatial Plan.

Processes in scope of this subsystem are decomposed in the following way:

1.1. Development and control of implementation of the rules for spatial management
- Development and introduction of the rules for spatial management
- Control of the implementation of the rules for spatial management

1.2. Management of spatial development
- Planning the activities related to spatial development
- Planning of spatial development
- Realization of detailed plan for spatial development

1.3. Managing exploitation and space maintenance
- Planning exploitation and space maintensnce
- Recording and analyzing spatial conditions
- Performing management functions related to space

An important aspect of the information support is the forming of a comprehensive spatial monitoring system comprising of defining and monitoring of the key basic data and indicators.

4 RECOMMENDATIONS FOR PLAN REALIZATION

To increase the effectiveness and reliability of the realization of the provisions (general principles and objectives, specific principles and objectives, spatial development concept and guidelines) preconditions in three decisive fields have to be given.

Besides the quoted studies it is desirable to complete strategies for development by sectors. Energy Development Strategy of Montenegro by 2025; Strategy for Development of Food Production and Development of Rural Areas (Montenegrin agriculture and European Union) and Strategy for Transportation Development of Montenegro.

4.1 Legal provision of the conditions for implementation of the Plan

Changes and amendments of laws

Necessary conditions for implementation of the Spatial Plan of Montenegro are set forth in the Law on Planning and Spatial Development (Articles 11, 12, 13, 14, 15 and 16).

Although the Spatial Plan was elaborated under the regime of the old Law on Planning and Development, stipulations of the valid Law were taken into consideration. The process of elaboration of the Spatial Plan shows the need to amend the existing legal base to increase the efficiency of the process as such but also to improve the coordination of the different similar sectors. Revision of *the Law on Spatial Planning and Development* is a priority. Simultaneously, revision, changes or amendments of existing laws regulating spatial development should be made, i.e. *Law on Construction Land and Law on Construction*, as well as changes and amendments to sector related laws relevant for spatial planning, particularly laws regulating protection of environment, cultural heritage and sustainable development.

Within 6 months after the adoption of the Physical Plan a decision should be made on changes and amendments of relevant laws (e.g. in particular laws related to spatial planning, sustainable development and environmental protection). After the adoption, an action plan should be defined including all respective aspects of this process (financing, international cooperation, public debates, etc.). In the next 3 to 5 year period reforms and harmonization of legal regulation should be undertaken, study base should be formed through realization of the studies and researches listed in the Chapter 4.3.2., thus creating conditions for revision of the Spatial Plan of Montenegro.

It should be taken into account that spatial and urban planning is done with the aim to rationally organize activities in space and settlements, including connections among them, and to establish a harmonized and sustainable development and environment protection. In order to have strategic goals realized, spatial and urban planning and environment protection planning should have necessary support, both legislative and public.

Building institutional capacities

Considering that spatial and settlement development (and environment protection) is complex and a multidisciplinary subject, it is necessary that the Government of Montenegro establishes a separate institution for physical planning that will be responsible for fulfilling the state's responsibilities in spatial planning and ensuring cross-sector harmonization of the various relevant ministries, state organizations, local authorities, as well as private and civil social sector. A focal aspect of this institution is the establishment and implementation of a Spatial Information System and Monitoring System.

The responsibilities of this institution should cover the support to local planning authorities. Capacity for spatial planning and sustainable development is limited in smaller municipalities and this capacity and quality of local spatial planning should be increased through realization of inter-municipal co-operation, establishment of regional institutions, etc.

4.2 Proposal of required prioritized actions

After the adoption of the Spatial Plan, in order to make it operational, the following activities are recommended:

- Adoption of the Program for Planning and Spatial Development
- Analyses of the harmonization of the existing spatial plans for special purpose areas and spatial plans of municipalities and general urban plans of centers of local communities with the Spatial Plan
- Accelerated elaboration of spatial plans and general urban plans of local communities.
- Elaboration of plans for state infrastructural systems (traffic, energy, etc.)
- Elaboration and establishing of a unified spatial information system of spatial planning - GIS.

4.3 Aspects of institutional support to the implementation of the Spatial Plan

4.3.1 Obligations of bodies, organizations and institutions during the realization of the Plan

For elaboration and realization of spatial planning documentation and monitoring of the conditions in space, obligations of all bodies - participants in the process are determined as follows.

National level

After the adoption of the Spatial Plan, Parliament of Montenegro:

- Adopts five-year program for planning and spatial development;
- Annual discussions and adoption of reports on condition of spatial development;
- Adopts proposals of planning documentations on the national level.

Government of Montenegro:

- Adopts a five-year program for planning and spatial development;
- Once a year determines reports on condition of spatial development;
- Makes decision on elaboration of spatial planning documentation of state's importance;
- Establishes Council for spatial development for professional evaluation of planning documentation;
- Makes decision on determination of draft planning documentation on the state level and

- Determines rulebook on unique contents, methodological approach to elaboration and processing of spatial planning documentation.

Ministry for Economic Development:

- Prepares a five-year program for planning spatial development
- Prepares reports on conditions of spatial development
- Determines manner and maintains spatial documentation base
- Establishes and maintains unified informational system on space in cooperation with local self-governments - GIS;
- Prepares decisions on starting the elaboration of the spatial planning documentation based on the five-year and annual working program;
- Leads the procedure of preparation and elaboration of planning documentations on the state level.
- Elaborates rulebook on contents of a planning document, of detailed category of land use, unique graphical symbols and other contents and
- Organizes and leads the procedure of public discussion on the Draft Spatial Plan.

Level of the local self- government

Parliament of the local self-government unit:

- Adopts a five-year and a one-year program for planning and spatial development;
- Once a year discusses and adopts reports on conditions of spatial development;
- Adopts proposals of planning documentations on a local level.

Executive organ of local self-government unit:

- Makes decision on starting the elaboration of spatial planning documentation;
- Determines a five-year program of planning and spatial development;
- Makes decision on determination of draft planning documentation on a local level;
- Once a year determines reports on conditions of spatial development and
- Establishes Municipal Council for spatial development for professional evaluation of planning documentation;

Secretariat for planning and spatial development of the local self- government:

- Prepares a five-year program for planning and spatial development;
- Prepares reports on conditions of spatial development;
- Determines manner and maintains spatial documentation base;
- Manages information system on space in cooperation with responsible ministry;
- Prepares decisions on starting the elaboration of spatial planning documentation based on a five- year and annual working program;
- Runs the procedure of preparation and elaboration of planning documentation on the local level and
- Organizes and leads the procedure of public discussion.

4.3.2 Provision of studies required for realization of the Plan

Realization of the Spatial Plan can be supported by realization of special programs of competent bodies of Montenegro (plans, projects, strategies, policies, studies, expertise, researches, etc.) in the following fields:

- Long-term demographic policy of Montenegro;
- Land management policy of Montenegro;
- National program for areas with difficult conditions for development – Northern Region;
- National program for border areas;
- Program for rational use and saving of energy;
- Long-term development of energy;
- Strategy for food production and development of rural areas;
- Strategy for development of maritime industry;
- Long-term program for development of forestry;
- Planning and technical documentation for development of transportation network by 2020;
- Integrated environmental protection in Montenegro with elaboration of cadastre of environmental polluters (air, water and land);
- Protection and use of waters with elaboration of cadastre of sanitary zones for protection of water springs;
- Protection of natural assets and the Strategy for preservation and protection of biodiversity with the Action Plan;
- Elaboration of the Red Book of flora of Montenegro;
- Elaboration of the Red Book of fauna of Montenegro;
- Elaboration of spatial planner Atlas of Montenegro;
- Establishing a cadastre of real estate and a cadastre of underground facilities and installations for the complete territory of Montenegro;
- Elaboration of state sector maps (R 1:5.000, 1:10.000 and 1:25.000);
- Elaboration of maps of terrain suitability for urbanization of Montenegro (R1:5000, 1:10.000, 1:25.000, 1:50.000, 1:100.000);
- Elaboration of seismic-geological, micro-regionalization, and regionalization of Montenegro (R1:5000, 1:10.000, 1:25.000, 1:50.000, 1:100.000);
- Defining the borders of areas of protected cultural monuments
- Elaboration of the archeological map of Montenegro including the undersea area;
- Protection and revitalization of immovable cultural-historical assets with elaboration of the protection plan (atlas);
- Elaboration of the management program for urban cores protected by national legislation;
- Program of vitally developed towns and settlements in Montenegro;
- Spatial and urban norms and standards for equipment of settlements in Montnegro;
- Project for reform of system for construction land use;
- Program for cooperation with neighboring countries in the field of spatial development and environmental protection, protection of natural assets and development of tourism in the border areas;
- Development of free zones in Montenegro;
- Harmonization of legislation in the field of spatial and urban planning, environmental protection and construction of facilities in accordance with the EU regulations;
- Study of urban agglomerations, as a base for settlement determinations, where the waste water treatment facilities should be built,
- Institutional-managing, information-managing and economic problems of regulation in the field of organization and spatial development, settlements development and environmental protection, in the conditions of pluralistic society and introduction of the market system;

- National forestry strategy;
- Research of spatial factors of Montenegro and research of measures for planning direction of development of special areas (borders, hills, mountains, etc.);
- Research of water supply in pasture areas (karst);
- Elaboration of methodology for monitoring and evaluation of realization of the Spatial Plan of Montenegro;
- Evaluation of environmental capacities and spatial sensitivity of Montenegro, with elaboration of *the map of ecological potential of Montenegro* with elements of ecological *limitations and conflicts* and *the map of ecological risks* with elements *of ecological endurance* in the existing and future (projected) conditions;
- Researches of renewed energy sources and potentials;
- Research for the needs of use and management of water resources;
- Research of methodology of spatial planning of tourist areas and research of potentials for tourism and complementary activities;
- Research of intellectual capital of Montenegro,
- Program for selection of potential locations for golf terrains;
- Research of basic geological, hydro-geological, engineering-geological, geomorphologic, and engineering-seismologic features of Montenegrin territory and creation of maps with legends;
- Study on reserves and quality of minerals.

Annex – Overview of the land use and balance of natural resources and potentials

Table 14 – Overview of land use in Montenegro

	Name	Area in km²	Percentage (%)
1.	**Agricultural land**	5.145	37,00
2.	**Forest land**	6.225	45,00
3.	**Settlements, roads, stone areas, water surfaces and otehrs**	2.442	18,00
TOTAL land Montenegro		**13.812**	
1.	**Domestic dea waters**	368	
2.	**Territorial sea**	2.172	
	Mareine area of Montenegro (1+2)	2.540	
3.	**Epicontinental strip**	3.886	

Table 15 – Overview of the most important non-renewable mineral resources

	Type of minera resource	Catergory	Reserves (u 10^3)
1.	**Coal – brown lignite**	A+B+C1	80.976 t
		B+C1	123.640 t
		C1	27.928 t
2.	**Hard brown coal**	A+B+C1	16.700 t
		C1	22.546 t
		C1 + C2	103.000 t
3.	**Peat**	Estimate	31.000 m^3
	Semi-peat	Estimate	8.000 m^3
4.	**Red bauxite**	A+B+C1	37.000 t
		B+C1	3.156 t
		C1	6.951 t
		C2+D1	48.960 t
5.	**Whte bauxite**	Balance reserves	250 t
		Off balance reserves	1.400 t
		Perspective	2.900 t
6.	**Lead and zinc**	B+C1	17.549 t

		C1	5.685 t
		C2	5.000 t
		C2+D1	46.330 t
7.	**Copper**	C1	5.297 t
		C2	2.041 t
8.	**Mercury**	Estimate (perspective)	Mercury metal 5.430 t
9.	**Arhitectonic-decorative stone**	A+B+C1	1.000 m^3
		B+C1	860 m^3
		Perspective	21.704 m^3
10.	**Bigar**	Rocky mass (SM)	400 m^3
		Perspective reserves SM	150 m^3
11.	**Technical-construction stone**	Practicaly unlimited quantities	
		A+B+C1 - kr	38.000 m^3
		B+C1 - vul	650 m^3
12.	**Gravel and sand**	Reserves not calculated. Partially renewable (deluvium i aluvium)	
13.	**Brick clay**	B+C1	1.300 t
		B+C1(+C1)	15.000 t
		Perspective	> 100.000 t
14.	**Cement marl**	A+B+C1	93.000 t
		Estimate	78.000 t
15.	**Dolomite**	Practicaly unlimited quantities	
		A+B+C1	81.000 t
		C1	32.000 t
16.	**Barite**	A+B+C1	344,85 t
		C1	66,5 t
		Perspective	36 t
17.	**Bentonite**	A+B+C1	2.430 t
		C2	25 t
		Estimate (perspective)	1.400 t

18.	**Rožac**	C1	1.210 t
19.	**Quartz sand**	C2	7.136 t
20.	**Sea salt**	Sea salt is a raw material. Reserves, i.e. exploitation depend on natural and industrial production. M	
21.	**Oil and gas**	Total oil potential of undersea area (source rocks is estimated at 12,5 $\cdot 10^9$ t). Not calculated for the continental part.	
22.	**Underground waters**	Underground waters (as mineral resource), static and dynamic reserves in terrains in Montenegro were not calculated yet.	

*Mainly according to the SS-AE 4.1. – natural characteristics

Table 16 – Overview of the most important water sources of estimated of abundance

	Name	Measure (lit/s)
1.	**Adriatic Sea basin**	25.000
2.	**BlackSea basin**	21.300
TOTAL		**46.300**

Table 17 – Overview of the use of waters by pumping from underground source

	Name	Measure (lit/s)
1.	**Adriatic Sea basin**	5700
2.	**BlackSea basin**	30
TOTAL		**5730**

Table 18 – Overview of renewable hydro-energy sources

	Name	Measure
1.	**Water leaving territory of Montenegro**	600 m3/s
2.	**Hydro-energy potential**	9846 GWh annualy
3.	**Technicaly usable hydro-energy potential in the natural course**	Up to 4798 GWh annualy
4.	**Technicaly usable potential with redirections**	6370 GWh annualy
5.	**Hydroenegry potential used in 2004**	2231 GWh

Table 19 – Overview of non-renewable electro-energy resources

	Name	Measure in GWh
1.	**Energy potential of coal in Pljevlja**	130.000
2.	**Energy potential of coal in Berane**	70.000
TOTAL		**200.000**

Spatial-physical indicators by regions and municipalities

Table 20 – Overview of land use

			SPM	Agricultural land			Forest land			Other
			ha	Total	%	Arable	Forests	%	Non-arable	Settlements, roads and stone areas
						zemljište			zemljište	vode. Pov. I ostalo
COASTAL REGION	1	Ulcinj	25500	11680	45.80	6560	9843	38.60	2231	3977
	2	Bar	59800	18478	30.90	5339	23795	39.79	7823	17527
	3	Budva	12200	4959	40.65	1050	6815	55.86	2043	426
	4	Kotor	33500	5630	16.81	2554	21704	64.79	10424	6166
	5	Tivat	4600	825	17.93	1265	3223	70.07	1890	552
	6	H.Novi	23500	8584	36.53	2083	13806	58.75	2154	1110
			159100	50156	31.52	18851	79186	49.77	26565	29758
CENTRALREGION	7	Podgorica	144100	61841	42.92	20568	42224	29.30	22446	40035
	8	Cetinje	91000	19258	21.16	2991	42139	46.31	172	29603
	9	Danilovgrad	50100	17837	35.60	8168	30116	60.11	2246	2147
	10	Nikšić	206500	54510	26.40	12727	98216	47.56	12678	53774
			491700	153446	31.21	44454	212695	43.26	37542	125559
NORTEHRN REGION	11	Kolašin	89700	27844	31.04	9149	53920	60.11	5479	7936
	12	Mojkovac	36700	13686	37.29	4696	18005	49.06	3773	5009
	13	Plav	48600	24735	50.90	8177	20046	41.25	3276	3819

	14	Andrijevica	28300	11636	41.12	5647	15058	53.21	2084	1606
	15	Berane	71700	29321	40.89	15743	33167	46.26	2016	9212
	16	Rožaje	43200	20237	46.84	9434	21066	48.76	5511	1897
	17	Bijelo Polje	92400	40380	43.70	23951	47440	51.34	2387	4580
	18	Pljevlja	134600	69144	51.37	28273	61098	45.39	15865	4358
	19	Žabljak	44500	22021	49.49	6361	13024	29.27	809	9455
	20	Plužine	85400	19730	23.10	7297	36976	43.30	7242	28694
	21	Šavnik	55300	32165	58.16	7093	10890	19.69	2743	12245
			730400	310899	42.57	125821	330690	45.28	51185	88811
			1381200	**514501**	37.25	**189126**	**622571**	45.07	**115292**	**244128**

Note: Data for forests taken from the Head Office for Real Estates of Montenegro

Data for bare forests cover a part fo stone area.

For Andrijevica and Tivat interpolated data are presented.

In teh scope of presented surfaces of urban and rural settlements, forest and agricultural land are overlapping but it is not possible to present separately.

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Cumulative structural indicators for teh other types of land

1. Urban and rural settlements	80708	ha
2. Roads and otehr technical infrastructure	11000	ha
3. Water areas (lakes and rivers)	30650	ha
4. Bare forest land and stone areas (115292+6478) ha	121770	ha
	244128	ha

Table 21 - Overview of areas of urban and rural settlements

					Urban settlements					Rural settleemnts				
			SPM		GUP	GUP/SPM	Level of	Municipal.	GUP	No. of	surface		density	Total
			ha		ha	%	urban.	st/ha	st/ha	Settl.	ha	%	pop/ha	ha
REGION COASTAL	1	Ulcinj	25500	.	9021	35.37	0.53	0.8	1.2	38	368	1.44	16.86	**9389**
	2	Bar	59800		6225	10.41	0.43	0.7	2.8	82	507	0.84	32.5	**6732**
	3	Budva	12200		4406	36.11	0.85	1.3	3.1	32	134	1.08	16.34	**4540**
	4	Kotor	33500		1800	5.37	0.75	0.7	7.3	55	267	79	16.38	**2067**
	5	Tivat	4600		3740	81.3	0.75	2.9	2.7	11	174	3.77	16.02	**3914**
	6	H.Novi	23500		7763	33.03	0.66	1.4	2.8	26	452	1.92	16.19	**8215**
			159100		32955					244	1902			**34857**
CENTRAL REGION	7	Podgorica	144100		8446	5.86	0.83	1.2	16.5	142	1400	0.97	8.26	**9846**
	8	Cetinje	91000		1587	1.74	0.83	0.2	9.7	93	458	0.5	8.29	**2045**
	9	Danilovgrad	50100		735	1.46	0.41	0.3	9.2	79	579	1.15	8.22	**1314**
	10	Nikšić	206500		5600	2.71	0.77	0.4	10.4	109	858	0.41	8.25	**6458**
			491700		16368					423	3295			**19663**
NORTHERN REGION	11	Kolašin	89700		924	1.03	0.3	0.1	3.2	69	741	0.83	4.89	**1665**
	12	Mojkovac	36700		445	1.21	0.41	0.3	9.2	14	441	1.2	4.87	**886**
	13	Plav	48600		442	0.91	0.38	0.3	12	22	608	1.25	4.95	**1050**
	14	Andrijevica	28300		181	0.64	0.18	0.2	5.9	23	491	1.73	505	**672**
	15	Berane	71700		1280	1.78	0.33	0.5	9.2	65	1690	2.56	4.91	**2970**
	16	Rožaje	43200		594	1.37	0.4	0.5	15.5	25	673	1.56	4.82	**1267**
	17	Bijelo Polje	92400		9500	10.28	0.31	0.5	1.7	97	2144	2.3	4.94	**11644**
	18	Pljevlja	134600		1177	0.87	0.61	0.3	18.5	158	1289	0.95	4.94	**2466**
	19	Žabljak	44500		2040	4.58	0.46	0.1	0.95	27	373	0.84	4.97	**2413**
	20	Plužine	85400		330	0.38	0.35	0.5	4.5	42	330	0.38	4.92	**660**
	21	Šavnik	55300		109	0	0	0.05	0	26	386	0.69	4.95	**495**
			730400		17022					568	9166			**26188**
			1381200		**66345**					**1235**	**14363**			**80708**

Note: SS-AE Organization and use of space **–** derived data, number of rural settlements is presented.

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