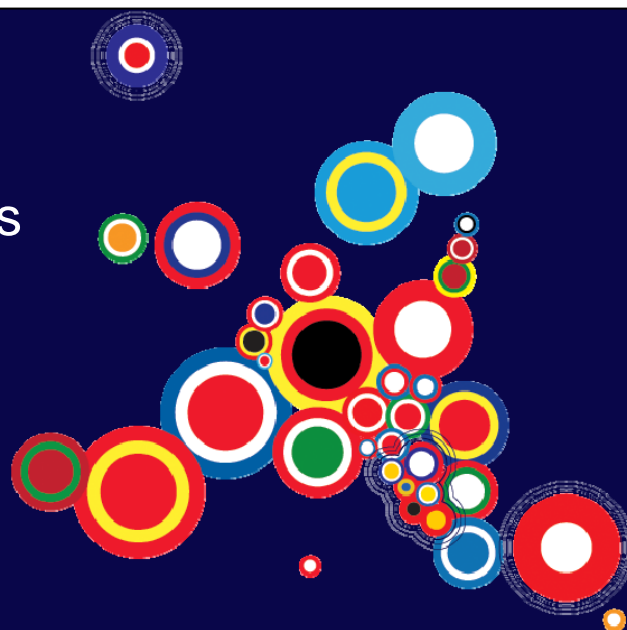




INSTRUMENT FOR PRE-ACCESSION ASSISTANCE (IPA II) 2014-2020

MONTENEGRO

Strengthening the Capacities
for Implementation of the
Water Framework Directive



Action summary

The general objective of this Action is to contribute to the implementation of the transposed *Water Framework Directive*.

The specific objective of the intervention is to prepare River Basin Management Plans for the Adriatic Sea and Black Sea Basins. Also, the project will contribute to learning, capacity building and involvement for competent authorities.

This Action will benefit Montenegro by contributing to the development of technical capacities for the sound implementation of EU *Water Framework Directive*. In practical terms the Action will provide the necessary system for the management and protection of water resources and as such contribute to the common EU environmental goals.

Action Identification	
Action Programme Title	Annual Action Programme for Montenegro (2014)
Action Title	Strengthening the Capacities for Implementation of the <i>Water Framework Directive</i>
Action Reference	IPA/2014/ 037-812.10/ME/WaterFrameworkDirective
Sector Information	
IPA II Sector(s)	Environment and Climate Action
DAC Sector	41010 Environmental policy and administrative management
Budget	
Total cost	EUR 1.9 million
EU contribution	EUR 1.9 million
Management and Implementation	
Method of implementation	Direct management
<i>Direct management:</i> EU Delegation	EU Delegation to Montenegro
Implementation responsibilities	/
Location	
Zone benefiting from the action	Montenegro
Specific implementation area(s)	/
Timeline	
Deadline for conclusion of the Financing Agreement	At the latest by 31 December 2015
Contracting deadline	3 years following the date of conclusion of the Financing Agreement, with the exception of the cases listed under Article 189(2) Financial Regulation
End of operational implementation period	6 years following the date of conclusion of the Financing Agreement.

1. RATIONALE

PROBLEM AND STAKEHOLDER ANALYSIS

The focus in the environmental and climate sectors, including water management in Montenegro has recently been mainly on alignment with the EU *acquis*. As described in the *Screening Report Montenegro for Chapter 27 – Environment and Climate Change*, in the field of water management Montenegro has to complete and harmonize the monitoring requirements, to respond to the definition of ecological and chemical status and objectives for surface waters and groundwater as stated in the WFD, to define reference conditions and the analysis of pressures and impacts as previous steps required under Article 4 of the Water Framework Directive (WFD).

According to the *Water Act* and the *Act on Public Administration Organization*, Ministry of Agriculture and Rural Development (MARD), has the overall responsibility for water management in Montenegro. Within MARD, Water Administration is responsible for water policy implementation. Other institutions responsible for specific aspects of water management, according to different legal acts, are:

- Ministry of Sustainable Development and Tourism, responsible for drinking water supply and waste water collection and its treatment;
- Environmental Protection Agency, responsible for environmental monitoring and nature conservation;
- Institute for Hydro-meteorology and Seismology, responsible for implementation and monitoring of hydrology and water quality;
- Ministry of Health, responsible for drinking water quality;
- Ministry of Interior, responsible for management of emergency situations;
- Ministry of Economy, responsible for hydro energy;
- Municipalities, responsible for provision of drinking water supply and waste water collection and treatment as well as for regulating general use of water bodies;
- Public Enterprise Coastal Zone, responsible for management of coastal zone and marine areas;
- Ministry of Transport and Maritime Affairs;
- The Port Authority;
- Maritime Safety Authority;
- Institute of Public Health.

In 2014, the Ministry of Agriculture and Rural Development has prepared draft amendments of the *Water Act*. The purpose of these amendments was to fully transpose *Water Framework Directive*. In order to achieve this, the existing act and proposed amendments have been reviewed by the Environment and Climate Regional Accession Network (ECRAN) and their comments have been taken into account. The amended *Water Act*, compliant with the WFD, is expected to be adopted by the end of 2014.

For the harmonisation of water management in Montenegro with EU standards (WFD and all other *acquis*) the following steps are necessary to be taken in the time period 2014 -2018:

- strengthening the capacity of the Water Administration and other relevant authorities for implementation of the WFD;
- adopt the necessary by-laws and other acts necessary for the implementation of the *Water Act*;
- to consider river basin as the basic unit of integrated water resources management - in accordance with the WFD;
- include spatial component to the database (GIS);
- have clearly defined water bodies, its characterization in accordance with WFD;
- provide a form of data in accordance with EU guidelines to facilitate data exchange;
- have a compatible reporting data compatible with requirements and format of the river Commission and EC ;
- ensure public participation as defined in WFD Article 14 Initial Characterisation and Analysis of River Basin Districts in accordance with the requirements of Article 5 and allowing the fulfilment of the requirements on Monitoring of surface water status, groundwater status and protected areas under Article 8 of WFD is a precondition for further phases of implementation of the Directive implementation in Montenegro. Definition of Environmental objectives as set

out in Article 4 is also a pre-condition. Characterisation and Analysis of River Basin Districts is defined in Montenegrin legislation in the *Water Act (Official Gazette of Montenegro 27/07, Official Gazette of Montenegro 32/11 and 47/11)*.

The completion of the initial Characterisation and Analysis task and the definition of environmental objectives will provide baseline necessary to begin with the next phase of the process of river basin management aimed to achieve *good status* for all waters. Once these tasks are completed it will provide an analysis of the characteristics of river basin districts, review of the impact of human activity on the status of waters and economic analysis of water use in accordance with the requirements of Article 5 of the Directive. It will provide an input on the definition and setting of the monitoring systems.

As defined in Annex II of the WFD, for each surface water category, the relevant surface water bodies within the river basin district shall be differentiated according to type. These types are those defined using either .system A. or .system B. Member States shall identify the location and boundaries of bodies of surface water and shall carry out an initial characterisation of all such bodies Member States may.

RELEVANCE WITH THE IPA II INDICATIVE STRATEGY PAPER (OR MULTI-COUNTRY STRATEGY PAPER) AND OTHER KEY REFERENCES

As stated in the *EC Enlargement Strategy and Main Challenges 2013-2014 for Montenegro* in the area of environment and climate change, considerable efforts, including more strategic planning, are needed to ensure alignment and implementation of the *acquis*.

The *Montenegro 2014 Progress Report* points out that further efforts are also needed to strengthen administrative capacity and inter institutional cooperation. Resources remain limited and substantial investments are needed.

The *Screening Report for Chapter 27* states that the monitoring networks for all water sources (surface water bodies, marine waters, and groundwater), the river basin management plans and the infrastructure for waste water treatment are at an early stage of development.

The *Indicative Strategy Paper for Montenegro (2014-2020)(ISP)* clearly emphasises that IPA support will focus in particular on the transposition and implementation of the Water Framework Directive and strengthening the administrative capacities for data collection, preparation of water management and river basin plans and creating conditions for establishing an efficient and effective water management system.

This Action will address the focus of the ISP in the field of water management.

SECTOR APPROACH ASSESSMENT

Montenegro, in the context of its *National Development Directions 2013-2016* (adopted by the Government in March 2013), has identified sustainable growth via environmental protection measures as a national priority. Additionally the environment sector is defined as a priority in Government documents such as:

- *Accession Programme of Montenegro (2014-2018)*;
- *The Pre-accession Economic Programme 2013-2016 (PEP)*;
- *The Regional Development Strategy of Montenegro (2014-2020)*.

As regards the administrative structure in this sector, the overall responsibility for the development, management and coordination of environment and climate change policy lies with the Ministry of Sustainable Development and Tourism. In addition, following institutions that are under administrative jurisdiction or supervision of the Ministry of Sustainable Development and Tourism are included in the sector:

- Institute for Hydrometeorology and Seismology;
- Environmental Protection Agency;

- Directorate of Public Works;
- PC National parks of Montenegro;
- LLC PROCON – project implementation body;
- LLC Centre for Eco toxicological research (CETI)
- LLC VODACOM - project implementation body;

In addition in the sector institutional structure as institutions under jurisdiction of Ministry of Agriculture and Rural Development are included;

- Forest Administration;
- Directorate for Water.

Regarding donor coordination, although there is very limited formal or structured overall donor coordination either at sector or sub-sector level managed by the national authorities, several donor coordination meetings for the environment sector involving IFIs, bilateral donors and the EC have been organized. The experience to date suggests that it is needed to establish formal coordination structures by making the link between the Ministry of Sustainable Development and Tourism, local governments and international financial institutions, available EU funds, as well as the competent institutions of the countries with which bilateral cooperation has been established. Another important tool for donor coordination is the Western Balkans Investment Framework (WBIF) which is used by the environment sector to strengthen coherence and synergies in donors' support.

Bearing in mind that environment pollution or climate changes do not respect borders, geographically or institutionally a sector-based approach is considered essential for the area of environment protection and climate action. This newly introduced sector approach will contribute to meeting the environment and climate sectors' needs for infrastructure investments and capacity building but further development of structures and capacities for the effective enforcement of this approach is needed.

Taking into account the comprehensiveness of the *Water Framework Directive*, it is of high importance to implement the obligations in all relevant areas that the directive touches upon. The number and complexity of the directives related to water on the one hand and the lack of administrative capacity on the other requires the close cooperation of all involved institutions in order to achieve the defined goals in a sound manner.

LESSONS LEARNED AND LINK TO PREVIOUS FINANCIAL ASSISTANCE

In the previous financial perspective 2007-2013, IPA supported and still supports projects in the environment sector in the amount of around EUR 40 million, mainly focused on approximation with environmental *acquis* and infrastructure development in the areas of water and waste management. IPA is currently supporting the development of a *Strategy and Action Plan for the Approximation of Montenegrin Legislation with the EU Environmental acquis* which will result with a *National Environmental Approximation Strategy and Investment Plan*.

Although the IPA assistance was of substantial importance for the improvement in the overall state of environmental protection, the lesson learned that the Government of Montenegro gained during the previous 2007-2013 programming period show that government strategic planning, project prioritization and especially project implementation need to be improved in the future programming period. Another outstanding issue is related to the sustainability of projects having in mind that high employee turnover, reliance on temporary staff and lack of expert skills in the administration hinder proper implementation of policies and projects. Additionally, competent authorities need to be very proactive in cooperation with relevant stakeholders at central and local level and to improve inter-sectoral cooperation with other ministries in the programming and implementation of projects financed with the support of IPA. As coordination among stakeholders is recognized as a crucial problem and overcoming it will require comprehensive and clear information flows and focus on common understanding of responsibilities, obligations and deadlines.

2. INTERVENTION LOGIC

LOGICAL FRAMEWORK MATRIX

OVERALL OBJECTIVE	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	SOURCES OF VERIFICATION	
To contribute to the implementation of the transposed Water Framework Directive (WFD).	WFD related articles (5,8) implemented	Government reports	
SPECIFIC OBJECTIVE	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	SOURCES OF VERIFICATION	ASSUMPTIONS
To establish optimal conditions for water management within the River Basin Districts (RBD) in Montenegro (Adriatic Sea & Black Sea) in accordance with the requirements of the WFD.	<p>Water bodies are defined.</p> <p><i>Indicator include:</i></p> <p><i>Implementation of all articles of WFD (5,6,8, 9 and 13)</i></p> <p><i>Definition and delineation of water bodies (Article 5)</i></p> <p><i>Characterisation of river basins (Article 5)</i></p> <p><i>Reference conditions</i></p> <p><i>Monitoring systems (Article 8)</i></p> <p><i>Definition of impacts and pressures (Article 5)</i></p> <p><i>Definition of protected areas (Article 6)</i></p> <p><i>Production of RBMPs (Article 13)</i></p> <p><i>Definition of programmes of measures (Annex V of the WFD)</i></p>	<p>IHMS regular reports</p> <p>Water Directorate regular reports</p> <p>Government reports</p> <p>RBMPs reporting and input to the Danube river basin management plan</p> <p>RBMPs reporting and input to the Sava river basin management plan</p>	<p>New Law on amendments on Law on waters adopted</p> <p>Staffing and funding for institutions for water management according to the Law on waters in place</p> <p>Cooperation among the Ministries and local authorities responsible for various aspects of water management strengthened</p>
RESULTS	OBJECTIVELY VERIFIABLE INDICATORS (OVI)	SOURCES OF VERIFICATION	ASSUMPTIONS

<p>R1: Preconditions for preparation of water management and river basin plans are ensured and water monitoring system improved</p> <p>R2: RBMP for Adriatic and Black Sea basin prepared including</p> <ul style="list-style-type: none"> Definition and delineation of water bodies Characterisation of river basins Reference conditions Monitoring systems Definition of impacts and pressures Production of RBMPs. Definition of programmes of measures 	<p>Monitoring program for water according WFD is operative</p> <p>RBMP for Adriatic Sea prepared</p> <p>RBMP for Black Sea prepared</p>	<p>IHMS regular reports</p> <p>Government reports</p> <p>Project progress reports</p>	<p>Proposed amendments to the Water Act adopted by the end of 2014;</p> <p>Legal, institutional etc. proposals and results of the project are implemented in a consequent manner;</p> <p>Sustainability of staff trained, further training of incoming new staff (and replacements) ensured;</p> <p>Costs of operation for new institutions and equipment, as well as salaries of new staff ensured.</p>
ACTIVITIES	MEANS	OVERALL COST	ASSUMPTIONS
<p>R1 – A1: Analysis of river basin district characterisation</p> <p>R1 – A2: Assessment of environmental impacts of human activity, identification and definition of heavily modified and artificial water bodies</p> <p>Definition of reference conditions</p> <p>R1 – A3: Economic analysis of water use</p> <p>R1 – A4: Establishing a register of protected areas and identify waters used for the abstraction of drinking water</p> <p>R1 – A5: Improvement of water monitoring system in accordance with WFD – supply of necessary monitoring equipment</p> <p>R2 – A1: Development of Adriatic Sea basin management plan including the programmes of measures</p> <p>R2 – A2: Development of Black Sea basin management plan including the programmes of measures</p>	<p>Service contract</p> <p>Supply contract</p>	<p>EUR 1 900 000</p>	<p>Counterpart staff in beneficiary institutions identified, available and co-operates in implementing the project;</p> <p>Outputs from related assistance projects – as inputs to this project – materialise on time and in good quality</p>

ADDITIONAL DESCRIPTION

The general objective of the Action is to contribute to the implementation of the transposed Water Framework Directive in Montenegro, also contribute in learning, capacity building and involvement of competent authorities.

The specific objective of the intervention is to prepare RBMPs for Adriatic and Black Sea Basin.

The expected results of the action are:

- The administrative capacities for data collection, and other requirements as set out under WFD for the preparation and production of the river basin management plans fulfilled;
- RBMP for Adriatic Sea basin prepared.
- RBMP for Black Sea basin prepared.

Main activities planned to be implemented within the Action are following:

- Analysis of river basin district characteristics;
- Assessment of environmental impacts of human activity and identification of heavily modified and artificial waters;
- Definition of reference conditions
- Economic analysis of water use;
- Establishing a register of protected areas;
- Procurement of monitoring equipment in order to achieve water monitoring system in accordance with WFD requirements;
- Preparation, definition, development of Adriatic Sea and Black Sea basin management plan including programmes of measures;

Additional information on the activities planned within the Action is outlined in Annex 3.

3. IMPLEMENTATION ARRANGEMENTS

ROLES AND RESPONSIBILITIES

The Ministry of Agriculture and Rural Development will have the overall coordination and reporting role over the implementation of the Action, while other relevant bodies and departments will be responsible to participate in the project components. These are primarily: Water Administration, Ministry of Sustainable Development and Tourism, Environmental Protection Agency, and Institute for Hydrometeorology and Seismology, PE Sea Good and PE National Parks of Montenegro.

An Action Steering Committee will be established to manage the whole process and the activities to be implemented under each component of this Action.

Regular reports (inception, mission, monthly and midterm progress reports) will be prepared. Aside of necessary human resources Ministry of Agriculture and Rural Development will provide necessary facilitation of cooperation with other governmental services on central and local level. Monitoring of the Action outcomes will be provided by the Steering Committee to be established at the very beginning of the Action, composed of high level representatives from relevant institutions.

The detailed project management and implementation structure, with full descriptions of roles and responsibilities will be proposed during the preparation of ToR's.

Since this Action will be a capacity building process for all stakeholders in the water sector, all Ministries and authorities in Montenegro that are relevant for the implementation of the WFD or have any competence on that will be involved from the initial phase of the Action. A special role in the whole process will be given to the university capacities in order to provide quality scientific and expert information and data.

IMPLEMENTATION METHOD(S) AND TYPE(S) OF FINANCING

Implementation will be carried out in direct management mode. The Action will be implemented through one supply and one service contract, with total value of EUR 1 900 000.

4. PERFORMANCE MEASUREMENT

METHODOLOGY FOR MONITORING (AND EVALUATION)

Monitoring and evaluation of the implementation of this Action will be conducted in accordance with the rules of direct management and respecting the requirements and provisions of IPA II regulations and those that will be laid down in the Framework Agreement and in respective the Financing Agreement. Achieving of the Action results will be regularly monitored by the EU Delegation to Montenegro and National IPA Coordinator.

Implementation of this Action will be subject of special attention of Sectoral Monitoring Committee and IPA Monitoring Committee which shall measure progress in relation to achieving the objectives of the actions and their expected outputs, results and impact by means of indicators related to a baseline situation, as well as progress with regard to financial execution. The Sectoral Monitoring Committee will report to the IPA Monitoring Committee and will make proposals on any corrective action to ensure the achievement of the objectives of the action and enhance its efficiency, effectiveness, impact and sustainability.

Moreover, in accordance with Article 8 of the Commission Implementing Regulation (EU) No. 447/2014, NIPAC shall take measures to ensure that the objectives set out in the Action are appropriately addressed during the implementation of EU assistance. Procedures for implementing monitoring activities will be set out in the revised Manuals of Procedures aligned with new IPA regulations. Best practices from the monitoring of implementation of previous actions and recommendations given by external monitoring in this sector will be also taken into consideration.

This action shall be subject to evaluations, in accordance with Article 30(4) of Regulation (EU, EURATOM) No. 966/2012 and with Article 22 of the Commission Implementing Regulation (EU) No. 447/2014. The results of evaluations shall be taken into account by the IPA Monitoring Committee and the sectoral monitoring committee.

INDICATOR MEASUREMENT

INDICATOR	DESCRIPTION	BASELINE (2010)	LAST (2013)	MILESTONE 2017	TARGET 2020	SOURCE OF INFORMATION
<i>PROGRESS TOWARDS MEETING ACCESSION CRITERIA</i>	Progress made towards meeting accession criteria in this specific area of Chapter 27 (using the 2015 assessment scale)	Only the basic elements of a legislative framework are in place. There are serious weaknesses in implementation and enforcement that need to be addressed for the acquis to be effectively implemented	Preparations in the area of chapter 27 areas are still at an early stage	Montenegro is moderately prepared in the area of environment.	Montenegro has reached a good level of preparation in the area of environment	EC Progress Report
<i>DELINEATION OF WATER BODIES</i>	Water bodies are defined	0% Water bodies are not defined	0% Water bodies are not defined	60% Water bodies defining ongoing	100% Water bodies defined	IHMS regular report. Government reports
<i>IMPROVEMENT OF WATER MONITORING PROGRAMME</i>	Monitoring program for water according WFD is operative together with the monitoring equipment procured.	0% Monitoring program for water according WFD is not operative.	0% Monitoring program for water according WFD is not operative.	20% Monitoring program for water according WFD under preparation.	70% Monitoring program for water according WFD is operative	IHMS regular reports Government reports Action progress reports
<i>DEVELOPMENT OF RBMP</i>	RBMP for Adriatic Sea and Black Sea prepared	0% Not prepared	0% Not prepared	30% Ongoing	100% Prepared	IHMS regular reports Government reports Action progress reports

5. CROSS-CUTTING ISSUES

ENVIRONMENT AND CLIMATE CHANGE (AND IF RELEVANT DISASTER RESILIENCE)

The Action directly relates to environment and climate issues at the national and local levels. It will improve the technical capacities and quality of information necessary for the further progress in the implementation of EU legislation and thus directly contribute to improved environmental protection and climate action.

ENGAGEMENT WITH CIVIL SOCIETY (AND IF RELEVANT OTHER NON-STATE STAKEHOLDERS)

The various coordination mechanisms for external assistance, particularly the sector-based coordination group, have ensured that all the central-level stakeholders have been consulted on this Action. Likewise, all the primary stakeholders have been consulted during formulation of the intervention and will participate in the implementation both as direct beneficiaries and as members of the Steering Committee. Representatives of non-governmental organizations and civil society will be consulted and involved in the implementation of the Action.

EQUAL OPPORTUNITIES AND GENDER MAINSTREAMING

Based on the fundamental principles of promoting equality and combating discrimination, participation in the Action will be guaranteed on the basis of equal access regardless of sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation. All contractors shall be requested to provide monitoring data recording the participation of men and women in terms of expert inputs (in days), as a proof of equal participation of men and women during the implementation phase.

MINORITIES AND VULNERABLE GROUPS

Considering the fact that this Action will deal with environmental issues targeting a general improvement in the area of water quality, its outcomes will be beneficial to all citizens' especially national minority and underprivileged social groups, having in mind that these groups often live in areas where solving environmental problems is one of the top priorities. Further improvements in environmental protection and management will assist in poverty reduction, and increase the potential for economic activity.

6. SUSTAINABILITY

The Action proposed will contribute to fulfilling EU environment and climate requirements in Montenegro, which will result in a better quality of life for citizens. Sustainability will be ensured through further harmonization of the legal framework and establishment of the institutional mechanisms for the implementation and full enforcement of the transposed legislation. The successful implementation will not be limited only to specific results, but will also multiply its effect by strengthening administrative capacity for implementing similar activities.

7. COMMUNICATION AND VISIBILITY

Communication and visibility will be given high importance during the implementation of the Action.

The implementation of the communication activities shall be the responsibility of the beneficiary, and shall be funded from the amounts allocated to the Action.

All necessary measures will be taken to publicise the fact that the Action has received funding from the EU in line with the Communication and Visibility Manual for EU External Actions.

The use of *Communication and Visibility Manual for EU External Actions* is compulsory. The contractor shall use the appropriate stationery in letterheads or fax headers sheets and report presentation format, but should add the phrase “*This Action/programme is funded by the European Union*” as well as the EU flag when relevant. Elements of the communication strategy may include: press release, press conferences, leaflets and/or brochures, newsletters, web pages, vehicle panels, promotional items, reports, audio-visual productions. Any supplies or equipment delivered under an EU-funded Action must be clearly identified and must visibly carry the EU logo and the mention “*Provided by the support of the EU*” in the operational language of the EU programme and in the local language.

Visibility and communication actions shall demonstrate how the intervention contributes to the agreed programme objectives and the accession process. Actions shall be aimed at strengthening general public awareness and support of interventions financed and the objectives pursued. The actions shall aim at highlighting to the relevant target audiences the added value and impact of the EU's interventions. Visibility actions should also promote transparency and accountability on the use of funds.

It is the responsibility of the beneficiary to keep the EU Delegation fully informed of the planning and implementation of the specific visibility and communication activities.

The beneficiary shall report on its visibility and communication actions in the report submitted to the IPA Monitoring Committee and the Sectoral Monitoring Committees.

LIST OF ANNEXES

- 1. List of reference documents;**
- 2. Additional information on the activities planned within the Action.**

ANNEX 1

List of reference documents

- National Development Directions 2013-2016;
- Accession Programme of Montenegro (2014-2018);
- The Pre-accession Economic Programme (PEP) 2012-2015;
- The Regional Development Strategy of Montenegro (2014-2020);
- Law on Air Quality;
- National Strategy for Air Quality Management and the Action Plans for 2013–2016;
- Law on Nature Protection;
- Law on Chemicals;
- Law on Protection and Rescue;
- Law on Hydro-meteorological Matters;
- Law on Hydrographical Activities;
- Law on Waters;
- National Strategy on Sustainable Development 2007-2012;
- Regulation on Investigations of Surface and Ground Water Quality and Quantity at Montenegro;
- Master Plan on Hydrological Network
- Water Management Plan

ANNEX 2

Additional information on the activities planned within the Action

Activity 1.1: Analysis of river basin district characteristics

The initial characterization of the river basin districts involves the identification of the water bodies that comprise it. A water body is a coherent sub-unit in the river basin to which environmental objectives will apply. Directive requirements for the characterization and the subsequent setting of objectives are different for surface waters to those for ground waters.

For surface waters, the characterization process requires the river basin district to be sub-divided into the different water categories: rivers, lakes, transitional waters (estuaries) and coastal waters. Each category is then sub-divided into types based on physic-chemical, biological and hydro-morphological factors that might significantly influence the presence and abundance of plants and animals in and about the surface water body. Local factors that may influence water status can be taken into account when identifying water bodies, such as pressures and impacts, protected areas and water use, for example, for water supply, navigation, cooling water, etc.

This activity will be achieved by the following sub-activities:

- Collecting existing data for initial delineation of water bodies;
- Determining the current state of water bodies through field work;
- Formatting data in a GIS environment.

Activity 1.2: Assessment of environmental impacts of human activity and identification of heavily modified and artificial waters;

The purpose of the analysis of environmental impacts is to identify surface water bodies and groundwater bodies at risk of failing the objectives of the directive due to the effect of human activities. The pressures and impacts analysis is particularly important because it establishes a baseline for the river basin management planning cycle. It does this by identifying priorities for establishing programmes of mitigating measures where the risk is confirmed and/or monitoring strategies where further investigation is required to confirm the potential risk. The assessment of pressures and impacts is described in the guidance prepared under the *Common Implementation Strategy (CIS) on Pressures and Impacts Guidance Document (IMPRESS)* guidance. Sometimes the natural conditions of a water body are substantially altered, e.g. by irrigation, drinking water supply, power generation and navigation. Other guidance documents must also be used.

This activity includes the identification of the significant pressures to which the *surface and groundwater bodies* in the *river basin district* may be subjected and the risk these pose to the achievement of Directive environmental objectives.

For *surface water bodies* these include significant pressures and risks associated with:

- Point and diffuse sources of pollution from urban, industrial, agricultural and other installations and activities;
- Water abstractions for urban, industrial, agricultural and other uses, including seasonal variations and total demand, and loss of water in distribution systems;
- Water flow regulation, water transfer and diversion;
- Morphological alterations to water bodies;
- Land use patterns including the main urban, industrial and agricultural areas and major fisheries and forests;
- Other significant anthropogenic impacts.

For *groundwater bodies* these include significant pressures and risks associated with:

- Abstraction for drinking water, industrial, agricultural and other purposes. Volume and rates of abstraction, chemical composition, etc.;
- Discharges to groundwater with location, rates and chemical composition, etc.;
- Land use in the recharge catchment of the groundwater body;
- Variations in water-table levels;
- Pollution sources.

The WFD recognizes that in some cases the benefits of such uses need to be retained. If a series of criteria are fulfilled, it allows designation of the water body as *artificial* or *heavily modified*, e.g. reservoirs, canals or canalized rivers.

About 60% of territory of Montenegro is built of carbonate rocks, and about 90% of the population is using groundwater for water-supply. Karst is primarily a terrain with a specific landforms developed over limestone and dolomite by dissolution of carbonate rock. The biggest springs in Adriatic Sea basin in Montenegro are karst springs like Risanska Spilja, Glava Zete, Obošničko Oko etc. For drinking water supply groundwater in karst aquifers is of high importance. As most valuable resource karst groundwater needs careful management and protection against pollution. One of the most important objectives of this activity is to define vulnerable zones and prevent pollution. Because once contaminated it takes a long time and much effort and cost to clean up a karst groundwater resource.

Also significant pressing issue is pollution of surface and groundwater from agricultural activities, industrial waste, unregulated landfills etc., which will be defined with this activity.

This activity will be achieved by the following sub-activities:

- Identification and characterization of sources of pollution in river basins (basic data about the geographic position, technological characteristics, etc. main sources and composition.);
- Determining the qualitative and quantitative characteristics of the effluent;
- Equipping the competent institutions for measuring the characteristics of the effluent;
- Quality assessment and archiving of data collected in an acceptable electronic format;
- Study of the impact of pressures and the effects of pollution sources on the environment, with a matrix of significance of the impact, remediation measures and necessary level of reduction of pollution emissions including the measures to reduce it.

Activity 1.3: Economic analysis of water use

According to Article 5 (and Annex III) of the WFD, an economic analysis of water uses has to be conducted in order to assess how important water is for the economy and the socio-economic development of the river basin district. The economic analysis should provide the river basin's economic profile in terms of general indicators, e.g. economic turnover, gross income, employment or number of beneficiaries for significant water uses.

Economic analysis is a key element of the river basin management planning process. The first stage of the economic analysis of a *river basin district* includes the following activities.

The economic analysis of water use: assessing how important water is to the economy and socio-economic development of the *river basin district*. *It will provide the river basin's economic profile in terms of general indicators (economic turnover, gross income, employment or number of beneficiaries for significant water uses). The importance of economically significant aquatic species is also highlighted.* This will be realised with the following activities:

- Identify water uses and services by economic sector
- Conduct an economic analysis of water uses
- Identify economically significant species

The process will provide the economic profiling of the river basin districts in terms of general indicators.

The economic input to the establishment of a base-line scenario: investigation of the dynamics of the *river basin districts* will aid the assessments of forecasts of key economic drivers likely to influence pressures on *water bodies* and therefore their status. This includes reviewing changes in general socio-economic variables, key sector policies that influence water use, economic growth and planned investment linked to existing water regulation.

The assessment of the current levels of recovery of the costs of water services: this is concerned with water service provision, the extent to which financial, environmental and resource costs are recovered, how cost recovery is organized and the way in which key water uses contribute to the cost of water services.

Preparing for cost-effective analysis and investigating ways of enhancing the information and knowledge base. At this stage, the aim is to recognize gaps in existing data, and the means to deal with them, and to collate information in a format that will be useful later.

Activity 1.4: Establishing a register of protected areas

Article 6 of the *Water Framework Directive (2000/60/EC)*, requires each Member State to establish a “register or registers of all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water” (Article 6.1, 2000/60/EC).

A register is needed for each *river basin district* indicating details and the location of protected areas and the legislation under which they have been designated. Although not exclusive, the Directive lists the following:

- Areas that are either used, or are intended to be used, for the abstraction of drinking water for human consumption (Article 7);
- Areas designated for the protection of economically significant aquatic species;
- Bodies of water designated as recreational waters, including bathing waters designated under *Directive 76/160/EEC*,
- Nutrient-sensitive areas including areas designated as vulnerable zones under *Directive 91/676/EEC* and areas as sensitive areas under *Directive 91/271/EEC*;
- Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under *Directives 92/43/EEC* and *79/409/EEC*.

This activity will include delineation of:

- areas designated for the abstraction of water intended for human consumption;
- areas designated for the protection of economically significant aquatic species;
- areas designated for the protection of habitats (including birds);
- areas designated as recreational and bathing waters; and
- nutrient-sensitive areas.

Created maps of all sub activities mentioned above will be result of this activity, and it will be necessary action for further duly implementation of WFD, sustainable development and rational use of waters in Montenegro.

Activity 1.5: Improving of water monitoring system in accordance with WFD;

Monitoring is a cross-cutting activity within the Directive and as such there are important interrelationships with other Articles and Annexes of the Directive. A key Article in relation to monitoring and the design of appropriate programmes for surface waters and groundwater is Article 5. Article 8 of the Directive establishes the requirements for the monitoring of surface water status, groundwater status and protected areas. Monitoring programmes are required to establish a coherent and comprehensive overview of water status within each river basin district. The number of water bodies required in monitoring programmes will, therefore, be strongly dependent on the degree of variation in the status of the water environment as well as on the extent and characteristics of surface waters in a Montenegro territory (e.g. number of lakes, whether the State has a coast, etc.).

Institute for Hydrometeorology and Seismology performs monitoring of quality surface waters in Montenegro on 13 main rivers, Lakes: Skadar, Black and Plav, Coastal sea waters, as well as Zeta plain ground waters in accordance with the Regulation on surface and ground waters quality and quantity characteristics' investigations.

This activity will be conducted in accordance with WFD, after analysis of current situation of water monitoring in Montenegro. Programmes of monitoring for surface and ground water will be established in accordance with Article 5 from WFD, also with Annex V, and technical specifications and standardised methods for analysis and monitoring status will be in accordance with the procedure from Article 21.

This activity will be achieved by the following sub-activities:

- Analysis of current situation of monitoring surface and ground water in Montenegro
- Construction and equipping of missing hydrological station in accordance with WFD
- Equipping of automatic a station for measuring of water quantity and water quality of the transnational profiles of watercourses and accumulations;
- Improving water monitoring program in accordance with the WFD;

Development of River Basin Management Plans in Montenegro

Montenegro is basically Adriatic-Mediterranean and Dinaric country, located between 41° 52' and 43° 32' northern latitude, and 18° 26' and 20° 21' eastern longitude. Additionally, it is opened towards south Adriatic with attractive and 293.500 m long shore. Area of Montenegro is 13.812, with 4.800 km² of sea (inner sea). Total length of its ground borders is 614 km, 14 km borders with Croatia, 172 km with Albania, 203 km with Serbia and 225 km with Bosnia and Herzegovina. Width of territorial sea is 12 nautical miles (22.224 m), and jaggedness coefficient of 2,8 compared with 3,3 for south Slavic shoreline in general. Relief is mostly mountainous. Basis of relief is Dinarides mountain system, stretching parallel to coastline. Highest peaks are above 2500 m. Average elevation is 1050 meters above sea level.

Its northern and central part is made of high mountain ridges and plateaus, intersecting deep and narrow river valleys. Relatively spacious plateau expands in its central part, in the area of the Lake of Skadar and Zeta River.

From the administrative point of view, Montenegro is divided into 23 municipalities, out of which Nikšić is the largest municipality (2.065 km²), while Tivat is the smallest (46 km²). Municipality of Podgorica (1.441 km²) has 169.132 inhabitants, or almost one third of total population of Montenegro (27,3% - 2003), which would imply that it (capital Podgorica) became due to its geographical location as well.

Location of Montenegro in southern part Adriatic shoreline, across the Otranto Strait, had special impact on rainfall regime, which has Mediterranean characteristics in this region, and also reaches

European maximum values. It is the area of the most intensive hydrologic regime in Europe. That's the reason why Montenegro is one of regions rich in water. Relatively deep river valleys and high plateaus contributed to the concentration of sizeable hydro power potentials. Possibility of water accumulation and its utilization for various purposes, especially for production of electric energy, led to the fact that water represents the major natural wealth this region has, which exploitation can be a ground for further economic development.

Activity 2.1: Development of Adriatic Sea River Basin Management Plan

Basic characteristic of Montenegrin hydrography is the existence of two closely equal watersheds: Black Sea and Adriatic; Adriatic watershed is attributed with 47.5% (around 6267 km²) of area of Montenegro. Important rivers (major superficial currents) of Adriatic watershed are following rivers: Morača, Zeta, Rijeka Crnojevića and Cijevna, all gravitating towards Lake of Skadar from which they overflow to Bojana River and further to Adriatic Sea.

Part of Montenegrin territory was flooded when the artificial lake of hydro power plant „Trebišnjica“ was made. Natural lakes in Montenegro are relatively numerous and the largest lakes are located in planar terrain of south Montenegro. Skadar lake was formed in spacious depression is the largest lake in Balkan area. The size of Skadar lake is variable, between less than 400 km² at minimal water level, and up to 525 km² at maximums registered water level. Volume of Skadar lake for gives sizes is 1.75 and 4.25 km³ respectively, where we can see that active volume of Skadar lake (value between the lowest and highest water levels) is around 2.5 km³.

Šasko Lake is the second largest lake in Montenegro, located between Skadar Lake, Bojana River and Adriatic Sea. Crno, Plavsko and Biogradsko Lake are also natural reserves, as typical examples of glacial lakes. Except for Plavsko Lake, all these lakes are located in national parks. Apart from mentioned lakes, there are other smaller lakes of glacial or karst origin.

Section of Adriatic Sea between Montenegro and Italy is 200 km wide and makes part of south Adriatic basin, where the where the greatest depth of Adriatic were recorded – around 1400 m. Total length of coastline of Montenegro is around 300 km. Some 80% of shoreline is rocky, where great depths are recorded immediately next to the shore, while other part of the shore is shallow with sand or gravel bottom. Longest beach is the Velika plaža in Ulcinj. There are numerous spaces (at shoe and at sea) which are suitable for tourism and recreation.

Average ebb and flow amplitude is around 23 cm. Adriatic Sea is relatively warm sea. Dominant direction of winds is parallel with coastline towards northwest. Salinity of south Adriatic sea (38.6 ‰) is somewhat lower than the average for Mediterranean Sea (39 ‰).

The average annual precipitation, due to these orographic factors, is very uneven and ranges from about 800 l/m² in the far north to about 5000 l/m² in the southwest (the slopes of Orjen). Cyclonic activities in the Mediterranean and moist flows from the south in the winter months and orographic barriers make a significant influence on the ultimate southern, south-western and south-eastern parts of Montenegro to have significantly higher annual precipitation than the northern end parts. On the slopes of Orjen, in record years, precipitation may reach approximately 7000 l/m, as this area is classified as the rainiest area of Europe. Other areas with very high rainfall are Lovcen and Rumija with more than 3500 l/m² and Prekornica and Žijovo with more than 2500 l/m. In the narrow coastal belt, the average annual precipitation ranges from 1300 to 2000 l/m

This project will produce preparation of RBMPs for Adriatic Sea Basin, in reference with shared experience and good practice neighbouring and EU countries and under experience from Danube and Sava RBMPs.

Activity 2.2: Development of Black Sea basin management plan

Black sea watershed is attributed about 52.5% (around 7545 km²) of area of Montenegro. Another specific of Montenegro is that highest mountain peaks and wreaths are located within the Black Sea watershed, while the water divide between the Black Sea and Adriatic watershed is south of it. Generally, both watersheds are rich with water, even compared to worldwide standards. However, sizeable portion of Montenegro is made of continental karst, without constant effluents, with numerous sinkholes where water is drained and further efflux underground towards currents or sea.

Important rivers (major superficial currents) of Black Sea watershed are following rivers Piva, Tara, Čehotina, Lim as currents from Drina basin and Ibar as a river from Zapadna Morava basin.

The areas of Lim, Ibar and Cehotina are characterized by moderate continental climate regime with more frequent precipitation in the first half of the summer and October and with a minimum in February. The greater part of the territory of Piva and Tara basin has a modified Mediterranean type precipitation rate. The medium monthly precipitation for that area has certain regularity in terms of the amount of fallen atmospheric precipitation during the year. Reported maximum occur during October and March and minimum in July and August. The boundary between the modified Mediterranean precipitation regime and continental precipitation regime extends from the mountains Ljubišnja to the southeast, through Sinjajevina and Bjelasica to Prokletije.

Montenegro has signed MoU (Memorandum of Understanding) for West Balkans Drina River Basin Management Project, which is approved by World Bank and Global Environment Facility (GEF). This project includes Drina river shared countries (Montenegro, Bosnia and Herzegovina and Serbia). The SCCF-GEF West Balkans Drina River Basin Management Project would notably fund the following: (i) investments for the river management simulation models that will be able to guide the preparation and implementation of regional multi-sectoral basin plans and prepare for climate variability adaptation, and to strengthen the hydrological and meteorological facilities and develop a data-base of hydro meteorological information ; (ii) priority pilot investments of more local character with the objective to enable responses to emergency or otherwise priority situations related to the mitigation of risks of local flood and drought and enhancement of the resilience to climate change and variability; and (iii) institutional capacity development in the three countries to create more effective longer-term structural and regulatory arrangements for Drina river basin management and development, and inform decision-makers regarding strategic investments of regional significance in the Drina River Basin Management.

The Drina River, 346 km in length, is the largest tributary of the Sava River, which in turn is the largest tributary of the Danube. Originating in the snowy Dinaric Alps in Montenegro at an altitude of 2,500 meters, it drains a vast karst plateau which receives the highest annual rainfall in Europe (up to 3,000 mm), resulting in the highest specific runoff in Europe (up to 50 l/s/km² for its extreme high as well as low flows, with part of the base flow due to snowmelt. The extremes are exacerbated by non-harmonized operation of eight hydropower plants. The Drina basin is in addition considered the part of the Danube basin that is most sensitive to climate variability. The Drina River is formed by the confluence of the Tara and Piva rivers, both of which rise in Montenegro and converge on the border with Bosnia and Herzegovina (BiH). About 32% of Drina Basin lies in Montenegro. Excluding river Ibar all other tributaries of Black Sea Basin in Montenegro are also tributaries of Drina River Basin.

The Montenegro is now member of the International Commission for the Protection of the Danube River (ICPDR) and participates in the International Sava River Commission. Both Commissions have prepared the EU-compliant “roof” River Basin Management Plans (RBMPs) for the Danube and the Sava in 2007 and 2013, respectively. However, these Plans are of a more general nature, and call for further detailed management planning for the Drina basin. In line with the EU WFD, they concentrate heavily on water quality management, the good status of water bodies, and wastewater treatment strategies, while under-reporting on investments and measures that relate to the river morphological changes, water quantity management and trade-offs – key challenges for the Drina basin. Still, the

Sava and Danube plans would provide useful frameworks and parameters within which the basin plan of the DRB is to be prepared.

This project will produce preparation of RBMPs for Black Sea Basin in coordination with project mentioned above, also with experience and good practice of the neighbouring countries and with work done under Danube RBMP (ICPDR) and Sava RBMP (Sava Commission).