

With funding from



Operationalising the Drin SAP from a Nexus perspective

A “Nexus Roadmap” for the Drin basin

In the framework of the project

“Promoting the Sustainable Management of Natural Resources in South-eastern Europe, through the use of the Nexus approach”

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Introduction - Background

The Drin Strategic Action Programme (SAP)

Coordinated action for the sustainable management of the Drin Basin is driven by the related Memorandum of Understanding that was signed in 2011 by the Ministers of the water and environment management competent ministries of the Drin Riparians. The Drin Core Group (DCG), a joint body comprising representatives of Water-related Ministries and Institutions of the Riparians has the mandate to coordinate actions for the implementation of the MoU. The DCG also serves as the Steering Committee for the activities of the SEE Nexus Project in the Drin basin.

The “Strategic Action Programme (SAP) for the sustainable management of the Extended Drin Basin”¹ was developed through extensive consultation with over 200 stakeholders, including relevant Ministry representatives and technical experts, with support from the Global Environment Facility (GEF)-funded “[Drin Project](#)”. The SAP sets out over 100 agreed policy and technical actions and is the first strategic document for the sustainable management of shared water resources in the region. It was endorsed on 24 April 2020 by Ministers and High-level representatives from the Drin Riparians.

The Nexus approach

The Nexus approach stems from the realization that water, energy, agriculture and natural ecosystems exhibit strong interlinkages. Under a traditional sectoral approach, each sector plans and manages the use of resources without necessarily taking into account related considerations from other sectors. The Nexus approach is essentially about moving beyond the traditional sectoral thinking and adopting an integrated and coordinated approach with a view to reconciling sectoral interests, resolving conflicts by effectively managing trade-offs, and capturing intelligent synergies, while providing opportunities for innovation and enhanced resource efficiency.

This requires a coherent approach in the design and prioritisation of policy options, management practices and infrastructure planning in order to maximise overall benefits across sectors, ensure security in terms of resources, economic prosperity and resilience to climate change impacts.

The Nexus Assessment Process in the Drin basin

The Nexus Assessment process in the Drin basin was initiated under the Transboundary Diagnostic Analysis (TDA) developed in the context of the “Drin Project”, which included a “Thematic Report” on the Water-Food-Energy-Ecosystems Nexus, prepared in 2018-2019. This Thematic Report (essentially the [Phase I Nexus Assessment](#)), also supported by the SEE Nexus Project, identified cross-sectoral interlinkages in the basin and provided a qualitative analysis of inter-sectoral dynamics in the context of river basin management, in the key fields of energy, forestry, and agriculture.

Drawing directly from these findings, a [Phase II Nexus Assessment for the Drin basin](#) was developed in 2020-2022 in the framework of the ADA-funded SEE Nexus Project, exploring in detail (i) the interface of hydropower operations and floods, and (ii) aspects of sustainable biomass and forestry in the basin.

An integrated energy-water modelling was developed by analysts from the KTH Royal Institute of Technology (Sweden) and the Polytechnic University of Tirana. It included a detailed hydrological representation of the Drin River Basin and a detailed representation of the hydropower plants and dams’ cascades in the Basin, as well as the entire electricity systems of the Riparian countries. The model explored different scenarios on the operations of HPPs on the Drin. A key finding of the analysis is that changing the operational rules of the HPPs to accommodate floods (increasing the buffer volume of the 2 largest reservoirs by 20% in the wet season) will have an insignificant impact power generation but a potentially significant impact on flood control, especially in the cases of up to medium flood events.

¹ The Drin SAP is available here: <http://drincorda.iwlearn.org/gef-supported-drin-project/the-drin-strategic-action-programme>

In parallel, an analysis of biomass and forestry issues in the Drin basin was prepared by the Connecting Natural Value and People (CNVP), mapping and quantifying key intersectoral linkages between water, energy, forestry and biomass, and outlining related recommendations in terms of Institutions, Information, Instruments, Infrastructure and International cooperation.

Scope, objectives and structure of the report

This report builds up on the analyses developed in the framework of the Phase II Nexus Assessment for the Drin basin. It identifies and presents a set of actions aiming to operationalize the cross-sectoral Nexus-related activities included in the SAP. In that regard, this report provides the basis for a Nexus Roadmap for the Drin basin. Following up on the issues explored in the Nexus Assessment, this report gives special focus on actions related to the HPP/floods interface, as well as on sustainable forest management, erosion/sedimentation, and agriculture. These actions are presented following the format of those in the SAP.

In order to provide additional information related to the operationalisation of these actions, the report includes 2 Annexes:

- **Annex I** provides a comprehensive overview of the competent authorities in the Drin Riparians that are responsible for policy-making and management in the fields of hydropower development, flood management, forestry/biomass, and agriculture
- **Annex II** outlines recent, ongoing, and planned projects and initiatives in the Drin Riparians related to the above fields

Actions to operationalize the cross-sectoral Nexus-related activities included in the Drin SAP

The proposed actions are presented in the below Matrices, following the format of those under the Drin SAP.

The first Matrix focuses on the interface between hydropower operations and flood management in the basin and describes 7 proposed actions.

The second Matrix outlines 6 proposed actions of cross-sectoral relevance, related to sustainable forest management, erosion/sedimentation, and agriculture.

The Matrices are laid out with the following headings:

1. **Specific Actions:** A brief description of given management actions with a focus on addressing the causes of the transboundary problems.
2. **Timescale:** The timescale has been set as years from 2022.
3. **Priority:** The priority column identifies those actions that are High, Medium, or Low priority. Low priority does not suggest the Action is unimportant, merely that other Actions need to be considered first.
4. **Location:** The location column identifies where in the Drin Basin the action is likely or suggested to take place. Many actions are basin-wide and include all the Riparians. Others are either Riparian, sub-basin or location specific.
5. **Responsible Riparian's organizations/authorities:** This column identifies the organizations responsible for the Action. These include local, Riparian basin-wide and international organizations.
6. **Financing:** This column outlines potential funding sources (e.g. Riparian, EU, development banks).
7. **Budget:** This column outlines very approximate costs: L – Low <100,000 euro; M – Moderate 100,000–1,000,000 euro; and H – High >1,000,000 euro.
8. **Indicators:** The indicators presented aim to measure progress towards implementation of the actions.
9. **Impact of action on water resources/ ecosystem [at a transboundary level]:** This notes the 'type' of indicator (process, stress reduction or status) and the expected beneficial ecosystem impacts resulting from the action.

SAP ACTION MATRIX FOR THE HYDROPOWER / FLOODS INTERFACE IN THE DRIN BASIN

	Specific actions for HPP/floods interface	Timescale	Priority	Location	Responsible organization/ authority in each Drin Riparian	Indicative sources of Financing	Budget	Indicators	Impact of action on water resources/ ecosystem (at the transboundary level)
1.	Strengthening of regional and Riparian institutions (including meteorological and hydrological services) through training and regular working meetings on flood risk forecasting, and enhanced cross-border coordination.	< 5years	H	All Riparians - Drin sub-basins	Hydrometeorological services	Riparian budgets International Development Partners	M	Functional Riparian and sub- Riparian institutions strengthened	P (process) Capacity-building to enable the agreed monitoring programme to be implemented, which will inform Riparians on hydrological issues, including flood risk forecasting.
2.	Maintenance and updating river basin modelling tools and technologies for flood forecasting: - Maintenance of the existing flood forecasting system developed under GIZ project. - Updating the flood forecasting system with new tools for integration of the hydropower plants. - Preparation of new procedures for flood forecasting Standard Operational Procedures (SOP) and Common Alerting Protocol (CAP).	< 5 years	H	All Riparians - Drin Sub- basins	Competent Riparian authorities	Riparian budgets International Development Partners EU	H	Use of tools Operational tools and software	P (process) Improved knowledge on floods Tools available for flood management Stress Reduction Implementation of flood risk measures
3.	Update the hydrometeorological forecasting information system to include specialized information from dam operators regarding water management (inflows/outflows): - Identification of information needed by dam operators - Adaptation of hydrological models for dam management - Testing model for improving dam operation	< 5 years	H	Large dams in Albania, Montenegro and North Macedonia	Hydrometeorological or related institutions Ministries of water, energy, the economy	Riparian budgets EU International Development Partners Hydropower plant operators	M	Use of tools Operational tools and software Publication of the forecast	P (process) Better information /forecast for hydropower plant operators and for Riparians' other water use requirements
4.	Evaluation of flood scenarios for the operation of dams to contribute to the reduction of flood risks and maximize energy production: - Identification of scenarios, including those considering different levels of cooperation / coordination among hydropower plants for the operation of the dams - Testing of the scenarios using hydrologic and energy models - Assessment of results and recommendations on the level of coordination, including operation rules for each one of the dams under different scenarios	< 5 years	H	Albania and North Macedonia	Hydropower companies of Albania and North Macedonia	International Development Partners	L	Hydrological models Energy models technical reports	P (process) Reports and recommendations provide information to assist discussions between the DCG and hydropower plant operators for the optimization of dam operations in relation to ecosystem service demands, flood reduction and energy production
5.	Update of the flood management regulation from dam operators with implementation of the new updated forecasting system in coordination with the hydrometeorological services: - Identification of present status and regulation by dam operators - Adaptation of the new outputs from the hydrological forecasting in the Standard Operational Procedures - Implementation of new regulations for improving dam operation for flood management	< 5 years	H	Large dams in Albania, Montenegro and North Macedonia	Hydrometeorological or related institutions Ministries of water, energy, the economy	Riparian budgets International Development Partners HPP operators	M	Publication of the forecast	P (process) Better information / forecast for hydropower plant operators and for Riparians' other water use requirements Stress Reduction Implementation of flood risk non-structural measures

6.	<p>Strengthening of the coordination of dam operators in Albania and North Macedonia by training and regular meetings:</p> <ul style="list-style-type: none"> - Exchange of the information and rules of flood operations - Implementation of the new operational rules with the use of hydrological modelling - Analyses of the situation of the coordination and the system after every flood event - Report with operational recommendations 	< 5years	H	Large dams in Albania, Montenegro, and North Macedonia	Hydrometeorological or related institutions Ministries of water, energy, the economy	Riparian budgets International Development Partners	L	Functional Riparian and sub-Riparian institutions strengthened	P (process) Capacity-building to enable the Riparians on hydrological issues, including better flood risk forecasting.
7.	<p>Evaluation and implementation of nature-based solutions to reduce flooding:</p> <ul style="list-style-type: none"> - preparation of a study on nature-based solutions (including improved vegetation cover) to identify measures and areas for pilot implementation - implementation of pilots and assessment of results - report with policy recommendations - feasibility study on investments for nature-based solutions indicating, among others, areas, technical specifications and cost - implementation of nature-based solutions. 	<5 years	H	Areas where flood risk is high	Competent authorities depending on the measures	Riparian budgets International Development Partners	H	Number of pilots implemented Number of nature-based solutions financed	SR (stress reduction) ES (ecosystem/socio-economic status) Pilot implementation to reduce socio-economic damage from floods

SAP ACTION MATRIX FOR SUSTAINABLE FOREST MANAGEMENT, EROSION/SEDIMENTATION, AGRICULTURE

	Specific actions for HPP/floods interface	Timescale	Priority	Location	Responsible organization/ authority in each Drin Riparian	Indicative sources of Financing	Budget	Indicators	Impact of action on water resources/ ecosystem (at the transboundary level)
1.	<p>Identification of erosion hotspots to inform policymaking and guide necessary managerial action:</p> <ul style="list-style-type: none"> - Identification of the most eroded areas in the river basin - Guiding and leading the overall study process on the ecosystem services at the river basin. - Defining appropriate measures for the rehabilitation of the identified critical areas in order to reduce the risk of sediment transportation and potential damage to the ecosystems. - Preparation of a report and key recommendations for policymaking, law drafting and management actions to minimize erosion. 	< 5 years	H	All Riparians - Drin sub-basins	<p>Geological institutions</p> <p>Hydrometeorological institutions</p> <p>Ministries of the environment, agriculture/forestry and water authority</p>	<p>Riparian budgets</p> <p>International Development Partners</p> <p>Contributions from HPP operators</p> <p>Research projects</p>	L	Technical report	<p>P (process)</p> <p>The information available at the basin level to guide measures to minimize erosion</p>
2.	<p>Development of a basin climate-change impacts and vulnerability assessment for agriculture and forestry sectors:</p> <ul style="list-style-type: none"> - Review of existing data/studies and completion of further research on climate change impacts and vulnerability in the basin (e.g. establishing values of production under different conditions; water quantity in the agriculture) - Preparation of a report and key recommendations. 	5-10 years	M	All Riparians	Relevant Riparian authorities	<p>Riparian budgets</p> <p>International Development Partners</p>	M	Technical report and data	<p>P (process)</p> <p>Riparian authorities have information to guide sectors with climate-related decisions</p>
3.	<p>Assessment of existing incentives and subsidies to identify those that have an effect on ecosystems (both positive and negative) and the services provided, and identification of necessary reforms:</p> <ul style="list-style-type: none"> - review of existing data/studies and completion of further research on incentives and subsidies that impact biodiversity - preparation of a report and key recommended Riparian-level reforms. 	5-10 years	M	All Riparians	<p>Ministries of the economy, energy, finance, agriculture and the environment</p> <p>Environmental agencies</p> <p>University/research institutes designated by the competent ministries or other authorities</p>	<p>Riparian budgets</p> <p>International Development Partners</p>	L	<p>Technical reports on economic incentives</p> <p>Recommendations for policy change</p>	<p>P (process)</p> <p>Riparians are aware of the current impacts of subsidies</p>
4.	<p>Study for identification of the forest fire risks:</p> <ul style="list-style-type: none"> - study to identify priority areas, actions and interventions for each area - implementation of pilot actions and assessment of results 	< 10 years	M	Locations identified through the study	<p>Ministries of agriculture/forestry</p> <p>Inspection services</p> <p>Forestry agencies</p>	Riparian budgets	L-M	<p>Study report</p> <p>Interventions</p>	<p>P (process)</p> <p>SR (stress reduction) ES (ecosystem status)</p> <p>Improved understanding of forest fires</p> <p>Pilots will reduce the risk of forest fires</p> <p>Reduced forest fires benefit the forest ecosystem and reduce soil erosion resulting from destroyed fires</p>

5.	<p>Implementation of erosion control measures (e.g. reforestation, nature-based solutions and irrigation systems) in priority areas:</p> <ul style="list-style-type: none"> - preparation of a study to identify erosion management measures in identified hotspots for testing and upscaling - agreement on priority areas and identification of appropriate measures - implementation of identified measures (infrastructure and/or non-infrastructure) - evaluation of the results - development of a feasibility study on investments for scaling up the implementation of related activities, indicating, among others, areas, technical specifications and cost. 	< 10 years	H	All Riparians	<p>Line ministries for water and water directorates</p> <p>Municipalities</p> <p>Ministries and organizations involved with erosion and lake management, possibly forestry (subject to measures)</p>	<p>Riparian budgets</p> <p>International Development Partners</p>	H	<p>Number of priority areas with mitigation measures implemented</p> <p>Technical reports on measures and measures implemented</p>	<p>P (process)</p> <p>SR (stress reduction)</p> <p>Studies will lead to management prioritization of locations for preliminary actions</p> <p>Implementation of actions will reduce erosion at selected sites</p>
6.	<p>Introduction of non-structural measures using climate risk information:</p> <ul style="list-style-type: none"> - design of non-structural measures for the Riparians, including mapping of high-value forests (for flood protection, biodiversity, biomass), - forest uses for flood protection and reforestation potential. 	< 5years	H	All Riparians - Drin sub-basins	Relevant Riparian authorities	<p>Riparian budgets</p> <p>International Development Partners</p>	H	Technical report and data	<p>P (process)</p> <p>Considerations to respond to climate change in the Drin Basin</p> <p>Maps available for targeting flood protection</p>

Annex I - Competent Authorities in the Drin Riparians responsible for hydropower, flood management, forestry/biomass, and agriculture

Albania

- The **National Water Council (NWC)** is governed by Council of Ministers' Decision no. 590/2017. NWC is a central decision-making authority, which defines the national policy on water resources. The Prime Minister chairs the NWC.
- **Water Resources Management Agency (WRMA)** is a public, budgetary institution, subordinated to the Prime Minister, established by a special law (No. 6/2018). WRMA is the main central institution responsible for the integrated management of water resources. WRMA is playing simultaneously the role of secretariat of NWC.
- **River Basin Councils (RBC)** are the local bodies responsible for the management of water resources in the respective basins focusing on the approval of permits/authorizations and river basin management plans.
- **The Administrative River Basin Offices (ARBOs)** are regional branches/directorates of WRMA responsible for drafting inventories of water resources use in quantity and quality, managing applications for water permits/authorizations, monitoring water use, and producing periodic reports for the RBC.
- **Prefects** of the biggest district of the river basin chair the RBC and they have also some responsibilities at the local level for civil emergency planning and crisis management within their administrative boundaries.
- **Ministry of Agriculture and Rural Development (MARD)** is responsible for crucial roles in drainage infrastructure, access to drainage systems, integrated water utilization for irrigation purposes, and drainage. Agriculture is under the jurisdiction of the same ministry.
- **The Regional Drainage Directorates (Lezha and Korça)** are responsible for the use and maintenance of the irrigation and drainage system and any flood protection works/measures within their area of operation to remove excess water, prevent water accumulation and flooding.
- **Ministry of Infrastructure and Energy (MIE)** is responsible for the elaboration of the policies related to water supply, sewerage and wastewater management and infrastructure. They have also responsible for, energy issues, hydropower plants hydropower development policy, etc.
- **Albanian Power Corporation (KESH)** remains the dominant electricity generator in Albania, generating 2/3 of domestic power from Drin River cascade.
- **Ministry of Tourism and Environment (MTE)** is responsible for the specific plans which address challenges of water quality and, in cooperation with MARD for the strategy of managing the water resources and establishment of a basin-based inventory of water resources. Responsibilities regarding nature protection are foreseen mainly within the scope of the **MTE** and its **Sector of Biodiversity and Protected Areas**, under the **Directorate of Forestry and Biodiversity**. These include designing the nature protection policy and drafting and implementing laws, strategies, and plans. The **Environmental Inspectorate** is responsible for inspection and control of activities that are potentially harmful to the environment. There are 36 **Forestry Service Directorates (DFSs)** in total. These are established (one in every District) being responsible for the day-to-day administration of protected areas including wildlife and game hunting.
- **National Environmental Agency (NEA)** is responsible for environmental protection and issuing environmental permits. It executes regulatory functions and monitors the state of the environment. It co-operates with European Environmental Agency and prepares reports on discharge registers, manages forestry data and inventory, and presents to the Minister proposals for technical support financed locally or by international donors.
- The **Institute of Geoscience (IGEO)** is in charge to monitor surface water quality and quantity. It is a part of the Polytechnic University of Tirana and is under the Ministry of Education and

Sports (MES) and does not report directly to the Council of Ministers. IGEO is responsible for surface hydrological and meteorological monitoring as well as for issuing a daily meteorological bulletin.

- **Municipalities**, since 2011 local authorities (municipalities and parks) have been granted the responsibility for the management of water supply, wastewater collection, and drainage and flood protection.

Kosovo*

- **Inter-Ministerial Water Council** is an inter-ministerial body in charge of collecting and evaluating the positive experiences in the water sector, but also the drawbacks in implementation, communication, and cooperation. It provides a platform for the development of policies for reforming the water sector considering different perspectives, from the water users to one the water providers.
- **The Ministry of Environment and Spatial Planning (MESP)** is the line ministry for water resources management. Development and implementation of policy in the field of the water sector including the development of legal and strategic documents and plans are with the Ministry. It deals with water administration, use, pollution, monitoring of water quality, issuance of permits for activities potentially entailing environmental impacts, etc.
- **The Regional River Basin Authority** is under development based on a draft Regulation on internal organization and systematization of the Ministry of Environment and Spatial Planning.
- **The Environmental Protection Agency (KEPA)** is a central institution under the MESP responsible for environmental monitoring. Part of the KEPA is Kosovo* Hydrometeorological Institute.
- **The Ministry of Agriculture, Forestry and Rural Development (MAFRD)** is responsible for water utilization for irrigation purposes and drainage. Based on Article 5 of Law No.02/L-9 for the irrigation of agricultural lands, determining the irrigation and drainage policies. Developing policies and implementing laws for the development of agriculture and forestry. Part of the Ministry of Agriculture, Forestry and Rural Development is the **Forestry Agency** and the **Agency for Agricultural Development**.
- **The Ministry of Economic Development (MED)** is responsible for hydropower production. Under the Department of Energy within MED is the Division for Renewable Energy Sources, Efficiency, and Cogeneration.
- **The Water Services Regulatory Authority (WSRA)** is the independent economic regulator for water and wastewater services in Kosovo*. The WSRA role is to ensure non-discrimination and the provision of qualitative, efficient, and reliable services at a fair and reasonable price for customers with respect for the environment and public health.
- **Municipalities** have duties and responsibilities regarding water management, water permits, protection from damaging water effects or other purposes, erosion and other harmful activities in urban and suburban areas, flooding risks, and drinking and irrigation water.

North Macedonia

- **The Assembly** is the supreme legislative institution of the country. It has the power to adopt the relevant laws and to adopt the strategic and planning documents at the national level – the National Strategy for Waters (NWS) and the Water Master Plan (WMP).
- **The Environmental Administration (EA)** is the body established by the Law on Environment, performing water management functions as prescribed by the Law on Waters. It is the administration ensuring the fulfillment of the responsibilities in water management.
- **The Department of Waters (DW)** is the department within EA that has the leading role in the implementation of the provisions of the Law on Waters. To address the requirements of the Water Law, the DW is structured into 6 units, including a separate unit for each river basin district including Crni Drim RBD. Part of the organizational units within the water department has jurisdiction over issues that are raised at the level of horizontal water management issues relevant for all RBD including Crni Drim. The unit for management of the Crni Drim River Basin

District is competent to perform the program for protection against harmful effects of waters as well as the basic measures for protection against floods.

- **The Ministry of Economy (ME)** is responsible for cooperation with MEPP to prepare proposals for concessions for water use. Its area of competence covers groundwater, the use of mineral and thermo-mineral resources, and electricity generation. ME also provides input to the NWS and has limited responsibilities in monitoring.
- **Macedonian power plants (ELEM)** are considered a strategically important company and the pillar of the North Macedonian energetic system. ELEM is operating in the hydropower energy production HES "Crn Drim".
- **The Ministry of Transport and Communication (MTC)** is responsible for communal infrastructure, issues of water supply and collection, drainage, and treatment of wastewater, especially the aspect of construction and management of water management facilities.
- **The Ministry of Agriculture, Forestry and Water Economy (MAFWE)** through the Administration for Water Management performs expert supervision over the operations of Water to undertake actions for appropriate maintenance of infrastructure; prevention of the appearance of infrastructure damage; prevention of the occurrence of damage to buildings of public interest. The **MAFWE** has overall responsibilities over agriculture, forest management, plant protection, fisheries and hunting. Sectors, directorates and units within the MAFWE responsible for drafting, proposing and implementing related regulations in the respective areas include the Directorate for Agriculture and its Unit for Fisheries and Aquaculture, Plant Protection Directorate, Directorate of Forests, etc.
- **The Department for Protection and Rescue (DPR)** is an independent state body under the Government of North Macedonia, established with the Law on Protection and Rescue (LPR). In the area of water management, their activity is related to the specific responsibility to cooperate with MEPP in consultations on measures for protection against floods.
- **The Administration for Hydrometeorological Service (AHMS)** is the national authority for meteorology and hydrology. As per the Law on Hydrometeorological Activities, AHMS regulates meteorological and hydrological matters. It is authorized for the implementation of maintenance and development of meteorological and hydrological observation networks and measurements, monitoring and research of atmosphere and water resources, and the application of meteorology and hydrology. AHMS acts of hydrological observance are performed continuously and present a single hydrometeorological information system.
- **The National Council for Waters (NCW)** has been established with the purpose of advising on issues for water management, harmonization and coordination of the needs and interests, as well as the proposal of various measures for preservation, protection and improvement of the water regime in the territory of the country.
- **The River Basin Management Councils (RBMCs)** have to be established for each river basin, and on a voluntary basis for sub-basins, with the purpose of preparing, implementing, and monitoring the river basin management plans, and proposing measures for improved water management. According to Article 66 of the Law on Waters, the opinions of the RBMC are taken into consideration in the planning process at all stages, from beginning to end.
- **Local Self/Government Units (LSGUs)**, especially in protection of water from small industry and communal waste waters, flood protection, erosion, water supply and water discharge and other issues. LSGUs are responsible for protection from, and prevention of, water pollution, drinking water supply, drainage, collection and treatment of wastewater.

Montenegro

- **The Ministry of Agriculture and Rural Development (MARD)** and its Directorate for Water Management oversee operations related to water management policy, use of water, waterway materials and water land, and protection against adverse water effects. The following fall under its competence, i.e., regulation of watercourses and protection from harmful effects of water, the definition of uses of water resources, system solutions for ensuring and using of water, water-bearing soil and water springs for irrigation purposes, water quality monitoring and inspection in the field of water management, international

cooperation in water management, establishment, and operation of a water information system, etc. MARD and its Sector of Agriculture and Sector of Forestry and Hunting are responsible for the development and implementation of policy in the field of agriculture, fisheries, forestry and rural development, as well as the preparation of the necessary legal and strategic documents and plans.

- **Forest Administration** is the state body under MARD, responsible for the management and protection of state-owned forests as well as for executing professional activities related to private forests (planning, tree marking, protection, etc.). The Forest Administration has 17 regional offices.
- **The Water Administration (WA)** is a body with executive powers under the MARD and is responsible for the implementation of water legislation. This includes administrative affairs related to ensuring and implementing measures and works on water and watercourses; protection from adverse effects of water and protection of water from pollution; provision for use of water, materials from watercourses, water land and water management facilities owned by the state through concessions, etc., as well as preparation of documentation in this regard, maintenance of facilities for protection and defense against floods, erosion and other hazards. Also, Water Administration is responsible for the calculation of water fees paid and ensuring rational use of funds collected in accordance with the program of the Government.
- **Institute for Hydrometeorology and Seismology** which conducts monitoring of qualitative and quantitative parameters, according to the annual program of systematic monitoring of surface and ground waters.
- **The Ministry of Interior (MI)** within its Directorate for Emergences is responsible for the coordination of national response including floods. Under the overall coordination of MARD, the Ministry of Interior is in charge of the regulations to be applied and implemented in emergency situations.
- **The Ministry of Economy (ME)** is responsible for geology exploration of minerals, including inter alia, groundwater, and administrative affairs related to the system of concessions and allocation of concessions in this field. Also, ME is responsible for the overall implementation of energy policy in the country, including the production of hydro-energy.
- **The Geological Survey of Montenegro** and more specifically its Department of Hydrogeology, Engineering Geology and Water Concessions, performs hydrogeological research for the purpose of water supply, protection of groundwater and construction of hydro-power plants and in this respect, it develops related maps as well as studies and reports; it also prepares documentation for the purpose of granting water concessions.
- **The local self-governance** regarding water management includes drinking water supply and drainage, executed by the communal enterprises each municipality established in this regard. The communal enterprises are also responsible for wastewater treatment as well as waste management.

Annex II - Recent, ongoing, and planned projects and initiatives

Ongoing Projects

Title	Donor / Description
Integrated climate-resilient transboundary flood risk management in the Drin River basin in the western Balkans (Drin FRM) project.	<p>The AF-financed project will build the resilience of communities and livelihoods in the Drin Basin to climate-induced floods by catalyzing a shift to a holistic basin-wide climate-responsive flood risk management and adaptation approaches based on enhanced climate information, risk knowledge, and community structural and non-structural adaptation measures.</p> <p>The proposed integrated approach to climate-resilient flood risk management will encompass: increased technical, human and financial capacities of relevant institutions within each Riparian country, with responsibility for flood risk monitoring, forecasting and management to enable the implementation of climate resilient Integrated Flood Risk Management (IFRM).</p>
Construction of new HPP in Skavica, Albania	<p>Albania's Power Corporation (KESH) and Bechtel signed an agreement to begin the early works for the 210 MW Skavica plant on the Drin river under a fast-track delivery approach. Skavica will be located upstream of the Drin cascade, which is home to four hydropower plants. The combination of these existing projects currently produces the largest energy producer in the Balkans, with a combined power output of 1,350MW. Skavica will increase the cascade's output and bring significant additional safety and environmental benefits. As a regulating dam, it will give greater protection against the devastating floods which impact the downstream communities annually.</p>
Blue-Green City Dialogues: Starting point for integrated flood risk management Balkan cities	<p>Three consortia connecting local stakeholders and Dutch water organizations have developed project ideas on applying smart and nature-based water solutions in Albania, Bosnia and Herzegovina, and Kosovo. In Peja in Kosovo, a river runs through the city. The challenges are to link flood risk management to landscape quality. Shkodra, an important historical city in Albania, faces flood risks in the city and downstream in the delta. NWP member Deltares, in collaboration with Cityförster and local experts, is exploring the possibilities of an integrated master plan.</p> <p>For the city of Tešanj in Bosnia and Herzegovina, the existing early warning system needs to be extended to the smaller rivers</p>
Drini i Bardhë (White Drin), Ibër, Morava e Binçës and Lepenc River Basins: Rehabilitation and Construction of Flood Protection Infrastructure	<p>The WBIF has financed the preliminary flood risk assessment, and flood risk and hazard maps for all river basins are prepared with WBIF support. These studies will identify the most urgent investments in flood protection measures. The existing infrastructure is significantly damaged and in urgent need of intervention with rehabilitation measures in many areas and new construction.</p>
Fostering and Leveraging Opportunities for Water Security in Kosovo	<p>The World Bank approved the Fostering and Leveraging Opportunities for Water Security Program (Project 1) for Kosovo. Project Description: The project aims to strengthen the national capacity for managing water security, and to improve water security in the Morava e Binces basin.</p>
TO BE READY "The flOod and Big firE foREst, prediction, forecAst and emergencY management"	<p>The overall objective of TO BE READY is to enhance prevention and preparedness measures regarding natural and man-made disasters and improve safety in the Programme area. This will be achieved by adopting joint protocols and standards in case of wildfires and floods, and improving</p>

	operators' knowledge and skills. EU Contribution IPA. Italy, Montenegro Albania.
IPA Floods and Fires	The 3-year EU-funded IPA Floods and Fires program aims at improving capacities for flood and forest fire risk management in Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, North Macedonia, Serbia and Turkey.
ADAPT: Nature-based solutions for resilient societies in the Western Balkans; Project duration: November 2019 - October 2022	With the financial support of the Swedish International Development Cooperation Agency (Sida), ADAPT aims to increase ecosystem and community resilience to climate change and environmental degradation by applying Nature-based solutions for disaster risk reduction. This regional umbrella initiative works with participating economies and regional and local partners across the Western Balkans.
South-East European Multi-Hazard Early Warning Advisory System (SEE-MHEWSA)	USAID, World Bank, European Commission. Supporting the NMHSs of WMO members in the region to provide forecasters with tools for hazardous weather events to improve early warning; developing a platform to collect existing information, products and tools to support hazard-related decision-making by national authorities, including regional numerical weather and hydrological models.

Recent Projects

Project name	Donor / Description
GIZ project "Climate Change Adaptation in Transboundary Flood Risk Management for the Western Balkans"	Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ) Countries: Southeastern Europe (Albania, Kosovo, Montenegro, North Macedonia). Transboundary flood risk management is strengthened with regard to climate change. The project focuses on the Drin River Basin and supports institutions at the national and local levels. Overall term: 2012 to 2022
The GEF Drin Project "Enabling transboundary cooperation and integrated water resources management in the Extended Drin River Basin"	The objective of the Project is to "Promote joint management of the shared water resources of the transboundary Drin River Basin, including coordination mechanisms among the various sub-basin joint commissions and committees". The project is implemented by the United Nations Development Program (UNDP) and executed by the Global Water Partnership (GWP), through GWP-Med. UNECE is a partner in this process.
Dam monitoring and dispatch centre for the Drin River cascade in Albania.	The project is financed from the proceeds of a loan disbursed by KfW, the German Development Bank, towards the cost of the "Hydropower and Dam Safety Drin Cascade" project. The installation of a new Dam Monitoring and Dispatch Centre (DMDC) for the Drin river hydropower cascade at its headquarters in Tirana, with a backup server at the Vau i Dejes plant to control the cascade's three plants (Fierza, Komani and Vau I Dejes).
Vau i Dejës Floating Solar Photovoltaic Power Plant	EBRD financing floating photovoltaic project. Within the efforts to diversify energy sources, state-owned utility KESH decided to add solar and wind power to the facility and make it a hybrid power plant. An integrated energy production hub would be developed at the site, pointing to a plan to build a 12.9 MW floating photovoltaic system at the lake. The European Bank for Reconstruction and approved a EUR 9.1 million loan from a total EUR 14 million project.
Sector Study on Biomass-based Heating in the Western Balkans	The WBIF-funded sector study presents a comprehensive roadmap of recommended actions in the short-term, and medium to long-term. Indeed, the study concludes that there are significant economic opportunities for investments in increased and more efficient use of biomass in the region, and the benefits outweigh the costs. Countries: Albania, Bosnia and Herzegovina, Kosovo*, North Macedonia, Montenegro, Serbia.

Regional Strategy for Sustainable Hydropower in the Western Balkans	“The Study” is a sub-project under implementation by the WBIF-IPF3 consortium led by Mott MacDonald, with the European Commission, DG NEAR D.5. Countries: Albania, Bosnia and Herzegovina, FYROM, Kosovo*, Montenegro and Serbia. It connects 8 background reports, which focus on specific technical issues or professional areas related to hydropower development.
Prespa Lake Watershed Management Plan	The Integrated Ecosystem Management in the Prespa Lakes Basin project is implemented by UNDP with financial support from the Global Environment Facility (GEF). Its overall objective is to help the region’s people with long-term economic and social development, conserve the rich biodiversity and protect the waters of the Prespa Lakes Basin.
Gap Analysis/Needs Assessment in the Context of Implementing the EU Floods Directive in the Western Balkans	The assignment was initiated following the decision on the WBIF SC and the subsequent instruction of DG NEAR to COWI IPF. The assignment is the preparation of a report on the gaps and needs related to the implementation of the Floods Directive in the Western Balkans. Countries: Albania, Bosnia and Herzegovina, Kosovo*, North Macedonia, Montenegro, Serbia.
Improving resilience to floods in the Polog Region	The project’s ambitious goal is to instigate transformational change in managing flood risk in the region, accelerating the shift from purely reactive responses to floods to integrated systems to manage hazards, vulnerabilities and exposure of communities and assets to prevent/mitigate losses and alleviate the impact of future floods. Government of North Macedonia Government of Switzerland State secretariat for economic affairs seco United Nations Development Programme
Programme for Improving National Early Warning System and Flood Prevention in Albania (ProNEWS)	Development of a national flood forecasting and warning system; the integration of Albania into the European Flood Awareness System (EFAS); the design of an operational hydrological model for early warning and modernization of some of the meteorological infrastructure and the IT network. European Commission

Planned Projects

Project name	Donor / Description
Optimisation of Dam Safety and Resilience of Irrigation Systems to Climate Change in Albania	WBIF (Grant) World Bank (Loan) Government of Albania (National Contribution)
Adapt ALB – Climate Services for a Resilient Albania	GREEN CLIMATE FUND National Designated Authority: Ministry of Tourism and Environment (MoTE) Accredited Entity: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) The project’s objective is to increase the adaptive capacity and climate resilience of Albania, and particularly its coastal zone, through the generation, coordination, uptake and effective use of climate information and services.
Implementing the Strategic Action Programme of the Drin Basin to strengthen transboundary cooperation and enable integrated natural resources management	Global Environment Facility GEF Agency: UNDP Project Executing Entity: Global Water Partnership