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STUDY ON COHERENCE OF THE LEGAL FRAMEWORKS GOVERNING CONSERVATION OF FRESHWATER ECOSYSTEMS AND USE OF WATER RESOURCES IN SOUTH CAUCASUS COUNTRIES WITH THE RELEVANT EU ENVIRONMENTAL LEGISLATION

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ABBREVIATIONS

AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
BD	Birds Directive
Bern Convention	Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats
CBD	Convention on Biological Diversity
CMS	Convention on Migratory Species
EIA	environmental impact assessment
EQSD	Environmental Quality Standards Directive
EU	European Union
FAO	UN Food and Agriculture Organization
FD	Flood Directive
GEF	Global Environment Facility
HD	Habitats Directive
IAWR	International Association of Water Works in the Rhine Basin
ICPDR	International Commission for the Protection of the Danube River
ICPR	International Commission for the Protection of the Rhine
ILM	International Legal Materials
IWRM	Integrated Water Resources Management
MEA	Multilateral Environmental Agreement
MNP	Ministry of Nature Protection
ND	Nitrates Directive
NVZ	Nitrate Vulnerable Zone
RA	Republic of Armenia
Ramsar Convention	Convention on Wetlands of International Importance Especially as Waterfowl Habitat
RBM	River Basin Management
RBMP	River Basin Management Plan
RBO	River Basin Organization
SAP	Strategic Action Programme
SEA	Strategic Environmental Assessment
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
TDA	Transboundary Diagnostic Analysis
TWAP	Transboundary Waters Assessment Programme (GEF)
UBA	Federal Environment Agency (Germany)
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN Watercourses Convention	UN Convention on the Law of the Non-Navigational Uses of International Watercourses
UNECE	United Nations Economic Commission for Europe
UNECE Water Convention	UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes
UWWTD	Urban Waste Water Treatment Directive
WFD	Water Framework Directive
WSSD	World Summit on Sustainable Development
WRMA	Water Resources Management Authority
WUA	Water User Association

INTRODUCTION

This report represents a regional component of the Regional Study on Coherence of the Legal Frameworks Governing Conservation of Freshwater Ecosystems and Use of Water Resources in South Caucasus Countries with the relevant EU Environmental Legislation.The study was implemented in the framework of the regional project – "Advise to Governments in the development of Strategies to protect Freshwater Ecosystems in the South Caucasus", financially supported by the German Federal Environment Ministry's Advisory Assistance Programme (AAP) for environmental protection in the countries of Central and Eastern Europe, the Caucasus and Central Asia and other countries neighbouring the European Union. The project was supervised by the German Federal Environment Agency (UBA) and implemented by WWF Caucasus Programme Office, WWF Armenia and WWF Azerbaijan in close cooperation with WWF Germany.

The regional project aimed to (i) review the existing national legal frameworks governing conservation of freshwater ecosystems and use of water resources in the South Caucasus countries; (ii) analyse their coherence with the relevant EU environmental legislation; and (iii) elaborate recommendations for further harmonization. The project also highlighted the importance of regional cooperation for the protection of transboundary freshwater ecosystems and sustainable use of shared water resources in the South Caucasus.

The Regional Study on Coherence of the Legal Frameworks Governing Conservation of Freshwater Ecosystems and Use of Water Resources in South Caucasus Countries with the relevant EU Environmental Legislation comprises three National Reports (Armenia, Azerbaijan, Georgia) and a Regional Report.

METHODOLOGY

The Regional Study addresses two main topics:

1. Synthesis of the conclusions national reports, including recommendations on scope for collective capacity building.
2. Analysis of potential regional (or sub-regional or bilateral) mechanisms to promote cooperation on transboundary waters with a view to improving freshwater conservation regionally and nationally.

The Study is organised as follows:

Chapter 1 provides a general background to the regional context.

Chapter 2 provides a synthesis of the conclusions of the national reports, identifying in particular areas of common need or challenge.

Chapter 3 reviews the international legal framework applicable to regional freshwater conservation, including the major water and environmental conventions.

Chapter 4 considers European and international practice in transboundary river basin management, including the key models for the international governance architecture and pathways to regional cooperative governance.

Chapter 5 reviews existing transboundary cooperation in the South Caucasus, including the need for regional cooperation (and challenges in achieving it), existing international practice and the present state of the national governance and legislative infrastructure for transboundary cooperation in each country.

Chapter 6 discusses the potential options and challenges for developing regional cooperation in the South Caucasus.

Chapter 7 provides recommendations.

EXECUTIVE SUMMARY

This Study represents the regional component of the Study on Coherence of the Legal Frameworks Governing Conservation of Freshwater Ecosystems and Use of Water Resources in South Caucasus Countries with the relevant EU Environmental Legislation.The Regional Study addresses two main topics:

1. Synthesis of the conclusions of national reports covering the coherence between national legislation and the EU environmental legislation in Armenia, Azerbaijan and Georgia.
2. Analysis of potential regional (or sub-regional or bilateral) mechanisms to promote cooperation on transboundary waters with a view to improving freshwater conservation regionally and nationally.

Three National Reports (Armenia, Azerbaijan and Georgia) were prepared as the first phase of the overall Study on Coherence of the Legal Frameworks Governing Freshwater Ecosystem Conservation and Use of Water Resources in South Caucasus Countries with the relevant EU Environmental Legislation.The purpose of the National Reports was to assess the extent of coherence between legislative and governance mechanisms for the conservation of freshwater biodiversity in each South Caucasus country with that in the European Union (primarily the Water Framework Directive, WFD; its daughter Directives; and certain EU Environmental legislation).

In each country, there are a number of consistencies with the EU Water Framework and related Directives, but also areas of substantial divergence. This applied to all three countries, although the situation was rather different in Georgia because new legislation is being drafted to respond to its commitments under the Georgia-EU Association Agreement. As might be expected, the new legislation shows much closer consistency with the WFD.

As regards the WFD itself, and its daughter Directives, the level of coherence is generally quite low. While in each country there is a general recognition of the concept of river basin planning, progress towards implementing it is limited. Moreover, much activity directed toward river basin management planning to date has been through international projects, rather than as legal requirements under national law. In addition, measures relating to some key threats (e.g. wastewater and nitrates) typically very limited.

Coherence with environmental legislation was generally higher. Each country in the South Caucasus has a system of protected areas, and habitats and species conservation, although precisely how this operates differs from country to country, and from the EU Habitats and Birds Directives. In terms of identifying areas for improvement in the context of freshwater ecosystems, attention needs to be given to the integrations between the nature legislation and water legislation and effective criteria need to be developed for identifying, designating and protecting freshwater ecosystems and habitats dependent upon freshwater.

Each country also has relatively long-standing legislation on environmental impact assessment (EIA). However, in each case the regulatory system does not fully reflect the EU or EIA Convention models, and in practice inconsistencies are reported in how and when EIAs are actually carried out. In Georgia, the new draft law introduces more consistency with EU models. All three countries have a need to develop strategic environmental assessment (SEA) further. Although various legislation exists, the procedures for guaranteeing access to environmental information and participation in environmental decision-making are, on the whole, lacking.

The different policy priorities with respect to water and environment (and the balance between the two) in each country, the different legislative agendas and priorities and the differing administrative structures create considerable variation in the current positions and in future needs. Nevertheless, the report identified a number of common areas for future development including: further development of river basin management and planning; strengthening responses to urban waste water and nitrate discharges; developing closer integration between habitats and water legislation; and strengthening EIA and SEA.

The international legal framework for freshwater ecosystem conservation is discussed (Chapter 3), and international models for transboundary cooperation are reviewed (Chapter 4). As regards the former, it is noted that these rules represent not only internationally-agreed standards and principles but also set out the framework that EU law seeks to implement in its freshwater policies, and also – to the extent that they are Parties to the relevant agreements - the framework for the South Caucasus countries. These include both water conventions (principally, the UNECE Water Convention and the UN Watercourses Convention) and environmental conventions (including the UNECE Conventions on EIA, SEA and access to environmental information, and the main biodiversity and conservation conventions).

As regards international models of cooperation, it is noted that the EU – which has the highest number of international river basins among all regions in the world – provides a number of useful examples, along with a framework for cooperation provided by EU law (and in particular the WFD). On the other hand, it is also noted that only a small number of international river basin areas that come within the EU are subject to international river basin management plans, as envisaged by the WFD. There is also a wide range of practice globally: there are 117 river basin organizations covering 116 shared watercourses (and many more bilateral agreements and other mechanisms covering other shared watercourses). These river basin organizations come in many formats, with many different mandates, dealing with a variety of collective action problems. A handful of these organizations are reviewed as case studies illustrative of different kinds of cooperation, including the International Commission for the Protection of the Danube River (ICPDR), the Croatia-Bosnia and Herzegovina Commission for Water Management, the Shannon International River Basin District Advisory Council and bilateral agreements on specific issues.

There is currently no regional body for water governance and management in the South Caucasus, or wider Kura-Ara(k)s basin, despite there being a range of environmental, economic and social issues related to water, many of which are transboundary in nature and/or would benefit from transboundary cooperation. Regional cooperation is hampered by a number of difficulties, but in particular strained (or absent) diplomatic relations between some countries. There is some bilateral cooperation, but this is limited. There are reasons for more optimism, with a potential bilateral agreement governing the Kura River currently under consideration between Georgia and Azerbaijan. The Agreement is aimed at setting up cooperative, integrated management of water resources on relevant aspects and, in particular, identifies essential areas of cooperation, which include among others: development and implementation of joint basin management plans, projects and measures; carrying out joint scientific research, formulating common guidelines, standards and norms, as well as the development of a joint information system; exchange of hydrological, meteorological and environmental data and information; and joint monitoring and environmental assessment.

At a general level, it appears to be widely appreciated within the region that in order to better manage water, governance, legislation and enforcement needs to be improved at the national and regional levels. While the focus of this appreciation tends to be more on the economic and social needs for water, the need to better protect freshwater ecosystems is also acknowledged. At a general level, the key threats to freshwater conservation (e.g. environmental pollution, urban and industrial waste water and pollution, agriculture, fishing, increasing construction of hydro-power plants, etc.) are known, albeit that the impacts of these are rarely adequately assessed.

Currently, in the South Caucasus and in the Kura-Ara(k)s basin region as a whole, there appears to be an assumption that regional cooperation – in the form, for example, of a river basin organization – is not possible, and as a result few actions are even considered, let alone implemented, at the regional level. Nevertheless, the development of stronger regional cooperation, perhaps through a regional river basin management organization, should remain a long-term goal, while recognizing that fostering this type of multilateral cooperation is inevitably a long and slow process and requires simultaneous national level capacity building (to level the playing field) and progressive regional actions.

A range of actions could be considered, which form concrete actions in their own right, as well as serving as pathways to progressively closer regional cooperation. The pathways are not mutually exclusive or consecutive. They include:

- **Informal networks:** Networks of NGOs and other stakeholders which could be key drivers for regional cooperation and might perform a number of functions, including: providing a forum for dialogue among stakeholders; provide initial leadership in the regional agenda; promoting knowledge and information exchange; and developing a framework for regional dialogue, commitments.
- **Developing a regional vision:** an early priority in the evolution towards regional governance should be the development, first, of a regional vision for water management and governance. A common vision, supported by each country in the basin, and shared by all major stakeholders, is a pre-requisite to the development of integrated regional actions (and complementary actions at the national level).
- **Developing a regional political commitment:** building on a regional vision, a regional political commitment could be the first formal step between regional harmonisation and cooperation. Such political commitments, for example in the form of declarations, are commonly a fore-runner of more developed regional cooperation. Developing regional political commitment in the South Caucasus can be a staged process, and may be developed through a series of commitments (declarations, etc.).

- **Technical cooperation programmes:** Technical cooperation programmes (at the regional level) would most likely need to be developed after some expression of political commitment, but not necessarily so. Current technical cooperation exists but is almost invariably ad hoc and dependent on the programmes of international donors. Formal technical cooperation programmes (whether bilateral, sub-regional or basin-wide) might be addressed towards supporting monitoring, data collection and assessment, emergency response systems, or other regional priorities.
- **Bilateral agreements:** These do not need to wait for any regional vision or regional political commitments, but where such instruments have been adopted, bilateral agreements should aim to be consistent with and advance the regional framework.
- **Basin level cooperation:** as the final end of the spectrum. Following the approaches of international laws, the WFD and principles of IWRM this should ideally be based around an international river basin management plan. Ideally, it should also include some type of organisation to coordinate and oversee implementation of the plan, although the precise competence and functions of such an organisation could take many forms and many issues would need to be addressed.

Recommendations

The need for, and potential benefits to be derived from, enhanced regional cooperation in the South Caucasus and in the wider Kura-Ara(k)s river basin beyond, are clear. At a general level, it appears to be widely appreciated within the region that in order to better manage water, governance, legislation and enforcement needs to be improved at the national and regional levels. While it tends to be assumed that opportunities for regional cooperation at present are limited, due to the difficult diplomatic situation and other problems. Nevertheless, the establishment of a transboundary organization remains a valid and helpful goal in the very long-term, and a number of other steps can be envisaged in the short to medium term, being both steps towards the longer-term goal and concrete actions in their own right. This Study's recommendations focus on short and medium term steps, and are addressed to the governments and other stakeholders of the South Caucasus countries.

1. **Establish a regional dialogue mechanism and define a regional process**, focussed on the need to get the process started, in particular by providing a forum for dialogue among stakeholders and to provide initial leadership in the regional agenda.
2. **Establish a knowledge sharing platform**, in order to learn from the experiences of other basin organizations that are in, or have completed, the same development phase; to learn from each other; and to share data, project results, scientific surveys, etc.
3. **Define, elaborate and consult on a key set of management attributes for the transboundary basin organization to help promote good management**, as an informal statement of principles of good management, which all countries and stakeholders could be encouraged to adopt.
4. **Promote bilateral cooperation**, by encouraging new bilateral agreements and providing assistance to negotiations.
5. **Promote joint technical cooperation programming, including** longer-term joint technical cooperation programmes covering environmental monitoring, etc.
6. **Develop a common regional vision to be supported** by each country in the basin, and shared by all major stakeholders, is a pre-requisite to the development of integrated regional actions (and complementary actions at the national level). There is a need to more explicitly identify the environmental, economic and social importance of water resources and the effects of improved management. This should include a better assessment of the economic value of the freshwater environment (including ecosystem services).

CHAPTER 1 | BACKGROUND

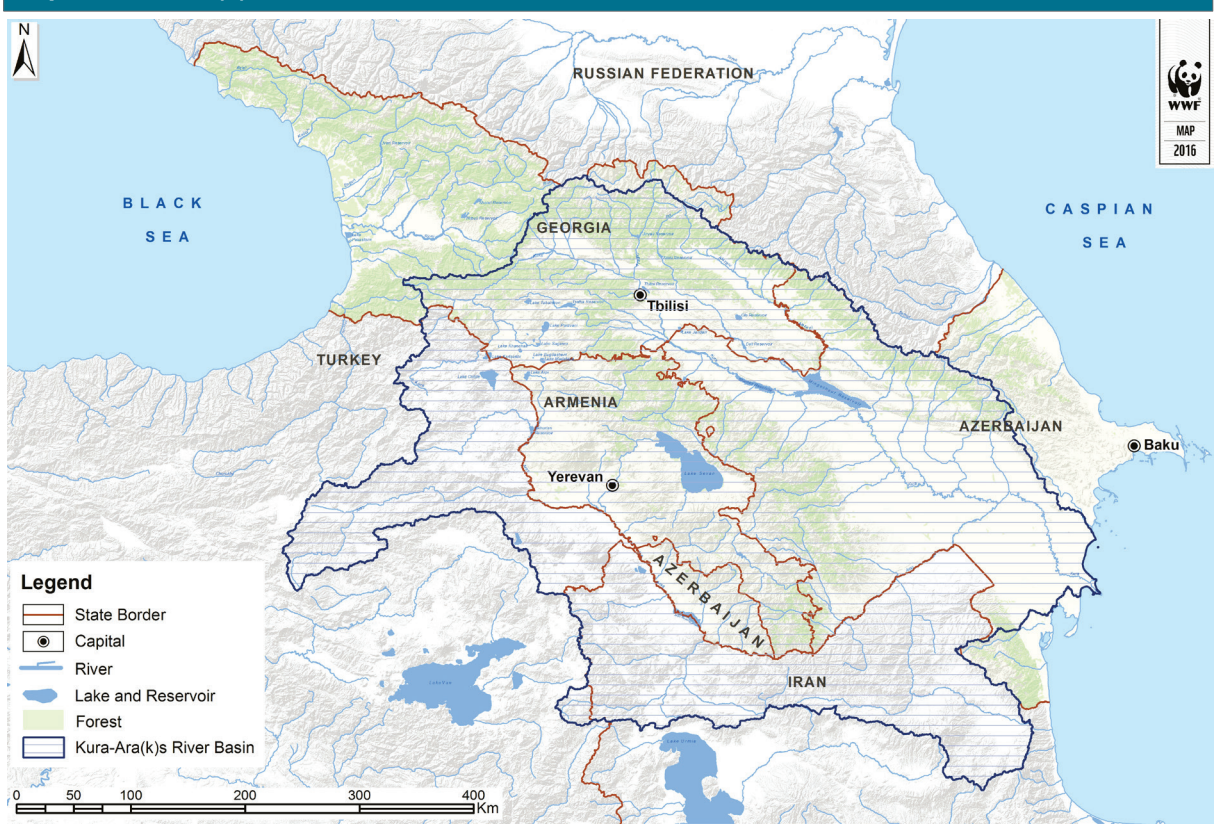
Situated between the Black Sea and Caspian Sea, the Caucasus is one of the most biologically rich regions on Earth and one of the 36 “biodiversity hotspots” identified by Conservation International as being the richest and at the same time most threatened reservoirs of plant and animal life. The Caucasus Ecoregion covers a total area of 580,000km2 extending over all of Armenia, Azerbaijan and Georgia, the North Caucasus part of Russia, north-eastern Turkey and part of north-western Iran. Landscapes in the Caucasus range from high mountains to semi-deserts and wetlands; vegetation types include snowfields and glaciers, steppe, broadleaf and coniferous forests, alpine and subalpine meadows, and alder and Caucasian wing-nut swamp forests.

Freshwater ecosystems cover about 8.5 percent of the Caucasus eco-region.Freshwater ecosystems provide vital freshwater reserves, as well as critically important habitats and resources for wildlife, including spawning grounds for endangered fish species and breading and migration grounds for birds. A freshwater network of more than 43,000 rivers lies between the Black and the Caspian Sea with a high number of freshwater lakes. As in many other parts of the world, however, freshwater ecosystems are also some of the most threatened habitats in the South Caucasus. Factors including environmental pollution, runoff from human settlements, factories and farmlands as well as overuse of limited resources through irrigation, fishing and increasing construction of hydro-power plants can have a devastating impact on the local freshwater ecosystems.

Key to improving freshwater ecosystem conservation is the strengthening of the legislative and governance frameworks. While the position differs across Armenia, Azerbaijan and Georgia, common problems exist including gaps and contradictions within the existing legal framework and difficulties in managing the competing interests from the public and private sector. Moreover, while international agreements provide a framework for legislative and governance strengthening, the South Caucasus countries are not party to all the relevant agreements, and implement them variably.

The purpose of the present study is to examine regional commonalities in addressing the challenges of supporting freshwater ecosystem conservation in the South Caucasus, and to look at possible models for enhancing regional cooperation. This will include considering the approaches in the EU Water Framework Directive, in particular as regards international river basin management. Separate studies for each country have examined the coherence between the EU Water Framework Directive and national legislation, including aspects related to transboundary waters and bilateral and regional cooperation.

Map 1. Kura-Ara(k)s River Basin



At the national level, the South Caucasus countries have shown commitment to implement the principles of the EU Water Framework Directive and reforms of water institutions and policies in approximation with these principles has been underway for some years.[1]

At the regional level, the countries share some important water management issues in the Kura-Ara(k)s river basin; the main water management issues in the basin include: floods, landslides and mudflows (prevention and management); pollution from untreated wastewater, industrial emissions and other impacts from industries such as hydropower; over-abstraction of groundwater resources (e.g. for agricultural production and irrigation); variability in water quantity. Nevertheless, transboundary cooperation is problematic for various reasons and, while all three countries agree to cooperate on water protection issues, joint management is not yet considered extensively at the regional policy level. Moreover, while numerous technical assistance interventions that have taken place in the region there is still further progress to be made in developing cooperative management in the basin.

CHAPTER 2 | SYNTHESIS OF THE CONCLUSIONS OF NATIONAL REPORTS

2.1 Introduction

The first part of this Study, on which later parts will also build, comprises an assessment and synthesis of the three National Reports (Armenia, Azerbaijan and Georgia) completed as the first phase of the overall Study on Coherence of the Legal Frameworks Governing Conservation of Freshwater Ecosystems and Use of Water Resources in South Caucasus Countries with the relevant EU Environmental Legislation.The purpose of the National Reports was to assess the extent of coherence between legislative and governance mechanisms for the conservation of freshwater biodiversity in each South Caucasus country with that in the European Union. This was based on a rationale that the EU frameworks represent not only a comprehensive and detailed system for freshwater ecosystem management, but are themselves based on the international agreements on transboundary water and/or environmental cooperation which – to the extent that it each is a Party or intends to become a Party to the relevant agreements – also apply to the Armenia, Azerbaijan and Georgia.

Each NationalReport considers the coherence of national legislation, policy and institutional arrangements with two groups of EU legislation, with a focus on the requirements needed to support effective freshwater ecosystem conservation:

1. the Water Framework Directive (WFD), including an assessment of coherence with the administrative arrangements foreseen by the WFD and the key steps to be taken under the river basin planning and management approaches; additionally, consideration is given to some of the specific water Directives, including those dealing with urban waste water, environmental quality standards, nitrates and flooding; and
2. key environmental legislation – the Habitats and Birds Directives and the Directives on Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA) and access to environmental information.

2.2 Policy and Legislative Context

The policy and legislative context in each country is not substantially dissimilar, except that current reforms in Georgia (once implemented) will introduce substantial changes in that country. As the situation currently stands in each country, water is currently managed according to models based on administrative boundaries, in highly-centralised systems of government. While (to varying degrees) river basin management is recognised in each country and basin level administrative structures exist, decision-making, planning and management has not been devolved to any extent to such organisations.

In terms of the overall legislative framework, the position is similar. Each country has principal water and conservation laws, supplemented by a much larger range of subsidiary legislation. In each case, the legislation contains numerous contradictory provisions, is very fragmented and substantially out of date and typically does not encompass all aspects of water management and protection and lacks linkages to other sectors. Policy and governance are both highly sectoral, and there can be conflicts and overlaps between different ministries.

1. In 2006, Armenia, Azerbaijan and Georgia signed the European Neighbourhood Policy Action Plans with the European Union (EU). Under these plans, each country is committed "to identify possibilities with neighbouring countries for enhanced regional co-operation, in particular with regard to water issues". The three countries are also committed to the implementation of the EU Water Framework Directive (WFD) and the development of River Basin Management Plans (RBMP), including for transboundary river basins.

The context is Georgia is somewhat different as, by virtue of its Association Agreement with the EU, substantial reforms to Georgian water and environmental legislation are in an advanced state of preparation. These reforms will refocus water governance in Georgia specifically on river basin models.

2.3 Participation in International Instruments

There is to a degree a common pattern among the South Caucasus countries when it comes to participation in international instruments: participation on environmental and conservation agreements is quite high, whereas participation in the water conventions is low. Thus, each country is a party to most of the key environmental and nature/biodiversity agreements but the only country to have ratified an international water agreement is Azerbaijan, which is a party to the UNECE Water Convention (see Chapter 3 for more details).

2.4 Coherence with the Water Framework Directive

The Water Framework Directive is the EU's overall legal framework for matters related to water policy. From both legislative and policy perspectives it has a number of notable features, which are founded in general principles of integrated water resources management (IWRM), the most important of which include:

- It is designed to operate as a single, integrated code for water resources management.
- It is target based: it imposes a general requirement for ecological protection and a minimum chemical standard for all surface waters (achieving "good status" for all waters by a set deadline).
- It employs a model for water management based on 'river basins', or geographical areas, rather than on administrative or political boundaries. According to this approach, water characteristics, human impacts, management needs, etc. are all assessed at the river basin level, and planning and institutional arrangements are set up at the river basin level, involving all stakeholders connected to the particular river basin.

In each country, there are a number of consistencies with the EU Water Framework Directive (WFD), but also areas of substantial divergence. The exception to this is the proposed new legislation in Georgia, which (as might be expected) shows close consistency with the WFD.

Thus, for example, each country has a body which could be identified as a "competent authority" in WFD terms and each country has identified river basin districts, although these are not formally designated in Azerbaijan and, as noted above, do not form the management unit in any country (except in the draft laws in Georgia). Since management is not based on river basins, the implementation of WFD principles relating to river basin planning is inevitably variable. Thus, some work is undertaken in each country to analyse the characteristics of river basin districts within the planning process but this is typically at a scope and level of detail substantially below that expected by the WFD. This is in part a legislative and planning problem (the requirements to conduct the analyses, or to conduct assessments at the planning level, do not exist legislatively or administratively) but it is also a capacity problem – the countries do not generally have the financial, technical or human capacity to conduct long-term, detailed assessments as anticipated by the WFD.

As regards river basin planning itself, it is notable that governments and wider stakeholders in the region all recognise the concept of river basin planning and appear to accept the need to move towards this system of planning and management. However, although each country is moving towards this, progress to date has been largely project based. There is a need to formalise river basin management and planning in each country (something currently envisaged only in the draft Georgian legislation). As part of such formalisation, there would also be a need to set overall targets for the environmental status of water which would act as the framework for monitoring compliance and enacting "programmes of measures" as foreseen by the WFD.

2.5 Coherence with other Water Directives

2.5.1 The Urban Waste Water Treatment Directive

The Urban Waste Water Treatment Directive (UWWTD) aims to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors. It concerns the collection, treatment and discharge of domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rain water. Under the current legal frameworks in the South Caucasus there appears to be little equivalence in any country with the UWWTD. Although there is long-standing legislation on water supply and sanitation in each country, this does not extend to requirements to assess the status of urban wastewater collection and treatment. There is currently no system for identifying areas sensitive to urban waste water discharge or assessing the impact from agglomerations of different scales or for the implementation of specific measures for water discharged into such areas. Moreover, while there are some general licensing controls in place, these do not generally extend specifically to regulating the discharge of waste water.

2.5.2 The Environmental Quality Standards Directive

As noted above, one of the key features of the WFD is the setting of overall targets to achieve good environmental status. A specific element of this is contained in Article 16 of the WFD, which requires the European Commission to identify priority substances among those presenting significant risk to or via the aquatic environment, and to set EU Environmental Quality Standards (EQSs) for those substances in water, sediment and/or biota (which are set out in a specific Directive on Environmental Quality Standards). These instruments require administrations to determine and apply environmental quality standards to surface water, sediment and/or biota, based on the identification of “priority” polluting substances.

A system of environmental quality standards exists in each country, but it is somewhat limited in Georgia (where it is focussed on public health and does not include most of the priority substances under EU legislation) and in Azerbaijan (where it is based on a somewhat out-dated and rudimentary pollution index and in any case is not applied to waters as widely as the WFD requires). It is more extensive in Armenia. The draft law on water management in Georgia requests adoption of a governmental resolution on “adoption of the environmental quality standards of water” for the surface water bodies. In all cases, however, there is a gap between the legislative requirements and the financial, technical or human capacity to monitor and manage polluting substances. Moreover, no country has an adequate system for inventorying and reviewing polluting substances, as foreseen by the EQSD. Legislation is needed to introduce a regular process for conducting (and then reviewing and updating) and inventory, including maps, if available, of emissions, discharges and losses of all monitored substances and pollutants for each river basin district including their concentrations in sediment and biota, as appropriate.

2.5.3 The Nitrates Directive

Generally, there is little coherence in the South Caucasus countries with the Nitrates Directive. While no assessments have been carried out, nitrate use is widely reported and the agriculture sector is a major user of water in each country.

The two fundamental steps under the Nitrates Directive are to identify polluted waters or waters at risk and designation of nitrate vulnerable zones (NVZ), and neither of these take place in the South Caucasus countries. (The existing draft law on water resources in Georgia requires the identification of polluted waters or waters at risk as well as designation of nitrate vulnerable zones but does not specify the details of how these processes are to be achieved). On the other hand, there are some instances of nitrate management measures, including codes of good agricultural practices. However, since these are not tied to river basin plans (e.g. as “supplementary measures” in a programme of measures) it is difficult to ascertain what impact they have on water quality.

2.5.4 The Floods Directive

The EU’s Floods Directive focusses on assessing and planning for flood risks, requiring the establishment of a “baseline” through a preliminary flood assessment, conducted in accordance with certain criteria, followed by the preparation of flood hazards maps, flood risks maps and flood risk management plans.

In general, there is quite extensive legislation on flood prevention measures and flood response actions, there is little coherence with the Floods Directive in terms of overall integrated planning, risk assessment and management strategy, which impedes the ability to identify and mitigate the impacts of flooding events on biodiversity. There are no specific legal requirements to prepare flood hazards maps, flood risk maps or flood risk management plans. Moreover, in practice there is no regular or system process for preparing such maps or plans, although various studies and assessments have been conducted, primarily through various project interventions.The draft legislation in Georgia incorporates to some extent flood risks within the planning process.

2.6 Coherence with the Birds and Habitats Directives

The Habitats and Birds Directives require the establishment of a coherent ecological network of special areas of conservation, based on designated special areas of conservation. The Directive sets out detailed criteria for selecting sites eligible for designation, as well as certain direct protections for habitats and species identified as needing protection.

Each country in the South Caucasus has a system of protected areas, and habitats and species conservation, although precisely how this operates differs from country to country, and from the EU Habitats and Birds Directives. In terms of identifying areas for improvement in the context of freshwater ecosystems, attention needs to be given to the integrations between the nature legislation and water legislation and effective criteria need to be developed for identifying, designating and protecting freshwater ecosystems and habitats dependent upon freshwater.

A key gap that exists in each country is the **establishment of a register of protected areas for freshwater sites** – this is a small but important administrative measure to integrate water and nature legislation, and to ensure that water users and planners have a full knowledge and understanding of the existence of protected zones in water, and the restrictions involved. The draft law in Georgia anticipate the establishment of a register.

Another area in which coherence with EU legislation is more limited concerns **monitoring and surveillance of protected habitats and species**. This is in part a legislative problem (the requirements to conduct monitoring and surveillance programmes do not exist legislatively), in part an institutional problem (administratively, units to conduct such activities are not adequately set up) and in part also a capacity problem – the countries do not generally have the financial, technical or human capacity to conduct extensive monitoring programmes.

2.7 Coherence with other Environmental Legislation

Each country has relatively long-standing legislation on **environmental impact assessment** (EIA). However, in each case the regulatory system does not fully reflect the EU or EIA Convention models, and in practice inconsistencies are reported in how and when EIAs are actually carried out. In Georgia, the new draft law introduces more consistency with EU models.

There is currently no specific legal basis for **strategic environmental assessment** (SEA) procedures in Azerbaijan. It is being addressed in Georgia in the context of the EU Association Agreement in reforms, while in Armenia a framework for SEA has been introduced recently into legislation but proper and effective implementation will likely require developing the legislation further (it does not currently correspond substantially to the relevant international principles), as well as developing the administrative and technical expertise to conduct SEAs fully.

Although various legislation exists (including to an extent, constitutionally) and although each country is a party the Aarhus Convention,[2] the procedures for guaranteeing **access to environmental information and participation in environmental decision-making** are, on the whole, lacking. More specific legislation (more closely aligned to the Convention, or EU legislation) and administrative / implementing protocols could be developed, setting out in particular the rights of citizens to request information and the procedures for government to deal with such requests and setting out agreed procedures governing when and how to conduct public consultations on environmental policy and planning decisions.

2. Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

2.8 Key Needs

The analysis in the National Reports presents a varied picture of water and environmental policy and law in each country. Moreover, in Georgia the situation is currently very fluid because a comprehensive process for legislative reform is underway in response to the EU Association Agreement commitments. The different policy priorities with respect to water and environment (and the balance between the two) in each country, the different legislative agendas and priorities and the differing administrative structures create considerable variation in the current positions and in future needs. Nevertheless, a number of common areas for future development can be highlighted:

- Develop river basin management and planning fully. The overriding need is to fully embrace river basin management and planning. Each country has already demonstrated its commitment to this model, and taken some steps towards it but the approach now needs to be fully developed and formalised. Steps at the regional level may be developed to assist this process (discussed below) but individual national strategies will also need to be developed, including by elaborating a national vision and strategy for river basin management and beginning to develop capacity building strategies for river basin planning.
- Strengthen responses to urban waste water and nitrate discharges. Legislation and management of these key threats to freshwater ecosystem conservation are poorly addressed in each country. Specific responses should be developed, which in the first place do not need to form part of an overall system of river basin management (but once such a system is established will need to be incorporated within it).
- Develop closer integration between habitats and water legislation. While systems for protected areas and nature conservation are well established in each country, attention needs to be given to the integrations between the nature legislation and water legislation and effective criteria need to be developed for identifying, designating and protecting freshwater ecosystems and habitats dependent upon freshwater. The establishment of a register of protected areas for freshwater sites would be an important first step.
- Extend and improve water monitoring programmes and facilities. Renewed investment needs to be made in the monitoring architecture. Water, and the environmental impacts in it, can only be properly assessed and managed if there is adequate data and knowledge concerning the water itself. Currently, all South Caucasus countries are operating somewhat blindly, with limited and out-dated monitoring facilities.
- Strengthen environmental impact assessment and strategic environmental assessment. Both EIA and SEA are key tools to address and minimise environmental harm to freshwater ecosystems. Moreover, the systems for EIA (at least) exist in each country, albeit they require improvement. EIA procedures should be developed and improved, and specific expertise and protocols for considering freshwater impacts should be developed. Capacity building for SEA is required.

CHAPTER 3 | INTERNATIONAL LEGAL FRAMEWORK

About 40 per cent of the world's population lives in river basins that are shared by one or more countries.[3] These transboundary basins cover almost 50 per cent the Earth's land surface and provide over 60 per cent of global freshwater flow. Globally, there are 286 of these transboundary basins.[4]

The starting point for any analysis of the legal frameworks governing freshwater ecosystem conservation and water resources use should be the various international legal rules. These rules represent not only internationally-agreed standards and principles but also set out the framework that EU law seeks to implement in its freshwater policies, and also – to the extent that they are Parties to the relevant agreements - the framework for the South Caucasus countries.

The key instruments are listed below, along with the participation of the South Caucasus countries. In general, participation is high for environmental conventions but low for the water conventions.

Table 1. Participation in international treaties

Instrument	Armenia	Azerbaijan	Georgia
Water Conventions			
Convention on the Protection and Use of Transboundary Watercourses and International Lakes	-	03.08.2000	-
Protocol on Water and Health	signed	09.01.2003	-
Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters	signed	-	signed
UN Convention on the Law of the Non-Navigational Uses of International Watercourses	-	-	-
Conservation Conventions			
Convention on the Conservation of European Wildlife and Natural Habitats	14.04.2008	28.03.2000	08.05.2009
Convention on Biological Diversity	14.05.1993	03.08.2000	02.06.1994
Convention on Migratory Species	01.03.2011	-	01.06.2000
Agreement on the Conservation of African-Eurasian Migratory Waterbirds	-	-	01.08.2001
Convention on Wetlands of International Importance Especially as Waterfowl Habitat	06.11.1993	21.09.2001	07.06.1997
Other Environmental Conventions			
United Nations Framework Convention on Climate Change	14.05.1993	16.05.1995	29.07.1994
Convention on Environmental Impact Assessment in a Transboundary Context	21.02.1997	25.03.1999	-
- Protocol on Strategic Environmental Assessment	24.01.2001	-	signed
Convention on Access to Information, Public Participation in Decision Making	01.08.2001	23.03.2000	11.04.2000

Key	Party	Non-Party / Signatory only

3.1 Water Conventions

3.1.1 UNECE Water Convention

The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention, or Helsinki Convention) establishes a framework for cooperation between the member countries of the United Nations Economic Commission for Europe (UNECE) on the prevention and control of pollution of transboundary watercourses by ensuring rational use of water resources with a view to sustainable development. The Parties to the Convention undertake to take all appropriate measures to prevent, control and reduce any "transboundary impact".[5] This means they must ensure:

- transboundary waters are managed in a rational, environment-friendly manner;
- transboundary waters are used in a reasonable and equitable way; and
- conservation and restoration of ecosystems.

3. There is no single definition of the term 'transboundary waters'. Under he UNECE Convention, it refers to any surface or ground waters which mark, cross or are located on boundaries between two or more States; wherever transboundary waters flow directly into the sea, these transboundary waters end at a straight line across their respective mouths between points on the low-water line of their banks (Article 1).
4. The number of transboundary basins varies according to definition and scale. For the purposes of this study, the nomenclature and count of transboundary basins corresponds to those used by the Global Environment Facility's Transboundary Waters Assessment Programme (TWAP) (www.geftwap.org) which lists 286 transboundary basins.
5. Defined as any significant adverse effect on the environment resulting from a change in the conditions of trans-boundary waters caused by a human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of another Party to the Convention (such effects include effects on human health and safety, flora, fauna, air, climate, etc.).

Actions of the Parties to the Convention must be guided by the following principles:

- the precautionary principle: action to avoid the release of hazardous substances must not be postponed, despite the lack of a proven causal link between the substances and the trans-boundary impact;
- the polluter pays principle: the costs of pollution prevention, control and reduction measures must be borne by the polluter;
- water resources must be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

The means of reducing transboundary impact are legal, administrative, economic, technical and financial measures. The Parties may adopt water quality criteria and introduce emission limits for discharges into surface waters. This type of pollution may be avoided or reduced by using low-pollution technology. The States must establish programmes for monitoring the condition of trans-boundary waters.

The Convention encourages cooperation among the Riparian Parties by means of bilateral and multilateral agreements for the introduction of harmonised policies, programmes and strategies to protect transboundary waters. These may, for example:

- collect information and compile inventories on sources of pollution which have (or may have) transboundary impact;
- set up joint monitoring programmes;
- adopt emission limits for waste water;
- establish warning procedures;
- carry out environmental impact assessments;
- evaluate the effectiveness of programmes dealing with this type of pollution.

The Convention sets up two categories of obligations. The first group includes obligations of a more general nature and applies to all its Parties. The second category of obligations applies to riparian Parties (Parties that belong to the same transboundary watercourse). The key obligation of riparian Parties is to conclude bilateral and multilateral arrangements concerning their shared waters.

The legal framework established by the UNECE Convention is subject to the ongoing development through the adoption of auxiliary instruments complementing the Convention. These include legally binding protocols as well as various non-binding guidelines and recommendations. Among the most significant of these are:

- The Protocol on Water and Health, concluded in 1999, with a view to prevent, control and reduce the incidence of diseases related to water. Its main objective is to promote the protection of human health and wellbeing through improved water management activities, including the protection of water ecosystems.[6]
- The Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters, concluded in 2003, which establishes for the first time in international practice a regime of compensation for ecological damage resulting from accidental pollution of transboundary waters. [7]

3.1.2 UN Watercourses Convention

The 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses (“UN Watercourses Convention”) is the outcome of almost 30 years of work by the UN International Law Commission (ILC) on the codification and progressive development of international law in the field of the non-navigational uses of international watercourses.[8] The Convention is a framework international agreement open for participation by all States. The provisions of the Convention define the reciprocal rights and obligations of the watercourse states regarding the use of the waters of a shared `international watercourse' parts of which are situated within their respective territories.

6. Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and Lakes (17 June 1999, London; in force 4 August 2005, at www.unece.org/env/documents/2000/wat/mp.wat.2000.1.e.pdf).
7. The Protocol has a notable feature in that it was elaborated and adopted simultaneously under the aegis of the two UNECE conventions: the Water Convention and the 1992 Convention on the Transboundary Effects of Industrial Accidents (17 March 1992, Helsinki; 31 ILM (1992) 1333; www.unece.org/env/teia/text.htm). The latter instrument deals with the prevention of industrial accidents through preparedness for and response to their transboundary effects. Its purpose is to promote international cooperation in the protection of human beings and the environment by preventing such accidents insofar as it is feasible, reducing their number and severity, and mitigating their effects.
8. For more detailed information, see S McCaffrey `UN Convention on the Law of Non-Navigational Uses of International Watercourses: Prospects and Pitfalls', in World Bank (1998).

The Convention aims to deal with “the problems affecting many international watercourses resulting from, among other things, increasing demands and pollution” (Preamble, para. 4). The Convention applies to uses of international watercourses and of their waters for purposes other than navigation (including environmental purposes) and to measures of protection, preservation and management related to the uses of those watercourses and their waters (Article 1(1)).

Part II of the Convention lays down the key general obligations of watercourse States, namely:

- equitable and reasonable utilization of, and participation in, watercourses management (Arts. 5 and 6);
- the duty not to cause significant harm to other riparian States (Art. 7)[9];
- a general obligation to cooperate on the basis of mutual benefit (Art. 8);
- a duty to regularly “exchange readily available data and information on the condition of the watercourse” including those of an ecological nature and data related to water quality (Art. 9);
- the principle that in the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses (Art. 10) and as such considers in-stream water uses just as important as other types of water utilization.

The Convention (Arts. 11-19) also lays down a framework for planning measures, including exchange of information concerning planned measures and notification of other riparian States of potential adverse effects and procedures for the urgent implementation of planned measures.

Part IV (Protection, Preservation and Management) sets out the key general obligations concerning the protection of the environment, including a duty on watercourse States to individually, and where appropriate jointly, protect and preserve the ecosystems of international watercourses (Art. 20), including by preventing, reducing and controlling pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health and safety.[10] The protection and preservation of the marine environment, including estuaries, is regulated in Article 23. In addition, international watercourses should be managed jointly, including the planning of its sustainable development (Art. 24) and cooperation when the need for the regulation of the flow of a watercourse arises (Art. 25). Each State has to ensure the safe operation and maintenance of its installations and facilities related to an international watercourse (Art. 26).

3.1.3 UN Resolution on the Law of Transboundary Aquifers

The 63rd session of the UN General Assembly adopted Resolution A/RES/63/124 on the Law of Transboundary Aquifers by consensus on 11 December 2011.[11] The resolution encourages States 'to make appropriate bilateral or regional arrangements for the proper management of their transboundary aquifers, taking into account the provisions of [the] draft articles', which are annexed to the resolution. These provisions include cooperation among States to prevent, reduce and control pollution of shared aquifers. In view of the importance of these 'invisible resources', States are invited to consider these draft articles as a basis for the elaboration of a convention. The Resolution is a first attempt to provide a complete set of recommendations and guidelines for the sustainable and peaceful management of transboundary aquifers.

3.1.4 UNECE Model Provisions on Transboundary Groundwaters

The UNECE Model Provisions on Transboundary Groundwaters provide specific non-binding guidance for the implementation of the UNECE Water Convention with regard to groundwater and facilitating the application of the principles of the Convention to transboundary groundwater. The document comprises an introduction followed by nine model provisions, each accompanied by commentary. The Model Provisions reflect the current state of international water law with regard to transboundary groundwaters and also show, in the commentaries, the practical ways and examples of its application in inter-State practice. The Model Provisions are designed to benefit Governments, interested stakeholders and both Parties and non-Parties to the Water Convention.

9. According to the International Court of Justice, these obligations are also part of the general rules of international law. In its 1997 judgment in the case of the Gabčíkovo-Nagymaros project involving Hungary and Slovakia, the Court confirmed that riparian states have a basic right to an equitable and reasonable share of the resources of an international watercourse, depending on particular circumstances like climate or social and economic needs of the riparian states. Furthermore, one riparian state must not cause "significant harm" to the other. Gabčíkovo-Nagymaros Project Case (Hungary/Slovakia), 1997 ICJ 7, reprinted in 37 ILM 162.
10. Art. 21(1) defines ‘pollution of an international watercourse’ as “any detrimental alteration in the composition or quality of [its] waters ... which results directly or indirectly from human conduct”.
11. Available at: www.un.org/es/comun/docs/?symbol=A/RES/63/124&lang=E.

3.2 Environmental Conventions

Espoo and Aarhus Conventions

In addition to the international legal instruments just discussed, two more documents were elaborated and adopted within the framework of the UNECE, each of which is of great importance for the protection and preservation of transboundary waters. These are the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)[12] and the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention).[13]

The Espoo Convention sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of states to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact beyond the borders of the state planning such activities.The Convention provides a comprehensive list of activities for which environmental impact assessments should be carried out including the following:

- Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1,350 metric tons;
- Large dams and reservoirs;
- Groundwater abstraction activities or artificial groundwater recharge schemes where the annual volume of water to be abstracted or recharged amounts to 10 million cubic metres or more;
- Works for the transfer of water resources between river basins where this transfer aims at preventing possible shortages of water and where the amount of water transferred exceeds 100 million cubic metres/year; and in all other cases, works for the transfer of water resources between river basins where the multi-annual average flow of the basin of abstraction exceeds 2000 million cubic metres/year and where the amount of water transferred exceeds 5 per cent of this flow. In both cases transfers of piped drinking water are excluded;
- Wastewater treatment plants with a capacity exceeding 150,000 population equivalent.[14]

In 2003, the Espoo Convention was supplemented by the Protocol on Strategic Environmental Assessment (SEA).[15] The SEA Protocol requires its Parties to evaluate the environmental consequences of their official draft plans and programmes (and also addresses policies and legislation, although the application of SEA to these is not mandatory).Strategic environmental assessment should be undertaken much earlier in the process of decision-making than environmental impact assessment, and it is therefore seen as a key tool for sustainable development.

The Aarhus Convention establishes a number of rights of the public with regard to the environment, in particular:the right of everyone to receive environmental information that is held by public authorities;the right to participate in environmental decision-making; andthe right to review procedures to challenge public decisions that have been made without respecting the previous two rights (or environmental laws in general). The Convention obliges its Parties to provide legal and institutional guarantees for practical implementation of these rights. To further enhance the legal framework established by the Aarhus Convention an additional Protocol to the Convention on Pollutant Release and Transfer Registers (PRTRs) was adopted in 2003.[16] PRTRs are inventories of pollution from industrial sites and other sources. The PRTR Protocol aims to extend public access to information by establishing coherent, integrated, nationwide registers that will promote public participation in decision-making and contribute to the prevention and reduction of environmental pollution.

12. Convention on Environmental Impact Assessment in a Transboundary Context (25 February 1991, Espoo) 30 ILM (1991) 1461, www.unece.org/env/eia. In force 10 September 1997.
13. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (25 June 1998, Aarhus) 38 ILM (1999) 517. In force 30 October 2001.
14. Espoo Convention, Annex I.
15. Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (21 May 2003, Kiev), www.unece.org/env/eia. In force 11 July 2010.
16. Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (21 May 2003, Kiev), www.unece.org/env/pp/prtr/docs/prtrtext.html. In force, 8 October 2009

3.3 Nature and Biodiversity Conventions

3.3.1 Bern Convention

The Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, signed September 1979, in force June 1982) aims “to conserve wild flora and fauna and their natural habitats, especially those species and habitats whose conservation requires the co-operation of several States, and to promote such co-operation. Particular emphasis is given to endangered and vulnerable species, including endangered and vulnerable migratory species.” The Convention lists protected species on four Appendices: Appendix I lists strictly protected flora species, Appendix II lists strictly protected fauna species, Appendix III lists protected fauna species, and Appendix IV lists prohibited means and methods of killing, capture and other forms of exploitation.

3.3.2 Convention on Biological Diversity

Water availability plays a critical role in sustaining healthy aquatic ecosystems, and water allocation and management are central to much of the CBD programme of work on inland waters biodiversity. Numerous goals and activities of the programme of work on the biological diversity of inland water ecosystems refer to water allocation and management, directly or indirectly. For example, under goal 1.1, objective (b) refers to the adoption of integrated river basin management strategies, aimed at restoring or improving the quality, supply, functions and values of inland water resources. Activities 1.1.2 (for Parties) and 1.1.10(a) (for SBSTTA) relate to the development of management strategies for inland water ecosystems that aim to secure the environmental flows required for maintaining ecosystem functioning and integrity.

3.3.3 Convention on Migratory Species

The Convention on the Conservation of Migratory Species of Wild Animals (Convention on Migratory Species or CMS, signed June 1979, in force April 1987) promotes cooperation in the conservation of migratory species, and in particular those species the conservation status of which is unfavourable.

Parties are required to conserve migratory species and their habitats by providing “immediate protection” for the endangered migratory species listed in Appendix I and by concluding multilateral agreements for the conservation and management of migratory species listed in Appendix II. In order to protect the species listed in Appendix I, the Range State parties are required to conserve or restore the habitats of endangered species; to prevent, remove, compensate for or minimize the adverse effects of activities or obstacles that impede the migration of the listed species; and to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species. The taking of animals belonging to species listed in Appendix I is prohibited, subject to certain exceptions, such as taking for scientific purposes or to enhance the propagation or survival of the species. Such exceptions must be “precise as to content and limited in space and time,” and should not operate to the disadvantage of the species. As regards Appendix II species, the Convention does not directly provide specific obligations, but encourages parties to adopt further agreements for their conservation and management.

3.3.4 African-Eurasian Migratory Water Bird Agreement

The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA, signed June 1995, in force November 1999) is an agreement concluded under the Convention on Migratory Species. The AEWA covers over 250 species of birds ecologically dependent on wetlands for at least part of their annual cycle. The range of the agreement covers 118 countries and the European Union (EU) from the northern reaches of Canada and the Russian Federation to the southernmost tip of Africa. The Agreement provides for coordinated and concerted action to be taken by the Range States throughout the migration system of waterbirds to which it applies. Parties to the Agreement are called upon to engage in a wide range of conservation actions which are described in a comprehensive Action Plan. This detailed plan addresses such key issues as: species and habitat conservation, management of human activities, research and monitoring, education and information, and implementation.

3.3.5 Ramsar Convention

The Convention on Wetlands of International Importance Especially as Waterfowl Habitat (“Ramsar Convention”, signed February 1971, in force December 1975) seeks to maintain the ecological character of Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in member States’ territories. The Convention has three main 'pillars' of activity: the designation of wetlands of international importance as Ramsar sites; the promotion of the wise-use of all wetlands in the territory of each country; and international co-operation with other countries to further the wise-use of wetlands and their resources. Currently there are nearly 2200 designated sites, covering a total area of more than 200 millionhectares. There are 7 Ramsar sites in the South Caucasus countries.

CHAPTER 4 | INTERNATIONAL MODELS FOR TRANSBOUNDARY RIVER BASIN COOPERATION

4.1 European Union

The European continent has the highest number of international river basins among all regions in the world (Baranyai, 2015). These basins vary greatly in terms of size, hydrological conditions and political complexity. Out of the 69 transboundary basins 39 are shared only by two countries, while the Danube catchment area, considered as the most international river basin worldwide, comprises 19 countries. The geographical and political fragmentation of Europe results in a very high transboundary exposure for most countries. In 16 European countries more than 90% of the territory is located in an international river basin. Most European countries rely heavily on waters that originate outside their territories. Germany, Greece, Luxembourg and Portugal receive 40 per cent of their surface waters from abroad, while for some Member States (the Netherlands, Slovakia, Hungary) it is 80-95 per cent (Baranyai, 2015).

The EU's Water Framework Directive applies to river basins that extend across international borders in much the same way as it does to national river basins, at least to the jurisdictional extent of Member States.[17] Thus, Member States need to identify international river basins and set up appropriate administrative structures for them; such river basins should be assigned to international RBDs and the Directive specifies that Member States should ensure cooperation on international RBDs lying within the territories of the EU, e.g., by producing joint RBMPs. If the basin extends beyond the territories of the EU, the Directive requires Member States to make efforts to establish cooperation with non-Member States to manage the water resource on a basin level.

Since Member States only have jurisdiction within their own territories, cooperation with non-Member States, including the adoption of joint RBMPs cannot be ensured through the enforcement of EU law. Where joint arrangements cannot be agreed, the WFD requires that RBMPs be set up for the part of the RBD falling within each Member State's own territory. The WFD does not provide any mechanism for joint coordinating structures to directly administer the Directive: the requirement is placed on Member States to (seek to) enter into international arrangements, but the Member State remains responsible for achieving good status (and other WFD requirements) in its waters.

International aspects of the EU WFD

Article 3

(3) Member States shall ensure that a river basin covering the territory of more than one Member State is assigned to an international river basin district. (…) Each Member State shall ensure the appropriate administrative arrangements, including the identification of the appropriate competent authority, for the application of the rules of this Directive within the portion of any international river basin district lying within its territory.

(4) Member States shall ensure that the requirements of this Directive for the achievement of the environmental objectives established under Article 4, and in particular all programmes of measures are coordinated for the whole of the river basin district For international river basin districts the Member States concerned shall together ensure this coordination and may, for this purpose, use existing structures stemming from international agreements.

(5) Where a river basin district extends beyond the territory of the Community, the Member State or Member States concerned shall endeavour to establish appropriate coordination with the relevant non-Member States, with the aim of achieving the objectives of this Directive throughout the river basin district.

(8) Member States shall provide the Commission with a list of their competent authorities and of the competent authorities of all the international bodies in which they participate (…).

Article 13

(2) In the case of an international river basin district falling entirely within the Community, Member States shall ensure coordination with the aim of producing a single international river basin management plan. Where such an international river basin management plan is not produced, Member States shall produce river basin management plans covering at least those parts of the international river basin district falling within their territory to achieve the objectives of this Directive.

(3) In the case of an international river basin district extending beyond the boundaries of the Community, Member States shall endeavour to produce a single river basin management plan, and, where this is not possible, the plan shall at least cover the portion of the international river basin district lying within the territory of the Member State concerned.

Annex 1 As required in Article 3(8), the Member States shall provide the following information on all competent authorities within each of its river basin districts as well as the portion of any international river basin district lying within their territory. (…) (vi) International relationships – where a river basin district covers the territory of more than one Member State or includes the territory of non-Member States, a summary is required of the institutional relationships established in order to ensure coordination.

17. A review of the key elements of EU water and environmental legislation is provided in each National Report, and is not repeated here.

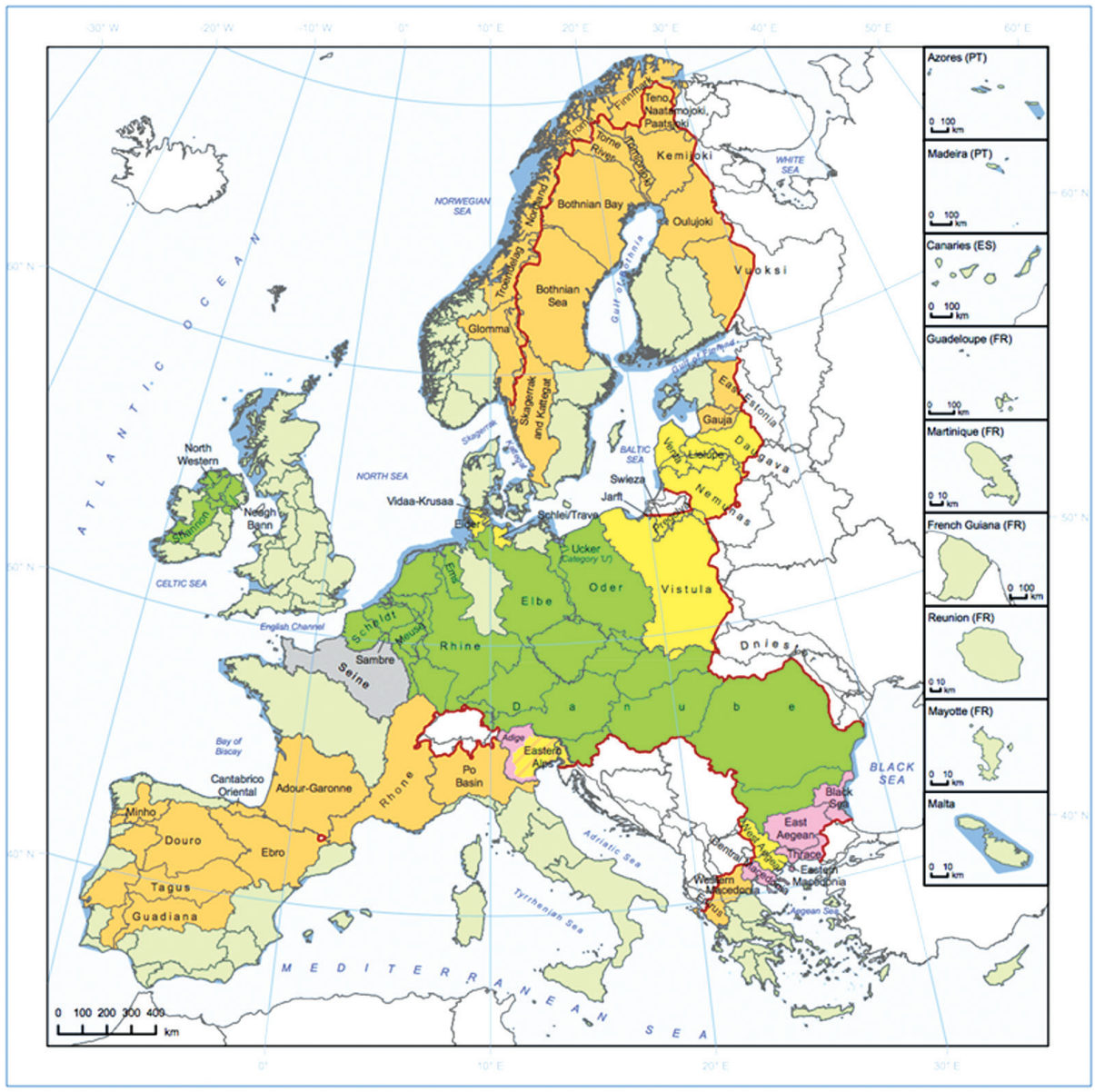
In practice, therefore, international cooperation (even when amongst only Member States)has tended to follow the same types of cooperative structure that are found elsewhere around the world (see further below on cooperative structures).Thus, they include river basins covered by bilateral or multilateral river basin organisations, councils or committees (with or without an international RBMP); bilateral or multilateral agreements without a cooperation body (again, with or without an international RBMP); and river basins where no standing arrangement for cooperation is formalised (but where there may be cooperation on specific issues, or on an informal basis).

Some form of cooperative agreement is in place for nearly all of the 69 international river basin districts within or partly within the EU (see Map 2). Most of these fall within the European Commission's Category 2 and 3 classifications, i.e. either a cooperation body or a cooperation agreement in place, but no international RBMP in place. According to the Commission, only eight international RBMPs have been developed (European Commission 2016). In each case, these river basins are also covered by an international cooperative agreement establishing an international commission (seeTable 2 for a summary).

Nevertheless, the WFD has provided a framework for harmonizing standards, agreeing rules and encouraging agreement, particularly since non-Member States have also usually applied the WFD through the EU's neighbourhood, association and accession programmes (Keessen, et al. 2008, WISE 2008, Šeperovič and Imamović 2011). Nevertheless, many of the problems typically found in international water organizations elsewhere also exist in European organizations – these include:

- the absence of water quantity management in EU legislation, apart from such basic principles as equitable and reasonable utilisation or the no-harm rule and the absence of water allocation mechanisms, particularly between Member and non-Member States;
- lack of coordination of monitoring programmes and data exchange (the European Commission has reported that despite international coordination mechanisms in place in many international river basin districts, only a few Member States reported using them to coordinate their monitoring programs, indicating weak horizontal information flow)(European Commission2009);
- difficulties in attaining agreement on actions to manage transboundary water issues, including pollution, fishing, abstraction, conservation, navigation, etc. (Nilsson et al. 2004);
- lack of a legal system to enforce shared responsibilities (Green and Perrings 2014).

Map 2. EU River Basin Districts indicating transboundary cooperation



EU River Basin Districts indicating transboundary co-operation

- Category 1: Co-operation agreement, co-operation body and international RBMP in place
- Category 2: Co-operation agreement and co-operation body in place, but no international RBMP in place
- Category 3: Co-operation agreement in place but no co-operation body or international RBMP in place
- Category 2/3: Not clear whether both co-operation agreement and co-operation body in place
- Category 4: No co-operation formalised
- Uncategorised
- National River Basin Districts (within the EU)
- International River Basin Districts (outside the EU)
- Coastal waters
- Country borders
- EU27 extent

Map produced by WRc plc on behalf of the European Commission©, DG Environment, 2012

Source: ec.europa.eu/environment/water/water-framework/facts_figures/pdf/Transboundary-cooperation-%202012.pdf

Table 2 | Overview of International River Basin Commissions

Basin	Year	Basin organization	Countries (Member States in bold)	Environmental quality	Water quantity and allocation	Risk management	Variability management	Infrastructure development
Elbe	1990	InternationalCommission forthe Protection of the Elbe	Czech Republic, Germany	Pollutionprevention,control, monitoring are to be developed	Water quantity and allocation are not mentioned.	Uniform warningand alert system to be developed	None	Planned new works to be "discussed" by RBO
Danube	1994	InternationalCommission forthe Protection of the River Danube	Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia, Ukraine, EU	Cooperation overwater quality issues are at the core of the convention.	Only sporadic references to water quantity / basic principles of equitable and rational water use	Preventing andcontrolling hazards from and mutual assistance is a core commitment of the parties	Only as regardsrisk management. No reference to hydrological variability in general or drought.	Prior informationand consultation.
Scheldt	1994	InternationalScheldt Commission	Belgium, France, Netherlands	Aims to mutually and multilaterally harmonise the implementation of Parties obligations under WFD.	No reference to allocation.	Advice and recommendations regarding precautions, risks and actions.	None	None
Oder	1996	InternationalCommission forthe Protection of the Oder	Czech Republic, Germany, Poland, EU	Pollutionprevention,control, monitoring are to be developed	No reference to allocation.	Uniform warningand alert system to be developed	None	Planned newworks to be"discussed" by RBO
Rhine	1998	InternationalCommission onthe Protection of the Rhine	Switzerland, France, Germany, Luxembourg, Netherlands, EU	Pollutionprevention,control, monitoring are to be developed	No specific reference to water rights or allocation.	Alert in case ofaccidents	None	None
Meuse	2002	InternationalCommission of the Meuse	Belgium, France, Germany, Luxembourg, Netherlands	Cooperationunder the WFD, one single RBMP	Reference tosustainable and integrated water management. No reference to allocation.	Cooperation infloods and accidents	Futurecooperation on drought prevention	Futurecooperation on major works of transboundary impact
Sava	2002	InternationalSava River Basin Commission	Bosnia and Herzegovina,Croatia, Serbia, Slovenia	Cooperation under the WFD, one single RBMP	Transboundary impacts and provision of sufficient water quantity for ecosystems and navigation	Generalexchange ofinformation on all hazards	The conventionaddresses in ageneral manner extraordinary impacts on the water regime	Detailed rules inProtocol
Ems	2002	International Coordination Group for the Ems River Basin	Germany, Netherlands	Cooperation under the WFD, one single RBMP	Reference to sustainable and integrated water management. No reference to allocation.	Cooperation in floods and accidents	None	None, but cooperation on transboundary EIA.

4.2 Models for Transboundary Cooperation

International (global and regional multilateral) water law provides a good foundation for negotiation of regional or bilateral agreements on international watercourses (Grzybowski et al, 2010) and in practice a very considerable number of transboundary water agreements have been developed.[18] These agreements range in scope from a localised issue-specific focus (on a variety of water resources and infrastructure concerns) to basin-wide integrated management, and vary in terms of institutional structures, functions, decision-making, legal form, etc.

River basin organizations come in many formats, with many different mandates, dealing with a variety of collective action problems. Schmeier (2013) has identified 117 RBOs covering 116 shared watercourses. While there is no strict classification (and no standard terminology), three broad levels of authority are frequently identified (e.g. Wingqvist and Nilsson 2015, Schmeier 2013):

- River basin commissions: typically established with a permanent secretariat by transboundary agreement, in order to advise the parties on water resources related issues of common concern at a transboundary level. Sometimes a distinction is made between Commissions, whichhave a certain degree of independence from their member states but have only coordination functions (substantive measures are determined or agreed by national authorities); andAuthorities, which have broad mandates covering implementation and management of joint infrastructure and are relatively autonomous and independent in relation to the riparian governments.
- River basin committees or councils:which may be created by agreement or MoU and are more advisory in nature; for example, they might advise the parties on a range of transboundary water management issues and priorities, including the development of a basin agreement/plan concerning the allocation of water, transboundary objectives and institutions to be established to foster cooperation in the basin.
- Issue based bodies: typically (but not necessarily)bilateral, created by agreement or MoU between countries to engage a water issue of common concern, such as water sharing, infrastructure planning, aquifer management, hydropower, water quality and/or flooding. Might include water (basin) infrastructure authorities responsible for the development, financing and/or operation of joint water resources infrastructure between two of more countries, typically established under treaty between the parties.

In some cases, organisations are classified according to whether they are bilateral or multilateral but in principle this should not be a question of organisational classification since participation should be determined by the number of States that have a real interest in the matter for cooperation. Thus, if a river basin is shared by two countries, any institutional mechanism will necessarily be bilateral; when it is shared by more than two countries, the institutional mechanism will likely need to be multilateral. Best practice dictates that any country with a real interest in a shared water resource should participate in the arrangement for its management. In most cases, this will mean any country which has territory is located within the river basin although in some cases, parties to a cooperative arrangement may apply some sort of qualifying definition (see, e.g., section 4.3.1).

The structures of RBOs and their secretariats vary widely, to a large extent depending on whether they are oriented towards coordination or implementation. While coordination-oriented RBOs are generally small, with limited number of subsidiary bodies and with lean secretariats, the implementation-oriented ones have more subsidiary bodies (working or expert groups) and larger secretariats with several specialised technical departments. Technical subsidiary bodies and departments can cover a range of Integrated Water Resource Management (IWRM) functions, including river basin management; project planning, development, implementation and management; data and information management, including GIS and other monitoring and information systems; specific resource issues such as flood protection, pollution management, hydrology, groundwater, water quality, ecology, biodiversity; and public participation and socio-economic issues (Schmeier 2010 and 2013).

The following section identifies a number of case studies, which might be helpful in discussing possible future models for cooperation in the South Caucasus.

18. There appears to be no definitive estimate of the number of agreements, but most appear to suggest there have been somewhere between 450 and 500 such international agreements.

4.3 Case Studies

4.3.1 Danube River Basin

19 countries share the Danube River Basin, which makes it the world's most international river basin. Over 80 million people inhabit the area of the Danube Basin. Upstream states of Danube Basin (Germany and Austria) are highly developed, while downstream states have experienced fundamental economic changes, followed by both economic growth and serious economic crises including a complex political situation and inter-state tensions. As a consequence, riparian states have very different interests in the use and the protection of the river.

The first legal/institutional framework for cooperation in protecting the Danube water environment through joint measures was established with the signing of the Bucharest Declaration in 1985. Subsequently, the International Commission for the Protection of the Danube River (ICPDR) was established by international treaty in 1994, as an international body to ensure the sustainable and equitable use of waters and freshwater resources in the Danube River Basin. The Convention is open to "States sharing a considerable part of the hydrological catchment area of the Danube River" which is taken to mean in excess of 2,000 km² of the total hydrological catchment area.[19] 14 countries meet this definition and all are members of the ICPDR, along with the EU. Other basin countries (below this threshold) cooperate with the ICPDR under the EU Water Framework Directive (Italy, Switzerland, Poland, Albania and the Former Yugoslav Republic of Macedonia).

The ICPDR has a very comprehensive organizational structure. Under the Convention, the highest-level body is the Conference of Parties, comprising representatives of the Contracting Parties in order to discuss policy issues concerning the implementation of the Convention. The Conference of Parties meets regularly once per year in December (with extraordinary meetings being possible if requested by at least three delegations). The operational work of the organization is coordinated by the Standing Working Group, in which delegates from various parties meet regularly and coordinate the work of the institution and the activities of the different technical bodies. This also includes financial and administrative management issues. Expert Groups can be established by the ICPDR for the management of specific issues: currently, there are seven regular Expert Groups and one ad hoc Expert Group:

- the River Basin Management EG (RBM), which defines and prepares the activities the ICPDR should towards the implementation of the WFD in the Danube River Basin;
- the Flood Protection EG (FLOOD), which prepares and implements an action plan for sustainable flood protection in the Danube River Basin;
- the Pressures and Measures EG (PM), which identifies the causes of pollution-related pressures and promotes measures to address them, including by harmonising the work of the ICPDR with EU Directives (e.g. UWWT Directive, Nitrates Directive) and by developing the Joint Programme of Measures, which is part of the Danube River Basin Management Plan;
- the Accident Prevention and Control EG (APC), which is involved in the operation of the Accident and Emergency Warning System (AEWS) and the communication of alarm/warning messages during accidents;
- the Monitoring and Assessment EG (MA), which is responsible for issues concerning water quality assessment and classification, including assessment of the ecological and chemical status according the EU Water Framework Directive;
- the Information Management and Geographic Information Systems EG (IMGIS), which develops and operates data collection systems and bilateral/multilateral activities related to the harmonisation of national datasets;
- the Public Participation EG (PP) which supports ICPDR activities related to communication and participation issues; and
- thead-hoc Expert Group for legal and administrative questions (ad hoc Strategic EG), which meets on request and engages in preparatory work for the ICPDR related to legal and administrative issues.

19. Convention on Cooperation for the Protection and Sustainable use of the Danube River, Art 1; at; www.icpdr.org/main/icpdr/danube-river-protection-convention.

The Permanent Secretariat, which is permanently staffed by around 14 internationally-selected staff, performs administrative functions such as: the preparation and distribution of reports on ICPDR activities, the preparation of the organization's budget, the coordination with external actors, the management of data and information, etc. (Schmeier 2010).

On the basis of WFD, the ICPDR coordinated the preparation and compilation of the Danube River Basin Management Plan which includes both a detailed analysis of the status of Danube waters as well as the identification of the program of measures needed to address existing problems.

4.3.2 Croatia-Bosnia and Herzegovina Commission for Water Management

Croatia and Bosnia and Herzegovina share four small river basins: Cetina (basin surface area of2,614 km2); Neretva (surface area of 10 520 km2, mostly in Bosnia and Herzegovina); Trebišnjica (in Croatia Trebišnjica appears as a series of underwater springs and as the Ombla river, which is only 30 m long but with a relatively large discharge, 24 m3 /sec); and Krka (the source of the river is located on the border between Croatia and Bosnia and Herzegovina). The rivers are major resources for Bosnia and Herzegovina and play an important role in neighboring Croatia and Montenegro, providing transport, recreation, fisheries, tourism, drinking water, irrigation and energy production. They also support exceptional biodiversity.

The Neretva and Trebišnjica rivers are hydraulically and naturally connected, and the Neretva and Trebišnjica River Basin is managed as a single transboundary basin. A bilateral agreement for water management was signed in 1996, and established a Commission for Water Management. The Commission has regular meetings once per year, and additionally if required. The organisational structure of the Commission is divided on a geographical basis, with two sub-commissions usually dealing with specific issues: the Sub-commission for Adriatic Sea River Basins; and the Sub-commission for Black Sea River Basin.

While joint management plans have not yet been not prepared (cooperation for the preparation of joint management plans is on the agenda of the Commission) there has been good progress on a number of common issues, including water allocation and sharing issues (Šeperovič and Imamović 2011).

The work of the Commission resulted with the development of the "Neretva and TrebišnjicaRiver Basin Management Project" supported by GEF funds and implemented through the World Bank in conjunction with the Commission (Šeperovič and Imamović 2011, World Bank 2015). The aim of the Project, which concluded in 2015, was to provide mechanisms for harmonizing management approaches and legal frameworks across the two countries (including by ensuring improved stakeholder participation at all levels), to provide mechanisms forthe efficient and equitable water allocation amongst the users of the Neretva and Trebišnjicariver basin at the transboundary level, and for enhancing the basin ecosystems and biodiversity through improved water resources management (World Bank 2015).

4.3.3 Shannon International River Basin District Advisory Council

The Shannon International River Basin District Advisory Council is an example of an international river basin "council", with advisory functions. It is a nationally-constituted organization (established by national regulations in the Republic of Ireland) but has advisory functions in relation to an international river basin district. The objective of the Advisory Council is to consider matters relating to the preparation of river basin management planning for the district and other matters relevant to the protection and use of the aquatic environment and water resources in the district, and to advise and make recommendations on these matters to the relevant public authorities (who exercise their own decision-making and administrative powers).

The local municipal authority acts as the coordinating body and has responsibility for setting up and providing secretarial support to the Advisory Council. The Council is composed of all local authorities within the river basin, as well as representatives of agriculture, fishing, academia, business and bodies for the protection of water. The Council is required to meet at least twice annually but sometimes meets more frequently.

4.3.4 Agreements on Specific Issues

A large number of agreements on transboundary waters do not provide for the establishment of anybody or institutional mechanism but have been concluded to deal with a particular issue, or perhaps multiple issues but in relation to a single water resource or area.

This approach is typical for agreements which regulate a narrow area of cooperation, e.g. the Agreement between Norway and the USSR on the Utilization of Water Power on the Pasvik/Paatso River (1957), the Agreement between Norway and the USSR Concerning Water Abstraction by Norway from the Upper Reservoir of the Borisoglebsk Hydropower Plant at the Transboundary River Pasvik(1976) and the Agreement between the Government of the Russian Federation and the Government of the People's Republic of China Concerning Guidance of Joint Economic Use of Separate Islands and Surrounding Water Areas in Frontier Rivers (1997).

At its most basic, cooperation may be required between two (or three) countries on a specific water resources management issue at the border between the countries (such as water quality mitigation, flood control, water allocation or environmental flow releases). A technical committee might be established to negotiate the terms of a bilateral (or trilateral) agreement between the Parties and once in place to facilitate cooperation and monitor compliance with the agreement.

Examples of these types of agreements may be found throughout the world. A successful example is that of the 1960 River Indus Treaty between India and Pakistan. The agreement was negotiated to manage the problem of Pakistani opposition to Indian development projects which impacted on provision of water to Pakistan, which depends on Indus water flow to maintain its agriculture. The agreement provides for the establishment of a commission to approve the annual water reservoirs regime, allocate water resources and ensure upkeep of joint structures. The main points of the treaty included (Alam 2002):

- an agreement that Pakistan would receive unrestricted use of the western rivers, which India would allow to flow unimpeded, with minor exceptions;
- provisions for three dams, eight link canals, three barrages, and 2500 tube wells to be built in Pakistan;
- a ten-year transition period during which water would continue to be supplied to Pakistan according to a detailed schedule;
- a schedule for India to provide its fixed financial contribution in ten annual installments during the transition period;
- additional provisions for data exchange and future cooperation.

Management or joint approaches to shared aquifers are often overlooked, and as a general matter, there is currently only one transboundary aquifer globally with a comprehensive management regime and two with more rudimentary consultative and data sharing arrangements (Eckstein 2015).A notable recent example of issue-specific cooperation, therefore, is the 2015 Agreement on the Al-Sag /Al-Disi Aquifer between Jordan and Saudi Arabia. The Aquifer, known as Al Sag in Saudi Arabia and Al-Disi in Jordan, is a fossil transboundary aquifer containing water that accumulated 10,000-30,000 years ago, and is estimated to hold as much as 10 km3 of water in Jordan and 65 km3 in Saudi Arabia (UN-ESCWA and BGR 2013; Eckstein 2015). The Agreement imposes no numerical limitations on extractions. Rather, Article 2(1) creates a "Protected Area" of approximately 400 km2 within each country along the border where "all activities … which depend on the extraction of groundwater therefrom" must be discontinued within five years. In addition, Article 2(2) requires the Parties to maintain the Protected Area free from all activities that require groundwater.

CHAPTER 5 | TRANSBOUNDARY COOPERATION IN THE SOUTH CAUCASUS

5.1 Introduction: the Need for Regional Cooperation

The Kura-Ara(k)s River Basin is a transboundary basin with a total area of about 190 110 km2 of which 65 percent is located in the South Caucasus countries: 31.5 percent in Azerbaijan, 18.2 percent in Georgia and 15.7 percent in Armenia. The remaining part is distributed between Iran (19.5 percent of the basin) and Turkey (15.1 percent) (see Annex 1 for a more detailed description of the Basin). Over forty of the Kura-Ara(k)s Basin's tributaries and river segments are transboundary (Vener 2006), and there are significant other shared water bodies in the region including lakes and aquifers.

The waters in the basin are subject to many pressures, which give rise to a range of environmental, economic, political and social problems. The key pressures and problems in the Basin are well documented (e.g. OECD 2014, 2015; UNDP/GEF 2013; UNECE 2011) and include:

- diffuse pollution (pesticides, nitrogen and phosphorous) from agriculture, viniculture and animal husbandry and water pollution from the industrial sector;
- discharge of poorly treated or untreated wastewater, causing organic and bacteriological pollution;
- solid waste management, including both official and illegal landfills, which exert pressures on water quality;
- over-abstraction of groundwater resources, particularly as a result of increases in agricultural production and irrigation;
- variation and deterioration in the hydrological flow, and other negative impacts on the river dynamics, morphology and the transport of sediments, caused in particular by increasing development and the growing hydropower sector;
- natural disasters (e.g. landslides, mudflows) are a common problem in some areas of the Caucasus;
- climate change impacts, which are considered to be reducing available volumes of water and in turn increasing the relative concentration of pollutants.

Many of these issues are transboundary in nature and/or would benefit from transboundary cooperation, but a Transboundary Diagnostic Analysis (TDA) conducted by UNDP/GEF, identified five key transboundary issues: variation and reduction of hydrological flow; deterioration of water quality; ecosystem degradation; flooding; and climate change as a cross cutting issue (UNDP/GEF 2013).

Regarding the issue of ecosystem degradation, the TDA notes that it is pervasive throughout the basin and is related to a decline in hydrological flows, deterioration of water quality, conditioned by direct and indirect impacts of a multitude of unsustainable human activities, including climate change. The information that is currently available on ecosystem health is largely outdated and has many gaps, therefore it is difficult to adequately gauge the decline in a rigorous manner. The decline in flora and fauna diversity is marked throughout the basin, although more information to systematically account for these changes and losses is needed. Human development activities cause the loss of ecosystem functions, and as such the capacity of ecosystems to provide services of benefit to humans, including the mitigation of negative impacts. This leads to a subsequent loss of income, or additional replacement costs for the local communities as well as the government, which are the "super impacts". The causes of ecosystem degradation, in addition to those listed above are: unsustainable use of natural resource; unsustainable land management practices – ecosystem degradation, fragmentation and destruction; a lack of information on ecosystems, their processes, services provided, and the impacts of human activities; and a segmented approach to natural resources management. The TDAconcludes that the root cause is a lack of economic valuation of ecosystem services in the Kura Ara(k)s river basin (UNDP/GEF 2013).

5.2 Regional Context

The Kura-Ara(k)s has not been managed under a cooperative management treaty since the fall of the Soviet Union and remains one of the most significant watercourses ungoverned by a transboundary agreement (Stoa 2014; De Stefano et al. 2012). Difficult relations between some countries (notably Armenia and Azerbaijan's long-standing dispute over the Nagorno-Karabakh region, although there are various other international diplomatic complexities in the region) as well as ambitious development plans and economic priorities (combined with improper valuation of water and ecosystem value and/or the real costs of pollution of waters and the river system, UNDP/GEF 2013) have pushed international cooperation over the basin to the fringes of the region's agenda (Stoa 2014).

During Soviet times, international water resources management in the Kura-Ara(k)s River basin was defined by two separate treaties with Turkey (1927) and Iran (1957), which provided for shared management of shared water resources. With the dissolution of the Soviet Union in 1991, over forty sections of rivers became transboundary in relation to Armenia, Azerbaijan and Georgia. While under the international law of treaties regarding succession, the agreements with Turkey and Iran have (at least partly) continued to exist as a series of bilateral agreements, there is no overall regional agreement covering the Kura-Ara(k)s basin.

Several international organizations and donors have been involved in the region to help with water resources management and development, including through regional cooperation; these include: the United States Agency for International Development (USAID), United Nations Development Program (UNDP) and Global Environmental Facility (GEF), North Atlantic Treaty Organization (NATO), EU, World Bank, UNECE and OSCE (Vener 2006). (A summary of some of these projects is provided in Annex 2).

In 2002, the Regional Environmental Centre for the Caucasus hosted an international conference on "Water Resources Management in the Countries of the South Caucasus in Tbilisi, Georgia between representatives of environmental agencies within the three governments, NGOs, parliamentary committees, scientists, the EU and international organizations and donor agencies. The resolution agreed to by the participants took into consideration the following:

- Accelerate the reform of the management of water resources;
- Increase the level of involvement and initiatives by the public and by NGOs;
- Develop an environmental security strategy for water resources especially in regards the hazardous material industries of oil, mining and nuclear facilities;
- Develop a regional transboundary water management plan;
- Support a culture of sustainable water use;
- Encourage closer international cooperation in the sustainable use of water resources;
- Improve the coordination and exchange of information between stakeholders.

As of yet, there still has been little advancement towards an agreement with regards to the Kura-Ara(k)s River Basin. Moreover, it is difficult to see that a significant change can be brought about in this situation provided diplomatic relations between some parties are not in place to begin with. In short, it is thought that as long as there is the issue of the Nagorno-Karabakh region at hand, it will be very difficult for the governments to discuss environmental security when national security is still a major issue.

In the meantime, other forms of cooperation must continue. As noted, a number of projects have been undertaken, addressing aspects of regional cooperation and some informal means of cooperation at the regional level have arisen during project implementation. Also, there is various other cooperation that takes place at the technical level, such as knowledge sharing, information exchange, and other technical collaborations between technical experts (Vardanyan and Volk 2014). While the progress of such activities is frequently slow, they nevertheless establish a foundation for more advanced future cooperation.

5.3 Bilateral Agreements

5.3.1 Georgia – Azerbaijan

More recently, talks have been on-going over a number of years concerning a potential bilateral agreement governing the Kura River. There are "reasons for optimism" (Campana et al. 2012; OECD 2015): first, because relations between Georgia and Azerbaijan are relatively harmonious (the countries have joint energy and transportation projects and depend on one another for bilateral trade flows); second, the countries have adopted an integrated approach to their discussion, and have involved not only the key Ministries in the two countries (Ministry of Ecology in Azerbaijan and Ministry of Environment in Georgia), but also other ministries, such as, for example the Ministries of Agriculture, Energy and Infrastructure; and third, because the Kura River is of great importance to both countries. Georgia relies on the Kura for municipal water supply, as well as ambitious agricultural irrigation and hydropower development plans. The Kura, similarly, is Azerbaijan's primary source of fresh drinking water (Campana et al. 2012).

As currently drafted (based on information in OECD 2015), the objectives of the Agreement are (Article 1):

- **sustainable water utilization** on the basis of continuous protection of the water resources;
- substantial **decrease in the level of water pollution** in the Kura river basin;
- **prevention of degradation and restoration of the aquatic ecosystems** as well as maintaining biodiversity in the basin; and
- **prevention and mitigation** of the effects of floods, landslides and mudflow, droughts, siltation, and other harmful water conditions.

The Agreement is thus aimed at setting up cooperative, integrated management of water resources on all relevant aspects and, in particular, identifies essential areas of cooperation, which include among others:

- development and implementation of **joint basin management plans**, projects and measures;
- carrying out joint scientific research, formulating **common guidelines, standards and norms**, as well as the development of a **joint information system**;
- **exchange** of hydrological, meteorological and environmental data and information;
- **joint monitoring** and environmental assessment.

Transboundary water management activities carried out under the Agreement would be coordinated and implemented by the Joint Commission on Sustainable Use and Protection of the Kura River Basin. The Commission will be composed of representatives of competent ministries and agencies of the two countries, as well as representatives of local authorities and competent NGOs.

At present, the Agreement is still under development and discussion, and authorities from the two countries have not given a firm indication of whether further work is needed on the draft, and when a final draft may be available for signature. Its adoption, however, would be a crucial step in the consolidation of trans-boundary cooperation among the two countries. In fact, even though cooperation has been going on for many years already, representatives of the relevant ministries from the two countries reported, among the major challenges of trans-boundary cooperation: (i) the lack of a clear regulatory framework; and (ii) the absence of a specific intergovernmental body in charge of coordinating trans-boundary cooperation. The agreement would go a long way to overcoming these challenges, and it is seen as necessary by both countries –and, in particular, the creation of the Joint Commission is seen as essential, as it will allow for easier and more effective discussions and decisions (OECD 2015).

In addition to the Transboundary Agreement, in 2014 the competent Ministries from the two countries signed a programme for integrated water resource management (OECD 2015). The overall aim of the programme is the development of joint river basin management plans for trans-boundary catchment, so it is in line with the objectives of the Agreement. However, this is an ambitious goal, which can only be achieved in the medium/ long term: for this reason, the programme indicates short, medium- and long-term objectives as well as activities to achieve them. The Programme, however, is not binding.

5.3.2 Georgia – Armenia

In 1998, Armenia ratified the agreement with Georgia on environmental protection according to which the governments pledged their cooperation in creating specifically protected areas within the transboundary ecosystems. This agreement is similar to that with Azerbaijan. The agreement is implemented in Armenia by the Ministry of Nature Protection (MNP), which has implemented, or overseen,a number of international environmental projects which have addressed or related to protected areas within the transboundary ecosystems (FAO 2009).

5.3.3 Armenia – Azerbaijan

There is no formal agreement between these two countries but corresponding national decrees were passed in Armenia and Azerbaijan concerning the use of the water of the Arpa, Vorotan, Aghstev and Tavush rivers (FAO 2009).

5.3.4 Other Agreements

The South Caucasus countries each succeeded to one or more agreements originally signed by the Soviet Union, but which became applicable to them as a successor country following the dissolution in 1991. As such, the countries are required to fulfil the obligations under the agreements.

Armenia has an agreement with Turkey concerning the use of the Ara(k)s and Akhuryan rivers, according to which the water of these two transboundary rivers is divided equally between the two countries. Another agreement with Turkey concerns the joint use of the dam and the reservoir of the Akhuryan River. According to an agreement between Iran and Armenia, the water of the Ara(k)s River is divided equally between them.

Azerbaijan is party to agreements on transboundary rivers with Iran on the Ara(k)s River and with the Russian Federation on the Samur River.

Following the dissolution of the Soviet Union, Georgia succeeded to an agreement with Turkey, originally signed in 1925, on the use of water from the Chorokhi River, allocating half of the average surface water flow to each country. Georgia is pressing for a reconsideration of the agreement, so as to address not only the allocation of water but also address the issue of sediment flow (estimated at 5 million m3/year, and important as a resource for its sand beaches).

CHAPTER 6 | DEVELOPING REGIONAL COOPERATION IN THE SOUTH CAUCASUS

6.1 Recognising the need for International Cooperation

At a general level, it appears to be widely appreciated within the region that in order to better manage water, governance, legislation and enforcement needs to be improved at the national and regional levels. While the focus of this appreciation tends to be more on the economic and social needs for water, the need to better protect freshwater ecosystems is also acknowledged. At a general level, the key threats to freshwater conservation (e.g. environmental pollution, urban and industrialwaste water and pollution, agriculture, fishing, increasing construction of hydro-power plants, etc.) are known, albeit that the impacts of these are rarely adequately assessed.

At the national level, as has been noted, there is a wide range of common issues, challenges and needs. These centre in particular around strengthening river basin planning, which in turn requires various actions (legislative strengthening; capacity building and financing for monitoring and research; improving financial provision; strengthening governance mechanisms, etc.). At the same time, it is recognised that many problems are transboundary and/or that many needs would benefit from transboundary responses (whether bilateral, sub-regional or regional / basin-wide).

Currently, in the South Caucasus and in the Kura-Araks basin region as a whole, there appears to be an assumption that regional cooperation – in the form, for example, of a river basin organization – is not possible, and as a result few actions are even considered, let alone implemented, at the regional level. Nevertheless, the establishment of a transboundary organization remains a valid and helpful goal. Transboundary basin organizations can serve as a reference organization for natural resources management in their riparian States, can build capacity and can provide solutions that are not available to States acting alone. Such transboundary basin organizations provide overarching, coordinating functions for their constituents and give regional credibility, advocacy and leadership for basin scale natural resources management.

It needs to be recognized that building confidence and organizational skills is a long term process for transboundary organizations, and that some results may take decades to achieve even in regions where there are stable and friendly diplomatic relations. The history and practice of international organizations such as those discussed in Chapter 4 indicate that the process to establishing organizations at the river basin level is long, slow and complex, involving many stages and starting from lower levels of national capacity building, bilateral cooperation and regional actions. The process can (and often has) taken decades.

The following section discusses some of the key pathways to developing transboundary cooperation, as viewed from the specific context of the South Caucasus countries.

6.2 Pathways to developing Transboundary Cooperation

The diplomatic regional context in the South Caucasus is such currently that there is no immediate prospect of a multilateral agreement on river basin management. In any case, the national governance, legislative and policy structures (at least in the South Caucasus countries) and the state of regional policy development are such that it might in any case be considered premature.

Nevertheless, the development of stronger regional cooperation, perhaps through a regional river basin management organization, should remain a long-term goal. As the water stress (allocation, flooding or quality) in a transboundary water course with multiple parties increases, there is an increasing imperative to cooperate at the basin level and optimise the protection, development and utilisation of the basin. As noted above, fostering this type of multilateral cooperation is inevitably a long and slow process and requires simultaneous national level capacity building (to level the playing field) and progressive regional actions.

However, it is important to recognise that the institutional pathway should suit local conditions and that there should not be an assumption that basin management is the end point or pinnacle of transboundary water management. Ultimately, there would need to be a proper assessment of the need and design of regional cooperative mechanisms, based on local needs, rather than necessarily seeking to implant an international model.

The ultimate objectives of regional cooperation are therefore to be kept under review, and should be re-assessed and refined during the implementation of short and medium term actions. Again, there is no set pattern for these

pathways and short and medium term actions should be tailored to local needs and conditions. Moreover, while each of these present distinct catalysts for transboundary cooperation, there is likely to be an evolution between these pathways according to local requirements, so they should not be seen as mutually exclusive.

Also, in considering future steps it is important to bear in mind that the frameworks for transboundary cooperation already exist, and do not need to be invented or re-invented. For the South Caucasus countries, this includes the WFD and other EU legislation for which they have shown commitment to implement.

6.2.1 Informal networks

Non-governmental stakeholders (including conservation organizations, but also civil society organisations and industry or sectoral – e.g. agricultural – associations) can be significant catalysts for national and regional cooperation, and can continue to play significant roles as regional cooperation develops. Globally (and particularly in Europe), a great number of NGOs are active in RBM, although the extent to which they participate in any particular river basin varies considerably. River basins in Europe, such as the Rhine, Elbe and Danube basins, where stakeholders groups are substantial in numberand can be characterised by a high degree of organisation, provide good examples of the level of impact NGOs can have. In the Rhine basin, for example, the water supply sector has even established a basin wideframework for cooperation (the International Association of Water Works in the Rhine Basin, IAWR) which acts as an umbrella organization for industry associations and their members, and is very active in the ICPR.

In the South Caucasus, such networks could be key drivers for regional cooperation. Given the governmental constraints to improving water governance at both national and regional levels, opportunities arise for NGOs to influence the cooperative agenda. Informal networks might perform a number of functions:

- **Provide a forum for dialogue among stakeholders,** ideally engaging a wide range of governmental and non-governmental stakeholders, and including also international organizations and international donors.
- **Provide initial leadership in the regional agenda,** by acting as an initial driving force for regional dialogue and cooperation either as the network itself and/or by identifying national and regional “champions” that might provide leadership to the regional agenda.
- **Promote knowledge and information exchange,** which is both a specific regional capacity building measure (for example, by sharing knowledge and the results of projects and research), and an important early step towards increased regional cooperation.
- **Develop a framework for regional dialogue,** for example by developing a tailored framework for assessing the benefits of transboundary cooperation or by elaborating a key set of management principles for the transboundary basin organization to help promote good management. Such actions could assist in developing a regional vision for the basin and in paving the way for political commitments.
- **Awareness raising,** both regionally and at national levels, of the importance of freshwater conservation - socially and economically, as well as environmentally- for all citizens, and of the need for joint actions. Informal networks could promote coverage of relevant issues in media, and also support cooperation of educational and research institutions on water related subjects.

6.2.2 Developing a regional vision

An early priority in the evolution towards regional governance should be the development, first, of a regional vision for water management and governance. A common vision, supported by each country in the basin, and shared by all major stakeholders, is a pre-requisite to the development of integrated regional actions (and complementary actions at the national level). A properly and fully formed vision entails a process which promotes understanding of the importance of the region’s freshwater assets, highlights regional issues related to freshwater and brings together all government administrations and all major stakeholders into a common process. It can also build a common understanding on the priorities for regional water policy and on the objectives of promoting regional cooperation. Finally, it can provide political support (and encourage international donor funding) by underlining the priority to be given to water governance.

Currently, there is a poor regional vision for the Kura-Araks river basin. This applies both to evaluating the value and importance of the water resources to the region, and to mapping out future aims.

There is a need to more explicitly identify the environmental, economic and social importance of water resources and the effects of improved management. This should include a better assessment of the economic value of the freshwater environment (including ecosystem services). While numerous technical assistance interventions that have taken place in the region in assessing economic benefits of cooperative management in the basin, further

economic analysis can help identify potential benefits of improved coordination/cooperation, and allocate them fairly, to drive further improvement of freshwater management.

There is also needs to be stronger regional dialogue on what is needed and/or desired for regional cooperation. This could include goals for the short term (e.g. shared knowledge base on the physical, social and economic features of cooperative river management, and for sharing experience with IWRM or the WFD; increased bilateral cooperation); the medium term (e.g. joint monitoring; joint flood management plans; etc.); and longer term goals (e.g. establishment of a river basin commission).

6.2.3 Developing a regional political commitment

Building on a regional vision, a regional political commitment could be the first formal step between regional harmonisation and cooperation. Such political commitments, for example in the form of declarations, are commonly a fore-runner of more developed regional cooperation. For example, as noted above, the first legal/institutional framework for cooperation in protecting the Danube water environment through joint measures was established with the signing of the Bucharest Declaration (Declaration of the Danube Countries to Cooperate on Questions Concerning the Water Management of the Danube) in 1985. The Bucharest Declaration reinforced the principle that the environmental quality of the river depends on the environment of the basin as a whole, and committed the countries to an integrated approach in water management, beginning with the establishment of a basin-wide unified monitoring network.

Developing regional political commitment in the South Caucasus can be a staged process, and may be developed through a series of commitments (declarations, etc.). For example, the focus initially could be on countries agreeing to a set of principles or standards with vertical implications only – i.e. the principles are common, or contain common or harmonised standards, but the declarations do not imply any commitment to other parties – merely a commitment to pursue certain national objectives and standards.

6.2.4 Technical cooperation programmes

Technical cooperation programmes (at the regional level) would most likely need to be developed after some expression of political commitment, but not necessarily so. As noted above, the pathways are not mutually exclusive or consecutive. Current technical cooperation exists in the region, both bilaterally and through multi-party projects. Such cooperation is almost invariably ad hoc, and dependent on the programmes of international donors, where the agenda is shared with external parties. Formal technical cooperation programmes (whether bilateral, sub-regional or basin-wide) might be addressed towards supporting monitoring, data collection and assessment, emergency response systems, or other regional priorities. Such programmes would have the advantage of sustaining technical cooperation beyond donor-funded interventions, and may also attract donor funding themselves. The Croatia-Bosnia Herzegovina Commission, discussed in the previous Chapter, provides a good example of a transboundary cooperative body being involved in the identification, design and implementation of a technical assistance project.

6.2.5 Bilateral agreements

While a multilateral, basin-wide treaty appears unrealistic with current levels of diplomatic discord, opportunities exist to move toward a cooperative management framework through bilateral agreements. These do not need to wait for any regional vision or regional political commitments, but where such instruments have been adopted, bilateral agreements should aim to be consistent with and advance the regional framework.

Bilateral agreements might also be developed around infrastructure projects. While these negotiations are often conducted between parties there may be a role for facilitator and technical advisory party to the process (often a development bank), particularly where there is asymmetry in capacity between the parties. Finally, bilateral agreements could be developed on specific areas of cooperation, either in parallel with existing (or planned) agreements or pending such agreements. For example, agreements on joint monitoring by using comparable monitoring parameters. Depending on the nature of the cooperation, such agreements could be developed through memoranda of understanding.

6.2.6 Basin level cooperation

At the final end of the spectrum is some form of basin level cooperation. Following the approaches of international laws, the WFD and principles of IWRM this should ideally be based around an international river basin management plan. Ideally, it should also include some type of organisation to coordinate and oversee implementation of the plan, although the precise competence and functions of such an organisation could take many forms and many issues would need to be addressed, including aims and objectives; participation (to what extent is the organization open to interested stakeholders); decision-making processes and legal effect of decisions; secretariat functions; financing; technical assistance mechanisms, etc. In principle, since the establishment of a basin level organization is the end of a long process, many of these issues will have been previously resolved.

CHAPTER 7 | RECOMMENDATIONS

The need for, and potential benefits to be derived from, enhanced regional cooperation in the South Caucasus and in the wider Kura-Ara(k)s river basin beyond, are clear. As has been noted, at a general level, it appears to be widely appreciated within the region that in order to better manage water, governance, legislation and enforcement needs to be improved at the national and regional levels. While it tends to be assumed that opportunities for regional cooperation at present are limited, due to the difficult diplomatic situation and other problems. Nevertheless, the establishment of a transboundary organization remains a valid and helpful goal in the very long-term, and a number of other steps can be envisaged in the short to medium term, being both steps towards the longer-term goal and concrete actions in their own right. The following recommendations focus on short and medium term steps, and are addressed to the governments and other stakeholders of the South Caucasus countries.

1) Establish a regional dialogue mechanism and define a regional process

At the outset, there needs to be an action to get a process started. The strengthening of regional cooperation is a long-term and complex process, with actions that will need to be continually reviewed and cannot be fully, or even confidently, predicted or determined at the outset. But initially, there needs to be definition of objectives and potential outcomes of a preliminary regional process, and an organization or other process to act as the catalyst in order to get the process started. In the first place, the organizations most likely to have the motivation and flexibility to initiate a process such as this are regional NGOs (such as WWF), but as far as possible other stakeholders should also be brought in. The objectives of the regional dialogue mechanism, and the regional dialogue process should be defined through discussion; two of the key objectives identified earlier in this report were:

- **Provide a forum for dialogue among stakeholders**, ideally engaging a wide range of governmental and non-governmental stakeholders, and including also international organizations and international donors.
- **Provide initial leadership in the regional agenda,** by acting as an initial driving force for regional dialogue and cooperation either as the network itself and/or by identifying national and regional “champions” that might provide leadership to the regional agenda.

Actions for the mechanism could (for example) be focussed on implementing the short and medium term actions identified in the previous Chapter and the following recommendations.

2) Establish a knowledge sharing platform

As noted above, a platform for knowledge and information exchange is both a specific regional capacity building measure and an important early step towards increased regional cooperation. Such a platform might have three main objectives:

- **Learn from the experiences of other basin organizations that are in, or have completed, the same development phase:** IWRM implementation by transboundary basin organizations can be seen as a process with many variations according to the basin in question. While there is no linear pathway upon which all basin organizations should travel, there is scope for basin organizations to learn from one another. One possibility would be to establish a database of transboundary IWRM case studies and an international system for exchanging good practices and learning experiences.
- **Learn from each other:** each country in the South Caucasus and in the wider Kura-Araks region have their own experiences in developing national water governance (including in the context of the WFD) and in dealing with transboundary issues. While, particularly as regards the latter, there may in some cases be a reluctance to share information on such experiences, such information could be of mutual benefit.
- **Share data, project results, reports, etc.**: there are mutual benefits to providing wide access to data, project results and lessons learned, research and scientific information, etc. Mechanisms already exist at the national level to provide access to this type of information, although there is substantial scope for extending the range, quality and accessibility of that information. Coordinating or clearing house mechanisms could be set up, to collect information at the regional level.

3) Define, elaborate and consult on a key set of management attributes for the transboundary basin organization to help promote good management

Such a document would serve as an informal statement of principles of good management, which all countries and stakeholders could be encouraged to adopt. Attributes which might be included could cover: clear and strong institutional arrangements; good water-related data, information, systems, and models; a suite or package of basin-wide policies, procedures, and strategies; an appropriate form of communication and participation; basin sustainability performance indicators and an agreed approach to monitor and report outcomes.

4) Promote bilateral cooperation

Formal cooperation at the bilateral level is on-going in isolated cases, but there is substantial scope for further action. As part of the regional dialogue, and perhaps with assistance from technical programmes, there could be a more detailed identification of shared management for shared water bodies in the region. The regional dialogue mechanism should support bilateral cooperation, and may assist in developing regional guidance to help inform negotiations on bilateral agreements. Technical assistance could also be sought from international organizations, such as OSCE or UNECE, to assist in negotiations on bilateral agreements. Experiences should be shared, so as to facilitate further bilateral agreements where they are needed.

5) Promote joint technical cooperation programming

Existing technical cooperation activities should be continued and built upon. Additionally, consideration should be given to longer-term joint technical cooperation programmes, for example covering joint environmental monitoring in order to strengthen the basis for decision-making, and promote increased cooperation and the value of ecosystem services. Other areas which might be suitable for joint technical cooperation include disaster responses (particularly flooding), joint codes of good agricultural practice for managing nitrates, habitat and wildlife monitoring and conservation, including where appropriate joint actions on protected areas.

6) Develop a regional vision

As noted above, an early priority in the evolution towards regional governance should be the development, first, of a regional vision for water management and governance. A common vision, supported by each country in the basin, and shared by all major stakeholders, is a pre-requisite to the development of integrated regional actions (and complementary actions at the national level). There is a need to more explicitly identify the environmental, economic and social importance of water resources and the effects of improved management. This should include a better assessment of the economic value of the freshwater environment (including ecosystem services).

The creation of a regional vision for IWRM entails a comprehensive and inclusive process, to be conducted amongst all concerned administrations and in partnership with the major stakeholders. It is an iterative process (the regional vision should be periodically reviewed and adapted, based on a proper evaluation process) and can be developed as knowledge, capacity and ambitions develop. The regional vision must be developed keeping in mind that it should be consistent with existing and future visions at national level, and it must be realistic, credible and realisable.

There is no single approach concerning what a regional vision should contain, nor a common recommended methodology as to how one should be developed, but its contents might include:

- **General objectives and priorities**, as the main statement of the region's intentions and goals for the water (and water environment) sector.
- **Common principles and guidelines**, to ensure consistency and common aims in each sectoral or thematic strategy.
- **Sectoral and thematic guidelines where needed,** to ensure sectoral objectives are consistent with the general objectives and priorities and the common principles and guidelines.

Regarding the development of a regional vision, however, two principal aspects should be common to all approaches: assessment (e.g. of current assets, future needs, desired goals, etc.) and consultation, involving all major water and environmental stakeholders.

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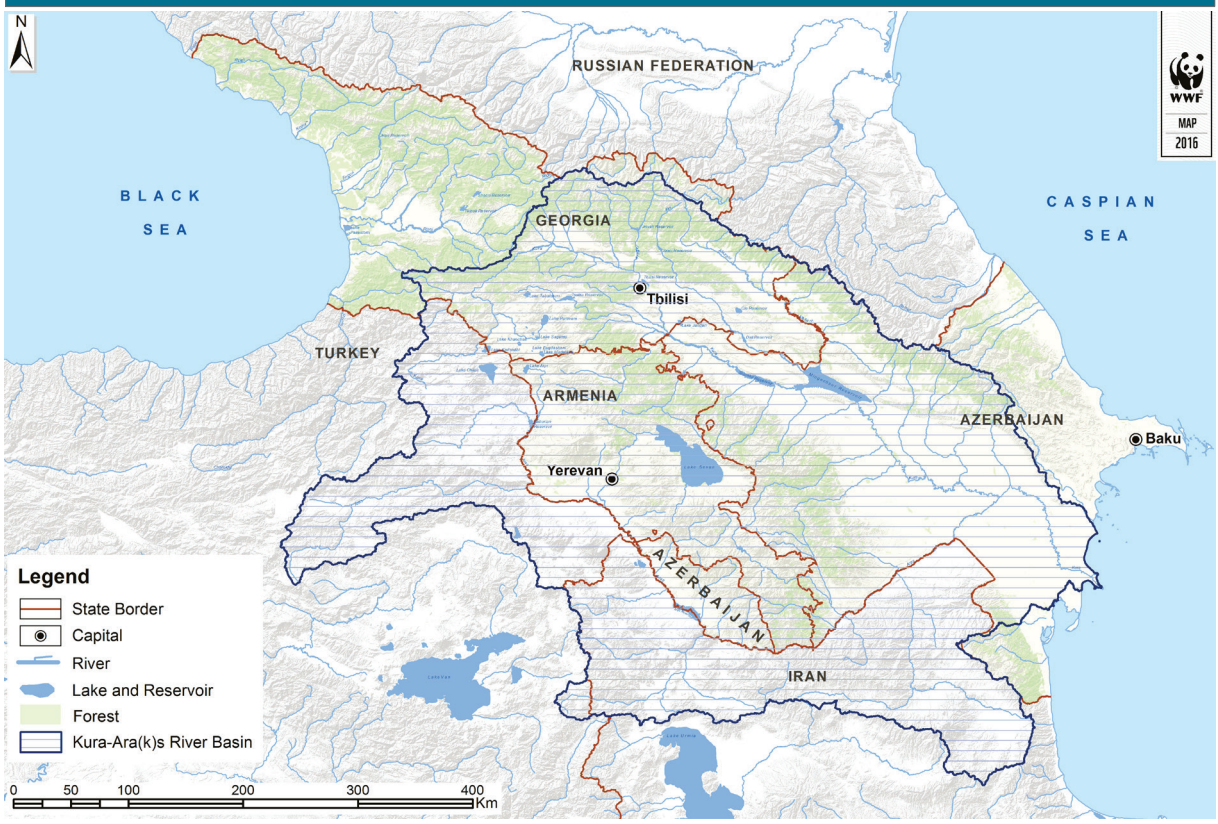
ANNEX 1 | DESCRIPTION OF THE KURA-ARA(K)S RIVER BASIN

Map 3. Country Areas in the Kura-Ara(k)s Basin



The Kura-Ara(k)s River Basin is a transboundary basin with a total area of about 190 110 km2 of which 65 percent is located in the South Caucasus countries: 31.5 percent in Azerbaijan, 18.2 percent in Georgia and 15.7 percent in Armenia. The remaining part is distributed between the Islamic Republic of Iran (19.5 percent of the basin) and Turkey (15.1 percent) (Lehner et al, 2008). Consisting of ten thousand tributaries, the Kura-Ara(k)s Basin supports over 16 million people (Vener 2006). The Kura River originates in Turkey and flows through Georgia and Azerbaijan, into the Caspian Sea. The Ara(k)s River also begins in Turkey and flows along the border of Armenia and Iran, into the Kura River in Azerbaijan (Vener and Campana 2010). Over forty of the Kura-Ara(k)s Basin's tributaries and river segments are transboundary (Vener 2006).

Country areas in the Kura-Araks River Basin

Basin	Area km²	Area % of the Middle East	Countries included	Area of country in basin (km²)	As % of total area of the basin	As % of total area of the country
Kura-Araks	190 250	2.90	Azerbaijan	60 020	31.5	69.3
			Iran (Islamic Republic of)	37 080	19.5	2.1
			Georgia	34 560	18.2	49.6
			Armenia	29 800	15.7	100.0
			Turkey	28 790	15.1	3.7

The Kura River, with a total length of 1 515 km, rises in Georgia and flows into Azerbaijan before entering the Caspian Sea. It has an average discharge of 575 million m3 per year. Two of its tributaries rise in Turkey: the Mtkvari, with an inflow from Turkey estimated at 0.91 km3/year, and the Potskhovi, with an inflow estimated at 0.25 km3/year. The inflow of the Debet River, a southern tributary of the Kura River, is estimated at 0.89 km3/year from Armenia to Georgia. The annual flow from Georgia to Azerbaijan of the Kura Basin is 11.9 km3 and the annual flow of the Agstay from Armenia to Azerbaijan is about 0.35 km3/year.

The Ara(k)s River originates in Turkey and after 300 km forms part of the international border between Armenia and Turkey, then for a very short distance between Azerbaijan and Turkey, between Armenia and the Islamic Republic of Iran, and between Azerbaijan and the Islamic Republic of Iran. The Ara(k)s River is about 1 072 km long and it has an average discharge of 210 million m3 per year (Berrin and Campana, 2008). The total annual flow from Armenia to Azerbaijan through the Ara(k)s River and its tributaries (Arpa, Vorotan, and Vokhchi) is estimated at about 5.62 km3, and from the Islamic Republic of Iran is estimated at 7.5 km3. The Ara(k)s River joins the Kura River in Azerbaijan about 150 km before its mouth at the Caspian Sea.

Demographics and national boundaries result in some inequities in water resource distribution (Vener and Campana 2010). Georgia has the second-largest population of the three countries and the smallest watershed. In contrast, Azerbaijan has the highest population and the largest watershed. Azerbaijan has one of the lowest per capita water availabilities globally. Although it has a greater per capita water availability, Armenia periodically experiences surface-water shortages due to poor water management. The Kura-Ara(k)s Basin captures 100 percent of Armenia's storm-water runoff and sewage discharge. It also captures 60 percent of Georgia's and 50 percent of Azerbaijan's storm-water runoff and sewage discharge.

ANNEX 2 | SELECTIVE SUMMARY OF REGIONAL PROJECTS

Trans-Boundary River Management for the Kura River basin (Phase III) (2012-2013)

The Trans-Boundary River Management for the Kura River basin, funded by the European Union, aims to improve water quality in the Kura River basin through trans-boundary cooperation and implementation of the river basin management approach. The project supports development of a common approach to water quality monitoring and assessment based on the EU Water Framework Directive (WFD) methodologies; and enhances technical capacities of environmental authorities and monitoring establishments to enable them to change their policies and practices in accordance with WFD. The main activities included: under Component 1 (development of a common approach): analysis of the existing systems for water quality assessment in the project countries against the requirements of EU WFD; development of a common approach to water quality assessment based on existing data and EU WFD methodology. Under Component 2 (capacity building and training): a proposal for replacement of outdated policies and technical instructions; production of technical guidelines to facilitate adoption of the common approach to water quality assessment; QC/QA training in national laboratories, and independent inter-laboratory tests. Under Component 3 (joint field surveys): field surveys in trans-boundary pilot basins, water sampling and analysis. Under Component 4: coordination with EU Water Initiative activities and water projects in the South Caucasus region implemented by EU and other international agencies; public information materials.

Reducing Transboundary Degradation in the Kura Ara(k)s River Basin

The UNDP/GEF Project “Reducing Transboundary Degradation in the Kura Ara(k)s River Basin” is a Full Sized Project with the participation of Armenia, Azerbaijan and Georgia. The Project is assisting the three Kura Ara(k)s riparian states to 1) identify the principal threats and root causes related to the transboundary water resources of the Kura Ara(k)s river basin and 2) develop and implement a sustainable program of policy, legal and institutional reforms and investments to address these threats. Balancing overuse and conflicting uses of water resources in transboundary surface and groundwater basins is seen as the critical issue in the Kura Ara(k)s basin, and is the principal focus of attention from the very outset of project related activities. The long-term development/environmental goal of the project is the sustainable development of the Kura Ara(k)s river basin enhanced through ecosystem-based Integrated Water Resource Management (IWRM) approaches. The project objective is to improve the management of the transboundary Kura Ara(k)s river basin through the implementation of a sustainable program of policy, legal and institutional reforms and investment options using the Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) process. In order to achieve this objective, the project has updated the TDA, and is supporting the development of National IWRM plans that will be the base of the SAP.

Creation of Enabling Environment for Integrated Management of the Kura - Ara(k)s Transboundary Rivers Basin (2007-2010)

This EU funded project focused on the elaboration of a Road Map to sustainable management of the Kura-Ara(k)s river basin through introduction of the EU Water Directives as outlined in the National Action Plans of European Neighbourhood Policy and on the adoption of the National Road Maps by the participating countries. The purpose of these road maps was to assist the governments in coordinating on-going and planned projects on the national and regional levels. In addition, they would help to direct donor's efforts and funds towards country priorities within the frames of the existing legislations, but with view to the regional needs. Furthermore, the project focused on the assessment of the works undertaken by the water projects on Kura-Ara(k)s starting from 2000 on the basis of the adopted Road Maps and on the establishment of the Regional Coordination Body, which will meet annually to assess the progress made for sustainable management of the Kura-Ara(k)s river basin.

Inventory of Transboundary Rivers in the Asia - Pacific Region, 2009-2011

ESCAP conducted an inventory of transboundary rivers in Asia-Pacific. 52 river basins were classified according to three categories: geographical information, legal and institutional information and developmental achievements. An important objective of his activity was to assess the conditions of water security in the basins. The inventory was supported by UNECE and UNESCO.

South Caucasus Cooperative River Monitoring (2003-2009)

This project was launched by NATO's Science for Peace sub-programme, in cooperation with the OSCE. It aimed to establish a social and technical infrastructure that could monitor the water quality and quantity of Transboundary Rivers and ease data-sharing between Armenia, Azerbaijan and Georgia. Water supply and pollution problems affect the Kura and Ara(k)s rivers in the region, which is heavily reliant on river resources for social and economic development. The project enhanced technical capabilities in water sampling and monitoring and database management, established a joint database and a social framework to support joint watershed management and provided decision makers with information on water contaminants.

Strengthening the Economic and Financial Dimensions of Water Management, including Adaptation to Climate Change

This project aims to enhance the understanding of the extent to which economic and financial dimensions are considered in IWRM policies in selected EECCA countries and ways to improve the use of economic instruments as part of these policies. It will create incentives for more efficient water use and financial realism of water-related policy papers and action plans and identify opportunities to cut costs and generate additional revenues for IWRM. It will also increase local capacity for economic and financial analysis of water policies and water resource management plans in the region. Project outputs include developing reports and organizing National Policy Dialogue meetings on the economic and financial dimensions of IWRM with a focus on strengthening the use of economic instruments in water policies in Armenia, Caucasus (Kura River) and in Kyrgyzstan and Kazakhstan and drafting a case-study which aims to strengthen the economic and financial dimension of IWRM in Azerbaijan.

National Policy Dialogues (NPD) on integrated water resources management (IWRM) and water supply and sanitation (WSS)

National Policy Dialogues (NPDs) on Integrated Water Resources Management (IWRM) and Water Supply and Sanitation (WSS) are the main operational instrument of the European Union Water Initiative (EUWI) Component for Eastern Europe, the Caucasus and Central Asia. The United Nations Economic Commission for Europe (UNECE) is the strategic partner for support to the policy dialogue processes on IWRM, whereas the Organisation for Economic Co-operation and Development (OECD) is the strategic partner for WSS and economic and financial aspects of IWRM. UNECE has been carrying out National Policy Dialogues on IWRM in Armenia since 2006, and in Azerbaijan and Georgia since 2010.

Policy dialogues are based on consultations with relevant ministries, agencies and institutions (including science and academia), non-governmental organizations (NGOs), parliamentary bodies and other national and international organizations. The dialogue process is usually conducted under the leadership of a high-level Government representative, such as the Minister/Deputy Minister of Environment or the Chairman of the State Water Committee. In the respective countries, national Steering Committees or Coordination Councils are established to guide and steer the NPD process. They include representatives of relevant ministries, agencies and institutions, as well as NGOs.

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+100

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countries, on 5 continents

+5M

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supporters

1961

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in 1961

Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony and nature.