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# Transboundary Water Management In The Western Balkans: Challenges Of The Land-Water Nexus In The Drin River Basin

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## Summary

Water basins experience huge pressure from urban growth, tourism, energy, and food demands, exacerbated by the pressing challenges of climate change. The competition for limited resources calls for efforts from riparian countries to define criteria for transboundary water management (TWM) to contribute to resilient environments. This paper explores the efficacy of TWM policies with respect to the Drin River basin in the Western Balkans, focusing on the Albanian territorial coverage of this basin area. To assess water governance effectiveness and efficiency, the paper uses the OECD's water governance indicator framework (2018). More broadly, it applies a 'land-water nexus' frame to assess the extent to which relevant land-based activities are included and effectively monitored in the Drin River TWM. A healthy and resilient river basin environment depends not only on good water governance but also on appropriate land uses and land development policies in the basin. Data was collected through desk research, supported by interviews with key stakeholders. The paper explores the Drin River TWM agreements based on: i) existing transboundary and national legal frameworks; ii) institutional and financial capacities for data collection and enforcement; and iii) the presence of a land-water nexus vision to support TWM. Research findings point towards the need to understand policy gaps between riparian countries and to develop an integrated cross-sectoral framework for resource management, such as a River Basin Management Plan, as the basis for a better land-water nexus and more sustainable and resilient development. Lastly, the authors present policy-oriented conclusions and recommendations at the transboundary, national, and local levels, focused on institutional, financial, and informational gaps.

**Keywords:** Western Balkans, Transboundary Water Management, Land-Water Nexus, Drin River Basin

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## Introduction

### Transboundary Water Management

Water resources experience drastic changes due to various anthropogenic activities, leading to environmentally insensible practices. Population growth and the consequent sprawl of new developments and informal settlements alter land uses and consumption patterns. These factors, especially in developing countries, have strained water accessibility and availability. At the same time, industrial production, mining, and intensive agriculture, as well as other water-wasteful activities, have affected water quantity and quality through groundwater pollution and site contamination (Karar, 2017). These activities produce externalities influencing land and natural resources management. This paper aims to explore how land and water governance are harmonised in a transboundary water management context to achieve a sustainable land-water nexus, focusing firstly on the extended Drin River basin and secondly on the Albanian territorial coverage area of the Drin basin.

Competition and conflicts around limited resources arise in particular due to poor governance, rather than to resource scarcity or engineering impediments, calling for new management approaches to be explored (Tropp et al., 2017). This becomes especially relevant in the case of shared water resources, defined as "catchments or watersheds, including lakes and shallow groundwater, shared by more than one country" (UNDP, 2006, p. 206), which account for 60% of global river flows. The complexity of transboundary water management (TWM) involves a multilevel approach, where the decision-making and enforcement responsibilities are shared among different governance levels. These levels and processes can include international actors, national and subnational bodies, harmonisation with local policies, as well as acceptance and legitimisation by civic society and citizens (Earle and Neal, 2017). The latter group has the biggest potential impact and the highest stakes in water conditions, especially regarding flood control and accessibility. As water availability and affordability depend on a "mismatch between physical water availability and societal water use" (Cabello, 2013, p. 14), social and ethnographic awareness and engagement are fundamental to enhance community resilience and to endorse institutional instruments for water governance (Cairns et al., 2017).

In the European Union (EU), the Water Framework Directive (WFD) was adopted in December 2000, to institutionalise a common vision for water management, moving from pollution prevention to the definition of a 'good' ecological water status. This condition is measured by biological, hydro-morphological, and physic-chemical parameters. The WFD is structured around the river basin scale – a natural geographical and hydrological unit – rather than being bound to administrative or political boundaries (European Commission, 2019), contributing to a territorial approach for the solution of water issues. Good water quality is achieved through mandatory measures, including legislation, pollution control measures, and a River Basin Management Plan (RBMP), alongside supplementary measures designed according to each country's institutional and environmental landscape. The WFD has also helped to promote community participation in water governance with different results across the EU, conditional on levels of democratisation in various countries. (Ruiz-Villaverde and García-Rubio, 2017).

## Water Governance in the Western Balkans

The inclusion of the WFD in national legal frameworks is legally binding for EU countries but non-binding for non-EU countries. The presence of EU member states, EU candidate countries, and non-EU countries in the Western Balkans has led to a diverse legal environment around water and fragmented the transposition of the WFD into national legislation. Nevertheless, the inclusion of the EU acquis in the national

framework of candidate countries is part of the EU enlargement strategy (Hearns, 2019). Therefore, many Balkan, EU-candidate countries have included the EU water norms in their framework through laws and bylaws, while making agreements with other EU countries. The existing legal misalignment between Balkans countries, together with differing socio-economic and institutional composition and development goals, are among the main factors impeding the implementation of those agreements (Drin Corda, 2020; Kolokytha and Skoulikaris, 2019). However, the WFD remains the main guideline for national and international water resources in the Western Balkans.

Albania is the country with the largest territorial coverage of the Drin basin. The country has experienced rapid growth since the dissolution of the communist regime in the 1990s. Considerable and ongoing rural-to-urban migration, accompanied with rapid urbanization on the one hand, and unprepared and weak public institutions on the other, has resulted in vast land and water quality degradation, exploitation of riverbeds, erosion, and problems related to floods and droughts. At the national level, institutional efforts have addressed the need to manage the country's vast water resources. The process of incorporating the WFD into national legislation began with the approval of Law 111/2012[1] and its bylaws. Nevertheless, the challenges are numerous, and include the national water-services coverage and quality. For instance,as demonstrated in the National Strategy of Water Supply and Sewage (NSWSS) 2020 - 2030, the water supply coverage was 78.3% and sewage network coverage was 50.2% in 2017. Only 10.45% of the urban population was connected to a wastewater treatment plant (Ministry of Energy and Infrastructure, 2019). This data helps to grasp the scale of water-related issues, such as water pollution due to untreated wastewater discharges, problematic water supply services, an inefficient billing system, and substandard water quality.

Albania has considerable surface and groundwater resources. In addition to four national river basins, the country has two transboundary rivers: the Vjose Aoos River, shared with Greece; and the Drin basin, shared with North Macedonia, Greece, Kosovo,[2] and Montenegro. Drin riparian countries present a diverse legislative framework on water management. While North Macedonia has transposed most of the WFD, Kosovo has reached a partial transposition (NIRAS, 2019), mostly due to the post-war institutional and operational capacity challenges, damaged national water infrastructure, and affected international cooperation (Krampe, 2017). Similarly to Albania, Montenegro has made progress on the alignment with the WFD (as part of efforts towards EU admission), regardless of the lack of coordination between water-related institutions (GWP-Med et al., 2015). Finally, in Greece, TWM appears to occupy a low priority in the Greek development agenda, with few joint agreements and a lack of regular cooperation, despite the complete transposition of the WFD and an amount of shared water resources equal to 25% (Kolokytha and Skoulikaris, 2019).

## The Drin Basin and Riparian Countries

The extended Drin River basin[3] covers 19,582 km2, the majority of which is located on Albanian territory (Figure 1), and is inhabited by roughly 1.6 million people (PointPro Consulting, 2017).

As part of the WFD, a multi-stakeholder process was initiated to foster TWM and strengthen national institutional frameworks. Consultations in 2006 and 2008[4] started the Drin Dialogue, a consultative platform that took place in 2010-2011 supported by international organisations. A Memorandum of Understanding (MoU) signed by the five riparian countries in 2011 was a milestone for transboundary cooperation and political commitment. The process has resulted in the Drin Coordinated Action[5] (Drin Corda), a joint body for the implementation of the MoU, facilitated by the Drin Action Plan. The Drin Corda institutional structure consists of: ministerial meetings; the Drin Core group, acting as a steering committee

**Figure 1.** Drin River Basin Boundaries

*Source: Drin Corda, 2020*

composed of representatives from the five riparian countries' ministries (Table 1); the technical secretariat; and lastly, four Expert Working Groups (EWGs). The EWGs are focused on i) alignment with the WFD; ii) monitoring and information exchange; iii) biodiversity and ecosystems; and iv) floods. The Drin Situation Analysis (2011) attempted to identify transboundary issues and degradation root causes; under the GEF Drin Project,[6] this document is being updated in the Transboundary Diagnostic Analysis (TDA) resulting in six thematic reports[7] (Drin Corda, 2017). In April 2020, the Strategic Action Programme (SAP), a negotiated policy document, was signed and endorsed to map needed reforms and investments that can address the priority issues highlighted in the TDA, including the definition of an RBMP.

Several environmental challenges are present in the Drin basin regarding water quality, the environment, and the loss of biodiversity. The TDA has mapped the root causes of transboundary issues, including a lack political will, low financial resources for environmental protection, and climate variability, leading to five major environmental issues: deterioration of water quality, variability of hydrological regime, biodiversity degradation, sediment transport, and increase of water-related extreme phenomena (floods and droughts). In the Albanian territory, covering the downstream of the Drin River, pollution is mainly caused by solid waste and untreated wastewater discharge in urban areas (Alla, 2019; Mema and Ulqini, 2017), followed by industrial pollution and run-off of fertilizers and pesticides from agriculture (Alla, 2019). Moreover, the risk and occurrence of floods have increased on the Albanian side of Shkodër Lake. The intensity and frequency of floods have been exacerbated by extreme weather phenomena, poor riverbed maintenance, the mismanagement of outflow from artificial lakes and dams, the blockage of natural secondary drainage channels, and sediment transportation due to erosion and material extraction activities up- and downstream (Drin Corda, 2014). Additionally, unsustainable tourism and (in) formal urbanisation, combined with poor sanitation infrastructures, cause runoff in lakes and modify natural habitats. Lastly, water resources are frequently used as energy sources, causing environmental drawbacks on water flow and quality.

**Table1.** Representative Institutions forming part of the Drin Corda

| Riparian Countries | Representative Institutions involved in the Drin Corda |
|---|---|
| **North Macedonia** | Ministry of Environment and Physical Planning |
| **Greece** | Ministry of Environment and Energy |
| **Kosovo** | Ministry of Infrastructure and Environment |
| **Albania** | Water Resources Management Agency |
| **Montenegro** | Ministry of Agriculture and Rural Development |

*Source: Authors, 2020.*

## Relevance of the Land-Water Nexus

The idea of the 'land-water nexus' is advanced by the authors based on experiences in the Netherlands and Flanders (Belgium) during the past decade with the concept of multi-layer (water) safety in response to flooding. This concept was partly based on the EU Flood Directive of 2007, and recognises the importance of three-tiers of flood prevention measures for water safety, consisting of ('hard') infrastructure, ('soft') adaptive spatial planning, and emergency measures (see, among others, Leskens *et al*. 2013; Kaufmann et al. 2016). The significance of this approach is that it recognises that water safety depends, to a large extent, on what happens on land, and vice versa. Therefore, water safety is the responsibility not only of water managers but also of planners and other government departments and private actors, such as developers (Kaufmann et al., 2016).

In this article, the authors apply the concept of multiple layers more broadly, and adapt it beyond the confines of water *safety* to include other domains where the proper management of water requires close integration with land-based activities, including land use planning for economic activities, agriculture, and water management more broadly. This idea of a 'nexus' between water and land echoes other nexuses, such as the ecosystem-water-food-land-energy (EWFLE) nexus concept (Karabulut et al., 2018) and the land-water-energy nexus (see among others, OECD 2017). All of these recognise the importance of the interplay of different domains to the long-term health of ecosystems—as opposed to pursuing a narrow, sectoral approach. According to Carvalho *et al.* (2019), the EU has had ambitions for cross-sectoral policy integration since the 1970s, providing member states with a huge number of directives influencing pressures on the environment and drivers of change, focusing strongly on agriculture, and promoting the development of management plans to control anthropogenic factors (European Commission, 2017). However, as stated by Carvalho *et al.* (2019), the WFD only weakly addresses morphological pressures, resulting in weakness in ecological status assessment and monitoring. By contrast, the Sustainable Development Goals (SDGs) constitute a resourceful policy driver advocating for cross-sectoral TWM, in particular SDG 6.5.[8]

## Objectives and Methodology

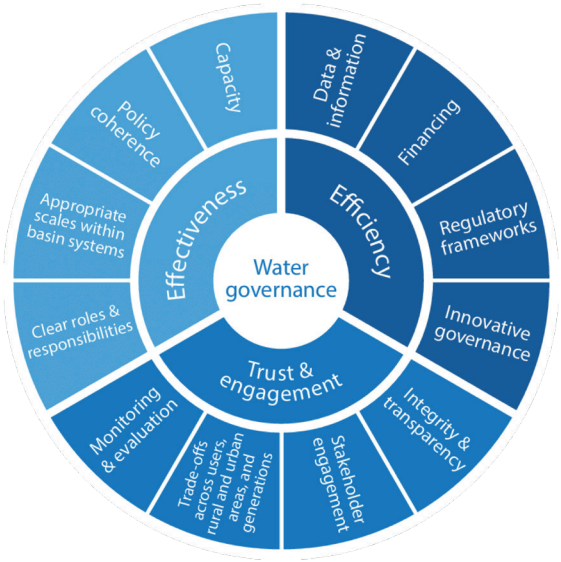
In light of the existing challenges and frameworks, and given the relevance of land-water nexus thinking for TWM, this research aims first of all to explore the effectiveness[9] and efficiency[10] of existing TWM policies with respect to the Drin River basin and in the Albanian territorial coverage of the Drin basin. The authors use the OECD Water Governance framework for this purpose. Indicators from the OECD are collected at both the basin and country level, where available.

According to the OECD Water Governance Programme, water governance is "the set of rules, practices, and processes through which decisions for the management of water resources and services are taken and implemented, and decision-makers are held accountable" (OECD website, 2020). Through a multi-disciplinary process, the OECD has developed twelve principles for Water Governance (Figure 2), clustered around three dimensions: effectiveness, efficiency, and trust and engagement (Figure 2). Due to the difficulties in collecting primary data from a broad range of stakeholders as a result of the Covid-19 pandemic, the principle of trust and engagement is excluded from the scope of this paper. Nevertheless, it is integrated as a crosscutting theme in the efficiency and effectiveness dimensions, based on the desk research findings and interviews.

The OECD provides a broad set of indicators for all principles (OECD, 2018b), allowing for the tailoring of the assessment on a contextual basis, instead of proposing a rigid framework as a one-size-fits-all approach. The OECD framework is not only tailored to the national scale, but can also be applied to regional and transboundary scales of water

management by providing a framework for evaluation and recommendations (Ménard et al. 2018). Moreover, following the evaluative research on the performance of different policy frameworks against the OECD principles at European level by Neto *et al.* (2018) (and endorsed by the OECD (2018)), the WFD is quite well aligned with the OECD principles. This supports the use of this framework (in an adapted version) in the transboundary context of both EU and non-EU countries.

**Figure 2.** Principles of Water Governance




*Source: OECD, 2015.*

Second, the paper assesses to what degree a land-water nexus vision has been taken into account in the TWM plans to enhance sustainable development in the Drin basin, and in Albania specifically. The land-water nexus is analysed with regards to the vision of the land component in water sectors (and vice-versa), the transboundary and national sectoral priorities, and the characterisation of land instruments.

Data collection for both components was based on desk research, supported by four online semi-structured interviews with Albanian and international consultants and experts on the water framework and water management in Albania.

## Effectiveness and Efficiency of TWM in the Drin Basin

### Effectiveness of TWM

*Clear Roles and Responsibilities*

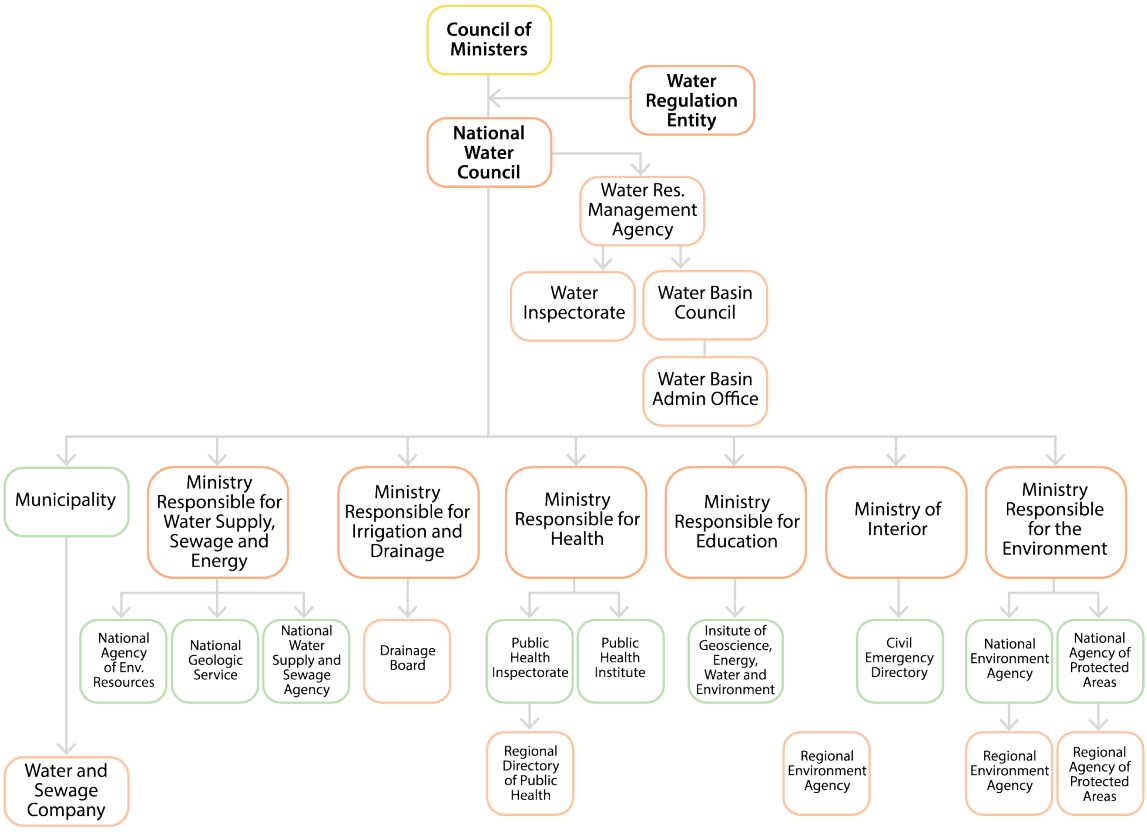
At the basin level, the Drin Corda represents a good case for cooperation in the Western Balkans, in accordance with the UNECE Water Convention and the WFD, the latter being the main subject of one of the EWGs. Despite the different levels of transpositions of the WFD in national legislation, Drin Corda has provided support for WFD integration in the basin. Strong cooperation is exemplified in the MoU, which is the result of a "sophisticated, step-by-step multi-stakeholders dialogue" (UNECE and INBO, 2015, p. 31), though it is a legally non-binding document. Noteworthy is the fact that the cooperation initiated by the Drin Corda relies on the formal contributions of only one ministry/agency per country, leaving cross-sectoral alignment and enforcement in the hands of national representatives (Libert, 2015). The Drin Corda has become a reference point for donors and it is currently seeking funding to implement the Strategic Action Programme (SAP) (Interview 4). Some legally binding bilateral agreements for the management of international lakes exist, though they do not correspond to transboundary coordinated action (UNECE and INBO, 2015).

Albania, in line with its EU integration aspirations as well as its high dependency on water resources, started the WFD transposition by approving Law 111/2012[11] and then approving supporting by-laws. This legal framework covers regulations regarding the protection of water environments from pollution and overexploitation, sustainable distribution, water use, and flood risk management, while establishing institutional arrangements and responsibilities. The governmental restructuring after each general election, together with the approval of further laws, have contributed to institutional instability at a central level. Initially, the main central authority in charge of integrated water

management shifted from the Ministry of Environment to the Ministry of Agriculture after the 2013 elections, then to the Ministry of Tourism and Environment after the 2017 elections. Currently, the authority resides within the newly established Water Resource Management Agency (Law 6/2018; Alla, 2019). Additionally, a variety of institutions still cover different aspects of water management, such as irrigation, water supply and wastewater management, and flood risk management, among others.

Figure 3 is a summary of the institutional arrangement regarding water management in Albania, presented in the National Strategy of Integrated Management of Water Resources (NSIMWR) 2018-2027 (Council of Ministers, Albania, 2018a). While most of these institutions are already in place, some new institutions introduced by the water legislation are still in their early stages of consolidation or are still missing (Interview 3).

**Figure 3.** Institutional Arrangement of Water Management in Albania




*Source: NSIMWR 2018-2027, translated by authors, 2020.*

This complex stakeholder arrangement calls for well-established practices of horizontal and vertical coordination mechanisms. Albanian water legislation has conceived of the Water Basin Councils (WBCs) as a melting-pot for all relevant stakeholders at a basin scale (DCM 342/2016, Council of Ministers, Albania, 2016). The Drin-Buna WBC, part of the Drin basin, is to be composed of 21 members with representatives from the 12 local governments that share parts of the basin. However, there have not been any decisions regarding the establishment of Drin-Buna WBC yet, creating an institutional void that is being spontaneously filled by ad-hoc agreements between different stakeholders for small scale and sectoral interventions. Each council relies on a technical body, the River Basin Agency (RBA), whose role is often undermined by a lack of resources and capacities (Rama, 2018), thereby giving it only a marginal role in practice.

## Appropriate Scale within the Basin System

Following the WFD, the Drin basin scale and boundaries are clearly defined as one single watershed, including surface, groundwaters, wetlands, and aquatic ecosystems. To achieve a harmonised response, the GEF Drin project plans to strengthen the institutional transboundary cooperation by setting up a High Level Joint Commission (built upon the Core Group and the EWGs focused on RBMP definition) and secondly, national Inter-Ministerial Committees (IMCs) addressing water, environment, energy, agriculture, planning, treasury for the basin, and joint sub-basin management (Drin Corda, 2013). Additionally, the draft of a transboundary RBMP is planned and conditional to funding; the TDA constitutes a term of reference for the RBMP report (Interview 4). Nevertheless, several multilateral agreements have been taken forward, supported by international water agencies, and are building upon existing bilateral agreements. In fact, Albania signed TWM agreements with neighbouring countries at different stages: with Greece in 2001, with the Republic of North Macedonia in 2004, and with Montenegro and Kosovo in 2010. These agreements constitute a basis for further development and for sub-basin management, leading to the draft of donor-based RBMPs for most of the Albanian basins (Rama, 2018). As reported by Rama (2018), the Mati River RBMP has been approved, as has the Drini-Buna RBMP.[12] However, in the latter case, there is no permanent body that covers transboundary functions between Albania and Montenegro (GWP-Med et al., 2015); instead, the existing cooperation network works intermittently on a project basis. Overall, the lack of a supra-national RBMP entails that management interventions are limited to the fragmented actions of each country or according to the joint agreement, depending on local capacities and development goals.

## Policy Coherence

The TDA, through a consultative and scientific process, assesses specific sources, locations, and human activity sectors causing environmental degradation, hence addressing the trade-offs and spill-overs of water-related sectors. Afterwards, member countries are responsible for designing policies accordingly based on the interventions negotiated in the SAP (Interview 4). The achievement of this indicator is therefore highly dependent upon national efforts towards sectoral balance.

As anticipated, the Albanian Government has approved the NSIMWR 2018-2027 (Council of Ministers, Albania, 2018a). This is the main policy document on water governance in the country, seeking to integrate four water-related strategic pillars (energy, environment, food, and people) suitable to measure policy coherence in Albania. While the first principle of the NSIMWR links water and land management,[13] the fourth highlights the importance of the economic value of water as a factor for informed decision-making. Nevertheless, the methodology used to translate the objectives set forward by this strategy into an actionable workplan with the relevant financial instruments is lacking. This strategy does not present any analyses of the monetary value and opportunity costs of the included water-related policies, nor does it succeed in presenting the budget required to fulfil the objectives it sets forth. Surprisingly, the section on financial resources presents the 2018-2020 sectoral Midterm Budget Plans (MBPs) for a variety of institutions relevant to water governance.[14] In doing so, NSIMWR fails to provide policy coherence in different ways. First, by elaborating an integrated water management budget as a puzzle composed of pieces of sectoral MBPs, it fails to guarantee that there will be coherence between these sectoral investments or to ensure that these investments will contribute to the objectives set forward by the NSIMWR itself. Second, using the 2018-2020 MBPs as basis to estimate the financial needs of 2021-2027 solidifies the status quo of sectoral policies related to water, rather than pushing forward the fulfilment of the

objectives of the NSIMWR. Additionally, some of the sectoral strategies cover only the period up to 2020, hence it is hard to make budgetary projections for 2021-2027. Consequently, the NSIMWR does not present a budget linked to the objectives elaborated in this document, but rather submits to a path-dependent sectoral approach to water management. As stated in the document, the budget of NSIMWR is not an earmarked budget that will address the identified needs in water governance. Rather, it gives a referencential picture of the financial needs without making it binding, posing further challenges to the longevity and consistency of these strategic investments.

Industry, agriculture, and fresh water supply make up the main sources of water consumption in Albania (NSIMWR, 2018). Data on the current and 2027 projections of water needs for each sector are specified in NSIMWR at a national scale, while water needs for agriculture and water consumption are also specified on a basin level. The National Energy Strategy (approved in 2018), on the other hand, does not report data related to current and future water consumption needs. Surprisingly, this strategy does not include Law no.111/2012 in the referenced legal framework. The level of coordination between these two strategies is unclear. The National Strategy for Irrigation and Drainage 2019-2030 refers to Law no.111/2012; this document presents the current and projected surface area of agriculture land for irrigation, as well as the range of water consumption per hectare without giving an absolute, overall figure. Calculations based on the data presented here show figures similar to the data presented in the NSIMWR.

In terms of energy production, Albania has been relying almost entirely on hydro energy production, although studies have shown high solar and eolithic energy production potential (Gjoka, 2018). There is a total of over 496 hydropower plants in Albania that are either operational, under construction, or planned, 105 of which are located in environmentally protected areas (Gjoka, 2018). National policymakers have been divided between building several small-scale plants – ensuring a quick profit in concessions to foreigners – and the more recent approach of building fewer large-scale plants to be maintained as a national asset. The logic behind the latter approach is that a combination of convenient location and size and a reduced number of plants would support energy-water integration with neighbouring countries and increase safety and flood control, thereby having less impact on river flows (Selenica, 2020). Regardless of their numerous environmental externalities, the trend of constructing small hydropower plants has been increasing as an attractive investment opportunity for the private sector, though their overall energy production is negligible (Gallop, 2017). Although classified as small hydropower plants due to their production capacity, their environmental impact can be substantial and their cumulative environmental impact has not been assessed (Gallop, 2017). Moreover, water use for power production can cause draught and limited access to fresh water for local residents and rural economies (Gjoka, 2018). The construction of Skavica hydropower plant is an example of a key energy infrastructure project whose socio-ecological impact is unclear.[15] As the project has been entirely managed by the central government, the lack of transparency and cooperation with local authorities and citizens has amounted to public resistance from local residents affected by the project: 10,000 residents are expected to be displaced and 40,000 residents are expected to lose their agriculture lands to expropriation (ABC news, 2020; Rrugaearberit, 2020; Shqiptarja.com, 2020; Top-Channel.tv, 2020; Vision Plus TV, 2020).

The Albanian central government is attempting to create cross-institutional working groups to support the integration of sectoral policies related to water. In 2015, the National Water Council (NWC) created four thematic working groups composed of different ministries that have water-related interest and shared responsibilities.[16] However, these working groups are horizontal coordinating bodies on a central level, having no established partnerships with regional and local stakeholders.

## Capacity

At the basin level, the overall institutional capacity is low. Drin Corda capacity building activities target water institutions and authorities in the basin acting within the institutional sphere (Drin Core Group, 2012a). The EWGs have provided several tailor-made trainings and workshops to build capacity within the basin regarding topics such as pollution control, TWM, and gender mainstreaming, among others (Hearns, 2019). However, operational capacity regarding data collection and use, as well as the ability to set up an up-to-date, automated information management system (IMS) is low across riparian countries (Hearns, 2019). Formalised peer-to-peer platforms are also lacking. Lastly, the lack of grant writing and management skills diminishes the possibilities for local authorities to access funding without the support of foreign experts. Moreover, Drin Corda's contribution to the TDA and to several bilateral management pilot-plans takes the form of monitoring programs and assessments, which will begin serving as a basis for a joint masterplan.[17]

In Albania, the WFD's transposition has been accompanied by an on-going reform that expands the public sector institutions associated with water management in the country. While these institutional changes could incentivise water careers in the public sector, this is expected to happen over a longer period of time. Regional and local water decision-making is quite limited, reducing local bodies (i.e. WBC and RBA) to a passive role compared to the active role of central water-related ministries and agencies (Rama, 2018). Currently, the supply of water-related study programs in the public universities in Albania is limited to technical degrees (mostly related to environmental/ hydrological engineering) that do not tackle water management (UNITIR, 2020; UPT, 2020). Additionally, there are no guidelines or standards for capacity building across authorities at all levels (Interview 1 and 2). The associations of some institutions at the local level, such as municipalities and water supply associations, contribute to the horizontal networking of stakeholders on specific water-related sectors. Nevertheless, vertical and, most importantly perhaps, basin level stakeholder networking is lacking. Another challenge in terms of water management capacities in the public sector is the lack of permanent staff in managerial positions (Ministry of Energy and Infrastructure, 2019) due to the continuous restructuring of institutions and political and nepotistic practices of employment in public institutions (Interview 1, 2 and 3). This is one of the main issues that needs to be addressed in terms of capacities in the water sector, especially since the cost of labour is one of the main costs of many public institutions (NSWSS, 2020-2030).

## Efficiency of TWM

### Data and Information

As stated by Skarbøvik et al., (2014), reliable and updated data on water resources is a key step to TWM. The Drin TDA collected the available data to generate the first georeferenced database monitoring report (the IMS) as part of the vision of the MoU.[18] Besides collecting data from national databases, the TDA was based on the previous analysis, field activities to verify ecological parameters, and on the construction of future climate scenario taking into account climate variability (Drin Corda, n.d.), resulting in a GIS database. This IMS is operating, although not as an automated system and not one that is open to the public; only institutional representatives and scientific bodies of the member countries will be able to populate the database with the data available (Interview 4, Drin Core Group, 2012a). Moreover, as confirmed in an interview, official data exchange platforms do not exist and monitoring circles are not in place (Interview 4). While data on physical measurements are usually correct, data on chemicals are incomplete or irregular, and the data on flood risks are often collected on a project basis. Similarly, donors usually play a role in setting up the project for monitoring and data collection at the national level, linking data to specific projects, timelines, and actors.

In Albania, interviewees claimed that one of the main water challenges is the lack of available, updated data and integrated databases on which stakeholders can discuss and negotiate. The Water Resource Management Agency is the institution in charge of creating, managing, and updating integrated information systems on the water sector, namely the National Cadastre of Water Resources (Law 6/2018, Art. 55; DCM.221/2018[19]). So far, the agency (supported by international donors) has launched the domain of the cadastre and is working on a regulatory framework to align population data and environmental data (AMBU, 2020). Environmental data will include surface water classified according to its chemical and ecological status, protected areas, modified water bodies, environmental licences for water related activities, areas inclined to eutrophication, safeguard zones, health hazardous areas, and drinking water bodies.[20] As suggested by Rama (2018), the general lack of data, with the exception of the Drin-Buna river, hampers the full implementation of the RBMP, due to the impossibility of assessing water quality and ecological statuses in a timely manner.

Currently, data is collected through a network of institutions across levels to ensure data collection at an appropriate scale (see the table for details).[21] Horizontal data collection is based on priority sectors and vertical data collection (when the relevant data are collected on a local level and aggregated by the National Environmental Agency (NEA)) (AKM, 2019).

**Table 2.** Water-related Data Collection in Albania

| Data | Institution Responsible for Collection | Frequency of Data Collection |
|---|---|---|
| Freshwater resources (surface and groundwater), such as the biological and ecological conditions of freshwater | NEA (AKM) | Yearly report |
| Morphological conditions of freshwater resources | NEA (AKM) | Yearly report |
| Agriculture and urban discharges/polluters on freshwater bodies | NEA (AKM) | Yearly report |
| Coastal morphology | NEA (AKM) | Yearly report |
| Natural hazards | IGEUM (IGJEUM) | Upon request and fee payment |
| Protected areas | NAPA (AKZM) | Unclear |

*Source: Authors, 2020.*

NEA reports are published and are accessible to the general public online but the disaggregated database is not. Interviewees raised concerns regarding the insufficient number of monitoring stations along water basins for accurate data collection. Data from the Institute of Geoscience, Energy, Water and Environment (IGEUM) (especially its cartographic data) is one of the main sources that informs the water basin management plans and decision-making related to the economic exploitation of water resources (IGJEUM, 2019). Unfortunately, this data is not accessible to the public and is only made available upon request and for a fee. Regarding protected areas, it is not clear what type of data the National Agency of Protected Areas (NAPA-AKZM) monitors

and evaluates and with what frequency. Nevertheless, the agency has published a variety of publications through different donor funded projects.[22]

## Financing Tools

Financing instruments for TWM are mainly dependent on international donors and come only partially from national funds. The Drin process was funded through the limited resources of national governments (Germany and Sweden) and international organisations (GWP-Med and UNECE) (Châtel et al., 2014). Similarly, infrastructure construction, waste management, and water treatment facilities have often been funded through external financing (World Bank, 2019). At the sub-basin level, water supply and sewage tariffs are the main source of financial revenues for water organisations. This high dependency on foreign bodies impedes continuous project development and longer-term budgeting.

In Albania, the main water-related revenues are generated by the activities listed in Table 3 and are usually not earmarked, except those revenues generated by the Water Supply and Sewage Companie.

**Table 3.** Revenue Generating Activities

| Activity | Budgeting of the Revenues Collected |
|---|---|
| Industrial Polluted Water (Art. 30) | Central Government Budget |
| Curative, Thermo-mineral and Geothermal Water Usage (Art. 48) | Central Government Budget |
| Water usage/exploitation authorisations, licence and concession contract fee (including administration fees) (Art. 50, 53) | Central Government Budget |
| Water supply and sewage (Art. 92) | Water Supply and Sewage Company Budget |

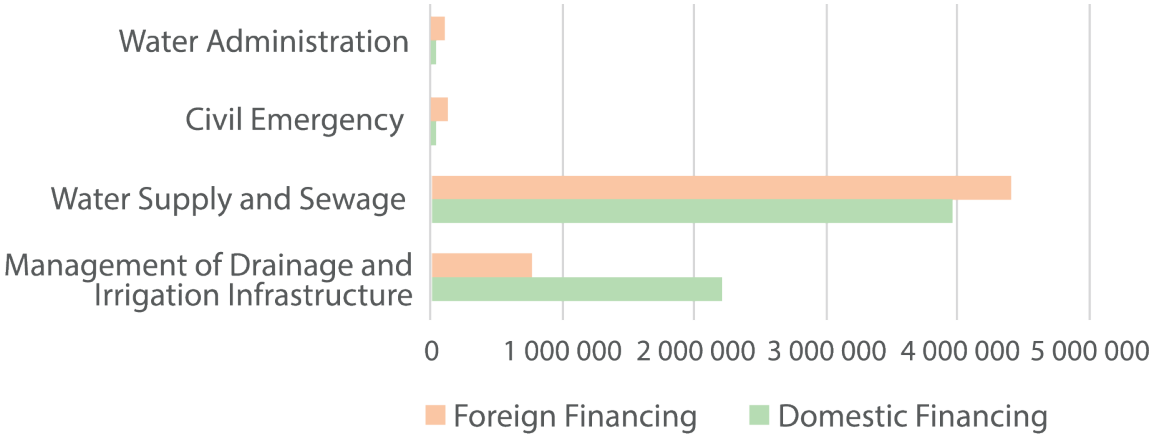
*Source: Law 111/2012, updated.*

The NSWSS 2020-2030 highlights the challenges involved with water supply and sewage tariff collection, as reported by local water supply and sewage companies. The latest data, from 2017, indicates that revenues are collected on only 35% of water consumed, as a result of a lack of metering in wells, pumping stations, reservoirs, and in some cases, households. Metered water supply coverage in 2017 was 68.3%, of which 86% of measured tariffs were collected. This is why revenues from tariffs make up, on average, only 50% of both water supply and sewage companies' budgets, even if during the last decade the water supply and sewage tariffs have increased by 143% and 218% respectively. In addition, the NSWSS indicates serious financial gaps between the cost of the 2020-2022 strategy and the financing capabilities available, as well as a heavy reliance on foreign investment (up to 72% of planned investments). Again, a heavy reliance on foreign capital for investments in the water sector is evident in the NSIMWR and in the central government's 2020 budget. The table below shows the ratio between domestic and foreign financing of capital investments in four main water-related budgeting programs.[23]

## Regulatory Frameworks

Regulatory measures underpin several aspects of water governance, from use to accessibility and conflict resolution. The case of the Lake Shkodër's future development, shared between Albania and Montenegro, shows issues of water management under weak transboundary regulatory

**Figure 4.** Domestic and Foreign Financing for Water Budget Programs




*Source: Authors, based on the central government's 2020 budget.*

frameworks (Skarbøvik et al. 2014). Firstly, unsustainable agricultural practices, where intense production is combined with high use of fertilisers, especially by under-trained farmers, and over-pumping of water for irrigation, result in increasing pollution in the Lake. Secondly, an increase in tourism, if not paired with commensurate road and sewage infrastructure development, could affect the ecological status of the lake. Thirdly, water availability on the Albanian side depends on the Montenegrin use of the lake as a drinking source. Fourthly, the development of hydropower plants and dredging activities would change the hydrology of the lake. From the data available, it seems that these aspects are undermanaged and lack platforms for conflict resolution and monitoring at the basin level as a whole. Additionally, law enforcement, especially in protected areas, constitutes a challenge due to the lack of coordination between national and regional inspectorates, which generates a mismatch between recording illegal activities and collecting fines. To tackle this specific issue, multi-inspectorates task forces are being implemented in the Drin-Buna basin (GWP-Med et al., 2015).

Alla (2019) recognises some important aspects of WFD that have not been adequately transposed into Albanian legislation and raises concerns about their practical implications on the regulatory framework. Law 111/2012 fails to explicitly define drinking water bodies as protected areas, though it does define safeguard zones around them as protected areas. Alla argues that while safeguard zones are important, their designation as protected areas is not meant to replace the designation of the whole water body as a protected area. Moreover, the Albanian government has yet to legally address key areas related to the establishment of environmental objectives for: surface water; groundwater and water in protected areas; requirements on how to conduct an analysis of river basin characteristics; monitoring criteria; and the content of the RBMP.[24] Such technical criteria are important in guiding the elaboration of management plans as well as their implementation and monitoring (Alla, 2019).

## Innovative Governance

The case of the Drin TWM has thus far been an innovative process in the Western Balkans, both in terms of coordination efforts and in terms of the broad range of stakeholders involved. The MoU represents an innovative tool for cooperation at the national and transboundary level, involving ministries, national authorities, water users, NGOs, academics, the private sector, international institutions, and donors (UNECE and INBO, 2015). However, innovative tools and information and communication technologies seem to be lacking in the region. Moreover, while the establishment

of EWGs supports coordination among riparian countries and the establishment of a shared baseline in the long-term, TWM suffers from low societal awareness of water governance's relevance and poor juridical prosecution at the local level (Drin Corda, 2014). These issues can affect the scaling-down process from the transboundary to the sub-basin level. We can conclude, in the absence of a database agreed upon by different institutions and considering the issues on sectoral management highlighted in previous sections, that further innovation in institutional coordination and in data collection and sharing is still needed.

## Towards a Land-Water Nexus Vision

The RBMP, as envisioned by the WFD (Moss, 2004), is the main instrument anticipated to help achieve integrated water management. Achieving this objective means aligning water governance with land governance in an effort to control and reduce pollution sources, such as urban run-off, urban wastewater pollution, and intensive agriculture near water bodies. On a transboundary level, the land-water nexus is embedded in the Water-Food-Energy-Ecosystem Nexus report of the TDA, supported by UNECE and still unpublished (Lucia de Strasser, 2018). The first phase consisted of a qualitative assessment of three priority issues, linking i) hydropower, flow regulation, and flood protection; ii) ecosystem services, biomass production, and forest management; and iii) agricultural activities and water demand. A second phase will provide a quantitative assessment of these issues based on different climate scenarios. The role of land in urban development and urban land markets, which have a direct impact on water quality and quantity, has been overlooked by this document.

Looking to linkages with territorial planning on a national level in Albania, the Environmental Impact Assessment (EIA) of the National Territorial Plan (NTP) (AKTP, 2020a) sets environmental objectives based on relevant, ratified conventions and EU directives (including all the directives in the water sector) in an integrated manner. Simultaneously, this document assesses the cumulative impact of the strategic objectives defined in the NTP on the environment. Doing so, the NTP defines the strategic objective of transiting from an energy importing country to an energy exporting one as incompatible with the water objectives as set out in the EIA. Nevertheless, the EIA comments on measures to minimise the environmental impact of such interventions and does not challenge the validity of the proposed strategic objectives and projects altogether. In this respect, the prevalence of the energy sector could undermine the establishment of a land-water approach. However, the nexus could also benefit the national energy strategy by addressing the fragmentation of river systems and unstable precipitations that affect the continuity of energy production and force the country to import energy (IABR et al., 2016). Improvements to the infrastructure network together with trading agreements with neighbouring countries, land planning, solutions for climate adaptation, and riverbeds preservation could mitigate ecosystem fragmentation and degradation.

While the expectation of some water experts is that the RBMP should be informed on land management issues by national spatial planning instruments in place and then trickle down to local instruments (Interview 4), such an approach overlooks the considerable impact that local authorities' decision-making has on water quality and quantity. Shkodër Lake provides some examples of these issues and impacts (Municipality of Shkoder et al., 2016). Firstly, untreated urban wastewater is one of the main pollutants of the lake, which must be addressed by local actors. Secondly, the Shkodër bypass, which connects two national motorways bypassing the inner city of Shkodër, has almost been completed despite the negative environmental impacts highlighted in public hearings. Specifically, the bypass creates a barrier between the city and the lake, fragmenting the lake's habitat and threatening urban expansion in its vicinity. Most importantly, while the

bypass supposedly mitigates the flooding risk by creating a water barrier, it increases the risk of pluvial flooding in Shkodër as the flow of rainwater towards the lake is now disrupted.

On a basin scale, there is a lack of cooperation between the national and local governments in the absence of a second-tier government such as a decentralized regional authority, which poses several management challenges. Currently, the main urban planning instruments employed in Albania are comprehensive territorial plans, also referred to as general local territorial plans in local legal terminology, elaborated at the municipality scale. The Albanian Drin sub-basin overlaps with the administrative boundaries of thirteen municipalities. Three of these municipalities do not have approved General Territorial Plans in place (AKTP, 2020b), whereas the existing local territorial plans of the other 10 municipalities only cover the portion of the river basin within each municipalities' territorial jurisdiction. Depending on local expertise and data availability, they vary in quality, accuracy, and approach to land and water management. Therefore, they do not provide a clear picture of an integrated land-water management plan for the entire Drin basin in the Albanian territory. This could be overcome by a regional plan. However, efforts to undertake regional development reform in Albania have failed to produce concrete sustainable outcomes (Imami et al., 2018) in terms of decentralised institutions that could undertake the task of elaborating and implementing a regional plan, while having the authority to raise revenues independently.

## Conclusions and Recommendations

The complex water system and socio-political framework of the Western Balkans requires an integrated approach to transboundary water management across countries and sectors, especially since environmental pressures are expected to increase as a result of rapid political and economic change (Skarbøvik et al., 2014). The Drin Corda constitutes a good practice in the region: the riparian countries share a vision that takes advantage of political will and momentum to collaborate. A key contribution of the Drin Corda is to increase capacity and provide standards to follow at the same pace for its members. In this sense, the recently-signed Strategic Action Programme formalises the commitment of the riparian countries in addressing the transboundary issues framed in the Transboundary Diagnostic Analysis. Although Drin Corda partners are involved in different pilot projects, these are affected by institutional dissimilarities and a lack of reliable water data. Improving the effectiveness of water governance in defining clear water policy goals and targets will depend on institutional stability in the riparian countries and on the elaboration of a transboundary River Basin Management Plan. The efficiency of water governance in maximising the societal benefits at least costs will be linked to much-needed balance and coordination among sectoral national strategies and the involvement of local actors.

In Albania, the policy and regulatory landscape for water governance is characterised by institutional instability and inadequate enforcement. Moreover, funding sources for national and transboundary projects are mainly tied to external donors, which compromises funding coherence. Data collection and accessibility are: dependent on specific, ongoing projects; based on agreements between international and national parties; and are not collected or shared in a systematised manner. Integrated policy approaches and documents are lacking: policymaking and regulation occurs in a piecemeal fashion rather than contributing to established strategic objectives at the basin or sub-basin level. In addition, the local capacity for fundraising and managing grants autonomously is also limited. A lack of horizontal and vertical coordination between public authorities is another challenge confronting the integrated water management objectives. For instance, the overriding importance of the energy sector recognised by the Albanian government

conflicts with other sectoral objectives and complicates the quest to address water governance as an integrated, overarching way that involves various sectors.

## A Land-Water Nexus Vision for Enhanced Resilience: Institutional, Funding, and Data Gaps

A land-water nexus vision is part of the Drin Corda approach, as well as part of Albanian strategic plans. At the moment however, it is implemented nationally through zoning regulations for protected areas and general local territorial plans focused on local land use. The fragmented nature of these latter plans represents one of the main challenges to nexus implementation. This challenge is compounded by the disproportionate role played by central institutions in resource management (compared to the weak position of local institutions) and the lack of a regional, in-between body that could address land-water nexus priorities at a sub-basin level. Moreover, the lack of a transboundary RBMP represents a gap between the institutional cooperation of Drin Corda and the sub-basin level at which RBMPs are being drafted. The elaboration of a RBMP would also put the SAP in the longer timeframe of 30 years. Additionally, it is possible to assume that due to the challenges highlighted in financing tools, data, and policy coherence, the nexus concept in Albanian policy-making will remain largely on paper until budgets and implementation plans can be aligned in an integrated fashion.

At the transboundary level, the need for drafting and implementing an RBMP is imperative. This should be informed by engagement processes with local actors and final users, thereby improving negotiation abilities and providing cross-sectoral policy integration by prioritising the creation of national Inter-Ministerial Committees. The RBMP should become a hybrid instrument, able to inform national and local authorities. It should also be able to gather and assess the needs and objectives of water-related sectors through different consultative working groups, including private sector representatives from farmer and fishing communities and businesses, energy trading companies, water supply companies, and other private stakeholders. Moreover, it is important to improve the transparency and coordination of data and capacity sharing among donors, international agencies, and local entities for the sustainability of water-related projects.

In Albania, the implementation of basin and sub-basin plans should firstly be combined with an institutional decentralisation process to strengthen the role of local institutions and increase their capacity and power. Second, efforts should be taken to fill institutional gaps at the regional level. This can be tackled by pushing forward the process of establishing new institutions stipulated by Law 111/2012 (especially the Water Basin Councils) and decentralized regional authorities. Thirdly, at the central level, national and regional strategies should be guided by cost benefit analyses of water usage in all water-dependent sectors. These should also include benefits that are hard to monetize, such as health, environment, and urban quality benefits for water-related projects to better understand the trade-offs of each decision. In this sense, environmental impact assessments should be strictly applied to protected areas and used to inform national strategies in the water-sector. In terms of energy, a diversification of the sector towards alternative energy sources could diminish dependency on over-exploited water resources. Small hydropower plants should be cautiously evaluated, since evidence shows that they present numerous environmental externalities while their contribution to overall energy production is very modest.

Local bodies should be capacitated to increase their regulatory frameworks and address uncontrolled local practices. Moreover, a process of capacity building in acquisition, spending, enforcement, and the support of local informal networks would empower local bodies to play a more active role in resource management. Similarly,

greater awareness of water issues should be promoted among all users and civil society, especially in terms of risks and consumption.

## Notes

1. 'On the integrated water resources management' (Ministry of Environment, 2012)

2. All references to Kosovo are made in the context of UN Security Council Resolution 1244 (1999).

3. The Drin River is composed of two main branches: the Black Drin and the White Drin. The Black Drin flows from Ohrid Lake in North Macedonia and joins the White Drin, which flows from Kosovo, in Fierza Lake in Albania. Hence, the downstream of the Drin River flows in Albanian territory, where the Drin joins the River Buna before it meets the Adriatic Sea.

4. These consultations were carried out under the Petersberg Phase II/Athens declaration process and the Global Environment Facility (GEF) IW:LEARN Programme, supported by the World Bank, UNECE, and GWP-Med, with the financial support of the Swedish Environmental Protection Agency and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

5. The Coordinated Action for the implementation of the Memorandum of Understanding for the management of the Drin basin (Drin CORDA) is supported by the GEF Drin Project. The latter is implemented by the United Nations Development Programme (UNDP) and executed by the Global Water Partnership (GWP) through GWP-Mediterranean (GWP-Med), in cooperation with the United Nations Economic Commission for Europe (UNECE). GWP-Med serves as the Secretariat of the Drin Core Group, the multilateral body responsible for the implementation of the Memorandum of Understanding.

6. Composed of: I) a full-sized project entitled, 'Enabling transboundary cooperation and integrated water resources management in the extended Drin River basin' (PIMS 4482/ GEF ID 4483); and, II) a medium-sized 'add-on' project 'Enabling transboundary cooperation and integrated water resources management in the White Drin and the extended Drin basin' (PIMS 5510 / GEF ID 9121)(Hearns, 2019, p. 2).The GEF Drin Project was endorsed in 2011 and began in 2015. The project supports the Drin Corda activities and implementation of the MoU.

7. These thematic reports address: Biodiversity, Pollution, Hydrology, Institutional and Legal Setting, Socio-economics, and the Water-Food-Energy-Ecosystems Nexus.

8. SDG 6.5 calls for the following: "By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate" (United Nations, 2020).

9. "Effectiveness relates to the contribution of governance to define clear sustainable water policy goals and targets at all levels of government, to implement those policy goals, and to meet expectation targets" (OECD, 2018a).

10. "Efficiency relates to the contribution of governance to maximise the benefits of sustainable water management and welfare at the least cost to society" (OECD, 2018a).

11. Amended with Law 6/2018 (Ministry of Environment, Tirana, Albania); drafted by the Ministry of Environment with the assistance of two EU-funded projects: Implementation of National Plan for Approximation of Environmental Legislation (INPAEL 2009-2011) and Strengthening Environmental Law Enforcement in Albania (SELEA 2012-2014).

12. DCM 1/2020 (Council of Ministers, Albania, 2020). The DCM does not include the final plan of the river basin.

13. "Efficient (water) management links land management to water management

along the whole catchment area and underground aquifers" (NSIMWR 2018-2027, p.3032).

14. These institutions include the Water Resource Management Agency, Ministry of Environment, Ministries responsible for water supply and sewage, civil emergency, energy, and the Albanian Development Fund (NSIMWR, p.3072).

15. Two options have been laid out for Skavica hydropower plant, one with an estimated power of 120MW and yearly production capacity of 479 GWh that would cost 308 million € and a second one, with an estimated power of 210 MW, yearly production capacity of 915 GWh, and cost of 510 million € (Gordani, 2020), to be financed by the Government of Albania after years of failed attempts to finance it through a concession scheme.

16. These groups were created by Decision NWC 4/2015.

17. Pilot projects include the development of the Lake Ohrid Watershed Management Plan, a sewage treatment plan for Skadar/ Shkoder, and a joint monitoring network in the Skadar/Shkodër and Buna/Bojana sub-basins in Albania and Montenegro. Moreover, a pilot project on flood adaptation is under consideration (Hearns, 2019).

18. The MoU Action Plan includes "Action 3. Improvement of information exchange through the establishment of a system for regular exchange of relevant information among the competent authorities of each Party" (Drin Core Group, 2012b, p. 18).

19. DCM 221/ 2018, Section III-2/ç (Council of Ministers, Albania, 2018b).

20. Law 111/2012 updated, Art.88.

21. These institutions include regional authorities, central authorities through the Ministry of Tourism and Environment, Local Government, scientific and professional research institutes and public service companies (in landfills, water supply and sewage, etc) (National Environmental Agency, 2019).

22. The most recent project is 'Monitoring Manual for Lake-bound Species and Habitats of Lakes Prespa, Ohrid and Shkodra/Skadar,' which is an output of a transboundary project between Albania, Montenegro, and North Macedonia (NAPA, 2019) on conservation and sustainable use of biodiversity at Lakes Prespa, Ohrid, and Shkodra/Skadar.

23. These four programs are the main water-related budgeting programs however they do not cover the entire budget directed to water-related issues, since other budgeting programs might also have water -elated activity projects. Also, the 'Civil Emergency' program refers to all civil emergencies, not only water-related ones.

24. Decision no.1 of the National Water Council 'On the content, elaboration and implementation of the National Water Strategies, Water Basin Management Plans and Plans of Flood Risk Management', approved on 17/02/2015, should address this issue. However this decision has not been published by the Official Publishing Centre and cannot be accessed online.

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