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FRESHWATER LAW AND GOVERNANCE: GLOBAL AND REGIONAL PERSPECTIVES FOR SUSTAINABILITY

*Technical background document for theme 3: “Environmental Laws and Regulations”
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LIST OF ACRONYMS

| | |
|--------|---|
| ABC | Brazilian Cooperation Agency |
| ACTO | Amazon Cooperation Treaty Organization |
| ADB | Asian Development Bank |
| AFOLU | Agriculture, Forestry and Other Land Use |
| AMCOW | African Ministers' Council on Water |
| CBD | Convention on Biological Diversity |
| CEPA | Ramsar Communication, Education, Participation and Awareness Program |
| CIC | Intergovernmental Coordinating Committee of La Plata Basin Countries |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CMS | Convention on the Conservation of Migratory Species of Wild Animals |
| COP | Conference of the Parties |
| DRP | Danube Regional Project |
| ECE | Economic Commission for Europe |
| ENSO | El Niño Southern Oscillation |
| FAO | Food and Agriculture Organization |
| FCPF | Forest Carbon Partnership Facility |
| FIP | Forest Investment Program |
| GAS | Guarani Aquifer System |
| GEF | The Global Environment Facility |
| GHG | Greenhouse Gas |
| GLWQA | Great Lakes Water Quality Agreement |
| GWP | Global Water Partnership |
| GWPO | Global Water Partnership Organisation |
| ICESCR | International Covenant on Economic, Social and Cultural Rights |
| ICPDR | International Commission for the Protection of the Danube River |
| IDB | Inter-American Development Bank |
| IJC | International Joint Commission |
| ILC | UN International Law Commission |
| INBO | International Network of Water Basins |
| IPCC | Intergovernmental Panel on Climate Change |
| IPS | Indigenous Peoples Strategy |
| ISLRBC | International St. Lawrence River Board of Control |
| ITTO | International Tropical Timber Organization |
| IWMI | International Water Management Institute |
| IWRM | Integrated Water Resources Management |

| | |
|---------|--|
| Lao PDR | Lao People's Democratic Republic |
| LULUCF | Land Use, Land-Use Change and Forestry |
| MDBA | Murray-Darling Basin Authority |
| MEAs | Multilateral Environmental Agreements |
| MLDRIN | Murray Lower Darling Rivers Indigenous Nations |
| MRC | Mekong River Commission |
| MSPP | Multi-stakeholder Participation Plan |
| NBAN | Northern Murray-Darling Basin Aboriginal Nations |
| NFI | National Forest Inventory |
| NGO | Non-Governmental Organisation |
| NWP | Nairobi Work Programme |
| OAS | Organization of American States |
| OMVS | <i>Organisation pour la mise en valeur du fleuve Sénégal</i> |
| PGAS | Project for Environmental Protection and Sustainable Development of the Guarani Aquifer System |
| POPs | Persistent Organic Pollutants |
| REDD+ | Reducing Emissions from Deforestation and Forest Degradation, enhancement of carbon stock, sustainable management of forests, and conservation in developing countries |
| SAP | Strategic Action Programme |
| SIDA | Swedish International Development Cooperation Agency |
| TDA | Transboundary Diagnostic Analysis |
| UNCCD | United Nations Convention on Combating Desertification |
| UNDP | United Nations Development Programme |
| UNDRIP | United Nations Declaration on the Rights of Indigenous Peoples |
| UNEP | United Nations Environment Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VBA | Volta Basin Authority |
| WFD | EU Water Framework Directive |
| WWF | World Wildlife Fund |

EXECUTIVE SUMMARY

This study was designed to gain insights into how regional and basin water agreements take into account principles and provisions of international water law – both customary international law and treaty-based law – and contribute to its content and evolution.¹ The study examined how seven regional (i.e. multi-basin) and basin agreements deal with selected international water law principles and provisions and how that treatment relates to the implementation of the United Nations Convention on the Non-Navigational Use of International Watercourses (UN Watercourses Convention) and seven other multilateral environmental agreements (MEAs).²

The study proceeded by examining the institutional actors and normative structures involved in international water governance, identifying good practices under the regional and basin agreements considered herein, and then analysing those good practices and the texts of the agreements in light of international water law and the MEAs, including the UN Watercourses Convention. For purposes of this study, a “good practice” is defined as where a regional water or basin agreement (or activities undertaken with respect to it) has integrated or otherwise given effect to international water law principles and provisions or substantively supported the implementation of the selected or other MEAs. The conclusions of the study are summarised below.

The seven regional and basin agreements examined in this study, as well as the activities carried out with respect to them, demonstrate an increasing focus on managing international watercourses in a manner that maintains the integrity of the watercourse and its ecosystem in order to achieve sustainable utilisation of the watercourse. Consistent with that, a central challenge facing the international community today is to ensure access to adequate freshwater of sufficient quality to satisfy basic human needs, to advance economic and social progress, and to maintain the integrity of the ecosystems on which attaining the other goals depends. International water governance structures must be robust and flexible in order to successfully cope with the increasing pressures on water quantity, quality and access, while at the same time providing security regarding water supply. International law and institutions, including

¹ The study was sponsored by the United Nations Environment Programme (UNEP) and was conducted from May to September 2014.

² The seven regional and basin agreements examined in this study are (using abbreviated names): Amazon Cooperation Treaty, Danube River Convention, Guarani Aquifer Agreement, Mekong River Agreement, Murray-Darling Basin Agreement, 1909 Boundary Waters Treaty and Volta River Convention. The MEAs examined in this study are: Basel Convention on the Transboundary Movement of Hazardous Waste, Convention on Biological Diversity, Convention on Migratory Species, Ramsar Convention on Wetlands, Stockholm Convention on Persistent Organic Pollutants, UN Convention on Combating Desertification, UN Framework Convention on Climate Change and UN Watercourses Convention.

regional and basin agreements and authorities, must continue to evolve to achieve that outcome.

The governance structure relevant to international watercourses is complex and fragmented. At the global level, the UN Watercourses Convention is in force, but it specifically recognises the validity of existing and future regional and basin agreements and, unlike the climate change and international trade regimes, does not have a dedicated secretariat or conference of the Parties to help identify emerging threats, develop norms, coordinate communications among relevant entities (e.g. regional and basin authorities), and promote education and outreach. Approximately 400 regional and basin agreements are in force dealing directly with international watercourses, almost all of which establish some sort of authority to administer the agreement. In addition, an enormous number of other actors are also involved in watercourse governance, including all levels of government (from global to local) and all manner of civil society organisations and entities (including non-governmental organisations, financial institutions and other business enterprises).

Moreover, international watercourse governance also involves innumerable norms (e.g. laws, principles, non-binding standards, and guidelines) from many sources (e.g. international agreements, national, local and tribal laws, loan or contractual provisions, and voluntary standards). Some of these norms are water-specific, such as those in the UN Watercourses Convention and the regional and basin agreements mentioned above; others have direct relevance to water but are broader in their application. Each of the MEAs considered in this study, for example, relates in significant ways to water. Those relationships can take either or both of the following forms: the MEA involves environmental threats that can affect water quality, quantity or availability; or the quality, quantity or availability of water can affect realisation of the environmental goals sought by the MEA. The exact relationship depends on the MEA in question. In addition, several human rights are relevant to international watercourse governance: the human right to water; procedural rights; and the rights of indigenous people. At the same time, however, the governance web is not complete: some international waters are not specifically governed by a legal framework.

The normative and institutional situation can be especially complex when watercourse agreements are nested, for example when a State that is a Party to a basin watercourse agreement is also a Party to another agreement regarding a sub-part of the same basin. This is quite common and results in the need to comply with multiple norms (which can include needing to meet duplicative procedural requirements and reconcile potentially different standards), and work with multiple institutions at the global, regional, basin and sub-basin levels. A similar situation results when a State has parallel watercourse obligations arising

because it is a Party to international agreements regarding more than one basin. The fragmentation and complexity caused by all these factors interfere with efficient and effective governance, as well as with the needed evolution of international law towards better protection of freshwater ecosystems and sustainable utilisation of international watercourses.

Two principles of international law may be applied to help rationalise this complex situation: the principle of inter-temporal law and the harmonisation principle. The principle of inter-temporal law provides that when new norms of customary international law develop, particularly norms and standards relating to environmental protection or sustainable development, they must be taken into consideration and given proper weight, not only when States contemplate new activities but also when continuing with activities begun earlier. This principle may assist in harmonising interpretations and applications of different watercourse agreements and in facilitating the evolution of international water law. The harmonisation principle may have the same effect in the context of potentially conflicting treaty-based obligations. This principle provides that when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations. The application of this principle could be helpful in reducing fragmentation and facilitating the evolution of international water law. Article 31 of the Vienna Convention on the Law of Treaties, in particular paragraph 3(c) (referring to “any relevant rules of international law applicable in the relations between the parties”) could also be helpful in this respect.

As noted above, one of the conclusions of this study is that watercourse agreements and authorities are now focusing on the importance of environmental protection. With the exception of the 1909 Boundary Waters Treaty (which was negotiated more than 100 years ago and whose implementation has become much more environmentally focused due to subsequent instruments), all of the watercourse agreements examined in this study have an object or purpose that includes protecting the environment of the watercourse or ecosystem, as well as significant other components relating to environmental protection (see Table 3.1, in chapter 3 below). The agreements’ primary focus is on the watercourse to which they pertain; but conditions in those basins and all other international water basins are related to global environmental issues such as climate change, biological diversity, wetlands, and hazardous chemicals and waste. Nevertheless, only two of the regional and basin agreements examined herein expressly refer to the need to take MEAs into account. The other agreements do not prohibit taking global issues into account or working with MEA bodies, however. Similarly, though none of the watercourse agreements encountered in this study expressly mandate communicating or cooperating with other watercourse authorities, they do not prohibit such activities.

As a general matter, regional and basin authorities rely on the governments of their Parties to interact directly with MEA bodies. The only exception to that encountered in this study is the Guiana Shield project (which includes part of the Amazon basin), which does reach out to persons at MEA secretariats. Regional and basin authorities do participate in conferences and workshops relating to issues covered by MEAs if invited by another entity. The same pattern appears to apply with respect to being in contact with other watercourse authorities; the only exception encountered in this study is the Mekong River Commission, which reaches out to other basin authorities. The advantages of appropriate interactions between regional and basin authorities, on the one hand, and MEA bodies and personnel, on the other, should not be ignored. Similarly, based on the record of other experience and skill-sharing exercises, regional and basin authorities could gain considerably from exchanges with other regional and basin authorities.

Different regional and basin water authorities have successfully engaged in projects and activities that effectively integrate good management practices with normative directives and institutional realities. Moreover, some MEAs and financial institutions have played constructive roles in trying to ensure an integrated approach that involves multiple actors and takes multiple norms into account.

The good practices related in this report differ in their details. This study did not explore the precise reasons for such differences, but it seems evident that they reflect a combination of several factors. These include: the stage of development of the regional or basin agreement under which they took place; the challenges faced in that region or basin; the approach taken by the respective authorities and governments to address those challenges; the human and other resources available to govern the region or basin or for a particular project; and requirements or practices of a project's outside funding or administering organisations, if any. The last two-mentioned factors underscore the importance of the actors involved.

In spite of differences in detail, the good practices related in this chapter fall within several broad categories. These are: environmental protection; transparency and public participation; science-based decision-making; consultation; human rights; and dispute avoidance and settlement.

All of the regional and basin regimes examined in this study have engaged in good practices related to protecting the environment. Some of these were general, relating to an entire aquifer or basin, while others related to specific issues such as biological diversity, chemical pollution, climate change or wetlands protections. Good practices involving environmental impact assessment occurred in several instances. In addition, the good practices summarised below regarding transparency and public participation, science-based decision-making and

consultation relate to environmental impact assessment and environmental protection more generally.

Good practices relating to transparency and public participation took several forms and often were not just a single effort to provide or collect information or opinion, but rather an interactive process of information provision and collection, iterative discussion, and monitoring. The good practices spanned all segments of society, including indigenous people. The robust nature of these activities reflects an appreciation for the value of information and perspective provided by the public, the need for public acceptance of watercourse protection activities, and the increasingly important roles of civil society in watercourse management and protection.

Good practices relating to providing a scientific basis for decision-making covered a wide range of activities. These include establishing baseline information prior to drafting a legal framework for governing the water resource, determining information relating to particular proposed projects, reaching consensus on facts relating to a particular contentious situation or dispute, and monitoring the performance of projects throughout their lives.

Good practices relating to consultation included both general interactions involved in participating in the watercourse regime in question and more specific procedures for discussion and even approval of specific projects. To some degree, consultation is inherent in the good practices relating to science-based decision-making, as well.

Good practices relating to human rights encompassed all three of the categories of human rights examined in this study. The procedural human rights to access to information, freedom of expression, assembly and participation in decision-making were protected via the transparency and public participation good practices described above. The rights of indigenous people were taken into account in several good practices. The human right to water was also taken into account in good practices, though this is less frequent.

Good practices relating to dispute avoidance and settlement fall within a wide range. At the general level, these include efforts to establish factual bases for legal regimes and specific projects, and monitoring generally. Specific good practices include consultation processes and procedures for addressing differences before they become legal disputes and for addressing actual disputes.

Each of those categories relates to one or more of the international water law principles, including as expressed in the UN Watercourses Convention. For example, the array of good practices regarding environmental protection relate to the principles of no significant harm, protection of watercourses and their ecosystems, environmental impact assessment,

cooperation, regular exchange of information, human rights, reasonable and equitable utilisation, and peaceful settlement of disputes. The good practices regarding transparency and public participation relate to the principles of reasonable and equitable utilisation, protection of watercourses and their ecosystems, and human rights, including the rights of indigenous people. The good practices regarding science-based decision-making relate to the principles of peaceful settlement of disputes, environmental impact assessment, regular exchange of information, cooperation, reasonable and equitable utilisation, and no significant harm. The good practices regarding consultation relate to the principles of cooperation, notification and consultation, and peaceful settlement of disputes. The good practices regarding human rights relate to procedural human rights (right to access to information, freedom of expression, right to assemble and right to participate), the rights of Indigenous Peoples, the human right to water and peaceful settlement of disputes. The good practices relating to dispute avoidance and settlement relate to the principles of peaceful settlement of disputes, cooperation, protection of watercourses and their ecosystems, and notification and consultation.

These good practices are impressive in their own right, and they suggest that the evolution of international water law will be influenced by an increased focus on six themes: environmental protection; transparency and public participation; science-based decision-making; consultation; human rights; and dispute avoidance and settlement. The importance of the first theme is already evident with respect to the customary international law obligation to conduct transboundary impact assessments. A related development is the human rights obligation to conduct environmental impact assessment when an environmental harm might implicate human rights. In spite of the fragmented legal architecture, that evolution is occurring not only at a global level through, for example, the UN Watercourses Convention and opinions of the International Court of Justice, but also in the legal architectures and good practices of the regional and basin agreements examined in this study. Finally, the importance of the myriad activities at local, national, basin, regional and global levels and the fragmented nature of the legal architecture point to the need for communication, cooperation and coordination among the various actors involved in international watercourse governance, as well as to the importance of the continued evolution of international water law.

CHAPTER 1: INTRODUCTION

1.1 Water scarcity and governance

The need for efficient and effective governance of international watercourses is already manifest and is expected to increase as significant challenges arise in the future. World population is expected to grow from today's 7 billion to approximately 9 billion by 2050,³ placing greater demands on water supplies, for example for drinking water, sanitation and production of food. Climate change is likely to affect the availability of fresh water, as the amount and timing of precipitation are disrupted and the strength and duration of storms intensify, which could affect, inter alia, river flows and recharge of aquifers as run-off patterns change. In some basins, expansion of permitted uses such as generation of hydro-electric power may place new stresses on the integrity of riverine systems and on other watercourse States if those uses occur in more difficult or sensitive areas.

Aquifers are increasingly becoming polluted and salinised in some coastal areas, particularly as sea levels rise. Alterations in agricultural patterns engendered by climate change are likely to affect the demand for water for irrigation purposes. Increased average temperatures due to climate change will affect availability of, and demand for, water. Efforts to alleviate malnutrition for the almost one billion people now malnourished will require water to grow additional food. Large sovereign and commercial investments in agricultural lands in developing countries, and thus in the water which pertains to those lands, may increase demand for water or change water usage patterns.⁴ Environmental refugees, primarily due to climate change and consisting of both internally displaced persons and international refugees, are likely to stress existing governance structures, including structures relating to water, and create additional demands for water in some locations.

Technological innovations relating to consumption, agriculture and industry undoubtedly will help alleviate these and other stresses, but there is no reason to conclude they will counteract completely the pressures just described. Moreover, these increased stresses are subject to significant uncertainty in terms of magnitude and timing. International watercourse governance thus must be prepared to operate in an era of increased uncertainty and decreased per capita availability of freshwater and, as a result, increased need for water resources both internally and internationally. International and domestic water law and institutions "will need

³ UNITED NATIONS, WORLD POPULATION PROSPECTS: THE 2012 REVISION, VOL. I COMPREHENSIVE TABLES xvi (2013), http://esa.un.org/wpp/Documentation/pdf/WPP2012_Volume-I_Comprehensive-Tables.pdf.

⁴ See THE FOOD AND AGRICULTURAL ORGANIZATION & EARTHSCAN, THE STATE OF THE WORLD'S LAND AND WATER RESOURCES FOR FOOD AND AGRICULTURE: MANAGING SYSTEMS AT RISK, at x (2011), <http://www.fao.org/docrep/017/i1688e/i1688e.pdf>.

to be sufficiently flexible to accommodate changes in the quantity and quality of fresh water, and access to it, while at the same time providing for sufficient security of supply⁵ to satisfy basic human needs, advance economic and social progress, and maintain the integrity of the ecosystems on which attaining the other goals depends. This situation can be viewed in terms of increased competition for water; a more optimistic view is that there is an increased opportunity and need for international cooperation and collaboration because joint governance can increase the productivity of an international watercourse and its ability to meet the needs of those in the basin.

In either event, the reality is that international watercourses must be managed in a manner that maintains the integrity of the watercourse and its ecosystem and that this must be accomplished in the face of changing conditions and increasing pressure on water resources and other challenges. A corresponding reality is that international law and institutions, including regional and basin agreements and authorities, must continue to evolve to achieve that outcome. A final reality is that regional and basin agreements and authorities will have an important role in accomplishing and shaping that evolution.

1.2 The design of this study

This study, which was sponsored by the United Nations Environment Programme (UNEP), is intended to contribute to the discussion of international freshwater governance, in particular with respect to how regional and basin agreements relate to the implementation of international water law principles and provisions and to global multilateral environmental agreements (MEAs).⁶ More specifically, this study examined how seven regional and basin water agreements deal with selected international water law principles and provisions and how that treatment relates to the implementation of the United Nations Convention on the Non-Navigational Uses of International Watercourses (the UN Watercourses Convention)⁷ and seven other MEAs.

The study approached this task by analysing the texts of the agreements and identifying specific good practices at the regional or basin level that involve issues addressed by international law principles or provisions or that are covered by the MEAs. When possible, the identification of

⁵ EDITH BROWN WEISS, *INTERNATIONAL LAW FOR A WATER-SCARCE WORLD* 7 (2013).

⁶ This report uses the terms “multilateral environmental agreement” and “MEA” for ease of description and not with any analytic implication. Each of the agreements considered herein, for example, has considerable economic implications, and some of them, such as the United Nations Framework Convention on Climate Change, penetrate deeply into domestic policymaking on a variety of topics and thus could easily be described by other terms.

⁷ Convention on the Law of the Non-navigational Uses of International Watercourses, May 21, 1997, G.A. Res. 51/229, U.N. Doc. A/RES/51/229 (1997), 36 I.L.M. 700, (entered into force Aug. 17, 2014), http://legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf [hereinafter UN Watercourses Convention].

good practices was based on direct communications with individuals associated with the regional or basin authority, the governments of Parties to those agreements, and the agencies funding or administering the funding of projects. The study focused on issues and activities related to the allocation and use of water, pollution control and ecosystem protection. It did not address other issues often covered by regional and basin agreements, such as boundary-delimitation or navigation issues; and it did not conduct a critique of the effectiveness of any of the agreements or institutions studied.⁸ This report presents the study's analysis and describes selected good practices identified during the course of the study.

For purposes of this study, a "good practice" is defined as where a regional water or basin agreement (or activities undertaken with respect to it) has integrated or otherwise given effect to international water law principles and provisions or substantively supported the implementation of the selected or other MEAs. This, of course, is a narrower definition than would be a good practice with respect to international watercourse management generally; the narrower definition fits the focus of this study.⁹

1.3 Regional and basin agreements

The seven regional and basin agreements examined in this study are: Tratado de Cooperación Amazónica¹⁰ (Amazon Treaty); Convention on Cooperation for the Protection and Sustainable Use of the Danube¹¹ (Danube Convention); Acuerdo sobre el Acuífero Guaraní¹² (Guarani Aquifer Agreement); Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin¹³ (Mekong Agreement); Murray-Darling Basin Agreement¹⁴ (Murray-Darling Agreement); Treaty Between The United States and Great Britain Relating to Boundary Waters,

⁸ For an analysis discussing the five major purposes of international watercourse agreements, see BROWN WEISS, *supra*, at 81.

⁹ For a description of good practices relating to integrating environmental protection into international and domestic water law, see UNEP, THE GREENING OF WATER LAW: MANAGING FRESHWATER RESOURCES FOR PEOPLE AND THE ENVIRONMENT (2010), http://www.unep.org/delc/Portals/119/UNEP_Greening_water_law.pdf.

¹⁰ Tratado de Cooperación Amazónica [Amazon Cooperation Treaty], July 3, 1978, Bol.-Braz.-Colom.-Ecuador-Guy.-Peru-Surin.-Venez., 1202 U.N.T.S. 70, http://otca.info/portal/admin/_upload/tratado/The_Amazon_Cooperation_Treaty.pdf [hereinafter Amazon Treaty].

¹¹ Convention on Cooperation for the Protection and Sustainable Use of the Danube, June 29, 1994, O.J.L. 342, <http://www.icpdr.org/main/icpdr/danube-river-protection-convention> [hereinafter Danube Convention].

¹² Acuerdo Sobre el Acuífero Guaraní [Guarani Aquifer Agreement], Aug. 2, 2010, Arg.-Braz.-Para.-Uru., Ministerio de Relaciones Exteriores [Uruguayan Ministry of Foreign Affairs], http://www.internationalwaterlaw.org/documents/regionaldocs/Guarani_Aquifer_Agreement-Spanish.pdf [hereinafter Guarani Aquifer Agreement]. There is no official English-language version of this agreement.

¹³ Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, Apr. 5, 1995, 2069 U.N.T.S. 3, <http://ocid.nacse.org/tfdd/tfdddocs/546ENG.pdf> [hereinafter Mekong Agreement].

¹⁴ The Murray-Darling Basin Agreement, 1992, Schedule 1, Water Act 2007, http://www.comlaw.gov.au/Details/C2014C00194/Html/Text#_Toc390870752 [hereinafter Murray-Darling Agreement].

and Questions Arising Between the United States and Canada¹⁵ (1909 Boundary Waters Treaty); and Convention on the Status of the Volta River and the Establishment of the Volta River Basin¹⁶ (Volta Convention).

As is described in greater detail in chapter 2, although these agreements are not necessarily representative of the universe of regional and basin agreements, they reflect a variety of characteristics. In terms of geographic scope, one is an aquifer agreement that underlies parts of more than one basin (Guaraní Aquifer Agreement), one watercourse agreement is regional, i.e. multi-basin (1909 Boundary Waters Treaty), and the rest are basin-specific watercourse agreements. In terms of levels of government, one is national (Murray-Darling, in Australia), one is bilateral (1909 Boundary Waters Treaty), and the rest are multilateral. In terms of their hydrographic focus, one is an aquifer agreement (Guaraní Aquifer Agreement), and the rest pertain to both surface and groundwater. In terms of geographic location, two agreements relate to South America, and one to each of Africa, Asia, Europe, North America and Oceania. The temporal range is vast, ranging from an agreement that is more than 100 years old (1909 Boundary Waters Treaty) to one that was negotiated in 2010 and is not yet in force (Guaraní Aquifer Agreement). Some agreements focus primarily on the establishment and structure of an institutional authority (e.g. Volta Convention), whereas others are more multi-faceted (e.g. Amazon Treaty).

In terms of substantive focus relating to the important issue of protecting the watercourse and its ecosystem, some agreements focus on watercourse-related economic activities with little mention of environmental protection issues (e.g. 1909 Boundary Waters Treaty), some have broad environmental provisions (e.g. Mekong Agreement), and more recent agreements focus on sustainability and sustainable development (e.g. Murray-Darling Agreement). In fact, this study revealed an increasing appreciation of the need to protect watercourses and their ecosystems if other goals (such as meeting basic human needs and achieving economic and social progress) are to be achieved. For example, the environmental focus of the International Joint Commission established by the 1909 Boundary Waters Treaty (which contained only one paragraph on pollution), has been significantly strengthened in terms of environmental protection by subsequent agreements, including most recently in 2012,¹⁷ as is described in Chapter 5.

¹⁵ Treaty Between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada, U.S.-Can., Jan. 11, 1909, 36 Stat. 2448, T.S. 548, http://www.ijc.org/files/tiny_mce/uploaded/Boundary%20Waters%20Treaty%20of%201909.pdf [hereinafter 1909 Boundary Waters Treaty].

¹⁶ Convention on the Status of the Volta River and the Establishment of the Volta River Basin, Jan. 19, 2007 [hereinafter Volta Convention]. This treaty has not yet been published in a traditional treaty source.

¹⁷ Protocol Amending the Agreement Between Canada and the United States of America on Great Lakes Water Quality, 1978, as Amended on October 16, 1983 and on November 18, 1987 (Sept. 7, 2012),

1.4 Multilateral Environmental Agreements (MEAs)

This study considered seven global MEAs in addition to the UN Watercourses Convention. These MEAs are: Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal¹⁸ (Basel Convention); Convention on Biological Diversity¹⁹ (CBD); Convention on the Conservation of Migratory Species of Wild Animals²⁰ (CMS); Ramsar Convention on Wetlands of International Importance as Waterfowl Habitat²¹ (Ramsar Convention); Stockholm Convention on Persistent Organic Pollutants²² (Stockholm Convention); United Nations Convention on Combating Desertification²³ (UNCCD); and United Nations Framework Convention on Climate Change²⁴ (UNFCCC). Occasional reference is also made to the United Nations Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes (ECE Water Convention), because it is in the process of being opened to universal membership.²⁵ Each of these conventions is related to freshwater, in terms of both freshwater's importance to achieving the aims of the MEA and the

http://www.epa.gov/glupo/glwqa/20120907-Canada-USA_GLWQA_FINAL.pdf [hereinafter 2012 Protocol to the GLWQA].

¹⁸ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 11, 1989, 1673 U.N.T.S. 57, 28 I.L.M. 657 (entered into force May 5, 1992),

<http://www.basel.int/Portals/4/Basel%20Convention/docs/text/BaselConventionText-e.pdf> [hereinafter Basel Convention].

¹⁹ Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79, 31 I.L.M. 818 (entered into force Dec. 29, 1993), <http://www.cbd.int/doc/legal/cbd-en.pdf> [hereinafter CBD].

²⁰ Convention on the Conservation of Migratory Species of Wild Animals, June 23, 1979, 1651 U.N.T.S. 333, 19 I.L.M. 15 (entered into force Nov. 1, 1983),

<https://treaties.un.org/doc/Publication/UNTS/Volume%201651/v1651.pdf> [hereinafter CMS].

²¹ Convention on Wetlands of International Importance as Waterfowl Habitat, Feb. 2, 1971, T.I.A.S. 11084, 996 U.N.T.S. 245 (entered into force Dec. 21, 1975), http://www.ramsar.org/cda/en/ramsar-documents-texts-convention-on/main/ramsar/1-31-38^20671_4000_0__ [hereinafter Ramsar Convention].

²² Stockholm Convention on Persistent Organic Pollutants, May 22, 2001, 2256 U.N.T.S. 119, 40 ILM 532 (entered into force May 17, 2004), <http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-COP-CONVTEXT.En.pdf> [hereinafter Stockholm Convention].

²³ United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, June 7, 1994, 1954 U.N.T.S. 3, 33 I.L.M. 1328 (entered into force Dec. 26, 1996), <http://www.unccd.int/Lists/SiteDocumentLibrary/conventionText/conv-eng.pdf> [hereinafter UNCCD].

²⁴ United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107 (entered into force Mar. 21, 1994), http://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf, [hereinafter UNFCCC].

²⁵ Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Mar. 17, 1992, 1936 U.N.T.S. 269, 31 I.L.M. 1312 (entered into force Oct. 6, 1996),

<https://treaties.un.org/doc/Publication/UNTS/Volume%201936/v1936.pdf> [hereinafter ECE Water Convention].

The amendments to articles 25 and 26 of the UNECE Water Convention regarding universal membership were adopted in 2003 and entered into force on 6 February 2013 reaching the necessary number of ratifications. (https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5-b&chapter=27&lang=en). The amendments do not become operational, however, until all Parties that were Parties in 2003 (when the amendments were adopted) ratify them. As of January 2015, that had not occurred.

importance of the issues covered by the MEA to freshwater; and each convention is important in its own right.

1.5 Organisation of this report

Following this introductory chapter, chapters 2 and 3 provide a description of the overall system of governance of international watercourses, in order to provide the context in which regional and basin agreements and MEAs, including the UN Watercourses Convention, operate: chapter 2 describes the actors involved in international watercourse governance, including non-State actors such as financial institutions and non-governmental organisations; and chapter 3 discusses international water law and the UN Watercourses Convention. Chapter 4 addresses the relationship between international water law and MEAs. Chapter 5 presents good practices identified in the study. Chapter 6 contains general conclusions.

CHAPTER 2: SUSTAINABLE INTERNATIONAL FRESHWATER GOVERNANCE – OVERVIEW OF RELEVANT ACTORS

2.1 Introduction

The governance of international freshwater faces an immense and complicated task and involves an enormous number of actors and instruments, even putting aside the critical importance of water and its increasing scarcity. It involves all levels of government (e.g. international, national, local and tribal), a multitude of organisations, departments or agencies within a given level of government (e.g. political, management and financial), myriad civil society organisations and entities, innumerable norms (including laws, principles, non-binding standards, and guidelines) from many sources (e.g. international agreements, national, local and tribal laws, loan or contractual provisions, and voluntary commitments), and a vast range of activities that encompasses virtually all human experience (e.g. drinking water, agriculture, power generation, sanitation, environmental protection, religion and recreation). A full understanding of international water governance involves taking into consideration all of these dimensions and the actors involved in them.

A primary reason for the complexity of international watercourse governance is the large number of international rivers, lakes and aquifers that cross or extend along the border between two or more States. For example, there are roughly 276 international river basins that involve 148 States²⁶ in total and as many as 19 States in one basin (the Danube River basin).²⁷ These basins include nearly half of the world's land area and 40% of the world's population. Moreover, there are myriad transboundary aquifers, some of which underlie more than one international water basin (e.g. the Guarani aquifer underlies parts of the Plata and Amazon basins). Governance of such waters thus inevitably involves more than one State and raises international issues (e.g. the amount and timing of flows, water quality, access and peace and security). Water governance also has an international aspect if an international finance institution or foreign State provides financial assistance relating to governance of the water, as has been done, for example, by the Global Environment Facility (GEF). Finally, watercourse governance may have an international dimension if it significantly affects some other interest of the international community, such as the survival of a species, integrity of transboundary migrations or protection of human rights, even when the activity in question occurs solely within the territory of one State.

²⁶ UN WATER, TRANSBOUNDARY WATERS FACTSHEET (2013), http://www.unwater.org/fileadmin/user_upload/unwater_new/docs/transboundary_waters.pdf.

²⁷ International Commission for the Protection of the Danube River, *Danube Basin: Facts & Figures Brochure*, ICPDR.ORG, <http://www.icpdr.org/main/danube-basin-facts-and-figures-brochure> (last visited Sept. 19, 2014).

On the legal front, watercourse treaties have existed for at least 5000 years. Indeed, the first recorded treaty of any type is a water treaty in approximately 3100 BCE between the two Mesopotamian city-states of Umma and Lagash regarding waters of the Euphrates River.²⁸ At present, there are approximately 400 international water agreements²⁹ at global, regional and bilateral levels. Most of these agreements establish an institution to govern the respective agreement. Unfortunately, these agreements have not been harmonised in terms of either their normative content or their organisational institutions, and there is no institutional home for watercourse agreements within the United Nations system.

The sheer number of agreements and institutions inevitably leads to complexity. In addition, many agreements and their institutions are “nested” or “parallel”, as described further below, giving rise to practical and normative challenges. A further complication in terms of international agreements arises from the fact that many non-watercourse-specific global, multilateral and bilateral agreements and their respective institutions and activities directly involve freshwater or have important implications for freshwater, including freshwater in international watercourses and aquifers. Experience indicates that the multiplicity of norms can create duplicate reporting requirements, inconsistent norms, and confusion about what is actually required. Similarly, the multiplicity of governing bodies complicates efforts to standardize rules and coordinate enforcement and implementation efforts. On the operational level, the multiplicity of administering bodies can cause inefficiencies in coordinating, overlap in staffing, redundancy in projects and other activities, conflicting meeting schedules, and impossibility of comparing and aggregating data because of incompatible knowledge management systems and the use of inconsistent definitions of basic terms.³⁰ The complexity and lack of harmonisation have created a “fragmented legal architecture”³¹ for international watercourse management and resulted in a multitude of legal and operational challenges to governance.

This chapter provides an overview of important actors involved in international water governance as they are relevant to the present report.³²

²⁸ STEPHEN C. MCCAFFREY, *THE LAW OF INTERNATIONAL WATERCOURSES* 59-60 (2d ed. 2007).

²⁹ *TRANSBOUNDARY WATERS FACTSHEET*, *supra*.

³⁰ To alleviate this situation, the United Nations created the Multilateral Environmental Agreement Information and Knowledge Management (MEA IKM) Initiative, under the leadership of UNEP, which in turn led to the creation of the web-based United Nations Information Portal on Multilateral Environmental Agreements, or InforMEA: <http://www.informea.org/>, which harvests information from conference-of-the-Parties decisions, MEA reports, press releases, national focal points and other sources and organises that information by terms in a searchable format.

³¹ *THE UN WATERCOURSE CONVENTION IN FORCE* 6 (Flavia R. Loures & Alistair Rieu-Clarke 2013).

³² For other discussions of these issues, see Laurence Boisson de Chazournes, *International Institutions, Fresh Water and the Environment: Mutual Incentives*, 44 *Env'tl. Pol'y & L.* 172 (2014); BROWN WEISS, *supra*, at 161-190; WORLD WILDLIFE FUND, *INTERNATIONAL ARCHITECTURE FOR TRANSBOUNDARY WATER RESOURCES MANAGEMENT: POLICY ANALYSIS*

2.2 Governmental actors

National governments are major actors involved in governing international watercourses, though the activities and policies of every level of government can affect international watercourses. Domestic laws are relevant to managing international watercourses due to those laws' role of implementing international agreements related to water and also independent of any such implementation by virtue of their effect on international watercourses. This includes, for example, local efforts to conserve water or protect an aquatic ecosystem in an international river basin.

BOX 2.1 Local Government Actions to Conserve Water: Las Vegas, Nevada, USA

Las Vegas, Nevada, USA is situated in the Sonora Desert and has an annual rainfall of 4.2 inches (110 mm). It gets 90% of its water from the Colorado River, which is an international watercourse, and the remaining 10% from wells. Its population of 600,000 is growing.

The water district in which Las Vegas is located has taken effective steps to reduce water usage in an urban-friendly manner. For example, the district encourages "xeriscaping" (i.e. desert landscaping) to replace commercial and residential grass-based landscapes by rebating customers \$1.50 per square foot (.093 square metres) of grass removed and replaced by a xeriscape. This program has saved 1.5 billion gallons (5,678,117,676 litres) of water by replacing 168 million square feet (15,608 hectares) of grass with water-free landscapes – each square foot replaced saves 55 gallons (208 litres) over the course of a year.³³ The district also helps homeowners, businesses and governmental bodies access landscapers and tools to transition from grass to native plants that use less water.³⁴

Other residential programs provide financial incentives for installing irrigation systems that automatically adapt to seasonal shifts in weather³⁵ or rain sensors that turn off irrigation systems when it starts to rain.³⁶ Another program pays businesses \$25-\$35 for every 1000 gallons (3785 litres) of water saved.³⁷

AND RECOMMENDATIONS (2010),

http://awsassets.panda.org/downloads/wwf___intn_l_water_architecture___policy_recommendations__2010_.pdf.

³³ City of Las Vegas, *Water Smart Landscape*, LASVEGASNEVADA.GOV,

<http://www.lasvegasnevada.gov/sustaininglasvegas/16127.htm> (last visited Sept. 21, 2014).

³⁴ Southern Nevada Water Authority, *Water Smart Landscapes Rebate*, SNWA.COM, <http://www.snwa.com/rebates/wsl.html> (last visited Sept. 21, 2014).

³⁵ Southern Nevada Water Authority, *Smart Irrigation Controller Rebate Coupon*, SNWA.COM, http://www.snwa.com/rebates/coupons_controller.html (last visited Sept. 21, 2014).

³⁶ Southern Nevada Water Authority, *Rain Sensor Instant Rebate Coupon*, SNWA.COM, http://www.snwa.com/rebates/coupons_sensor.html (last visited Sept. 21, 2014).

³⁷ Southern Nevada Water Authority, *Water Efficient Technologies*, SNWA.COM, http://www.snwa.com/biz/rebates_wet.html (Sept. 21, 2014).

Every national government of a State that shares an international watercourse or international aquifer affects in some way the governance of those international waters, whether that is formal or informal or with intent or by neglect. The governments of other States may also affect the governance of international water if activities in their territory or control have effects on an international watercourse whose basin they do not share. For example, the management by a State located on an international migratory bird flyway of wetlands in its territory on which those birds depend may affect the health and productivity of a wetland located on the same flyway in another State in a different water basin. In addition, if both States are Parties to the Ramsar Convention and if the wetland in the second State is a listed wetland under the convention, the first State's actions raise international legal governance concerns.

Governments involved in international water governance exercise their influence both domestically through policies and activities and internationally through interactions with other States, inter-governmental organisations and other relevant actors. As is the case with other foreign relations, international interactions regarding water occur in myriad ways, including informal information-sharing and consultation, negotiation and formal participation as Parties to relevant international agreements.

2.3 Actors Created by Water Agreements at the Global Level

Two watercourse agreements exist and are in force relevant to the global level. The UN Watercourses Convention³⁸ was finalised in 1997, based on the work of the United Nations International Law Commission as adopted by the United Nations General Assembly. This convention was intended from its inception to be a global agreement that recognised the separate existence of sub-global agreements (see chapter 3); and it was negotiated at a global level, thus providing all countries with the opportunity to participate in its formulation and finalisation and to become Parties. The convention, which entered into force in August, 2014 with 35 Parties (from Africa, Asia and Europe), does not establish any treaty institutions to administer or govern it. As of 30 September 2014, it had not been determined which organisation(s) would serve those functions. Thus this convention has not (yet) created any new actors.

The United Nations Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes (ECE Water Convention) is administered by the ECE.³⁹ The ECE Water Convention originally was intended only for the States in the ECE

³⁸ UN Watercourses Convention, *supra*.

³⁹ ECE Water Convention, *supra*. The convention was amended in 2003 and has two protocols: the 1999 Protocol on Water and Health, Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, June 17, 1999, 2331 U.N.T.S. 202 (entered into force Aug. 4, 2005), <http://www.unece.org/fileadmin/DAM/env/documents/2000/wat/mp.wat.2000.1.e.pdf> [hereinafter ECE

region and accordingly was negotiated at that level. As of January 2015, the ECE Water Convention is in the process of being opened to accession by all States,⁴⁰ and in that sense is global. As of January 2015, the convention's 40 Parties are all from the ECE region, and the convention's two decades of implementation have involved that region. Time will tell how many States from outside the ECE become Parties; the experience with the ECE Aarhus Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters (Aarhus Convention on Access to Information)⁴¹ suggests that non-ECE States may not join in large numbers. At this stage, it is difficult to conclude that the ECE Waters Convention is truly global in the sense that the UN Watercourses Convention is. In any event, the bodies involved in implementing the ECE Water Convention are actors involved in international watercourse governance.

2.4 Actors Created by Regional and Basin Water Agreements

Approximately 400 international regional and basin agreements exist,⁴² which have differing characteristics. Some regional agreements are multilateral (e.g. South African Development Community Revised Protocol on Shared Watercourses⁴³) and some are bilateral (e.g. 1909 Boundary Water Treaty). Similarly, some basin agreements are multilateral (e.g. Amazon Treaty) and some are bilateral (e.g. Indus Waters Treaty⁴⁴). Most deal with surface water and groundwater; a few deal only with surface water or only with an aquifer. Most regional and basin agreements set up some sort of management authority to administer the agreement. At the same time, however, there remain watercourses and aquifers without adequate legal frameworks for cooperation.

Regional and water basin organisations have proven of central importance to achieving progress on the Millennium Development Goals; and they will undoubtedly be central to achieving the Sustainable Development goals once those are finalised in 2015. Their role is

Protocol on Water and Health]; and the 2003 Protocol on Civil Liability, Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the 1992 Convention of the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents, May 21, 2003 (not in force), http://www.unece.org/fileadmin/DAM/env/civil-liability/documents/protocol_e.pdf [hereinafter ECE Protocol on Civil Liability]. Not all Parties to the convention have ratified the amendment or joined the protocols.

⁴⁰ ECE Water Convention, *supra*. Regarding universal membership, see note 25, *supra*.

⁴¹ United Nations Treaty Collection, Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environment Matters, TREATIES.UN.ORG (Sept. 23, 2014 5:46:30 PM), https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-13&chapter=27&lang=en.

⁴² TRANSBOUNDARY WATERS FACTSHEET, *supra*. The exact number appears to be unknown.

⁴³ Revised Protocol on Shared Watercourses in the Southern African Development Community, Aug. 7, 2000, 40 I.L.M. 317, <http://ocid.nacse.org/tfdd/tfddddocs/609ENG.pdf>.

⁴⁴ The Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development, India-Pak., Sept. 19, 1960, 419 U.N.T.S. 126, <https://treaties.un.org/doc/Publication/UNTS/Volume%20419/volume-419-I-6032-English.pdf>.

particularly important against the background of enhancing environmental debates and improving environmental performance in the context of freshwater governance.

Though they are not necessarily representative of the universe of regional and basin agreements, the seven regional and basin agreements considered in this study provide a sense of the variety and complexity of non-global watercourse agreements as was summarised in chapter 1 and as the following descriptions demonstrate.

2.4.1. Tratado de Cooperación Amazónica⁴⁵

The 1978 Tratado de Cooperación Amazónica, referred to in English as the Amazon Cooperation Treaty (Amazon Treaty), forms the overall legal instrument for cooperation and transboundary water management in the Amazon basin. The Amazon basin extends into Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela and covers an area of more than 6,100,000 square kilometers, making it the largest river basin in the world.⁴⁶ The Amazon River is also the longest river in the world, and its discharge is the largest. Each of the basin States is Party to the Amazon Treaty. The treaty's primary purpose is to promote integrated development of Amazonian territories in a manner that is equitable and mutually beneficial to riparian states and ensures environmental preservation and the conservation and rational utilisation of natural resources.⁴⁷

In 1995, the Parties established the Amazon Cooperation Treaty Organization (ACTO), which was implemented in 1998⁴⁸ to serve as a cooperation mechanism among the Amazon basin countries to address issues identified in the Amazon Treaty, including hydrological matters. The permanent secretariat of ACTO was established in 2002 in Brasilia. ACTO operates with contributions from member countries. Funding and other support for projects also comes from institutions such as the Brazilian Cooperation Agency (ABC), the Inter-American Development Bank (IDB), the Global Environment Facility (GEF), United Nations Environmental Programme (UNEP), International Tropical Timber Organization (ITTO), Amazon Fund of Brazil, and the governments of Germany and the Netherlands.

⁴⁵ Amazon Treaty, *supra*.

⁴⁶ UNITED NATIONS ENVIRONMENT PROGRAMME AND GLOBAL ENVIRONMENT FACILITY, CONCEPT DOCUMENT FOR THE INTEGRATED AND SUSTAINABLE MANAGEMENT OF TRANSBOUNDARY WATER RESOURCES IN THE AMAZON RIVER BASIN 4 (2006), http://iwlearn.net/iw-projects/2364/project_doc/amazon-river-basin-project-concept-paper.pdf/view. For views of the Amazon River from space, see CHRIS HADFIELD, YOU ARE HERE: AROUND THE WORLD IN 92 MINUTES 168-169,171,178-179,183 (2014).

⁴⁷ Amazon Treaty, *supra*, at art. 1.

⁴⁸ Amazon Cooperation Treaty Organization, *Portal OTCA*, OTCA.INFO, <http://otca.info/portal/tratado-coop-amazonica.php?p=otca> (last visited Sept. 19, 2014).

2.4.2. Convention on Cooperation for the Protection and Sustainable Use of the Danube⁴⁹

The Danube River basin covers an area of approximately 800,000 square kilometres in 19 States, 14 of which (plus the European Community) are Parties to the Danube Convention.⁵⁰ The convention serves as the primary legal instrument for cooperation on transboundary water management for the Danube River basin. It was finalised on 29 June 1994 in Sofia, Bulgaria and came into force four years later. Its purpose is to guarantee the sustainable and equitable management of over 300 basin tributaries and the basin's groundwater resources.

The Danube Convention established the International Commission for the Protection of the Danube River (ICPDR)⁵¹ to serve as the river basin authority, with a permanent secretariat located in Vienna. The ICPDR's funding is provided by contracting Parties. Funding and other support for projects also comes from external institutions such as the EU, UNDP and the GEF.

The ICPDR makes strong use of Experts Groups in its technical work. There are eight Experts Groups, one of which is the ad-hoc Expert Group for legal and administrative issues. They are comprised of national experts from the Parties and, as non-voting members, representatives of ICPDR observer organisations, of which there are 23. Approximately 200 experts participate in these groups, which make recommendations to the ICPDR. Each Expert Group is supported by a technical expert from the ICPDR staff. Each group typically meets twice per year and is chaired by a person nominated by the group and elected by the ICPDR. The use of Expert Groups augments the expertise of the ICPDR staff and also provides liaisons to the national governments and observer organisations.

2.4.3. Acuerdo sobre el Acuífero Guaraní⁵²

The Acuerdo sobre el Acuífero Guaraní (Guarani Aquifer Agreement) focuses on an aquifer system, rather than on a basin. It is the only such agreement in this study. The agreement flowed from a World Bank-sponsored project (for which OAS was the implementing agency) called the Project for Environmental Protection and Sustainable Development of the Guarani Aquifer System (PGAS). The PGAS is referred to in the final preambular paragraph of the agreement.

⁴⁹ Danube Convention, *supra*.

⁵⁰ Germany – Austria – Czech Republic – Slovakia – Hungary – Slovenia – Croatia – Bosnia and Herzegovina – Serbia – Montenegro – Romania – Bulgaria – Moldova – Ukraine.

⁵¹ ICPDR: *International Commission for the Protection of the Danube River*, ICPDR.ORG, <http://www.icpdr.org/main/> (last visited Sept. 19, 2014).

⁵² Guarani Aquifer Agreement, *supra*.

The original purpose was to fully understand the Guarani hydrological system and have clarity on its location as it previously was described as different hydrological bodies. However the study evolved into a project with the main objective to “implement a shared institutional, legal, and technical framework to preserve and manage the Guarani Aquifer System (GAS) for current and future generations.”⁵³ The purpose of the management mechanism is to prevent pollution, and provide socio-economic and environmental benefits at a local and transboundary scale.

GAS is one of the world’s largest groundwater reservoirs, with storage capacity of around 37,000 cubic kilometres and a natural recharge of 166 cubic kilometres per year. It lies beneath parts of Argentina, Brazil, Paraguay, and Uruguay, covering 1,087,879 square kilometres.⁵⁴ The Guarani aquifer extends below parts of the Plata River and Amazon River basins. The aquifer primarily supplies drinking water to populations living within its area (estimated at 70 million) but is also used for industrial and agricultural irrigation purposes.⁵⁵

Argentina, Brazil, Paraguay, and Uruguay signed the Guarani Aquifer Agreement in August 2010. However, as of 31 July 2014 the agreement has only been ratified by Argentina and Uruguay and thus is not yet in force. The agreement reflects the principles outlined in the United Nations Resolution 63/124 (on the Law of Transboundary Aquifers),⁵⁶ including sovereignty, the equitable and reasonable use of water resources, the obligation not to cause harm, cooperation, and the exchange of data and information.⁵⁷ The administrative mechanism for the Guarani Aquifer Agreement is the Intergovernmental Coordinating Committee of La Plata Basin Countries (CIC) established through La Plata Basin Treaty, which concerns the basin that exists over most of the Guarani aquifer. Because the agreement is not yet in force, an active commission does not exist. Funding and other support for projects related to the aquifer have come from the World Bank, OAS, UNEP, GEF and the four Signatory countries.⁵⁸

⁵³ GLOBAL ENVIRONMENTAL FACILITY, FROM COMMUNITY TO CABINET: TWO DECADES OF GEF ACTION TO SECURE TRANSBOUNDARY RIVER BASINS AND AQUIFERS 35 (2012) [hereinafter FROM COMMUNITY TO CABINET].

⁵⁴ ORGANIZATION OF AMERICAN STATES, GUARANI AQUIFER: STRATEGIC ACTION PROGRAM 62 (2009), http://www.oas.org/en/sedi/dsd/IWRM/Past_Projects/Documents/Guarani_SAP.pdf [hereinafter GUARANI SAP].

⁵⁵ ORGANIZATION OF AMERICAN STATES OFFICE FOR SUSTAINABLE DEVELOPMENT & ENVIRONMENT, GUARANI AQUIFER SYSTEM: ENVIRONMENTAL PROTECTION AND SUSTAINABLE DEVELOPMENT OF THE GUARANI AQUIFER SYSTEM 1 (2005), http://www.oas.org/dsd/Events/english/Documents/OSDE_7Guarani.pdf.

⁵⁶ The Law of Transboundary Aquifers, G.A. Res. 63/124 A, U.N. Doc. A/RES/63/124 (Jan. 15, 2009), http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/63/124&Lang=E [hereinafter Law of Transboundary Aquifers].

⁵⁷ Guarani Aquifer Agreement, *supra*, at arts. 1, 3, 4, 8, 12, 14.

⁵⁸ The Environmental Protection and Sustainable Development of the Guarani Aquifer System Project (also known as the Guarani Aquifer System Project) was the most ambitious initiative in South America for groundwater. The six-year project (2003-2009) increased awareness of the GAS’s characteristics and stimulated debate on groundwater management within the four countries at national, provincial, and community levels.

2.4.4. Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin⁵⁹

The Mekong River flows from China into Burma, Lao People’s Democratic Republic (Lao PDR), Cambodia, Thailand and Vietnam. Its catchment area covers 795,000 square kilometres. The basin is the centre of the largest inland fishery in the world and supports the livelihoods of 60 million people living in the Lower Mekong Basin (which consists of Cambodia, Lao PDR, Thailand and Vietnam).⁶⁰

In 1995, Lao PDR, Cambodia, Thailand, and Vietnam signed the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (the Mekong Agreement), establishing the Mekong River Commission⁶¹ (MRC) as the river basin authority. The MRC, the secretariat of which has offices in Cambodia and Vietnam, works with the governments of the riparian States toward the joint management of transboundary waters and the sustainable development of the River. In addition to adopting rules and procedures related to implementing the agreement, the MRC serves as a regional knowledge hub on issues such as fisheries, navigation, flood and drought management, environment monitoring and hydropower development. It has focal points in each country, the National Mekong Committees, that coordinate work at the national level. China (which contributes around 18% of the Mekong’s water volume) and Burma (Myanmar), whose territories comprise what is referred to as the Upper Basin,⁶² are neither Parties to the Agreement nor members of the MRC. Dialogue between the two upper States and the MRC does take place, however. Construction of dams on the Mekong River has raised many questions.

The MRC’s funding is provided by the four member States. Funding and other support for projects also comes from development partners—country governments, development banks and international organisations, including the Asian Development Bank, United Nations Development Programme (UNDP), and World Wildlife Fund (WWF).⁶³

2.4.5. Murray-Darling Basin Agreement⁶⁴

⁵⁹ Mekong Agreement, *supra*.

⁶⁰ See Great Rivers Partnership, *Mekong River Basin*, GREATRIVERSPARTNERSHIP.ORG, <http://www.greatriverspartnership.org/en-us/asiapacific/mekong/pages/default.aspx#sthash.QEtcu4Mp.dpuf> (last visited Sept. 21, 2014).

⁶¹ *History – Mekong River Commission, The Story of Mekong Cooperation*, MRCMEKONG.ORG, <http://www.mrcmekong.org/about-mrc/history/> (last visited Sept. 20, 2014).

⁶² *Upstream Partners – Mekong River Commission*, MRCMEKONG.ORG, <http://www.mrcmekong.org/about-mrc/upstream-partners/> (last visited Sept. 20, 2014).

⁶³ *Development Partners – Mekong River Commission*, MRCMEKONG.ORG, <http://www.mrcmekong.org/about-mrc/development-partners-and-partner-organisations/> (last visited Sept. 20, 2014).

⁶⁴ Murray-Darling Agreement, *supra*.

The Murray-Darling is Australia's largest river basin, covering an area of 1,059,000 square kilometres, which includes the states of New South Wales, Victoria, and the Australian Capital Territory, and parts of South Australia and Queensland.⁶⁵ It is also one of the largest and driest river systems in the world.

The Murray-Darling Agreement was signed in 1992. It is integrated in the Water Act 2007,⁶⁶ schedule 1, and together with the Water Act is updated periodically. This agreement is among domestic entities within Australia and thus is not international. The Agreement establishes the Murray-Darling Basin Authority (MDBA) as the entity in charge of ensuring the sustainable and harmonious development of the Basin's resources in order to meet the socio-economic needs of Basin communities in an environmentally responsible manner. The MDBA works in partnership with the Australian government and performs its functions directly through basin member governments. As provided in the Water Act in which the agreement is embedded, the MDBA developed a Basin Plan for managing the basin.

The Millennium Drought in the 2000s exposed the limits and weaknesses of how water in the Basin was being managed and the need for continuing reform.⁶⁷ The Assessment of River Condition under the National Land and Water Resources Audit (2000), published by the Australian government, showed that degradation in the Murray-Darling was widespread. The study reported poor biological, hydrological and overall environmental conditions. The main contributors were disturbances to the catchment (e.g. downstream of dams and in lowland reaches used for irrigation supply) and changes to nutrient and suspended sediment loads. The assessment found that in terms of the river's environmental condition, 95% of the area was impaired, 30% of which had been substantially modified from its original condition.⁶⁸

Today the MDBA lists land degradation, salinity, and alien species as continuous challenges to the restored health of the Murray-Darling. The basis on which the Basin Plan was developed is to "restore the ecosystems, natural habitats and species that are reliant on the Basin water

⁶⁵ *Geology and Size – Murray-Darling Basin Authority*, MDBA.GOV.AU, <http://www.mdba.gov.au/about-basin/basin-environment/geography/geology-and-size> (last visited Sept. 20, 2014).

⁶⁶ Australian Government, *Water Act 2007*, COMLAW.GOV.AU, <http://www.comlaw.gov.au/Series/C2007A00137> (last visited Sept. 20, 2014).

⁶⁷ Murray-Darling Basin Authority, *Development of the Basin Plan*, MDBA.GOV.AU, <http://www.mdba.gov.au/what-we-do/basin-plan/development> (last visited Oct. 10, 2014).

⁶⁸ Australian Government National Water Commission, *River Condition in the Murray-Darling Basin, Conditions of Rivers in the Entire Murray-Darling Basin*, WATER.GOV.AU, http://www.water.gov.au/RiverandWetLandHealth/Assessmentofriverandwetlandhealth/Snapshotofriverandwetlandhealth/RiverconditionintheMurrayDarlingBasin/index.aspx?Menu=Level1_5_2_3_2 (last visited Oct. 10, 2014).

resources and to conserve biodiversity.”⁶⁹

The agreement’s purpose is to “promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water and other natural resources of the Murray-Darling Basin”⁷⁰ One of the objectives of the Water Act is to give effect to “relevant international agreements and, in particular, to provide for special measures, in accordance with those agreements, to address the threats to the Basin water resources.” The Act specifically refers to five of the MEAs covered in this Study, i.e. the CBD, CMS, Ramsar Convention, UNCCD and UNFCCC, and also includes the other MEAs considered in this study because it takes into account other international conventions to which Australia is a Party.⁷¹

2.4.6. Treaty Between The United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada⁷²

The Boundary Waters Treaty, which was signed by the United States and Great Britain in 1909, regulates shared water uses, particularly those involving obstructions or diversions, including allocation of uses, between Canada and the United States. Article VIII of the treaty provides that each Party shall have, on its own side of the boundary, “equal and similar rights” in the use of the water. Article IV of the treaty prohibits pollution that would cause “injury of health or property” across the boundary.⁷³

The waters covered by the treaty include both rivers and lakes through which the boundary of the two countries passes and rivers that flow across the boundary between the two countries. These waters include many river basins, as well as the Great Lakes (which account for nearly 20% of the world’s surface fresh water).⁷⁴ Both countries are upstream and downstream of one another, with at least one major river (the Columbia River) crossing the border more than once. The boundary is the longest in the world, covering 8, 890 kilometres (5, 525 miles). Since 1909, the two countries have entered into several basin-specific agreements regarding waters otherwise under the purview of the treaty, including the Great Lakes⁷⁵ and the Columbia River.⁷⁶

⁶⁹ Murray-Darling Agreement, *supra*, at pt. 2, div. 1, subdiv.B, § 21(2)(b).

⁷⁰ *Id.* at pt. I.1.

⁷¹ *Id.* at pt. I.4.

⁷² 1909 Boundary Waters Treaty, *supra*.

⁷³ *Id.* at art. IV.

⁷⁴ US Environmental Protection Agency, *Basic Information – Great Lakes – US EPA*, EPA.GOV (July 5, 2012), <http://www.epa.gov/greatlakes/basicinfo.html>.

⁷⁵ Agreement Between Canada and the United States of America on Great Lakes Water Quality, U.S.-Can., Nov. 22, 1978, 30 U.S.T. 1384, T.I.A.S. 9257 (amended Oct. 16, 1983 and Nov. 18, 1987), http://www.ijc.org/en/_/Great_Lakes_Water_Quality [hereinafter GLWQA].

⁷⁶ Treaty Between Canada and the United States of America Relating to Cooperative Development of the Water Resources of the Columbia River Basin, U.S.-Can., Jan. 17, 1961, 15 U.S.T. 1555, T.I.A.S. 5638,

The treaty established the International Joint Commission (IJC) to assist the two countries to prevent and resolve transboundary disputes, particularly in relation to their shared waters. The IJC consists of six commissioners, three of whom are appointed by each government.⁷⁷ IJC Commissioners and IJC advisers and staff represent only the IJC and not the government that appointed them.⁷⁸ The U.S. section of the IJC is located in Washington, DC and is funded by the U.S. government; and the Canadian section is located in Ottawa and funded by the Canadian government. The heads of the two sections act as joint secretaries for the IJC. Joint expenses of the IJC are shared equally by the two countries. The IJC's mandate was enlarged by subsequent agreements, most recently the 2012 Protocol to the Great Lakes Water Quality Agreement⁷⁹ (2012 Protocol to the GLWQA). Whereas the 1909 treaty does not provide a basis for the joint management of the shared water resource, the 2012 Protocol provides a basis for coordinated management of that resource. The 2012 Protocol also, inter alia, provides for active participation by indigenous people and the public and for an ecosystem approach, sustainability and taking into consideration the needs of future generations.⁸⁰

The treaty provides that water issues may be considered by the two governments either outside of the IJC framework or within the IJC framework. When applications for water works are made to the IJC, it may reject the application, approve it, or approve it with conditions, and may regulate the operation of the projects. The IJC also assists in resolving questions or differences referred to it by the countries, including by alerting the governments to emerging issues along the boundary that may give rise to bilateral disputes. Due to the changes to its mandate through post-1909 agreements, the IJC assists the countries in the protection of the transboundary environment, including the implementation of the Great Lakes Water Quality Agreement and the improvement of transboundary air quality.

2.4.7. Convention on the Status of the Volta River and the Establishment of the Volta River Basin Authority⁸¹

The Volta River basin spans 400,000 square kilometres across Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo. The Volta has many tributaries, all of which eventually converge in Ghana and in Lake Volta, the largest human-made lake in the world. The rate of

<http://www.ijc.org/files/dockets/Docket%2069/Docket%2069%20Columbia%20River%20Development%20Treaty%201961-01-17.pdf> [hereinafter Columbia River Treaty].

⁷⁷ 1909 Boundary Waters Treaty, *supra*, at art. VII.

⁷⁸ International Joint Commission, *IJC Mission and Mandates - Mission Statement*, IJC.ORG, http://www.ijc.org/en/_/IJC_Mandates (last visited Oct. 2, 2014) [hereinafter IJC Mission Statement].

⁷⁹ 2012 Protocol to the GLWQA, *supra*.

⁸⁰ *Id.* at arts. 2.4, 3.1(b), 4(1), 7, 8.

⁸¹ Volta Convention, *supra*.

evapotranspiration is high. Two of the countries (Burkina Faso and Cote d'Ivoire) have negative impacts on the basin's water budget because of evapotranspiration rates that exceed annual rainfall.⁸²

In 2004 a Volta Basin Technical Committee was created, which resulted in the establishment of the Volta Basin Authority (VBA) in 2007 in Bamako, Mali, by the Convention on the Status of the Volta River and the Establishment of the Volta River Basin (Volta Convention). Population and economic activity are expected to increase significantly in the basin, increasing pressures placed on the water supply.

The VBA's mandate is to promote mechanisms for cooperation between riparian states, sound management practices over water resources as well as equitable use and distribution of those resources. VBA receives support from its technical partners including the Government of France, Swedish International Development Cooperation Agency (SIDA), UNEP, GEF and the International Water Management Institute (IWMI), as well as from Parties to the convention.

2.5 Nested and parallel watercourse agreements

The multi-level, multi-agreement situation described above is complicated by the fact that most of the States that belong to one or both of the two global agreements also belong to regional or basin agreements. Similarly, it is quite common for States that are Party to a regional or even a basin agreement to belong to a water agreement or agreements, usually on a bilateral basis, dealing with a watercourse in only part of that region or basin. For example, Montenegro is a Party to the UN Watercourses Convention, the ECE Water Convention, the Danube Convention, and the Framework Agreement on the Sava River Basin⁸³ (the Sava River is a tributary of the Danube River).⁸⁴ As a candidate for membership in the European Union, Montenegro also is expected to implement the European Union's Water Framework Directive⁸⁵ on becoming a member and possibly is already preparing to do that or is already doing it. Another example is

⁸² UNITED NATIONS ENVIRONMENT PROGRAMME, AFRICA WATER ATLAS 99 (2010).

⁸³ Framework Agreement on the Sava River Basin, Dec. 3. 2002, http://www.savacommission.org/dms/docs/dokumenti/documents_publications/basic_documents/fasrb.pdf.

⁸⁴ A question that might be worth exploring in the future is the relationship between the ECE Water Convention and basin agreements in the region. This might be an interesting model for implementation of the UN Watercourse Convention, for example, in the context of existing regional and basin agreements in other parts of the world.

⁸⁵ Directive 2000/60/EC of the European Parliament and of the Council Establishing a Framework for the Community Action in the Field of Water Policy, 2000 O.J. (L327), <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>.

that the four Signatories to the Guarani Aquifer Agreement have entered into 13 bilateral and 2 multilateral agreements among themselves on the water resources and transboundary watercourses that overlie the Guarani aquifer system.⁸⁶ In such a situation, the State in question must simultaneously deal with different, un-harmonised normative obligations and separate watercourse management authorities.

In addition, some States (e.g. Brazil, India, and United States) are Party to more than one regional or basin agreement. The existence of these parallel agreements raises issues similar to those raised by the existence of nested agreements. That is, the State in question will have to deal with the facts that the agreements typically have separate management institutions and may contain different normative obligations.

As pointed out above, the many international watercourse agreements have not been harmonised, either normatively or institutionally. Thus States in a nested or parallel situation must abide by multiple obligations and participate in multiple institutions. This obviously presents challenges, but can also present opportunities for cooperation.

2.6 Actors Created by Non-Watercourse Environmental Agreements

The number of actors is further increased, and substantive cooperation made more complex, because many international environmental agreements, including many MEAs, not specifically directed at governing international watercourses nevertheless directly involve water or affect, or are affected by, international watercourses. A prime example of such an MEA is the Ramsar Convention, which focuses on wetlands, some of which are transboundary and many of which are located in an international basin. Each MEA typically has a conference of the Parties, a secretariat and scientific or compliance committees. Regional and bilateral agreements, some of which deal with the same issues as are dealt with by non-watercourse MEAs, also often have administering bodies; and the governments of the State Parties to those agreements are involved in governance decisions. The MEAs that are considered in this study are examples of this, as is explained further in chapter 4.

Table 2.1 indicates the membership of States in the seven regional and basin agreements considered in this study, as well as the membership of those States in the UN Watercourses Convention, the ECE Water Convention and the seven other MEAs considered in this study. The “X” denotes the ratified Parties and the “*” denotes signatories.

⁸⁶ GUARANI SAP, *supra*, at 117 (annex 7).

Table 2.1 Membership in Regional and Basin Agreements and MEAs

| Regional & Basin Agreements | Parties | Parties to UN Watercourse Convention | Parties to ECE Water Convention | Parties to MEAs | | | | | | |
|------------------------------------|----------------------|--------------------------------------|---------------------------------|-----------------|-----|-----|------|--------|-------|--------|
| | | | | Basel | CBD | CMS | POPs | Ramsar | UNCCD | UNFCCC |
| 1909 Boundary Waters Treaty | Canada | --- | --- | X | X | --- | X | X | X | X |
| | USA | --- | --- | * | * | --- | * | X | X | X |
| Amazon Treaty | Bolivia | --- | --- | X | X | X | X | X | X | X |
| | Brazil | --- | --- | X | X | --- | X | X | X | X |
| | Colombia | --- | --- | X | X | --- | X | X | X | X |
| | Ecuador | --- | --- | X | X | X | X | X | X | X |
| | Guyana | --- | --- | X | X | --- | X | --- | X | X |
| | Peru | --- | --- | X | X | X | X | X | X | X |
| | Suriname | --- | --- | X | X | --- | X | X | X | X |
| Venezuela | * | --- | X | X | --- | X | X | X | X | |
| Guarani Aquifer Agreement | Argentina | --- | --- | X | X | X | X | X | X | X |
| | Brazil* | --- | --- | X | X | --- | X | X | X | X |
| | Paraguay* | * | --- | X | X | X | X | X | X | X |
| | Uruguay | --- | --- | X | X | X | X | X | X | X |
| Danube Convention | Austria | --- | X | X | X | X | X | X | X | X |
| | Bosnia & Herzegovina | --- | X | X | X | --- | X | X | X | X |
| | Bulgaria | --- | X | X | X | X | X | X | X | X |
| | Croatia | --- | X | X | X | X | X | X | X | X |
| | Czech Republic | --- | X | X | X | X | X | X | X | X |
| | European Community | --- | X | X | X | X | X | --- | X | X |
| | Germany | X | X | X | X | X | X | X | X | X |
| | Hungary | X | X | X | X | X | X | X | X | X |
| | Moldova | --- | X | X | X | X | X | X | X | X |
| | Montenegro | X | X | X | X | X | X | X | X | X |
| | Romania | --- | X | X | X | X | X | X | X | X |
| | Serbia | --- | X | X | X | X | X | X | X | X |
| | Slovakia | --- | X | X | X | X | X | X | X | X |
| | Slovenia | --- | X | X | X | X | X | X | X | X |
| Ukraine | --- | X | X | X | X | X | X | X | X | |

| Regional & Basin Agreements | Parties | Parties to UN Watercourse Convention | Parties to ECE Water Convention | Parties to MEAs | | | | | | |
|-----------------------------|---------------|--------------------------------------|---------------------------------|-----------------|-----|-----|------|--------|-------|--------|
| | | | | Basel | CBD | CMS | POPs | Ramsar | UNCCD | UNFCCC |
| Mekong Agreement | Cambodia | --- | --- | X | X | --- | X | X | X | X |
| | Laos | --- | --- | X | X | --- | X | X | X | X |
| | Thailand | --- | --- | X | X | --- | X | X | X | X |
| | Viet Nam | X | --- | X | X | --- | X | X | X | X |
| Murray-Darling Agreement | Australia | --- | --- | X | X | X | X | X | X | X |
| Volta Convention | Benin | X | --- | X | X | X | X | X | X | X |
| | Burkina Faso | X | --- | X | X | X | X | X | X | X |
| | Cote d'Ivoire | X | --- | X | X | X | X | X | X | X |
| | Ghana | --- | --- | X | X | X | X | X | X | X |
| | Mali | --- | --- | X | X | X | X | X | X | X |
| | Togo | --- | --- | X | X | X | X | X | X | X |

As is evident from Table 2.1, relatively few States that are Parties to the regional and basin agreements considered in this study are also Parties to the UN Watercourses Convention. Also, of the regional and basin agreements covered by this study, only Parties to the Danube Convention are Parties to the ECE Water Convention.

2.7 United Nations Entities

Many parts of the United Nations engage in activities directly relating to international watercourses. These include UN-Water, UNDP, United Nations Educational, Scientific and Cultural Organization (UNESCO), UNEP, UN conferences such as the 2012 UN Conference on Sustainable Development, UN regional offices throughout the world, the International Law Commission (at least in the past), and the Water Supply and Sanitation Collaborative Council. UN Specialized Agencies such as the Food and Agriculture Organization, World Health Organization and World Meteorological Organization also engage in such activities. The work of other UN entities, such as the UN Human Rights Council,⁸⁷ indirectly relates to international watercourses.

These actors and activities are extremely important to the proper management and protection of watercourses and aquifers, as well as to achieving broader goals such as those of MEAs, the Millennium Development Goals and the forthcoming Sustainable Development Goals. A full description of these many actors and activities is beyond the scope of this study.

⁸⁷ See chapter 3, *infra*.

In spite of these many UN actors and their myriad activities, however, there is no global convention with a dedicated secretariat, conference of the Parties, etc. inside (or outside) of the UN system regarding watercourses, as there is for climate change. Given the increasing realisation of the importance of protecting the ecosystems of international watercourses, it is particularly noteworthy that there is no official link between the many regional and basin agreements and authorities and UNEP, the UN's (and the world's) leading environmental protection organisation.⁸⁸

2.8 International Tribunals

International tribunals established to settle international disputes, such as the International Court of Justice (ICJ) and arbitral tribunals established under water basin agreements, have played important roles in defining international law relating to watercourses and in avoiding or settling disputes about them. Prime among these cases are the *Lake Lanoux arbitration* between Spain and France dealing with the construction of a dam in France,⁸⁹ the *Gabčíkovo case* in the ICJ between Hungary and Slovakia dealing with a dam on the Danube,⁹⁰ the *Pulp Mills case* in the ICJ between Argentina and Uruguay dealing with the construction of a pulp mill on the Uruguay River,⁹¹ and the *Kishenganga arbitration* between Pakistan and India dealing with the construction of a dam in Kashmir.⁹² The involvement of such tribunals depends on action by other actors, but their importance cannot be ignored.

2.9 International Financial Institutions

2.9.1. General

Multilateral development banks (MDBs), e.g. the World Bank, International Finance Corporation (IFC) and regional development banks, typically have safeguard policies regarding issues such as environmental protection, environmental impact assessment, resettlement and Indigenous Peoples. When issuing loans and grants, those institutions seek to ensure that

⁸⁸ Paragraph 88 of the Rio + 20 outcome document, The Future We Want, describes UNEP as “the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.” <http://sustainabledevelopment.un.org/futurewewant.html>.

⁸⁹ *Lake Lanoux Arbitration (Fr. v. Spain)*, 12 R.I.A.A. 281 (Ad Hoc Int’l Arb. Trib. 1957), <http://www.ecolex.org/server2.php/libcat/docs/COU/Full/En/COU-143747E.pdf>.

⁹⁰ *Gabčíkovo-Nagymaros Project (Hung./Slovk.)* 1997 I.C.J. Rep. 7 (Sept. 25), <http://www.icj-cij.org/docket/files/92/7375.pdf>.

⁹¹ *Pulp Mills On The River Uruguay (Arg. v. Uru.)* 2010 I.C.J. Rep. 14 (Apr. 20) <http://www.icj-cij.org/docket/files/135/15877.pdf>.

⁹² *Indus Waters Kishenganga Arbitration (Pak. v. India) Final Award (Perm. Ct. Arb. 2013)*, http://www.pca-cpa.org/showpage.asp?pag_id=1392.

those policies are respected in project design and implementation. These institutions typically have an accountability mechanism (e.g. the World Bank Inspection Panel) to which aggrieved individuals can complain that the policies are not being followed.

Some export credit agencies (ECAs) also have such policies. Some private financial institutions have adopted the IFC's safeguard policies. The only sovereign wealth fund that has made any effort along these lines is Norway's, though those efforts fall far short of the multilateral development banks' approach.

The implementation of safeguard policies can result in express consideration of borrowers' obligations under MEAs, water agreements and international water law principles, as is described below with respect to the World Bank and GEF.

Financial support from international inter-governmental financial institutions such as the GEF often involves an executing agency such as the Organization of American States (OAS) and an implementing agency (e.g. the IUCN). These institutions may have their own policies regarding environmental protection that can result in a project's taking into account MEAs, water agreements and international water law principles.

2.9.2. World Bank

The World Bank, whose headquarters is in Washington, DC, United States, finances many projects that deal specifically with international watercourses or directly or indirectly affect them. On a few occasions, the Bank has included contractual provisions in some of its loan documents requiring that project activities be carried out in accordance with relevant MEA or domestic legal obligations. As a more routine matter, the Bank routinely checks with various MEA secretariats if projects financed by the Bank potentially affect Bank borrower compliance with MEAs, including regional seas and other riparian agreements, and thus through the operation of its safeguard policies seeks to ensure that MEAs are actively taken into account.

World Bank safeguard policies require that environmental impact assessments (EIAs) be conducted, more or less on a sliding scale depending on the likely environmental impact.⁹³ The terms of reference (TOR) for each EIA are discussed in draft by Bank staff and project proponents. If that discussion reveals that issues covered by an MEA are involved, the TOR should indicate that and they must be considered. When the draft EIA is later reviewed with Bank staff, any indication that interests covered by an MEA may be harmed should be discussed

⁹³ World Bank, *Ext Opmanual – OP 4.01 – Environmental Assessment*, [WORLD BANK.ORG, http://go.worldbank.org/K7F3DCUDD0](http://go.worldbank.org/K7F3DCUDD0) (last visited Sept. 20, 2014).

and avoidance or mitigation measures sought. As noted above, the secretariat of the relevant MEA is sometimes consulted at this stage. Several projects involving wetlands have resulted in consultations with the Ramsar Convention secretariat at this stage, and the secretariat staff reportedly has been very responsive and constructive. Successful consultations have also occurred with other MEA secretariats, such as the secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), as well as with regional seas agreement secretariats.

2.9.3. Global Environment Facility (GEF)

The GEF was established as a pilot project by the World Bank in 1991. It was restructured and became a separate and permanent institution in 1994. The World Bank provides administrative services and serves as the Trustee of the GEF trust fund. Currently the GEF focuses on five main areas: (1) biological diversity; (2) climate change (including REDD+⁹⁴); (3) international waters; (4) land degradation, primarily desertification and deforestation; and (5) chemicals and waste. The GEF is the financing mechanism for four of the MEAs this study is concerned with, i.e. the CBD, Stockholm Convention, UNCCD and UNFCCC, as well as for the Minamata Convention on Mercury.

The International Waters focus area includes both freshwater and marine systems and was established to assist countries to jointly manage their transboundary surface water basins, groundwater basins, and coastal and marine systems to enable the sharing of benefits from their utilisation. GEF projects have included 33 transboundary river basins, 10 transboundary lakes, and 7 transboundary groundwater basins. The GEF's web page identifies as being among the GEF's major accomplishments that it "transformed the management of 33 major river basins."⁹⁵

During the project planning process, the project's legal and institutional frameworks are reviewed. This dialogue involves identification of MEAs that might be implicated by the project. In other words, the project is analysed to see what issues are likely to arise and on that basis consideration of relevant MEAs occurs. Given that one of the GEF's main roles is to ensure that MEAs are being implemented, this process can be quite detailed. The GEF has funded projects in at least four of the basins and aquifers that are examined in this study: Amazon, Danube, Guarani, and Volta.

⁹⁴ Reducing Emissions from Deforestation and Forest Degradation, enhancement of carbon stock, sustainable management of forests, and conservation. REDD+ is described in chapter 4, pt. 4.1.7.

⁹⁵ *What is the GEF – Global Environment Facility*, THEGEF.ORG, <http://www.thegef.org/gef/whatisgef> (last visited Sept. 20, 2014).

The GEF's International Waters program maintains the International Waters Learning Exchange & Resource Network (IW: LEARN). IW: LEARN is intended to improve projects' "information base, replication efficiency, transparency, stakeholder ownership, and sustainability of benefits"⁹⁶ and to enable learning and information sharing amongst stakeholders. In addition, IW: LEARN serves as the platform to share materials and proceedings from GEF's Biennial International Waters Conference, which is intended in part to increase South-to-South exchanges of experiences.

2.9.4. Private financial institutions

Private financial institutions fund projects relevant to international watercourses, though it is difficult to know the extent of such lending. In general, private institutions do not have safeguard policies of the type that the World Bank Group has. An exception is that some of the largest banks have adopted the Equator Principles, which in part adopt the safeguard policies of the IFC. These institutions do not provide transparency with respect to their projects, however, and they typically do not have any accountability mechanism to allow members of the public or affected persons to complain to the institution that the institution's policies were being violated. In the case of large watercourse projects, there may be both private and governmental, ECA or MDB participation. In that case the safeguard policies and accountability mechanisms of the governments, ECA or MDB involved will apply.

2.10 Other Actors

2.10.1. International Network of Water Basins (INBO)

The International Network of Water Basins (INBO) works to promote the exchange of experiences between organisations in charge of river basin management in such areas as institutional and financial management, knowledge of water resources, training of staff and officials, and increasing public awareness about water resources management. INBO is the organiser of the first International Environment Forum for Basin Organisations to be held 26-28 November 2014 in Bangkok, Thailand.

2.10.2. Global Water Partnership Organisation (GWPO)

The GWPO is an international network of institutional partners around the world that was initially created by the World Bank, UNDP and the Swedish International Development Agency. It engages in capacity building and knowledge sharing activities and works with UN-Water, UNDP, UNEP and the World Meteorological Organisation.

⁹⁶ *IW:Learn – Global Environment Facility*, THEGEF.ORG, http://www.thegef.org/gef/iw_learn (last visited Sept. 20, 2014).

2.10.3. World Water Council

The World Water Council is organised under French law as a think tank on water policy issues. Its functions include catalysing action on critical water issues and to promote the efficient management and utilisation of water in an environmentally sustainable manner. It organises the World Water Forum every three years.

2.10.4. International Union for Conservation of Nature and Natural Resources (IUCN)

The IUCN has members that include governments and non-governmental organisations (NGOs). Under its Water Programme, IUCN collaborates with experts, governments, the private sector, and stakeholders, working towards the sustainable management and protection of water resources. The IUCN works in the Middle East, Africa, Latin America, and Asia and is carrying out programs in the Mekong, Okavango, and Volta basins, among others. The IUCN also administers the Ramsar Convention on Wetlands.

2.10.5. International Non-Governmental Organisations

Many international non-Governmental organisations (INGOs) are involved with international watercourse protection and management in one way or another. These INGOs include the World Wildlife Fund (WWF), which is active in more than 100 countries worldwide; WWF has been active in promoting ratification of the UN Watercourses Convention and in many other watercourse-related issues. Another example is the Water Law Committee of the International Bar Association, a global voluntary organisation of lawyers, which has entered into a Memorandum of Understanding with UNEP to support UNEP's work with river basin organisations; the committee's expertise can be made available either through UNEP or the committee directly. As a general matter, INGO activities include conducting on-the-ground projects in countries around the world, monitoring conditions and activities, funding local projects, participating in relevant dispute settlement processes and advocating for policy reform at the international level and indeed at all levels of government if a situation is deemed to warrant it. In some cases, INGO's budgets and other resources are considerably larger than those of regional or basin authorities, MEA secretariats and even parts of the UN system such as UNEP.

2.10.6. Domestic Non-Governmental Organisations

National and local non-governmental organisations (NGOs) are also very active with respect to the suite of issues relevant to international watercourses. As with INGOs, NGOs' activities run a wide gamut from cleaning up contaminated watercourses, restoring their ecosystems,

monitoring conditions, conducting educational programs, participating in legal actions, and advocating for policy or legal outcomes. Their activities tend to focus on the local or national levels, but they operate at the international level as well.

2.10.7. Business enterprises

Industrial and agricultural enterprises utilise water and thus have an interest in how water is allocated and managed. Similarly, they can have a significant impact on the environment of a watercourse or basin in which they operate, e.g. through their water effluent or air emissions. Beyond the physical impact on the environment, such enterprises have an interest in the environmental and other policies affecting their operations and often engage in advocacy with respect to those issues. Some business enterprises have corporate policies with respect to water utilisation or environmental protection relevant to international watercourses, either stand-alone or as part of one of the voluntary codes of conduct described in the next section of this chapter. Some enterprises directly fund or otherwise participate in activities designed to protect a water basin, such as clean-up activities on a river.

2.10.8. Organisations administering voluntary standards and labelling schemes

Several organisations exist that set or administer voluntary codes relevant to international watercourses. Perhaps the most relevant is the Forest Stewardship Council (FSC), an international NGO with branches in 90 countries that certifies specific forest products as being sustainable. The FSC operates according to ten principles: principle 3 relates to the protection of Indigenous Peoples and principle 6 deals with environmental protection. Several sub-parts of principle 6 have implications for water, and 6.7 specifies that the organisations seeking certification "shall protect or restore natural water courses, water bodies, riparian zones and their connectivity."⁹⁷ The voluntary UN Global Compact may also be relevant if activities undertaken pursuant to it protect an international watercourse.

2.11 Summary

A vast number and variety of actors are involved in governing international watercourses. These actors include governments at different levels, regional and basin organisations established pursuant to watercourse agreements, inter-governmental organisations established by multilateral environmental agreements, international dispute settlement tribunals, public and private international financial institutions, international and domestic non-governmental organisations, business enterprises and individuals. Similarly, many international norms apply

⁹⁷ FOREST STEWARDSHIP COUNCIL, FSC PRINCIPLES AND CRITERIA FOR FOREST STEWARDSHIP 18 (2012), <https://ic.fsc.org/preview.fsc-std-01-001-v5-0-revised-principles-and-criteria-for-forest-stewardship.a-1780.pdf>.

to behaviour relating to international watercourses.⁹⁸ Moreover, many States have nested or parallel normative obligations and institutional responsibilities because of the plethora of international watercourses and agreements about them.

The complexity inherent in the large number of actors is intensified because the myriad international watercourse institutions and norms have not been harmonised. At the same time, international watercourses and aquifers exist that do not have legal frameworks for governance. An additional factor is that, unlike the case for climate change, there is no global treaty with a dedicated secretariat and conference of the Parties within the UN system to assist in educating about emerging threats and good practices, developing normative approaches and coordinating communication among organisations such as regional and basin authorities.

The result is that the legal architecture relating to international watercourses is simultaneously multi-layered, incomplete, complex and fragmented with respect to both institutions and norms. This situation interferes with efficient and effective governance, as well as with the needed evolution of international law towards better protection of freshwater ecosystems and sustainable utilisation of international watercourses. The need for communication, cooperation and coordination among actors is self-evident.

⁹⁸ See chapter 3 below.

CHAPTER 3: INTERNATIONAL WATER LAW AND THE UNITED NATIONS WATERCOURSE CONVENTION

3.1 Introduction

This chapter discusses the relationship between selected concepts of international water law and the UN Watercourses Convention, with reference also to regional and basin agreements. This chapter begins by identifying principles and provisions of international water law that are the most significant for this study and describing how, if at all, the UN Watercourses Convention and the regional and basin agreements examined in this study treat those concepts. Those regional and basin agreements are not necessarily representative of all such agreements, but they nevertheless provide examples of how the concepts can be approached. The chapter concludes by discussing several other relevant legal issues.

By way of background, the UN Watercourses Convention was negotiated and finalised in 1997, in large part on the basis of the work of the International Law Commission as endorsed by the UN General Assembly.⁹⁹ Its purpose as defined in article 1 is to protect, preserve, and manage international watercourses and their waters for non-navigational purposes.¹⁰⁰ The convention serves as a legal umbrella that can “supplement, facilitate, and sustain transboundary water cooperation at all levels.”¹⁰¹ The Convention entered into force on 17 August 2014.

For the purposes of this report, the term “international water law” refers to international law norms that apply specifically to international watercourses or that have relevant application and significance to water.¹⁰² For present purposes, therefore, “international water law” includes the obligation to settle disputes peacefully, the human right to water and procedural human rights, and the rights of Indigenous Peoples.¹⁰³

⁹⁹ Stephen C. McCaffrey, *The progressive development of international water law*, in THE UN WATERCOURSE CONVENTION IN FORCE 16-17 (Flavia R. Loures & Alistair Rieu-Clarke eds., 2013).

¹⁰⁰ UN Watercourses Convention, *supra*, at art. 1.

¹⁰¹ WORLD WILDLIFE FOUNDATION, EVERYTHING YOU NEED TO KNOW ABOUT THE UN WATERCOURSES CONVENTION 10 (Flavia Loures et al. eds., 2012), http://awsassets.panda.org/downloads/wwf_un_watercourses_brochure_for_web_aug2012_en.pdf. For other material regarding the convention, see ALISTAIR RIEU-CLARKE ET AL., UN WATERCOURSES CONVENTION USER’S GUIDE (2012), http://www.academia.edu/2200596/UN_Watercourses_Users_Guide_2012_Dundee_WWF_publication_Rieu-Clarke_et_al_ (click on “download”).

¹⁰² Customary international law provides that these obligations are ones of due diligence. See Pulp Mills on the River Uruguay, *supra*.

¹⁰³ This study also considered the use of the concept of “virtual water”, i.e. the amount of water that is used to produce a good or service. The only example of the use of the concept of virtual water that was encountered in this study involved a disagreement between the city of Seattle in the United States and the province of British Columbia in Canada. The city of Seattle had wanted to raise the height of the Ross Dam on the Skagit River in

As noted in chapter 2, many international instruments contain norms relevant to international watercourses. These include global, multilateral and bilateral agreements, some of which are specific to watercourses and some of which are more general. As is the case with other types of international agreements, watercourse agreements may be accompanied by side letters that elaborate or modify terms of the agreement; such side letters are now always well known or easily accessible to the public.¹⁰⁴ Several of the relevant agreements have been amended or have protocols, the Parties to which do not necessarily include all of the Parties to the underlying international agreement. Moreover, as is discussed in chapter 2, the legal architecture is multi-layered, with many States having nested or parallel normative obligations and institutional affiliations. In addition, it is widely recognised that several principles of customary international law relate to international watercourses. As with international agreements, some of these directly pertain to water; others have broader application, either within the field of international environmental law or with respect to other areas of international law or to all of customary international law. Just as with the set of actors involved in governing international watercourses, therefore, the international normative architecture relating to international watercourses is highly complex.

3.2 Selected international legal norms specific to international watercourses and their relation to the UN Watercourses Convention

3.2.1. Reasonable and equitable utilisation

This principle, which provides that the water in an international watercourse shall be used in an equitable and reasonable manner, is one of the basic norms of customary international law relating to international watercourses.¹⁰⁵ The terms “equitable” and “reasonable” are each imprecise, and the evaluation of what is equitable and reasonable takes into account all facts and circumstances. The overall evaluation of what is equitable and reasonable thus is indeterminate and situation-specific. The precise relationship between this principle and the “no significant harm” principle discussed below is not entirely settled. International tribunals

order to generate additional hydroelectricity, which would have flooded approximately 5,475 acres of land in Canada. Ultimately, the city of Seattle agreed not to raise the dam’s height and British Columbia agreed to sell the additional power in the amount that the additional dam height would have generated. City of Seattle, I.J.C. Docket 46A, (46)3-1-2-2 (Apr. 14, 1983) (sup. order)
<http://ijc.org/files/dockets/Docket%2046/Docker%2046%20Supplemental%20Order%201983-04-14.pdf>.

¹⁰⁴ BROWN WEISS, *supra*, at 109.

¹⁰⁵ For a discussion of equitable and reasonable utilisation, see MCCAFFREY, *supra*, at 384-405.

are paying increasing attention to the requirement that utilisation of watercourses be “sustainable”, without defining that concept.¹⁰⁶

The UN Watercourses Convention provides for equitable and reasonable utilisation in article 5.1 (the first normative paragraph in the convention). The convention elaborates on the requirement in several ways. The same paragraph, for example, provides that the use and development of an international watercourse shall be done with a view to attaining “optimal and sustainable utilization” of the watercourse and the benefits from its use, taking into account the interests of the concerned watercourse States “consistent with adequate protection of the watercourse”. The need to protect the watercourse is reflected in the first sentence of the next paragraph, which requires that States also “participate” in an equitable and reasonable manner, which is defined not only in terms of the right of utilisation already mentioned but also the duty to cooperate in the development and protection of the watercourse. What protecting a watercourse actually entails is not expressly explained, but it seems clear that it includes, at least, protecting the environment of the watercourse in a broad sense, as is described further below. Article 6, which contains a non-exclusive list of factors that are relevant to determining what is equitable and reasonable, mirrors customary international law in providing that equitable and reasonable utilisation requires “taking into account all relevant factors and circumstances”.

Article 10.1 of the convention provides, that in the absence of agreement or custom to the contrary, “no use of an international watercourse enjoys inherent priority over other uses.” Article 10.2, however, modifies this by providing that any conflict of uses shall be resolved “with reference to articles 5 to 7, with special regard to the requirements of “vital human needs”, a term that is not defined in the convention.

Two of the seven regional and basin agreements examined in this study contain the “equitable and reasonable utilization” norm: the Volta Convention uses that exact terminology¹⁰⁷; and the Mekong Agreement uses the two words but in reverse order¹⁰⁸. Four of the agreements contain formulations that refer to either “equitable” or “reasonable”, or both, combined with “sustainable” or other qualifiers: the Amazon Treaty refers to the promotion of joint actions to “produce equitable and mutually beneficial results and achieve . . . the preservation of the environment, and the conservation and rational utilization of the natural resources”¹⁰⁹; the

¹⁰⁶ See, e.g. Gabčíkovo-Nagymaros Project, *supra*; Indus Waters Kishenganga Arbitration, *supra*.

¹⁰⁷ Volta Convention, *supra*, at art. 4(f): the convention requires that Parties to cooperate for the “rational and sustainable utilization” of the water resources of the Volta Basin on the basis of the principle of “equitable and reasonable” use.

¹⁰⁸ Mekong Agreement, *supra*, at art. 5.

¹⁰⁹ Amazon Treaty, *supra*, at art. 1.

Danube Convention declares the objective of “sustainable and equitable” water management¹¹⁰; the Guarani Aquifer Agreement refers to “reasonable and sustainable use criteria” and to “multiple, reasonable, sustainable, and equitable use”¹¹¹; and the Murray-Darling Agreement: requires that water be allocated in an “equitable, efficient and sustainable manner”¹¹². The 1909 Boundary Waters Treaty, in contrast, does not use either “equitable” or “reasonable” but rather specifies that each Party shall have “equal and similar” use of boundary waters.¹¹³

The use of the concept of sustainability is noticeable in regional and basin agreements negotiated after the 1992 United Nations Conference on Environment and Development, at which the international community adopted sustainable development as the framework for efforts to improve quality of life around the world.¹¹⁴

3.2.2. No significant harm

This principle, which is related to Principle 21 of the Stockholm Declaration¹¹⁵, provides that a watercourse State shall not utilise the shared watercourse in a manner that causes significant harm to another watercourse State. It is a fundamental norm of international law relating to international watercourses.¹¹⁶ Assuming harm does occur, usual international law relating to reparations, including possibly paying compensation, would apply. An important question is whether a utilisation that causes a significant harm can be “equitable and reasonable”, absent an agreement between the watercourse States. Full discussion of that question is beyond the scope of this study.

The UN Watercourses Convention provides in article 7 that watercourse States shall “take all appropriate measures to prevent the causing of significant harm to other watercourse States.” The convention recognises that such harm may occur, however: it provides that when such harm does occur, the States causing the harm shall “take all appropriate measures, having due

¹¹⁰ Danube Convention, *supra*, at art. 2(1).

¹¹¹ Guarani Aquifer Agreement, *supra*, at arts. 3, 4.

¹¹² Murray-Darling Agreement, *supra*, at pt. 9, div. 1(1)(d)(i).

¹¹³ 1909 Boundary Waters Treaty, *supra*, at art. VIII.

¹¹⁴ See, e.g. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Rio Declaration on Environment and Development*, para. 6, U.N. Doc. A/CONF.151/26/Rev.1 (vol. I), annex I (Aug. 12, 1992), <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> [hereinafter Rio Declaration]; World Summit for Social Development, Copenhagen, Den., Mar. 6-12, 1995, *Copenhagen Declaration on Social Development and Programme of Action of the World Summit for Social Development*, U.N. Doc. A/Conf.166/9 (Apr. 19, 1995), <http://www.un.org/documents/ga/conf166/aconf166-9.htm>.

¹¹⁵ United Nations Conference on the Human Environment, Stockholm, Swed., June 5-16, 1972 *Stockholm Declaration on the Human Environment*, Principle 21, U.N. Doc. A/Conf.48/14/Rev.1 (June 16, 1972), <http://www.un-documents.net/aconf48-14r1.pdf>; see also Rio Declaration, *supra*, at Principle 2.

¹¹⁶ For a discussion of the “No Harm Principle”, see MCCAFFREY, *supra*, at 406-445.

regard . . . [to] articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.”¹¹⁷ It thus seems that under the convention, a use that causes significant harm may constitute reasonable and equitable utilisation provided the other conditions of article 7 are met; but that is not entirely clear.¹¹⁸

Two of the regional and basin agreements examined in this study contain this norm or something that appears to be very similar: the Guarani Aquifer Agreement requires Parties to respect “the obligation of not causing significant harm to the other Parties or the environment” and states that Parties “shall adopt all the necessary measures to avoid causing significant harm to the other Parties or the environment”¹¹⁹; and the Volta Convention states as a principle “the obligation not to cause damage”¹²⁰. Another agreement, the Mekong Agreement, includes a no-harm principle in an article titled “Prevention and Cessation of Harmful Effects” but limits it to the environment, broadly defined: “To make every effort to avoid, minimize and mitigate harmful effects that might occur to the environment, especially the water quantity and quality, the aquatic (ecosystem) conditions, and ecological balance of the river system”¹²¹ Four of the seven agreements do not mention the “no significant harm” principle: the Amazon Treaty; Danube Convention; Murray-Darling Agreement; and 1909 Boundary Waters Treaty (although it does prohibit pollution that causes “injury of health or property”¹²²).

3.2.3. Notification and consultation regarding planned measures

This principle derives from the Lake Lanoux arbitration¹²³ and Principle 19 of the Rio Declaration on Environment and Development.¹²⁴ It provides that States have an obligation to inform potentially affected States of proposed measures that may cause significant transboundary harm, to provide information to the potentially affected States, and to negotiate in good faith regarding the proposed measure with the potentially affected States.¹²⁵

Part III (articles 11-19) of the UN Watercourses Convention contains extensive provisions regarding what it refers to as “planned measures”. These provisions are much more detailed than the corresponding pre-existing norm of customary international law.

¹¹⁷ See also UN Watercourses Convention, *supra*, at art. 27 (“Prevention and mitigation of harmful conditions”).

¹¹⁸ McCaffrey, *supra*, at 407-08.

¹¹⁹ Guarani Aquifer Agreement, *supra*, at arts. 3, 6.

¹²⁰ Volta Convention, *supra*, at art. 4(g).

¹²¹ Mekong Agreement, *supra*, at art. 7.

¹²² 1909 Boundary Waters Treaty, *supra*, at art. IV.

¹²³ Lake Lanoux Arbitration, *supra*.

¹²⁴ Rio Declaration on Environment and Development, *supra*, at Principle 19.

¹²⁵ For a discussion of this principle, see McCaffrey, *supra*, at 471-476.

Most of the regional and basin agreements examined in this study contain provisions regarding notification and consultation with respect to planned measures. The Guarani Aquifer Agreement requires that each Party notify all other Parties of activities “which may have effects on the Guarani Aquifer System” beyond its boundary and provides procedures for halting work for up to six months if the Party receiving the information provides prima facie evidence that the proposed activities “may cause significant harm in its territory or environment.”¹²⁶ The Mekong Agreement contains separate notification and consultation requirements involving the Mekong Joint Committee for wet-season and dry-season uses. The Murray-Darling Agreement requires Contracting Governments to ensure notification to the management authority of any proposed government or public works activity “which may significantly affect the flow, use, control or quality” of specified waters.¹²⁷ The Volta Agreement contains as a principle “the notification of planned activities that can have negative effects, as well as the related consultations and negotiations.”¹²⁸ The 1909 Boundary Waters Treaty does not mention planned measures generally but contains a limited requirement that a sub-set of measures be approved by the Commission set up by the treaty before they can be carried out.¹²⁹ Moreover, one of the sub-regional basin agreements regarding waters covered by the 1909 treaty requires notification of “planned activities that could lead to a pollution incident or that could have a significant cumulative impact on the Waters of the Great Lakes”.¹³⁰ Two of the regional and basin agreements examined in this study (Amazon Treaty and Danube Convention) do not mention planned measures.

3.2.4. Cooperation

This principle derives from the general customary international law principle of cooperation.¹³¹ It requires that international watercourse States cooperate in good faith with respect to international watercourses.¹³² The exact nature of that cooperation depends on the situation.

Article 8 of the UN Watercourses Convention provides a general obligation to cooperate in order to “attain optimal utilization and adequate protection of” the international watercourse. It further provides that States “may consider the establishment of joint mechanisms or commissions” to facilitate cooperation. Because States are free to do that in any event, the primary effect of this provision is to emphasise the usefulness of such mechanisms and

¹²⁶ Guarani Aquifer Agreement, *supra*, at arts. 9, 11.3.

¹²⁷ Murray-Darling Agreement, *supra*, at pt. VII § 49(1).

¹²⁸ Volta Agreement, *supra*, at art. 4(d).

¹²⁹ 1909 Boundary Waters Agreement, *supra*, at art. IV.

¹³⁰ 2012 Protocol to the GLWQA, *supra*, at art. 6(c).

¹³¹ See, e.g. Rio Declaration, *supra*, at Principle 7.

¹³² For a discussion of this principle, see McCaffrey, *supra*, at 464-471.

commissions. Each of the regional and basin agreements considered in this study utilises such a mechanism or commission.

Of the regional and basin agreements examined in this study, the Danube Convention,¹³³ Mekong Agreement¹³⁴ and Volta Agreement¹³⁵ contain a general obligation to cooperate. The Amazon Treaty requires cooperation both generally and on several specified areas (including conducting scientific and technological research, protecting ethnological and archaeological wealth, and promoting tourism).¹³⁶ The Guarani Aquifer Agreement requires cooperation on projects generally and also requires cooperation on specified matters (e.g. extending scientific and technological knowledge and identifying critical areas).¹³⁷ The Murray-Darling only mentions cooperation in terms of the function of the Basin Officials Committee to facilitate cooperation.¹³⁸ The 1909 Boundary Waters Treaty does not expressly contain an obligation to cooperate

3.2.5. Regular provision of Information

The provision of information useful to other watercourse States stems from the customary international law obligations to cooperate, to utilise international watercourses equitably and reasonably, and to not cause significant harm, discussed above.¹³⁹ The precise requirements regarding what information must be provided, what form it should take, and in what timeframe it must be provided depend on the relevant situation.

Article 9 of the UN Watercourses Convention provides that, pursuant to the obligation to cooperate in article 8 (described above), States shall “on a regular basis exchange readily available data and information on the condition of the watercourse” It also provides that a State shall make best efforts to collect information requested by another watercourse State, provided the requesting State bears the reasonable cost of collecting and processing the information. Finally, article 9 obligates States to make best efforts to collect and process information in a manner that facilitates its use by other watercourse States.

Four of the seven regional and basin agreements examined for this study require exchange of

¹³³ Danube Convention, *supra*, at arts. 2, 4, 9.

¹³⁴ Mekong Agreement, *supra*, at arts. 1, 2, 4, 6.

¹³⁵ Volta Agreement, *supra*, at art. 4.

¹³⁶ Amazon Treaty, *supra*, at arts. XV, IX, XIII, XIV.

¹³⁷ Guarani Aquifer Agreement, *supra*, at arts. 12, 14.

¹³⁸ Murray-Darling Agreement, *supra*, at subdiv. D, pt. 201(d).

¹³⁹ For a discussion of this principle, see McCaffrey, *supra*, at 478-479.

information as a general matter: Amazon Treaty;¹⁴⁰ Danube Convention (which contains elaborate provisions, including regarding protecting confidential information);¹⁴¹ Guarani Aquifer Agreement;¹⁴² and Volta Agreement.¹⁴³ The Mekong Agreement provides that one of the functions of the Mekong Joint Committee is to regularly obtain information necessary to implement the agreement.¹⁴⁴ The Murray-Darling Agreement does not require the provision of information, but one of the overall purposes of Australia's water act in which the agreement is embedded is to collect, analyse and disseminate information about the use and management of water in Australia.¹⁴⁵ The 1909 Boundary Waters Treaty does not expressly contain a regular-exchange-of-information norm.

3.2.6. Environmental impact assessment

The requirement to conduct a transboundary environmental impact assessment is a principle of customary (general) international law, as held by the ICJ in the *Pulp Mills* case involving the River Uruguay, an international watercourse. The Court stated:¹⁴⁶

[I]t may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource. Moreover, due diligence, and the duty of vigilance and prevention which it implies, would not be considered to have been exercised, if a party planning works liable to affect the régime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works.

The ICJ did not prescribe the scope or content of the environmental impact assessment, leaving that determination instead to the State taking into consideration “the nature and magnitude of the proposed development and its likely adverse impact on the environment.”¹⁴⁷ It is clear that the EIA must be conducted early, i.e. before a decision is made, and that it must consider potential transboundary impacts.

¹⁴⁰ Amazon Treaty, *supra*, at arts. I, XV.

¹⁴¹ Danube Convention, *supra*, at art. 12.

¹⁴² Guarani Aquifer Agreement, *supra*, at arts. 8, 12.

¹⁴³ Volta Agreement, *supra*, at art. 4.

¹⁴⁴ Mekong Agreement, *supra*, at art. 24.

¹⁴⁵ Murray-Darling Agreement, *supra*, at pt. 1, 3(h).

¹⁴⁶ *Pulp Mills on the River Uruguay*, *supra*, at para. 204.

¹⁴⁷ *Id.* at para. 205.

Human rights bodies had already reached a similar conclusion in the context of domestic environmental threats that might implicate human rights. As stated by the United Nations Independent Expert on human rights and environment, “human rights law imposes certain procedural obligations on States in relation to environmental protection [including the duty] to assess environmental impacts and make environmental information public . . .”¹⁴⁸ One of the sources relied upon for that conclusion is the 2004 European Court of Human Rights decision in *Taskin v. Turkey*:

Where a State must determine complex issues of environmental and economic policy, the decision-making process must firstly involve appropriate investigations and studies in order to allow them to predict and evaluate in advance the effects of those activities which might damage the environment and infringe individuals’ rights and to enable them to strike a fair balance between the various conflicting interests at stake. The importance of public access to the conclusions of such studies and to information which would enable members of the public to assess the danger to which they are exposed is beyond question.¹⁴⁹

The UN Watercourses Convention does not explicitly require that an environmental impact assessment be conducted. It does require that a State communicate the results of any environmental impact assessment it does conduct to other watercourse States on which its activities may have a significant adverse effect.¹⁵⁰ The requirement to conduct an environmental impact assessment is implicit in the obligations to cooperate and to protect the ecosystem of the watercourse in articles 8 and 20, respectively, in circumstances necessitating knowledge of the environmental effects of ongoing or proposed actions or of environmental conditions of the watercourse more generally.¹⁵¹

Given the ICJ’s decision in the *Pulp Mills* case, which was issued more than a decade after the UN Watercourses Convention was finalised, it is now virtually certain that environmental

¹⁴⁸ Rep. of the Indep. Expert on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Env’t: Mapping Rep. of the Human Rights Council, 25th sess, para. 29, UN Doc. A/HRC/25/53 (Dec. 30, 2013), <http://www.ohchr.org/en/HRBodies/HRC/RegularSessions/Session25/Pages/ListReports.aspx> (go to “A/HRC/25/53” and click on language of preference).

¹⁴⁹ *Taskin v. Turkey*, 2004-X European Court of Human Rights 179, para. 119. See also *Öneryildiz v. Turkey*, 2004-XII European Court of Human Rights 1, para. 90 (applying the right to information in connection with the right to life). See also Inter-American Court, *Claude-Reyes et al. v. Chile*, Judgment of 19 September 2006 (ordering State to adopt necessary measures to ensure right of access to State-held information).

¹⁵⁰ UN Watercourses Convention, *supra*, at art. 12.

¹⁵¹ See generally McCaffrey, *supra*, at 475-76. See also *Pulp Mills on the River Uruguay*, *supra*, at para. 204, noting that the exercise of due diligence in fulfilling international obligations (such as those in the UN Watercourses Convention) requires conducting an environmental impact assessment where an activity is liable to affect the regime of the river or the quality of its waters.

impact assessment will be required in cases governed by the UN Watercourses Convention in situations of potential significant transboundary harm to another watercourse State, despite the apparently permissive language in the UN Watercourses Convention. Moreover, in cases where activities on an international watercourse might harm the environment and infringe human rights even in a domestic context, international law requires that an environmental assessment be conducted. In both cases, international human rights law requires that the public have access to the information produced by the environmental assessment.¹⁵² Other international instruments, such as the Aarhus Convention on Access to Information,¹⁵³ may have the same effect.

Similarly, unless a regional or basin agreement already requires transboundary environmental impact assessment, the customary international law requirement to conduct a transboundary environmental impact assessment is likely to affect the interpretation of regional and basin agreements. The human rights law requirement to conduct an environmental assessment is also likely to affect the interpretation of such agreements.

Of the regional and basin agreements examined for this study, three explicitly require evaluation of environmental effects in advance of a proposed activity: the Danube Convention requires Parties to conduct “environmental impact assessment”¹⁵⁴; the Guarani Aquifer Agreement requires an “evaluation of environmental effects”¹⁵⁵; and the Murray-Darling requires an “environmental assessment”¹⁵⁶. The Mekong Agreement requires the advance provision of information sufficient to discuss and evaluate the impacts of the proposed use,¹⁵⁷ which arguably implies the need to conduct environmental impact assessment.

The national laws of most countries in the world require some sort of environmental impact assessment. If the national requirement includes transboundary effects and applies to all proposed projects on international watercourses, an appropriate assessment may be legally required regardless of what the applicable watercourse agreement provides and independent of the application of customary international law or human rights law.

¹⁵² See, e.g. *Taşkin v. Turkey*, *supra*; UN Human Rights Committee, 102nd Session, General Comment No. 34 on Article 19: Freedom of opinion and expression, UN Doc. CCPR/C/GC/ (11 September 2011), available at CCPR/C/GC/34 (Sept. 12, 2011), <http://www2.ohchr.org/english/bodies/hrc/docs/GC34.pdf>. The Aarhus Convention, *supra*, requires that its Parties (which are all within the ECE region) provide the public with access to such information.

¹⁵³ Aarhus Convention on Access to Information, *supra*. Although that convention is open to universal membership, only ECE member States are Party to it. After the Rio + 20 Conference in 2012, several Latin American countries commenced negotiations of a regional convention on the same topics, which are ongoing as of 30 September 2014.

¹⁵⁴ Danube Convention, *supra*, at art. 7(f).

¹⁵⁵ Guarani Aquifer Agreement, *supra*, at arts. 9, 10.

¹⁵⁶ Murray-Darling Agreement, *supra*, at pt. VII § 50.

¹⁵⁷ Mekong Agreement, *supra*, at art.5.

3.2.7. Protection of international watercourses and their ecosystems

The emerging development of this norm of customary international law is succinctly stated in the International Court of Justice's opinion in the *Gabčíkovo* case. The Court stated:¹⁵⁸

Throughout the ages, mankind has, for economic and other reasons, interfered with nature. In the past, this was often done without consideration of the effects upon the environment. Owing to new scientific insights and a growing awareness of the risks to mankind – for present and future generations—of pursuit of such interventions at an unconsidered and unabated pace, new norms and standards have been developed, set forth in a great number of instruments during the last two decades. Such new norms have to be taken into consideration, and such new standards given proper weight, not only when States contemplate new activities but also when continuing with activities begun in the past. The need to reconcile economic development with protection of the environment is aptly expressed in the concept of sustainable development.

The exact content of this norm is not yet clear, but its existence and its applicability to existing activities and international agreements is established.¹⁵⁹

As noted above, article 5 of the UN Watercourses Convention requires protection of international watercourses. In addition, article 20 contains a clear obligation to protect the ecosystem of international watercourses: “Watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses.” It is clear from articles 21, 22 and 23 that this obligation includes, respectively, prevention, reduction and control of pollution, prevention of the introduction of alien species, and protection and preservation of the marine environment. Protecting a watercourse does not necessarily mean the same as protecting the ecosystem of the watercourse or as protecting the ecosystem of the basin, but these provisions support the conclusion above that the obligation to protect international watercourses contained in article 5 includes at least protecting the ecosystem of the watercourse in a broad sense. This is further supported by the first item in article 6's list of relevant factors: “Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character”. Final support is provided by the increasing recognition that maintaining the integrity of a watercourse, for example with respect to

¹⁵⁸ *Gabčíkovo-Nagymaros Project*, *supra*, at para. 140, p. 78.

¹⁵⁹ *See, e.g. Indus Waters Kishenganga Arbitration*, *supra*. For a discussion of this norm, see McCaffrey, *supra*, at 446-462.

preventing erosion of its banks, pollution, flooding from deforestation or depletion of its biological resources, requires protecting its ecosystem.

The six recent regional and basin agreements examined in this study have an explicitly environmental-protection or watercourse-protection component, or both, though they differ in their approaches. The Mekong Agreement, for example, includes a straightforward requirement to protect the “environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin”.¹⁶⁰ Similarly, the Murray-Darling Agreement states that a purpose of the agreement is to “protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin”.¹⁶¹ Other agreements tie environmental protection to the agreement’s variation of “equitable and reasonable” use or to sustainability or sustainable development. For example, the Guarani Aquifer Agreement requires Parties to “promote the conservation and environmental protection of the Guarani Aquifer System so as to ensure multiple, reasonable, sustainable, and equitable use of its water resources;”¹⁶² the Amazon Treaty refers to producing “equitable and mutually beneficial results” and achieving “preservation of the environment [and] conservation and rational utilization of the natural resources”;¹⁶³ and the Volta Agreement ties “protection and conservation of ecosystems” to “rational and sustainable” utilisation.¹⁶⁴ The Danube Convention ties environmental protection to “equitable and sustainable” use and to sustainable development, including both the protection of the Danube River and conservation of ecological resources.¹⁶⁵ In contrast (and reflecting its vintage), the 1909 Boundary Waters Treaty does not mention the environment, ecosystems, ecosystem services, ecological values or sustainability, though it does contain a provision prohibiting pollution (of boundary waters and waters flowing across the boundary) on one side of the boundary to the injury of health or property on the other.¹⁶⁶

As noted above, the inclusion of sustainable development in connection with environmental protection reflects the adoption of that concept in the 1992 United Nations Conference on Environment and Development. Though no official definition of sustainable development

¹⁶⁰ Mekong Agreement, *supra*, at art.3.

¹⁶¹ Murray-Darling Agreement, *supra*, at subdiv. C, para. 1.

¹⁶² Guarani Aquifer Agreement, *supra*, at art. 4.

¹⁶³ Amazon Treaty, *supra*, at art. I; *see also id.* at art. VII.

¹⁶⁴ Volta Agreement, *supra*, at art. 4.

¹⁶⁵ Danube Convention, *supra*, at arts. 2, 6.

¹⁶⁶ 1909 Boundary Waters Agreement, *supra*, at art. IV.

exists, it is clear that it requires integrating environmental protection, social development and economic and thus involves protecting the environment to at least some degree.¹⁶⁷

Table 3.1 shows the presence in the regional and basin agreements considered in this study of references to environmental protection in provisions that commonly appear in watercourse agreements more generally. The sections highlighted in green indicate that that provision in the respective agreement expressly mentions, or otherwise directly relates to, environmental protection, as indicated through the usage of the words “sustainable”, “ecosystem”, “ecological” or “environment” (or combinations or variations of these words).

In order to evaluate whether the 1909 Boundary Waters Treaty has evolved towards a focus on environmental protection over the 105 years since it was negotiated, an additional basin agreement appears in the table: the 2012 Protocol to the Great Lakes Water Quality Agreement, which significantly enhanced the mandate of the international Joint Commission (IJC) established by the 1909 treaty.¹⁶⁸ It should be noted that in some cases, the agreements do not deal with the type of provision identified in the left column, so the box for that provision must remain un-coloured. Thus the incidence of environmental protection-related provisions is even higher than is apparent from Table 3.1.

¹⁶⁷ See World Summit for Social Development, Copenhagen, Den., Mar. 6-12, 1995, *Copenhagen Declaration on Social Development*, para. 6, U.N. Doc. A/CONF.166/9 (Mar. 14, 1995), <http://www.un-documents.net/cope-dec.htm>; WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (BRUNDTLAND COMMISSION), *OUR COMMON FUTURE* (1987).

¹⁶⁸ 2012 Protocol to the GLWQA, *supra*.

Table 3.1 Provisions in Regional and Basin Agreements relating to Environmental Protection

| | Regional Basin Agreements | | | | | | | |
|---|---------------------------|---------------------------|-----------------------------|----------------------------|-------------------|------------------|------------------|--------------------------|
| | Amazon Cooperation Treaty | Guarani Aquifer Agreement | 1909 Boundary Waters Treaty | | Danube Convention | Volta Convention | Mekong Agreement | Murray-Darling Agreement |
| | | | 1909 BWT | 2012 Protocol to the GLWQA | | | | |
| Object/purpose | | | | | | | | |
| Reasonable and equitable utilisation | | | | | | | | |
| Obligation not to cause harm | | | | | | | | |
| Obligation to cooperate | | | | | | | | |
| Facilitating public participation | | | | | | | | |
| Environmental Impact Assessment | | | | | | | | |
| Prior notification and consultations for planned measures | | | | | | | | |
| Notification regarding disasters/emergencies | | | | | | | | |
| Sustainable development | | | | | | | | |
| Obligation to protect ecosystems and the environment | | | | | | | | |
| Protection of human health | | | | | | | | |
| Mitigation measures | | | | | | | | |
| Precautionary Principle/Approach | | | | | | | | |
| Protect watercourses | | | | | | | | |
| Water quality | | | | | | | | |
| Polluter Pays Principle | | | | | | | | |
| Obligation to report | | | | | | | | |

Table 3.1 demonstrates that the regional and basin agreements examined in this study include environmental protection in a wide variety of provisions, most notably in provisions relating to their object and purpose. The one exception in that respect is the 1909 Boundary Waters Treaty. As is evident from the column regarding the 2012 Protocol to the GLWQA (and as explained in more detail in chapter 5, below), however, the mandate of the IJC established by the 1909 treaty has in many respects been "greened", in a manner that makes it consistent with the focus on environmental protection in the other watercourse agreements examined in this study, including the UN Watercourses Convention.

3.3 Peaceful settlement of disputes

International law requires that disputes between States be settled peacefully.¹⁶⁹ This requires not only just avoiding the use of force, which is provided by the UN Charter, but also that every State must make good faith efforts to peacefully resolve any international disputes to which it is a party. This requirement applies to disputes involving water just as to other types of disputes. A State is not under any obligation to consent to any particular method of peaceful dispute settlement, including those suggested by another disputing State, however, or even to settle a particular dispute, as long as it endeavours in good faith to resolve the dispute peacefully.

Article 33 of the UN Watercourses Convention provides that disputing States shall, in the absence of an agreement between them, settle disputes in a peaceful manner. If one of the States requests negotiation and after six months the disputing States have not settled the dispute, one State may request impartial fact-finding as described in that article. The findings, including any recommendations accompanying them aimed at reaching an equitable solution, shall be considered in good faith by the disputing States.

All the regional and basin agreements examined in this study have dispute settlement provisions, but these differ markedly in their details other than that all of the agreements either explicitly or implicitly allow the Parties to agree to any form of dispute settlement, including submitting a dispute to binding adjudication. The Amazon Treaty essentially leaves the methods of dispute settlement up to the disputing parties.¹⁷⁰ The Mekong Agreement provides that the commission established by the agreement first attempt to resolve disputes, after which it is up to the governments of the disputing parties.¹⁷¹ The 1909 Boundary Waters Treaty allows either Party to utilise a non-binding mechanism¹⁷² and both Parties to agree to a binding mechanism¹⁷³ (the former has been successfully used many times; the latter has never been used). The Guarani Aquifer Agreement provides an optional settlement via arbitration, agreed upon by all involved Parties, if the disputing parties have not been able to settle the dispute by negotiation or via the recommendations provided by the commission that serves as the agreement authority.¹⁷⁴ The Danube Convention requires Parties to submit to dispute settlement by arbitration or the ICJ if other forms of dispute settlement have not been successful.¹⁷⁵ The Volta Agreement is similar, though it provides for consideration by the

¹⁶⁹ U.N. Charter, at arts. 2(3)-(4), 33; see JAMES CRAWFORD, *BROWNIE'S PRINCIPLES OF PUBLIC INTERNATIONAL LAW* 719 (8th ed. 2012).

¹⁷⁰ Amazon Treaty, *supra*, at art. XXIV.

¹⁷¹ Mekong Agreement, *supra*, at arts. 34, 35.

¹⁷² 1909 Boundary Waters Agreement, *supra*, at art. IX.

¹⁷³ *Id.* at art. X.

¹⁷⁴ Guarani Aquifer Agreement, *supra*, at arts. 16-19.

¹⁷⁵ Danube Convention, *supra*, at art. 24.

Economic Community of West African States or the African Union before the dispute can go to the ICJ.¹⁷⁶ The Murray-Darling Agreement provides for binding arbitration for some issues, but not to questions of law (which presumably are to be settled by the normal processes of Australian law).¹⁷⁷

3.4 Human rights norms

International human rights law may affect the interpretation and implementation of international agreements when a human right is implicated, including water-specific international agreements and MEAs. Each of the three regional human rights tribunals (Africa, Americas and Europe) has found that environmental harm of the general types covered by the MEAs considered in this study can violate human rights.¹⁷⁸ These cases have included the entire range of environmental issues, including denial of access to land and natural resources¹⁷⁹ and physical injury from exposure to hazardous chemicals.¹⁸⁰ For the purposes of this report, the most relevant human rights are the right to water, the rights of Indigenous Peoples, and the procedural rights of access to information, freedom of expression, freedom of assembly, participation and access to justice. In addition, the duty to conduct environmental assessments when an activity might damage the environment and infringe human rights, described above, is relevant. The wider human rights jurisprudence is relevant to how these rights and duties will be interpreted and applied, as explained in chapter 4.

3.4.1. Human right to water

¹⁷⁶ Volta Agreement, *supra*, at art. 13.

¹⁷⁷ Murray-Darling Agreement, *supra*, at pt. XV § 140.

¹⁷⁸ See, e.g. Decision Regarding Communication 155/96 (Social and Economic Rights Action Center/Center for Economic and Social Rights v. Nigeria), Case No. ACHPR/COMM/A044/1 (Afr. Comm'n Hum. & People's Rts., May 27, 2002), <http://www1.umn.edu/humanrts/africa/comcases/155-96.html>; López Ostra v. Spain, App. No. 16798/90, 303-C Eur. Ct. H.R. (ser. A) (1994), 20 EHHR 277, <http://hudoc.echr.coe.int/sites/eng/pages/search.aspx?i=001-57905>; Fadeyeva v. Russia (2007), 45 EHHR 10; Taskin and Others v. Turkey (2006), 42 EHRR 50; Mayagna (Sumo) Awas Tingni Community v. Nicaragua, 2001 Inter-Am. Ct. H.R. (ser. C) No.79, (31 August 2001).

¹⁷⁹ See, e.g. Mayagna (Sumo) Awas Tingni Community v. Nicaragua, *supra*.

¹⁸⁰ Community of San Mateo de Huanchor v. Peru, Inter-Am. Ct. H.R. Report No. 69/04, Petition 504/03 (15 October 2004), <http://www.cidh.oas.org/annualrep/2004eng/Peru.504.03eng.htm>. See also The Center for International Environmental Law, *CIEL – San Mateo Case (Peru): Impacts of Mining on Human Rights*, CIEL.ORG, http://www.ciel.org/HR_Envir/HRE_SanMateo.html (last visited Sept. 20, 2014). For a case considering the impact of climate change on the human right to culture, see Center for International Environmental Law, *Climate Change: CIEL Representing Inuit in Human Rights Case (Global Warming)*, *The Inuit Case*, CIEL.ORG, http://www.ciel.org/Climate_Change/Climate_Inuit.html (last visited Sept. 20, 2014).

It has recently been recognised that there is a human right to water, as part of the human right to an adequate standard of living.¹⁸¹ Although the precise content of the right has not been established, the broad contours of it have been.¹⁸² The website of the United Nations Office of the High Commissioner for Human Rights, for example, states:

The rights to water and sanitation require that these are available, accessible, safe, acceptable and affordable for all without discrimination. These elements are clearly interrelated. While access to water may be guaranteed in theory, in reality, if it is too expensive, people do not have access. Women will not use sanitation facilities which are not maintained or are not sex segregated. Having a tap which delivers unsafe water does not improve one's access. Human rights demand a holistic understanding of access to water and sanitation.

The rights to water and sanitation further require an explicit focus on the most disadvantaged and marginalized, as well as an emphasis on participation, empowerment, accountability and transparency.¹⁸³

The UN Watercourses Convention does not mention the human right to water. As noted above, however, article 10 of the convention specifies that special regard is to be given to “the requirements of vital human needs”, which could include access to adequate and safe drinking water and sanitation. The Statement of Understanding regarding article 10 contained in the UN General Assembly Sixth Committee's report reinforces this conclusion: “In determining ‘vital human needs’, special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation.”¹⁸⁴

Although the regional and basin agreements that are the focus of this study do not expressly mention the human right to water, at least one other basin agreement does, i.e. the Senegal River Water Charter.¹⁸⁵

¹⁸¹ See, e.g. THE RIGHT TO WATER – FACT SHEET NO. 35, 4 (2010), <http://www.ohchr.org/Documents/Publications/FactSheet35en.pdf>.

¹⁸² BROWN WEISS, *supra*, at 232. See generally *id.* at 191-242; THE UN WATERCOURSE CONVENTION IN FORCE, *supra*, at 293-301.

¹⁸³ Office of the High Commissioner for Human Rights, *Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation*, OHCHR.ORG, <http://www.ohchr.org/EN/Issues/WaterAndSanitation/SRWater/Pages/SRWaterIndex.aspx> (last visited Sept. 20, 2014).

¹⁸⁴ Statements of Understanding regarding certain provisions of the UN Convention, contained the Report of the Sixth Committee convening as the Working Group of the Whole, in which the Convention was negotiated, UN Doc. A/51/869, 11 April 1997.

¹⁸⁵ “The guiding principles of any distribution of water of the River aim at ensuring the populations of the Coastal states, the full pleasure of the resource, in the respect of the safety of the people and the works, as well as basic human rights to a salubrious water, from the point of view of a durable development.” Charte des Eaux du Fleuve Senegal [Charter of Senegal River Waters], art. 4, May 28, 2002, <http://www.tematea.org/?q=node/6583>.

3.4.2. Procedural human rights: Rights to access to information, free speech, free assembly, participation and access to justice

These five human rights are related but independent and their significance with respect to international watercourses can be analysed separately.¹⁸⁶ They are grouped together here because they are each essential for meaningful public participation, which is of fundamental importance to international watercourse governance, for example with respect to environmental impact assessment. These rights are well known and thus will not be elaborated upon here.

Article 32 of the UN Watercourses Convention relates to one of those rights, providing protection with respect to access to judicial or other procedures, as well as to “a right to claim compensation or other relief in respect of significant harm caused by” activities related to an international watercourse.

Among the regional and basin agreements examined in this study, the 1909 Boundary Waters Treaty contains the strongest requirement for allowing public participation: “The Commission shall have power to administer oaths to witnesses, and to take evidence on oath whenever deemed necessary in any proceeding, or inquiry, or matter within its jurisdiction under this treaty, and *all parties interested therein shall be given convenient opportunity to be heard . . .*”¹⁸⁷ The Murray-Darling Agreement requires that certain adjustments to the Basic Plan not be proposed until after “inviting members of the public to make submissions to the Authority on the proposed adjustment”¹⁸⁸; and the agreement also mandates the creation of an advisory committee, including a sub-committee of Indigenous Peoples.¹⁸⁹ The Danube Convention has the strongest provisions regarding the provision of information to the public; for example, article 14 provides:

(1) The Contracting Parties shall ensure that their competent authorities are required to make available information concerning the state or the quality of riverine environment in the Danube Basin to any natural or legal person, with payment of reasonable charges, in reasonable request, without that person having to prove an interest, as soon as possible.

¹⁸⁶ See, e.g. UN Human Rights Committee, General Comment No. 34, Article 19, Freedoms of Opinion and Expression, CCPR/C/GC/34 (Sept. 12, 2011), <http://www2.ohchr.org/english/bodies/hrc/docs/GC34.pdf>.

¹⁸⁷ 1909 Boundary Waters Treaty, *supra*, at art. XII (emphasis added).

¹⁸⁸ Murray-Darling Agreement, *supra*, at pt. 2, div. 1, §23A(2)(d)(i).

¹⁸⁹ *Id.* at pt. 9, div. 3E, §202(3)(c).

....

(4) *A public authority shall respond to a person requesting information as soon as possible. The reasons for a refusal to provide the information requested must be given in writing.*¹⁹⁰

3.4.3. Rights of Indigenous Peoples

As individuals, indigenous people have the right to enjoy the same human rights as other human beings. In addition, Indigenous Peoples have rights as, for example, provided in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).¹⁹¹ These rights, including that of free, prior and informed consent, sometimes involve questions of water usage and allocation.¹⁹² UNDRIP provides, for example:

Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.¹⁹³

A full treatment of these rights and relationships is beyond the scope of this study, but the importance of these issues with respect to international watercourses should be borne in mind.

The UN Watercourses Convention does not mention Indigenous Peoples.

The Murray-Darling Agreement has several provisions that take account of Indigenous Peoples' interests: the Authority is directed to take into account "Social, cultural, Indigenous and other public benefit issues"; the Basin Plan must include "(b) the uses to which the Basin water resources are put (including by Indigenous people)"; and the Authority must establish an advisory committee, which includes: "(c) an Indigenous water subcommittee, to guide the

¹⁹⁰ Danube Convention, *supra*, at art. 14; *see also id.* at art. 9 (the results of mandatory periodic monitoring "will be presented to the public by appropriate publications").

¹⁹¹ United Nations Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, UN Doc. A/RES/61/295 (Sept. 13, 2007), <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N06/512/07/PDF/N0651207.pdf?OpenElement> [hereinafter UNDRIP]. *See generally* BROWN WEISS, *supra*, at 231-241.

¹⁹² *See, e.g.* THE INSPECTION PANEL, INVESTIGATION REPORT-UGANDA: PRIVATE POWER GENERATION (BUJAGALI) PROJECT, No. 44977-UG (2008), [http://ewebapps.worldbank.org/apps/ip/PanelCases/44-Investigation%20Report%20\(English\).pdf](http://ewebapps.worldbank.org/apps/ip/PanelCases/44-Investigation%20Report%20(English).pdf).

¹⁹³ UNDRIP, *supra*, at art. 25.

consideration of Indigenous matters relevant to the Basin's water resources".¹⁹⁴ The Amazon Treaty contains two provisions that may be interpreted to protect Indigenous Peoples: article XIII provides that the Parties "shall cooperate to increase the flow of tourists, both national and from third countries, in their respective Amazonian territories, without prejudice to national regulations for the protection of indigenous cultures and natural resources"; and article IV provides that Parties "shall cooperate in ensuring that measures adopted for the conservation of ethnological, and archeological wealth of the Amazon region are effective."

3.5 Non-legally binding commitments, voluntary standards and policies

The governance of international watercourses may be affected by many non-legally binding commitments (sometimes referred to as "soft law"), voluntary standards and organisational policies. Identifying all of these is beyond the scope of this study. A few are mentioned below.

3.5.1. ILC's Draft Law on Transboundary Aquifers

In 2008, the UN International Law Commission (ILC) finished drafting rules on aquifers and recommended that the General Assembly take note of them and recommend to States to make appropriate arrangements regarding transboundary aquifers "on the basis of the principles" enunciated in the draft articles.¹⁹⁵ In fact, the General Assembly's resolution "Takes note of" the draft articles but contains a somewhat weaker endorsement than that recommended by the ILC: the General Assembly "Encourages" States to "tak[e] into account" the provisions of the draft articles.¹⁹⁶ The ILC's Draft Law's emphasis on sovereignty is arguably stronger than that in the UN Watercourses Convention.¹⁹⁷ Given the General Assembly's failure to endorse these draft rules, it seems likely they do not constitute customary international law.

3.5.2. Policies required by international financial institutions

As noted in chapter 2, the operation of safeguard policies and other practices of international financial institutions such as the World Bank not only constitute binding international

¹⁹⁴ Murray-Darling Agreement, *supra*, at pt. 2, div. 1, §21(4)(c)(v); pt. 2, div. 1, §22(1)(b); pt. 9, div. 3E, §202(3)(c).

¹⁹⁵ Rep. of the Int'l Law Comm'n, 60th sess, May 5-June 6, July 7-Aug. 8, para. 49, 2008, U.N. Doc. A/63/10, GAOR, 63rd Sess., Supp. No. 10 (2008), http://legal.un.org/ilc/documentation/english/A_63_10.pdf. The preparation of these draft rules occurred contemporaneously with the project leading to the finalization of the Guarani Aquifer Agreement, and persons involved in the two endeavours exchanged ideas.

¹⁹⁶ Law of Transboundary Aquifers, *supra*, at pmb. & paras. 4, 5.

¹⁹⁷ Compare *id.* at art. 3, with UN Watercourses Convention, *supra*, at art. 5.

administrative law with respect to those institutions but also effectively become applicable to borrowers or grantees of those institutions. Moreover, the practices of other lending institutions such as the GEF, and of participating organisations such as the OAS, effectively require project participants to identify and pay attention to their obligations under bilateral and multilateral environmental agreements.

3.5.3. Voluntary standards

The voluntary standards referred to in chapter 2 also form part of the normative framework relevant to behaviour regarding international watercourses. Some are part of coordinated efforts, such as the United Nations Global Compact, and are likely to be disclosed to the public. Others are internal to the respective organisation and may be less likely to be publicly available.

3.6 Other international law issues

3.6.1. Inter-temporal law

As noted above, the International Court of Justice has held that new norms of customary international law must be taken into account even with respect to continuing activities governed by existing international agreements.¹⁹⁸ In discussing new norms relating to environmental protection and sustainable development, the ICJ said: “Such new norms have to be taken into consideration, and such new standards given proper weight, not only when States contemplate new activities but also when continuing with activities begun in the past.”¹⁹⁹ The doctrine of inter-temporal law has been applied in at least two subsequent cases involving international rivers governed by basin agreements, once by the ICJ²⁰⁰ and once by the Court of Arbitration established pursuant to the Indus Waters Treaty of 1960.²⁰¹ It can thus be predicted that the interpretation of a regional or basin agreement could be affected if a norm of customary international law has developed since the regional or basin agreement was finalised, particularly if that new norm relates to environmental protection or sustainable development. An example would be the customary international law requirement to conduct a transboundary impact assessment recognised by the ICJ in the *Pulp Mills* case, discussed above.²⁰²

3.6.2. Relationship of the UN Watercourses Convention to the ECE Water Convention

¹⁹⁸ See *Gabčíkovo-Nagymaros Project*, *supra*, at 78, para. 140.

¹⁹⁹ *Id.*; see also *Pulp Mills on the River Uruguay*, *supra*, at para. 177.

²⁰⁰ See *Pulp Mills On The River Uruguay*, *supra*.

²⁰¹ See *Indus Waters Kishenganga Arbitration*, *supra*.

²⁰² *Pulp Mills on the River Uruguay*, *supra*, at paras. 204-205.

The existence of two treaties at a global level covering more-or-less the same topic raises questions as to how they relate to one another, and in particular which would take precedence in the case of a conflict. The two treaties take somewhat different approaches and their provisions are not identical.²⁰³ Nevertheless, Professor Stephen McCaffrey concluded: “While taking different approaches, these treaties are in fact mutually reinforcing.”²⁰⁴ Similarly, Professor Attila Tanzi concluded that the two agreements are compatible and complementary in terms of their treatment of basic norms such as equitable and reasonable utilisation, no significant harm, due diligence, environmental impact assessment and cooperation (though details differ regarding cooperation).²⁰⁵ While not disagreeing with those conclusions, it is the case that conflict can at least theoretically arise when different texts are applied to a specific factual situation.

The potential for conflict between the two conventions can be minimized by applying the harmonisation principle, which the UN International Law Commission described as “when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations.”²⁰⁶ Article 31 of the Vienna Convention on the Law of Treaties, in particular paragraph 3(c) (referring to “any relevant rules of international law applicable in the relations between the parties”) points in the same direction. This interpretive approach may do much to avoid conflict.

As of 30 September 2014, fifteen countries -- all of them in the ECE region -- had ratified both conventions and thus were subject to obligations under both.²⁰⁷

²⁰³ Differences include: compare the definition of “Transboundary waters” from the ECE Water Convention and “Watercourse” from the UN Watercourses Convention (ECE Water Convention, *supra*, at art. 1.1 and UN Watercourses Convention, *supra*, at art. 2(a)); the ECE Water Convention requires watercourse States to enter into agreements establishing joint bodies and specifying functions for those bodies (art. 9.2), whereas the UN Watercourses Convention does not; the ECE Water Convention contains more precise guidance and stronger standards for prevention of transboundary harm (e.g. arts. 2, 3, 5, 9, 11) than does the UN Watercourses Convention; and the UN Watercourses Convention has more details on planned measures and on consequences of harm (pt. III) than does the ECE Water Convention.

²⁰⁴ Stephen C. McCaffrey, *The 1997 UN Convention: Compatibility and Complementarity*, in THE UNECE CONVENTION ON THE PROTECTION AND USE OF TRANSBOUNDARY WATERCOURSES AND INTERNATIONAL LAKES: ITS CONTRIBUTION TO INTERNATIONAL WATER COOPERATION (Attila Tanzi et al. eds., *forthcoming*).

²⁰⁵ Attila Tanzi, *UN Economic Commission for Europe Water Convention*, in THE UN WATERCOURSE CONVENTION IN FORCE 231-242 (Flavia R. Loures & Alistair Rieu-Clarke eds., 2013).

²⁰⁶ Rep. of the Int’l Law Comm’n, 58th sess, May 1-June 9, July 3-Aug 11, 2006, p. 408, U.N. Doc. A/61/10 (2006), http://legal.un.org/ilc/reports/english/a_61_10.pdf.

²⁰⁷ Denmark, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Montenegro, Netherlands, Norway, Portugal, Spain, Sweden, and Uzbekistan. See *United Nations Treaty Collection*, TREATIES.UN.ORG (Sept. 20, 2014 5:10:58 PM), https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&lang=en AND https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-12&chapter=27&lang=en.

3.6.3. Relationship of the UN Watercourses Convention to customary international law

It is commonly recognised that portions of the UN Watercourses Convention state customary international law. An example is article 5(1) regarding reasonable and equitable use.²⁰⁸ Those provisions that state customary international law will affect how States that are not persistent objectors to a particular norm may deal with international watercourses, provided that no superseding international agreements exist.

It seems clear that none of the provisions in the UN Watercourses Convention that do state customary international law constitute *jus cogens*. Provisions in the convention thus can be deviated from by other international agreements, including MEAs and regional and basin agreements. Such a deviation could occur four ways: via an existing treaty that deals with the same subject matter by virtue of article 30 of the Vienna Convention on the Law of Treaties;²⁰⁹ via a subsequent treaty that deals with the same matter by virtue of the same article;²¹⁰ by a pre-existing watercourse treaty by virtue of article 3(1) of the UN Watercourses Convention;²¹¹ or by a subsequent watercourse treaty by virtue of paragraphs 4 and 5 of article 3 of the convention.²¹² The details of any particular analysis will vary.

3.6.4. Relationship of the UN Watercourses Convention to MEAs

It is not evident that any of the norms in the MEAs under consideration conflict with anything in the UN Watercourses Convention. In the absence of such a situation, the MEA under consideration may be implemented without concern that the UN Watercourses Convention will affect that implementation, though the convention could fill a useful role as a gap-filler where an MEA (or other agreement) does not provide normative guidance on a question within the Watercourses Convention. An effect could occur if the determination of what is equitable and reasonable under the convention involves a situation subject in whole or in part to an MEA. For example, suppose the issue is equitable and reasonable use of an international wetland, where both States in whose territory parts of the wetland are located are Party to the Ramsar Convention: obligations arising under the Ramsar Convention might affect the analysis of what is an equitable and reasonable utilisation under the UN Watercourses Convention, for example through reference to paragraph 1 of article 10 of the convention.

²⁰⁸ See Gabčíkovo-Nagymaros Project, *supra*, at 54, para. 78 (“that cannot mean that Hungary forfeited its basic right to an equitable and reasonable sharing of the resources of an international watercourse”); Pulp Mills on the River Uruguay, *supra*, at para. 177.

²⁰⁹ See United Nations, Vienna Convention on the Law of Treaties, art. 30, May 23, 1969, 1155 U.N.T.S. 331, 8 I.L.M. 679, <https://treaties.un.org/doc/Publication/UNTS/Volume%201155/v1155.pdf>.

²¹⁰ *Id.*

²¹¹ UN Watercourses Convention, *supra*, at art. 3(1).

²¹² *Id.* at arts. 3(4), (5).

3.6.5. Relationship of the UN Watercourses Convention to Regional and Basin Agreements

Determining whether any regional and basin agreements truly conflict with customary international law, including as expressed in the UN Watercourses Convention, also requires a close analysis of the relevant agreements in light of the circumstances in question. As with the example of the Ramsar Convention in the preceding part, a provision in a regional or basin agreement could affect what is reasonable and equitable by virtue of the application of article 10 of the UN Watercourses Convention.

One might conceivably argue that the allocation provided in, or arrived at pursuant to, a regional or basin agreement is not equitable and reasonable. This is unconvincing, however, because the very fact that the Parties to the regional or basin agreement agreed to the allocation argues strongly that it is, in fact, equitable and reasonable. The latter is particularly convincing because of article 3 of the UN Watercourses Convention, which expressly carves out and protects pre-existing and subsequent regional and basin agreements. The fact that the article also encourages Parties to such agreements to take the UN Watercourses Convention into account²¹³ strengthens that analysis because it indicates that the convention itself contemplates States acting in a manner different from the convention's approach.²¹⁴

The existence of the UN Watercourses Convention will not disrupt the interpretation and implementation of regional and basin agreements, therefore. As with other international agreements, however, where the regional or basin agreement is silent on a matter within the purview of the UN Watercourses Convention, the convention might provide a useful role as a gap-filler.

3.7 Summary

A great number of international norms apply expressly to behaviour relating to international watercourses, including legally binding norms arising from customary international law and international agreements, non-binding commitments, and voluntary undertakings. Moreover,

²¹³ In at least one instance, a regional water agreement was revised to bring it into accord with the UN Watercourses Convention, i.e. the Southern African Development Community Revised Protocol on Shared Watercourses, Aug. 7, 2000, 40 I.L.M. 321 (entered into force Sept. 22, 2003), <http://ocid.nacse.org/tfdd/tfdddcs/609ENG.pdf>.

²¹⁴ The existence of the ECE Water Convention raises an interesting question. If there are significant inconsistencies between the two conventions and a substantial number of non-European States become Parties, it could be argued that this undercuts the status of the UN Watercourses Convention as customary international law. Even if only European States are Party to the ECE Water Convention, it could be argued that they are persistent objectors and thus not subject to the UN Watercourses Convention as customary law if there are significant differences. As stated above, however, at least two authorities have concluded that the two conventions are complementary or compatible, so the situation apparently does not arise.

States often have nested or parallel normative obligations and institutional responsibilities because of the plethora of international watercourses and agreements about them. In addition, a large number of non-watercourse-specific norms, such as some customary international law norms, those contained in the MEAs reviewed for this study and human rights norms, are directly relevant to watercourses. As pointed out in chapter 2, however, the norms and institutions arising from these different instruments have not been harmonised.

The result is that the legal architecture relating to international watercourses is highly complex and multi-layered with respect to both norms and institutions. In spite of that fragmented legal architecture, however, international water law principles and provisions have developed. The principles and provisions examined in this study are: equitable and reasonable utilisation; no significant harm; notification and consultation regarding planned measures; cooperation; regular provision of information; protection of watercourses and ecosystems; environmental impact assessment; peaceful settlement of disputes; human right to water; procedural human rights; and rights of Indigenous Peoples.

The UN Watercourses Convention expresses customary international law in some respects, and close examination reveals that the UN Watercourses Convention is consistent with the international water law principles addressed in this study. Many of these principles and provisions also appear in the regional and basin agreements examined in this study. Importantly, many of these norms and water agreements – both at the global level and at the regional and basin levels – involve protection of the environment, either expressly or through the use of concept of sustainable development. International water law will need to evolve to take account of both the increasing recognition of the need to protect watercourse ecosystems and the increasing pressures on freshwater resources.

The relationship of the UN Watercourses Convention to other international agreements depends on analysis of the instruments in question. As noted above, the consensus thus far is that the UN Watercourses Convention is consistent with the ECE Water Convention, although the two take different approaches and there are textual differences. If an apparent conflict were to develop when applying the two conventions to a particular factual situation, the potential for conflict could be reduced through application of the harmonisation principle of interpretation identified by the International Law Commission, i.e. when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations, and of article 31.3(c) of the Vienna Convention on the Law of Treaties.

It is not evident that any of the norms in the MEAs under consideration in this study conflict with anything in the UN Watercourses Convention. In the absence of such a situation, the MEA under consideration may be implemented without concern that the UN Watercourses Convention will affect that implementation, and the reverse situation appears also to be the case unless the determination of what is equitable and reasonable under the convention involves a situation subject in whole or in part to an MEA. In addition, the UN Watercourses Convention could fill a useful role as a gap-filler where an MEA (or other agreement) does not provide normative guidance on an issue covered in the UN Watercourses Convention; and MEAs might provide guidance about the provisions relating to the environment in the UN Watercourses Convention.

The UN Watercourses Convention need not affect the interpretation of regional and basin agreements, though it could play the role of a gap-filler with respect to regional and basin agreements. MEAs need not affect the interpretation of regional and basin agreements unless there is a true conflict or applying the agreement's equivalent of the "equitable and reasonable" standard involves a situation subject to an MEA.

Developments in customary (general) international law may affect the interpretation of all watercourse agreements under the doctrine of inter-temporal law, particularly if they relate to environmental protection or sustainable development. The most obvious examples of this are the customary international law obligation to conduct a transboundary environmental impact assessment when an activity may have a significant adverse transboundary impact and the human rights duty to conduct an environmental impact assessment when an activity might damage the environment and infringe on human rights. In each instance, human rights law requires that the information developed in the assessment be available to the public.

CHAPTER 4: INTERNATIONAL WATER LAW AND MULTILATERAL ENVIRONMENTAL AGREEMENTS

Many, indeed most, multilateral environmental agreements (MEAs) address environmental issues related to freshwater. International water law (as described in chapter 3) thus has strong linkages with the UN Watercourses Convention and other MEAs, including those considered in this study, affecting both their interpretation and implementation. This chapter provides an overview of those connections, beginning with the relationship between water and the environmental issues addressed by MEAs, because those linkages demonstrate that international water law is relevant to accomplishing the objects and purposes of the MEAs. Following that, several issues relating to the legal relationship between international water law and MEAs, including the UN Watercourses Convention, are examined.

4.1 Multilateral Environmental Agreements (MEAs) and water

As a general matter, each of the MEAs considered in this study, as part of the United Nations system, is committed to playing a role in achieving the Millennium Development Goals through minimizing waste, conservation of resources, and better protection of “the air, soil, water and thus human health.”²¹⁵ Similarly, they will be committed to achieving the Sustainable Development Goals to be finalised in 2015, which will inevitably relate to water.²¹⁶ The more specific relationships between MEAs and water can be seen through an examination of the MEAs that are considered in this study. The UN Watercourses Convention deals exclusively with water, so the connection is obvious with respect to it. As is evident below, the other MEAs considered in this study also relate closely to water, each in its own way. In addition, these MEAs are illustrative with respect to how other MEAs are related to water because they deal with issues that are inextricably inter-connected with environmental issues dealt with by other MEAs. Thus, for example, the relationship between water and the Convention on Biological Diversity²¹⁷ (CBD), which is elaborated below, sheds light on the relationship between water and the Cartagena²¹⁸ and Nagoya²¹⁹ Protocols to the CBD and the Convention on International

²¹⁵ See *United Nations Millennium Development Goals*, UN.ORG, <http://www.un.org/millenniumgoals/> (last visited Sept. 24, 2014).

²¹⁶ United Nations, *Open Working Group: Sustainable Development Knowledge Platform*, SUSTAINABLEDEVELOPMENT.UN.ORG, <http://sustainabledevelopment.un.org/owg.html> (last visited Sept. 23, 2014).

²¹⁷ As of 31 July 2014, the CBD had 194 Parties.

²¹⁸ Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Jan. 29, 2000, 2226 U.N.T.S. 208, 39 I.L.M. 1027 (entered into force Sept. 11, 2003), <https://treaties.un.org/doc/Publication/UNTS/Volume%202226/v2226.pdf> [hereinafter Cartagena Protocol].

²¹⁹ Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, Oct. 29, 2010, Doc. UNEP/CBD/COP/DEC/X/1 of 29

Trade in Endangered Species of Wild Fauna and Flora²²⁰ (CITES), each of which is concerned with protecting biological diversity, which is the focus of the CBD.

As will be evident in the discussion below, the relationship between water and MEAs can be characterized in three possible ways: the MEA involves environmental threats that can affect water quality, quantity or availability; or the quality, quantity or availability of water can affect realisation of the environmental goals sought by the MEA; or both can be the case. Each of these implicates international water law. The details of how international water law relates to an MEA depend on the precise issue being considered.

In terms of the interaction with regional and basin agreements, the MEAs considered below do not provide their respective secretariats with an express mandate to reach out to watercourse authorities. These secretariats are not prohibited from doing so, however, and some engaged in that.

4.1.1. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal²²¹ (Basel Convention)

The main objective of the Basel Convention is “to protect human health and the environment”²²² against hazardous waste through regulating the management and disposal of hazardous waste. The Basel Convention was a response, inter alia, to improper disposal of toxic waste emanating in industrialized countries into developing countries that did not have sufficient environmental awareness, proper regulations, adequate enforcement mechanisms, or sufficiently strong governance in other respects to deal with the waste in an environmentally sound manner.

The Basel Convention is connected to water in several ways. The convention’s overall goal, “to protect human health and the environment,” necessarily includes protecting water quality because water is part of the environment and water contaminated by hazardous waste can cause a variety of human health maladies. The convention is concerned with watercourses as a means of improper disposal of hazardous waste.²²³ Under the convention, disposal must be

October 2010 (enters into force Oct. 12, 2014), <http://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf> [hereinafter Nagoya Protocol].

²²⁰ Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 993 U.N.T.S. 243, T.I.A.S. 8249 (entered into force July 1, 1975), <https://treaties.un.org/doc/Publication/UNTS/Volume%20993/volume-993-I-14537-English.pdf> [hereinafter CITES]. As of 31 July 2014, CITES has 180 Parties.

²²¹ As of 31 July 2014, the Basel Convention had 181 Parties.

²²² Basel Convention, *supra*, at arts. 2.8, 4.2(c), 4.2(d), 4.11.

²²³ See *id.* annex IV at 60. Disposing hazardous waste in an international watercourse may be considered pollution, which is addressed in article 21 of the UN Watercourses Convention.

done in an “environmentally sound”²²⁴ manner, which does not include disposing of waste by dumping it in a watercourse. The convention is also concerned about the transport of hazardous waste. Transporting hazardous waste, from its initial movement to the point of disposal, via waterways is recognised as acceptable and regulated by the convention:²²⁵ such transport must be reported in the documentation for movement of hazardous waste when providing notification to a State that hazardous waste will be passing through it. In addition, oil-or hydrocarbon-contaminated water is found to be a category of waste under Annex I and to be a medium for waste under Annex VIII; the list of Hazardous Characteristics in Annex III includes emitting flammable or toxic gas on coming into contact with water; and carbon associated with the treatment of potable water is mentioned in Annex VIII.²²⁶

Each of the relationships just mentioned can involve international watercourses, as well as domestic ones. Quite apart from the Basel Convention itself, international water law is implicated, for example, with respect to the obligations to control and prevent pollution of international watercourses and protect them and their ecosystems.

4.1.2. Convention on Biological Diversity (CBD)

The objectives of the CBD are “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.”²²⁷ The CBD was borne out of concern about the growing number of species becoming extinct. The relationship between water and biological diversity is clear. As a CBD publication stated, “fresh water ecosystems are in serious decline due largely to the pressures placed upon water by its various users, and the rate of loss of biodiversity in them surpasses that from other major biomes by a considerable margin.”²²⁸ Consistent with this, it was concluded “the sound allocation and management of water are today among the most urgent and critical global issues for the conservation and sustainable use of biodiversity.”²²⁹

It is clear that the CBD itself includes biological diversity in water because the definition of “biological diversity” in article 2 includes reference to “aquatic ecosystems.”²³⁰ This is not surprising, because access to freshwater is a key for survival of many species of plants, animals and other organisms, as indicated above. The CBD provides for conserving and protecting

²²⁴ Basel Convention, *supra*, at art. 2.8.

²²⁵ *See id.* annexes V.A, V.B at 63, 66.

²²⁶ *See id.* annexes I at 52, III at 57 and 58, VIII.A4 at 78, VIII.B2 at 86.

²²⁷ CBD, *supra*, at art. 1.

²²⁸ Secretariat of the Convention on Biological Diversity, Sabine Brels et al., CBD Technical Series No. 40: Transboundary Water Resources Management 5 (2008), <http://www.cbd.int/doc/publications/cbd-ts-40-en.pdf>.

²²⁹ *Id.* at 11.

²³⁰ CBD, *supra*, at art. 2.

biodiversity in various forms that involve protecting freshwater bodies, e.g. protecting habitats,²³¹ usage of environmental impact assessments,²³² monitoring conditions,²³³ and regulation²³⁴. In addition, the CBD relies on the “ecosystem approach”²³⁵, which necessarily includes freshwater as an element of the ecosystem and whose implementation with respect to an international watercourse requires international cooperation.

The CBD secretariat published a study of how the management of transboundary water resources via international watercourse agreements relates to the implementation of the CBD. Overall the study illustrated the relationship between water allocation and management, on the one hand, and the conservation and sustainable use of biological diversity, on the other. It demonstrates that the many goals and activities of the CBD programme for inland water ecosystems rely on appropriate water allocation and management. Ultimately it concluded that “frameworks for international cooperation regarding water allocation and management are necessary to operationalise the provisions of the CBD.”²³⁶

Reflecting the importance of international watercourses and international watercourse management to biological diversity and the CBD (and uniquely among the MEAs examined in this study), the Conference of the Parties (COP) of the CBD formally urged countries to ratify the UN Watercourses Convention.²³⁷ The next meeting of the COP reiterated this decision and urged all Parties and other governments “to strengthen relevant international cooperative arrangements for the management of inland watercourses and water bodies consistent with Article 5 of the Convention and as a contribution towards the achievement of the 2010 target of achieving a substantial reduction in the rate of biodiversity loss.”²³⁸ A subsequent CBD study concluded that if “widely implemented, the UN Watercourses Convention will reinforce inter-State cooperation at the basin level . . . and thus enhance the legal regime under the CBD for conserving and sustainably using inland water biodiversity.”²³⁹

²³¹ *Id.* at pmb. & art. 8.

²³² *Id.* at art. 14.

²³³ *Id.* at art. 7 & annex I.

²³⁴ *Id.* at arts. 8(c), 8(d); *see also id.* at arts. 8(k), 8(l), 9(d).

²³⁵ *See id.* at arts. 2, 8, 9.

²³⁶ CBD Technical Series No. 40, *supra*, at 36.

²³⁷ Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity, Mar. 20-31, 2006, para. 22, UNEP/CBD/COP/DEC/VIII/27 (2006), <http://www.cbd.int/doc/decisions/cop-08/cop-08-dec-27-en.pdf>. *See also* Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity, May 19-30, 2008, para. 3, UNEP/CBD/COP/DEC/IX/19 (2008), <http://www.cbd.int/doc/decisions/COP-09/COP-09-dec-19-en.pdf>.

²³⁸ UNEP/CBD/COP/DEC/IX/19 (2008) at para. 3.

²³⁹ CBD TECHNICAL SERIES NO. 40, *supra*, at 5. The study also concluded that “Biodiversity considerations add significant weight to the case for the wider adoption and implementation wider adoption and implementation of the UN Watercourses Convention and the UNECE Water Convention and both are mutually supportive of the CBD.” *Id.* at 6.

International water law is implicated with respect to the CBD, for example, to protect the ecosystems in international watercourses.

4.1.3. Convention on the Conservation of Migratory Species of Wild Animals²⁴⁰ (CMS)

The CMS is intended to protect migratory species, their habitats, and migration routes. The CMS serves as a framework agreement: it encompasses 19 international memoranda of understanding and seven other agreements have been entered into under its auspices, all of which serve to protect migratory species.²⁴¹

The CMS makes an express linkage to water in article I by identifying water as something that migratory species inhabit or require for their migration.²⁴² In addition, contamination of a land-based habitat by waterborne pollution is presumably a concern of the convention because such contamination can harm migratory species.²⁴³ Furthermore, CMS article V.5(i) requires the “prevention, reduction, or control of the release into the habitat . . . of substances harmful”²⁴⁴ to a migratory species.

International water law is thus related to CMS, for example, with respect to protecting freshwater ecosystems from transboundary pollution.

4.1.4. Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)

The Ramsar Convention promotes the conservation and wise use of wetlands,²⁴⁵ which is to take place via “local, regional and national actions and international cooperation . . .”²⁴⁶ Unlike the other MEAs examined in this study, the Ramsar Convention deals with a specific type of ecosystem, which is broadly defined and includes freshwater bodies.²⁴⁷ The convention

²⁴⁰ As of 31 July 2014, CMS had 119 Parties.

²⁴¹ UNEP/CMS Secretariat, *About the CMS Family – CMS Family Portal*, MIGRATORYSPECIES.ORG, <http://www.migratoryspecies.org/en/content/about-cms-family> (last visited June 27, 2014).

²⁴² CMS, *supra*, at art. I.1(f).

²⁴³ See “taking individually or in co-operation appropriate and necessary steps to conserve . . . their habitat.” *Id.* at art. II.2. See also *id.* at arts. III.4(a), V.5(e), V.5(f).

²⁴⁴ *Id.* at art. V.5(i).

²⁴⁵ Ramsar Convention, *supra*, at art. 3.1.

²⁴⁶ RAMSAR CONVENTION SECRETARIAT, RAMSAR: THE CONVENTION ON WETLANDS – WHAT ARE WE ABOUT? (2008), http://www.ramsar.org/pdf/about/about_brochure_2008_e.pdf.

²⁴⁷ Ramsar Convention, *supra*, at art. 1.1.

establishes a List of Wetlands of International Importance. When a State signs or becomes a Party to the convention, it must designate at least one wetland for inclusion on the list.²⁴⁸ As of 11 September 2014, there are 2,186 wetlands in 168 countries on the Ramsar Convention's List of Wetlands of International Importance.²⁴⁹

The definition of "wetland" in the Ramsar Convention includes areas of water, whether it is "static or flowing, fresh, brackish . . .",²⁵⁰ thus clearly establishing the relationship between Ramsar and water. Roughly 30 percent of the 2,186 designated Ramsar wetlands sites are on international watercourses.²⁵¹ Article 2.6 of the convention makes a clear link to international law, including international water law, by providing that "Each Contracting Party shall consider its international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl, both when designating entries for the List and when exercising its right to change entries in the List relating to wetlands within its territory."

Article 5 mandates Parties to "consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties."²⁵² Coordination and support of policies and regulations is required to ensure the conservation of wetlands with their respective flora and fauna.²⁵³ Pursuant to article 5, a mechanism has been established for collaborative international management of adjacent Ramsar sites: Parties may designate a new or existing Ramsar site as a "Transboundary Ramsar Site", meaning that an ecologically coherent wetland extends across national boundaries and the governments on all sides of the boundary have formally agreed to collaborate in its management. As of 11 September 2014, 36 sites had been so designated.²⁵⁴

The Ramsar secretariat and the government of Finland funded a workshop in 2011 designed to promote greater regional cooperation between governments and other stakeholders in the Mekong basin. The workshop, which was organised by IUCN, followed Lao PDR's becoming a Party to the Ramsar Convention in 2009. The objective of the workshop was to share "experiences on best practices in wetland conservation and wise use, as well as to provide updates on the implementation of the Ramsar Convention in each of the respective

²⁴⁸ *Id.* at art. 2.4.

²⁴⁹ RAMSAR SECRETARIAT, THE LIST OF WETLANDS OF INTERNATIONAL IMPORTANCE 4 (2014), <http://www.ramsar.org/pdf/sitelist.pdf>.

²⁵⁰ Ramsar Convention, *supra*, at art. 1.1.

²⁵¹ THE UN WATERCOURSE CONVENTION IN FORCE, *supra*, at 69.

²⁵² Ramsar Convention, *supra*, at art. 5.1.

²⁵³ *Id.*

²⁵⁴ THE LIST OF WETLANDS OF INTERNATIONAL IMPORTANCE, *supra*.

countries”.²⁵⁵ The workshop covered: working with local communities; management planning processes; wetland habitat management and monitoring; the Ramsar Communication, education, participation and awareness (CEPA) program; tourism programs; national inventories of wetlands and their values; national regulations, guidelines and mechanisms; and opportunities for national and regional cooperation. The workshop represented the first occasion in which Ramsar administrative authorities, Ramsar site managers, relevant regional NGOs, representatives of the Mekong River Commission, and experts from the region came together to discuss these topics.

Box 5.1 Treatment of Ramsar Sites by the International Court of Justice (ICJ)

In a case brought by Costa Rica against Nicaragua over activities in territory along the San Juan River,²⁵⁶ Costa Rica alleged that Nicaragua had violated the Ramsar Convention.²⁵⁷ In its Order on Provisional Measures, the ICJ expressly took note of the fact that the boundary area in question contained two interconnected wetlands listed on the Ramsar Convention’s List of Wetlands of International Importance, as well as of the Ramsar Convention’s requirement that “Contracting Parties shall consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party”²⁵⁸ The ICJ also noted that a Ramsar Convention Advisory Mission’s report had concluded that Nicaraguan activities in the area “had inflicted serious damage on the protected wetlands.”²⁵⁹ Each of the countries had listed one of the wetlands.²⁶⁰ In its Order, the Court prohibited both countries from sending any personnel to, or maintaining any personnel in, the disputed territory. The only exception had to do with protecting the listed wetland in the territory claimed by both countries:

Costa Rica may dispatch civilian personnel charged with the protection of the environment to the disputed territory . . . , but only in so far as it is necessary to avoid irreparable prejudice being caused to the part of the wetland where that territory is situated; Costa Rica shall consult with the Secretariat of the Ramsar Convention in regard to these actions, give Nicaragua prior notice of them and use its best endeavors to find common solutions with Nicaragua in this respect.²⁶¹

²⁵⁵ LEW YOUNG & ROBERT MATHER, WORKSHOP ON THE CONSERVATION AND WISE USE OF WETLANDS IN THE LOWER MEKONG RIVER BASIN 4 (2011), http://www.ramsar.org/pdf/IUCN_Mekong_Water_Dialogues_%20March_2011_Ramsar.pdf.

²⁵⁶ Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicar.), Provisional Measures, 2011 I.C.J. 6, para. 79 (Mar. 8).

²⁵⁷ *Id.* at para. 1.

²⁵⁸ *Id.* at paras. 79, 80.

²⁵⁹ *Id.* at para. 33.

²⁶⁰ *Id.* at para. 79.

²⁶¹ *Id.* at para. 86.

4.1.5. Stockholm Convention on Persistent Organic Pollutants²⁶² (Stockholm Convention)

The objective of the Stockholm Convention is to “protect human health and the environment from persistent organic pollutants”²⁶³ via elimination, prohibition, restrictions on production and sound waste management. Persistent organic pollutants (POPs) are organic chemicals that are toxic, remain in the environment for long periods of time, spread easily, and accumulate in human and wildlife tissue.²⁶⁴

The convention contains many links to water. For example, it refers to the transportation of POPs via water,²⁶⁵ and the persistence of POPs in water.²⁶⁶ It also refers to the accumulation of POPs within aquatic ecosystems²⁶⁷ and the bio-accumulation of POPs in aquatic species.²⁶⁸ In addition, Annex C, Part V, B(b)(ii) concerns wastewater.²⁶⁹

The relevance of the Stockholm Convention to water is thus clear: in order to accomplish the convention’s objective of eliminating, restricting, preventing accumulation, and accomplishing sound waste management to protect human health and the environment, it is necessary to keep POPs out of freshwater bodies, including international watercourses. The relevance to water is thus similar to the Basel Convention’s.

International water law is relevant to achieving many of the Stockholm Convention’s goals, particularly with respect to water quality.

²⁶² As of 31 July 2014, the Stockholm Convention had 179 Parties.

²⁶³ *Id.* at art. 1.

²⁶⁴ Secretariat of the Stockholm Convention, *The Pops - What Are Pops?*, CHM.POPS.INT, <http://chm.pops.int/TheConvention/ThePOPs/tabid/673/Default.aspx> (last visited June 29, 2014).

²⁶⁵ “Recognizing that persistent organic pollutants possess toxic properties, resist degradation, bioaccumulate and are transported, through air, water” Stockholm Convention, *supra*, at pmb1.; “Monitoring data showing that long-range environmental transport of the chemical, with the potential for transfer to a receiving environment, may have occurred via . . . water . . . ; or Environmental fate properties and/or model results that demonstrate that the chemical has a potential for long-range environmental transport through . . . water . . . with the potential for transfer to a receiving environment in locations distant from the source of its release.” *Id.* at annexes D.1(d)(ii), D.1(d)(iii).

²⁶⁶ “Persistence: (i) Evidence that the half-life of the chemical in water is greater than two months” *Id.* at annex D.1(b).

²⁶⁷ “Recognizing that persistent organic pollutants . . . accumulate in . . . aquatic ecosystems.” *Id.* at pmb1.

²⁶⁸ “Evidence that the bio-concentration factor or the bio-accumulation factor in aquatic species . . . is greater than 5,000” *Id.* at annex D.1(c).

²⁶⁹ “(b) General release reduction measures: . . . the following reduction measures could also be considered in determining best available techniques: . . . (ii) Treatment of residuals, wastewater, wastes and sewage sludge” *Id.* at annex C, pt. V.B(b)(ii).

4.1.6. United Nations Convention on Combating Desertification²⁷⁰ (UNCCD)

The objective of the UNCCD is: “to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements . . .”²⁷¹ In order to accomplish these goals it is recognised that there must be “rehabilitation, conservation and sustainable management of . . . water resources . . .”²⁷² The relationship between UNCCD and water and watercourses is thus evident from the convention’s objective and approach.

In addition, article 3 states that the Parties should have “a better understanding of . . . scarce water resources . . . and to work toward their sustainable use.”²⁷³ Among the general obligations of the convention is the obligation to “promote cooperation . . . of environmental protection and the conservation of . . . water resources.”²⁷⁴ The convention aims to prevent land degradation, including soil erosion from water;²⁷⁵ and eroded soil is an important water pollutant. The convention’s linkage to water is further evidenced because each of the four annexes to the convention has an article on the content of “National Action Programmes” that contains a mandate to include, when appropriate, “measures to conserve natural resources” including water resources.²⁷⁶ There are also several other references to “water” and “basins” in the convention.²⁷⁷ Overall the convention’s focus on water includes the efficient usage and management of water, its protection and conservation, and exchange of relevant information regarding water through cooperation.²⁷⁸

An example of the UNCCD secretariat’s activities is that, with the support of the Government of Norway and in partnership with the ADB, UNDP, UNEP, FAO, WWF and others, the secretariat organised a public-private dialogue on green growth in the Greater Mekong Subregion. The objective of the four-day dialogue held in June 2013 was to share experiences and discuss opportunities for sustainable natural resource management within the basin, with an emphasis on the following areas: land, water, biodiversity, and minerals. The meeting attracted over 150

²⁷⁰ As of 31 July 2014, the UNCCD had 195 Parties.

²⁷¹ *Id.* at art. 2.

²⁷² *Id.* at art. 2.2.

²⁷³ *Id.* at art. 3(c).

²⁷⁴ *Id.* at art. 4.2(d).

²⁷⁵ *Id.* at art. 1(f)(i).

²⁷⁶ *Id.* at annex I, art. 8.3(b)(i), annex II, art. 4(g), annex III, art. 4(f), annex IV, art. 6(b).

²⁷⁷ See *id.* at arts. 1(f)(i), 17.1(g), annex I, art. 13(d), annex II, art. 2(c), annex III, art. 4(d), annex IV, art. 2(e), 2(f).

²⁷⁸ See generally THE UN WATERCOURSE CONVENTION IN FORCE, *supra*, at 221-230.

participants from Mekong country ministries, multilateral organisations, NGOs, universities, and the private sector.²⁷⁹

International water law is relevant, for example, to protection and conservation of water resources.

4.1.7. United Nations Framework Convention on Climate Change²⁸⁰ (UNFCCC)

The UNFCCC has the objective of stabilizing the atmospheric concentration of greenhouse gasses (GHGs) in order to “prevent dangerous anthropogenic interference with the climate system.”²⁸¹ The UNFCCC specifies that cooperation efforts with respect to adaptation must take into account “water resources” and further refers to areas affected by drought and desertification.²⁸²

From a scientific perspective, it is clear that climate change can affect the amount and timing of rainfall, the rate of melting of glaciers and ice caps, and biota, which encompasses aquatic ecosystems such as international watercourses and other freshwater bodies.²⁸³ As the global temperature rises, droughts and floods will likely become more frequent,²⁸⁴ thus affecting international watercourses and placing demands on their management. In addition, forests and other sinks are affected by water availability, including water from international watercourses. Furthermore, climate change results in increased evaporation of freshwater, thus decreasing the quantity of water in international watercourses. Climate change may also cause the demand for water to increase for various uses.²⁸⁵

Another strong tie between the UNFCCC and water relates to the fact mentioned above that forests act as a sink to sequester carbon. Deforestation and forest degradation (e.g. clearing, burning, and harvesting of tropical forests) are responsible for up to 20% of worldwide GHG

²⁷⁹ OFFERING SUSTAINABLE LAND-USE OPTIONS, NATURAL WEALTH MEKONG: NEW OPPORTUNITIES FOR NATURAL WEALTH MANAGEMENT (2013), http://www.capacitybuildingoslo.com/wp-content/uploads/2013/08/Natural_Wealth_Mekong_Report.pdf.

²⁸⁰ As of 31 July 2014, the UNFCCC had 196 Parties.

²⁸¹ *Id.* at art. 2.

²⁸² *Id.* at art. 4.1(e).

²⁸³ INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007, 49 (R.K. Pachauri and A. Reisinger eds., 2007), http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf [hereinafter IPCC FOURTH ASSESSMENT REPORT]. See also INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE AND WATER: IPCC TECHNICAL PAPER VI (Bryson Bates et al. eds., 2008), <http://www.ipcc.ch/pdf/technical-papers/climate-change-water-en.pdf>.

²⁸⁴ See IPCC FOURTH ASSESSMENT REPORT, *supra*.

²⁸⁵ See THE UN WATERCOURSE CONVENTION IN FORCE, *supra*, at 207-08.

emissions.²⁸⁶ In terms of mitigating climate change, because forests can act as carbon sinks; their restoration and preservation is one of the feasible ways to absorb carbon from the atmosphere. Forests need water to survive, and they have important implications for water resources as well, including recharge of aquifers and soil erosion into watercourses. Well-maintained natural forests preserve biodiversity and improve the quality of water, lowering the level of sediments and pollutants. In some cases forests can also increase total water flow.²⁸⁷

Recognising the role of forests in climate change, Parties to the UNFCCC developed REDD+ (Reducing Emissions from Deforestation and Forest Degradation, enhancement of carbon stock, sustainable management of forests, and conservation in developing countries), a climate mitigation approach carried out through the support of various initiatives, including the UN-REDD Programme, the Forest Carbon Partnership Facility (FCPF), and the Forest Investment Program (FIP) hosted by the World Bank. Various REDD+ activities are occurring around the world, including by international watercourse authorities. REDD+ often implicates interests of Indigenous Peoples and communities dependent on forest and water resources. The Policy Board of UN-REDD has a member representing Indigenous Peoples and another member representing communities dependent on forest resources.

The UNFCCC secretariat treats water as a cross-cutting issue relevant to all its programme areas and thus does not have a single focal point for it. This reflects the fact that water is significant with respect to many aspects of climate change. Among other things, “water resources” is one of the topics being considered under the Nairobi Work Programme on impacts, vulnerability and adaptation to climate change (NWP), established by the UNFCCC Conference of the Parties in 2005.²⁸⁸ As part of that focus, the UNFCCC secretariat, together with the government of Mexico, organised a workshop in 2012 on water and climate change impacts and adaptation strategies in Mexico City. The workshop included a variety of participants, including representatives of regional water agreements.

International water law is implicated, for example, with respect to cooperation in adaptation measures that relate to international watercourses and with respect to mitigation or

²⁸⁶ Oscar Venter et al., *Harnessing Carbon Payments to Protect Biodiversity*, SCIENCE, Dec. 4, 2009, at 1368.

²⁸⁷ NIGEL DUDLEY & SUE STOLTON, WORLD BANK/WWF ALLIANCE FOR FOREST CONSERVATION AND SUSTAINABLE USE, RUNNING PURE: THE IMPORTANCE OF FOREST PROTECTED AREAS TO DRINKING WATER (2003), <https://openknowledge.worldbank.org/handle/10986/15006>.

²⁸⁸ “The objective of the Nairobi work programme (NWP) is to assist all Parties, in particular developing countries, including the least developed countries and small island developing States, to improve their understanding and assessment of impacts, vulnerability and adaptation, and to make informed decisions on practical adaptation actions and measures to respond to climate change on a sound, scientific, technical and socioeconomic basis, taking into account current and future climate change and variability.” United Nations Framework Convention on Climate Change, *Programme Activities and Work Areas, Overview of the Nairobi Work Programme*, UNFCCC.INT, http://unfccc.int/adaptation/workstreams/nairobi_work_programme/items/5137.php (last visited Sept. 24, 2014).

adaptation measures that affect the rights of Indigenous Peoples and other communities dependent on water resources.

4.2 Legal Relationships

4.2.1. Customary international law and the doctrine of inter-temporal law

The norms in MEAs do not exist in isolation from the rest of the international legal system. As discussed in chapter 3, international agreements, including MEAs and regional and basin agreements, are to be interpreted in light of developments in customary international law under the doctrine of inter-temporal law. The development of customary international law norms thus could affect the interpretation and implementation of MEAs. The most obvious examples where this could occur is the customary international law obligation to conduct a transboundary environmental impact assessment when an activity may have a significant adverse transboundary impact²⁸⁹ and, assuming they are customary international law and not only treaty-based, the human rights law duties to conduct environmental assessment when an activity might harm the environment and infringe a human right and to make the information developed in the assessment available to the public.

There is no evidence that anything in the UN Watercourses Convention would constitute a development calling for the application of the doctrine of inter-temporal law with respect to interpreting or applying an MEA (or any other agreement), even though some parts of that convention are viewed as stating customary international law. Provisions of the convention might nevertheless be useful as gap fillers with respect to MEAs, if relevant gaps prove to exist with respect to a particular situation.

4.2.2. Interpretation

Quite apart from any effect as customary international law, as a legally binding international agreement, the UN Watercourses Convention affects the legal rights and obligations of the Parties to it, each of which as of this writing is a Party to at least one of the MEAs examined in this study.²⁹⁰ It seems clear that no provisions of the UN Watercourses Convention constitute *jus cogens*, with the result that that convention may be deviated from by MEAs; the converse also seems true. The precise way in which the convention might affect rights and obligations under MEAs or an MEA might affect rights and obligations under the UN Watercourses Convention depend on the provisions of both the UN Watercourses Convention and the other

²⁸⁹ See *Indus Waters Kishenganga Arbitration*, *supra*.

²⁹⁰ Each of the Parties to the UN Watercourses Convention as of this writing is also a Party to the CBD.

relevant agreements as analysed in light of the particular context being considered. In theory, that type of situation-specific analysis (which is beyond the scope of the present study) could lead to conflicting obligations or, even if not a direct conflict, to obligations under one treaty that defeat the objects and purposes of another treaty.

As mentioned in chapter 3, the UN International Law Commission (ILC) considered the general question of the potential for conflict between two or more international agreements in the context of the increasing complexity and fragmentation of the international legal system. In its report, the ILC recommended the harmonisation principle of interpretation: "when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations."²⁹¹ Utilising this interpretive approach appears to be particularly appropriate in the context of multi-layered, nested and parallel norms and institutions that exist regarding international watercourses, as described in earlier chapters, and may do much to avoid conflict.

4.2.3. Human Rights

International law may affect the interpretation and implementation of MEAs (and water-specific agreements) when a human right is implicated because of the need to respect and protect that right. For the purposes of this report, the most relevant substantive human rights are the right to water, the procedural rights to access to information, freedom of assembly, free speech, participation, and access to justice, and the rights of Indigenous Peoples. The duties to conduct environmental impact assessment when a proposed activity might harm the environment and infringe human rights, and to make available to the public information developed through the assessment are also relevant.

Human rights jurisprudence is relevant to how these rights and duties will be interpreted and applied.²⁹² As noted in chapter 3, each of the three regional human rights tribunals (Africa, Americas and Europe) has found that environmental harm of the type covered by the MEAs

²⁹¹ Rep. of the Int'l Law Comm'n, 58th sess., May 1-June 9, July 3-Aug. 11, 2006, para. 251 § 1(4), U.N. Doc. A/61/10; GAOR 61st Sess., Supp. No. 10 (2006), <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G06/636/20/PDF/G0663620.pdf?OpenElement>.

²⁹² These rights and duties are set forth in chapter 3, *supra*. One issue beyond the scope of this study is the extent to which States have obligations to protect the human rights of persons outside their jurisdiction or control (the incorrectly named "extraterritoriality" question). For a discussion of this, see THE UN WATERCOURSE CONVENTION IN FORCE, *supra*, at 300.

considered in this study can violate human rights.²⁹³ One of the issues raised in these cases is what precise standards to apply, for example to measure whether a State has violated the right to life or an adequate standard of living. This issue is directly relevant to the right to water because the content of that right is still being developed; but it is relevant to the human rights-and-water issues as well. The question of importance to this report is how the issue of determining what precise standards to apply relates to MEAs and regional and basin agreements.

The conceptual process followed by human rights tribunals in environmental cases has been to look first to whether the State accused of violating human rights is complying with its own domestic standards. By focusing on the respondent State's own standards, this approach avoids the prospect of an international tribunal imposing external standards on the State. At the same time, however, it presents an obvious difficulty: reliance on domestic legal standards is subject to changes in those standards by the respondent State. Human rights tribunals have thus held that there are limits to a State's ability to change its law in a way that affects that State's liability or accountability for what would otherwise be a human rights violation. If the change is made in accordance with all relevant domestic requirements (procedural and substantive), however, it may well be that the claimant loses in the end unless the tribunal looks to another source, i.e. an international source.

In fact, human rights tribunals do not limit themselves to examining domestic environmental law and policy. They also look to international standards binding on the respondent State if they exist and sometimes to international standards even if they are not binding on the respondent State. An example of tribunals looking to international instruments that are not binding on the respondent State is *Taskin and Others v. Turkey*.²⁹⁴ In that case, the European Court of Human Rights relied on its earlier environment-related jurisprudence based on the Aarhus Convention²⁹⁵ -- an MEA -- despite the fact that Turkey was not a Party to that convention.²⁹⁶ Similarly, in *Tatar v. Romania*, the European Court held that Romania had violated human rights in connection with an ecological disaster at a gold mine that released high levels of sodium cyanide and heavy metals, relying on the Rio Declaration on Environment

²⁹³ See, e.g. Decision Regarding Communication 155/96 (Social and Economic Rights Action Center/Center for Economic and Social Rights v. Nigeria), Case No. ACHPR/COMM/A044/1 (Afr. Comm'n Hum. & People's Rts., May 27, 2002), <http://www1.umn.edu/humanrts/africa/comcases/155-96.html>;

López Ostra v. Spain, App. No. 16798/90, 303-C Eur. Ct. H.R. (ser. A) (1994), 20 EHRR 277, <http://hudoc.echr.coe.int/sites/eng/pages/search.aspx?i=001-57905>; Fadeyeva v. Russia (2007), 45 EHRR 10; Taskin and Others v. Turkey (2006), 42 EHRR 50; Mayagna (Sumo) Awas Tingni Community v. Nicaragua, 2001 Inter-Am. Ct. H.R. (ser. C) No.79, (31 August 2001).

²⁹⁴ Taskin and Others v. Turkey, 42 EHRR 50, *supra*.

²⁹⁵ *Id.* at § B "Relevant international texts on the right to a healthy environment", paras. 99-100.

²⁹⁶ See Aarhus Convention on Access to Information, *supra*,

and Development, the Stockholm Declaration on the Human Environment, and the precautionary principle, among other things.²⁹⁷

The result is thus that the standards in MEAs may become human rights standards even for countries not Party to the relevant MEA. It would be consistent with this approach to incorporate standards from regional or basin agreements, in particular agreements that are purely domestic such as the Murray-Darling agreement.

As noted in chapter 3, the UN Watercourses Convention does not mention human rights. In article 10, however, the convention provides that any conflict between watercourse uses “shall be resolved with reference to [the convention’s articles regarding equitable and reasonable use and no significant harm], with special regard being given to the requirements of vital human needs.” At the least, this provides an opening for making a human rights-based argument.

4.3 Summary

Each of the MEAs considered in this study relates in significant ways to water. Those relationships can take either or both of the following forms: the MEA involves environmental threats that can affect water quality, quantity or availability; or the quality, quantity or availability of water can affect realisation of the environmental goals sought by the MEA. The exact relationship depends on the MEA in question.

MEAs are subject to the doctrine of inter-temporal law, which could affect their interpretation and implementation in ways that increase the coherency of international law, including international law relevant to water. The application of the harmonisation principle or article 31.3(c) of the Vienna Convention on the Law of Treaties might also have that effect, as also described in chapter 3. The application of human rights law could result in the standards in MEAs, including the UN Watercourses Convention, being applicable to States that are not Party to the respective MEA.

²⁹⁷ *Affaire Tătarc. Roumanie [Tatar v. Romania]*, App. No. 67021/01, § II.B Le droit et la pratique internationaux pertinents [The relevant international law], ECHR 2009, <http://hudoc.echr.coe.int/sites/eng/pages/search.aspx?i=001-90909>.

CHAPTER 5: REGIONAL AND BASIN AGREEMENTS – GOOD PRACTICES IN THE FIELD OF SUSTAINABLE FRESHWATER MANAGEMENT

5.1 Introduction

This chapter presents examples of the good practices encountered during the study. After defining the term “good practice” for purpose of this report (immediately below) and providing observations on general trends (part 5.2), the chapter describes selected good practices of the regional and basin authorities examined in this study (parts 5.3 to 5.9), although in the case of the Guarani Aquifer Agreement the good practices relate to the project that led to drafting the agreement because the agreement is not yet in force. It is to be emphasised that there are many other good practices that have been engaged in by these and other watercourse authorities; the selection that follows is representative, not exclusive.

As noted in chapter 1, for purposes of this study, a “good practice” is one in which a regional or basin agreement authority or project has integrated or otherwise given effect to international water law principles and provisions or substantively supported the implementation of the selected or other MEAs.

5.2 General Observations Regarding Increased Attention to Environmental Protection and Interactions of Treaty Bodies

One of the most noticeable trends of recent years, which is also noticeable in the regional and basin agreements examined in this study, is the increasing attention paid to environmental issues in the governance of international watercourses.²⁹⁸ This parallels the growing attention to ecosystem services and the growing realisation of the significance and inter-connectedness of environmental issues more generally, including at the global and local levels. It might thus be expected that regional and basin agreements are increasingly affected by international water law and increasingly interacting with MEAs.

Regional and basin agreements historically have tended to focus on transboundary issues relating to the watercourse they pertain to, however, rather than on global issues.²⁹⁹ Moreover, these agreements do this with specific attention to local conditions, values and political realities. This focus is understandable and indeed is one of the values of regional and basin approaches; but it conceivably serves to limit regional and basin agreements' relevance to issues of global importance covered by international water law and MEAs. Such an effect might not be problematic if there were no impacts within the territory covered

²⁹⁸ For a discussion of some aspects of this, see THE GREENING OF WATER LAW, *supra*.

²⁹⁹ BROWN WEISS, *supra*, at 168.

by regional or basin agreements related to issues covered by international water law and MEAs or if conditions within basins did not affect global environmental conditions. However, global environmental problems typically have impacts at regional, basin and sub-basin levels, and vice versa. For example, global climate change can affect precipitation patterns at the basin level, and pollution by hazardous pesticides and industrial chemicals can affect waterways.

Thus it is appropriate and desirable as a practical matter that regional and basin authorities which experience such impacts deal with them in the context of overarching global norms and agreements and take advantage of the experience gained in implementing those laws and agreements. Conversely, because activities and conditions within a region or basin can affect global environmental problems (e.g. deforestation within a basin can exacerbate climate change), it is appropriate and desirable that MEA bodies interact with regional and basin authorities in order to more effectively deal with the environmental problems with which they are concerned.

The regional and basin agreements examined in this study, however, are focused on the international watercourses to which they pertain and, with two exceptions (Amazon Treaty and Murray-Darling Agreement), do not provide a mandate to achieve the objectives of, or reach out to or interact with, other international agreements, including MEAs and other regional and basin agreements. From a legal perspective, the absence of specific mandates need not limit regional and basin authorities: the texts of the other five agreements examined in this study do not bar either cooperating with MEAs and other regional and basin authorities or taking MEAs into account. Moreover, those texts are sufficiently flexible to allow consideration of international law, whether in the form of customary international law or international agreements.

The governments of the Parties to the watercourse agreement in question may prefer that they conduct any interactions with other treaty bodies (whether formed by an MEA or by a regional or basin agreement), rather than having the watercourse authority do it. In fact, in this study, direct government interaction with MEA bodies has been encountered more frequently than interaction by regional and basin authorities. This study encountered some interaction by watercourse authorities with MEA bodies and with other watercourse authorities, which typically occurred in conferences or workshops organised by third parties (the one exception is the Guiana Shield Project described below in connection with the Amazon River basin).

Watercourse authorities obviously must be sensitive to the preferences of governments. Nevertheless, the benefits that can be gained through direct interaction between watercourse authorities and MEA bodies and through experience-sharing between watercourse authorities

should not be ignored. The first International Environmental Forum for Basin Organisations, to be held in November 2014 and organised by INBO, provides an opportunity for just such experience-and skill-sharing.

5.3 Amazon River Basin

5.3.1. Adapting to New Threats and Conditions

Unlike the Project for Environmental Protection and Sustainable Development of the Guarani Aquifer System (described below), the Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin Considering Climate Variability and Climate Change (Amazon Project) has not yet been concluded. Consequently this good practice from the Amazon Project is based on the project proposal, in other words the intent and objective regarding how to carry out the project. The project is expected to conclude in 2015.

The main objective of the Amazon Project “is to strengthen the institutional framework for planning and executing in a coordinated and coherent manner, activities for the protection and sustainable management of the land and water resources of the Amazon River Basin in the face of ongoing climatic changes being experienced in the Basin.”³⁰⁰ Also because the project involved GEF financing it was required to be consistent with obligations under the relevant MEAs.

The Amazon project originally was named “Integrated and Sustainable Management of Transboundary Water Resources in the Amazon River Basin”. The words “Considering Climate Variability and Climate Change” were subsequently added because it was recognised that the major cross-cutting issue of concern was the effects of climate change. The basin is mainly covered by tropical rainforest and has “more than 30,000 plant species, nearly 2,000 fish species, 60 reptile species, 35 mammal families, and approximately 1,800 bird species,” while also having more than 56% of broad leaf forests. An estimated population of 10 million people lives in and is dependent on the basin; and extractive industries also rely on the basin for timber, bauxite, steel, gold, and other minerals. Nevertheless, the basin and its population incurred harsh conditions in 1997 due to drought. The Amazon Basin is significantly affected by El Niño Southern Oscillation (ENSO)-type climatic variations, which decrease precipitation. Such experience highlighted the urgency of adapting to climate change variations for the sake of communities and economic development.

³⁰⁰ UNITED NATIONS ENVIRONMENT PROGRAMME AND GLOBAL ENVIRONMENT FACILITY, PROJECT DOCUMENT FOR THE INTEGRATED AND SUSTAINABLE MANAGEMENT OF TRANSBOUNDARY WATER RESOURCES IN THE AMAZON RIVER BASIN 1 (n.d.), http://iwlearn.net/iw-projects/2364/project_doc/project-document/view (click on “GEF Amazonas PDF Block B English.pdf”).

The project is expected to develop the capacity to predict and effectively respond to the impacts and consequences of climatic variability. Phase II of the project is to establish a working relationship with the Centre for the Prediction of Climate Change and Hydrologic Variability. Also priority topics are to be established and interventions identified with a primary focus on “responses of the ecosystem and human communities to climatic variation as manifested by droughts, floods, and forest fires within the Basin.”³⁰¹ Among the various outcomes of the Amazon project, those regarding adaptation include: “water resources management and climate change adaptation responses,” “reducing the vulnerability of peoples and ecosystems to extreme events,” and optimization of transboundary water uses including adaptation measures.

5.3.2. Integration of Multilateral Environmental Agreements

The eight Amazonian countries agreed on a mandate for the permanent secretariat of ACTO to follow.³⁰² As appropriate, ACTO through its secretariat participates as an observer for relevant MEAs including CBD, UNFCCC, and CITES. The relationship that ACTO has with the MEA secretariats is through capacity building, technical cooperation, identification of connected activities, and studies.

5.3.3. Forest monitoring and REDD+

The Brazilian state of Amapá (which is part of the Amazon basin), French Guiana, Guyana and Suriname are cooperating in developing forest monitoring methodologies in the Guiana Shield in connection with REDD+.³⁰³ The Guiana Shield is a high-forest-cover, low-deforestation area. The cooperation is occurring via a Regional Technical Collaboration Agreement funded by the European Regional Development Fund (FEDER) through the Interreg IV Caraïbes program, the French Global Environmental Facility, and the French Guiana Region, as well as by the project partners’ own contributions. Financing Agreements with donors were signed in 2012 and the project officially started in January 2013.

The Guiana Shield project follows the decisions of the UNFCCC Conference of the Parties and the Land Use, Land-Use Change and Forestry (LULUCF) and Agriculture, Forestry and Other Land Use (AFOLU) guidelines issued by the Intergovernmental Panel on Climate Change (IPCC). As of June 2014, the project staff has not needed to interact directly with the secretariats of either the UNFCCC or the IPCC. Experts from UN-REDD and the Food and Agriculture Organization

³⁰¹ *Id.*

³⁰² AMAZON COOPERATION TREATY ORGANIZATION, STRATEGIC ACTION PLAN 2004-2012, at 13-18 (2004), <http://iwlearn.net/iw-projects/2364/reports/sap-document/view>.

³⁰³ Two countries partly located in the Guiana Shield are not participating (Colombia and Venezuela).

(FAO) have participated in technical working group meetings, in order that the forest monitoring staff from the project participants can have access to their expertise. Representatives from ACTO have attended technical working group meetings as well, in order to share experiences.

While in the same eco-region, the Guiana Shield countries have different histories and have developed their own priorities. The participants' methodologies will not be uniform, given the need to take into account national legal systems and other considerations. The participants are exploring ways to make the national methodologies comparable/compatible and to use similar data sources in some cases, however, so that the participants can jointly develop regional maps and modelling projects, etc., and to facilitate cooperation in other ways.

REDD+ requires monitoring and reporting of forest carbon stocks, and for that purpose encourages each country to prepare a National Forest Inventory (NFI). In order to make the NFI more cost effective and worth the effort, countries may choose to expand its scope to involve multiple purposes, also considering non-carbon issues covered by the selected MEAs. NFIs are well suited to provide data on biological diversity, wetlands, migratory species, and chemical pollution among other relevant issues. The participants will proceed with respect to preparing their inventories in the same manner as they are with respect to forest monitoring. Thus the project may invite officials or staff from relevant MEAs to participate in meetings of the technical working group. In addition, project and country staff anticipates that they will utilise the web pages of MEAs and may also contact MEA secretariats if questions arise.

5.4 Danube River Basin

The Danube River Basin has experienced significant environmental and other transboundary problems and been the subject of many international governance efforts. The International Commission for the Protection of the Danube River (ICPDR) has been very active in working with the 14 countries (out of a total of 19 basin countries) that are Parties to the Danube Convention. The ICPDR serves as the platform for the implementation of all transboundary aspects of the EU Water Framework Directive (WFD). It also has responsibility for coordinating the implementation of the EU Floods Directive in the Danube Basin. One of the most ambitious projects confronted by any regional or basin authority related to pollution of the Black Sea. The ICPDR's activities in that regard are described below.

5.4.1. Nutrient and pollution reduction in the Black Sea “dead zone”

The last 150 years have seen dramatic disturbances to aquatic ecosystems, biodiversity, and water quality and quantity in the Danube basin (e.g. 80% loss in Danubian wetlands and floodplains since the end of the 19th century). In the 1970s, heavy nutrient discharge and

pollution into the Black Sea from human activity in agriculture and industry and human waste, mainly originating in the Danube basin, led to the depletion of the Black Sea and formation of a “dead zone” through accelerated eutrophication (massive loss in marine life due to a shortage in oxygen induced by algae overgrowth and death).

With the support of the GEF, UNDP, World Bank, the EU, Danubian countries have generated billions of euros worth of investments for environmental interventions aimed at protecting the Danube basin since 1991.³⁰⁴ Initial assistance from UNDP and the GEF helped establish the foundation for cooperation leading to the adoption of the convention, and assisted in quantifying data on water quality, especially nutrient and toxin levels entering the Black Sea from the Danube.

Building on the regional cooperation between Danube countries throughout the 1990s, \$100 million in GEF funds, in addition to \$400 million in co-financing and EU infrastructure support was invested through the “GEF Strategic Partnership for Nutrient Reduction in the Danube/Black Sea Basin”. This was launched in 2001 with the objective of helping countries implement measures to reduce nutrient pollution levels and other hazardous substances to levels necessary to permit Black Sea ecosystems to recover to similar conditions as those observed in the 1960s. One of the main components of this initiative was the GEF-funded and UNDP-implemented Danube Regional Project (DRP). The DRP focused primarily on improving agricultural practices, municipal wastewater treatment, and the management of important wetlands. The DRP portfolio included projects in 11 Danube countries.

The UNDP/GEF Danube Regional Project and the ICPDR have identified the virtual recovery of the Black Sea dead zone as one of the major successes resulting from the partnership.³⁰⁵ According to reports produced by these organisations, oxygen levels (which were being depleted in the 1970s and 1980s) in lower portions of the Black Sea have been restored and

³⁰⁴ Initiatives for the protection of the Danube, including the *Environmental Programme for the Danube River Basin (EPDRB)* (agreed to by 24 countries, GEF/UNDP, EC and NGOs in Sofia, Bulgaria in 1991), the adoption of the Danube Convention, and the establishment of the ICPDR (which eventually took over the responsibilities of the EPDRB, once it ended in 2000) gained momentum following the collapse of the Soviet Union and the adoption of the UNECE Convention on the Protection of Transboundary Rivers and Lakes.

³⁰⁵ In 2007 the ICPDR won the International Theiss River Prize for water management in the Danube River Basin. The Theiss River prize is a highly regarded international water management award, which identifies best practices in water management, preservation, and restoration. The GEF, *Strengthening Cooperation in the Danube River Basin*, THEGEF.ORG, <http://www.thegef.org/gef/node/2183> (last visited Oct. 7, 2014).

nutrient emissions stabilized. In the Danube, nitrogen discharge has fallen by 20% and phosphorus by nearly 50% over the last 15 years.³⁰⁶

5.4.2. Waste management for inland navigation

Two ICPDR projects regarding waste management -- Waste Management for Inland Navigation on the Danube (WANDA) and Convention for Waste Management for Inland Navigation on the Danube (CO-WANDA) -- were highlighted at a 2013 Workshop on Management of Ships Dismantling and Related Hazardous Waste. Staff of the Basel Convention also made presentations regarding ship dismantling and waste management at the workshop.³⁰⁷

5.4.3. Public participation

The central importance of actively involving the public in sustainable river management was recognised at the time the Danube Convention was finalised. As of this writing, 23 organisations have status as Observers to the ICPDR and participate actively. These include NGOs, organisations representing business entities and inter-governmental organisations. Other entities have consultative status. The Guidelines for “Observership” provide information about how to participate.³⁰⁸ Observers are involved in meetings of the expert groups that are utilised extensively by the ICPDR, as well as in plenary meetings.

In addition to the Observers, the ICPDR engages the public through consultations in the development of plans. These include stakeholder workshops, online surveys and public calls for the submission of comments on draft documents. Finally, the ICPDR engages in public information, educational initiatives and outreach activities to engage the public. These include Danube Day, which is an annual celebration held on 29 June of the Danube River system and the people and wildlife that rely on it³⁰⁹, and the Danube Box, which is a media set offering materials for educators and children aged 9-12 regarding the Danube River and its tributaries³¹⁰. In addition, the ICPDR publishes a magazine, the Danube Watch, designed to enhance “regional

³⁰⁶ PAUL CSAGOLY, 15 YEARS OF MANAGING THE DANUBE RIVER BASIN 1991 – 2006 (2007), <http://iwlearn.net/iw-projects/1460/reports/public-participation-and-awareness/15-years-of-managing-the-danube-river-basin-19912013-2006/view> (click on “15 Years Managing DRB_June07.pdf”).

³⁰⁷ Basel Convention Regional Centre Bratislava, *BCRC Bratislava, TAIEX Multicounty Workshop on Management of Ships Dismantling and Related Hazardous Waste, Bratislava, Slovakia, April 15-16 2013*, SAZP.SK, <http://www.sazp.sk/bcrc/script/detail/upcom18.php> (last updated May 2, 2013).

³⁰⁸ International Commission for the Protection of the Danube River, GUIDELINES FOR PARTICIPANTS WITH CONSULTATIVE STATUS AND FOR OBSERVERS TO THE ICPDR (2005), <http://www.icpdr.org/main/publications/legal-documents> (click on “Guidelines for Observership”).

³⁰⁹ International Commission for the Protection of the Danube River, *Danube Day 2015-ICPDR*, DANUBEDAY.ORG, <http://www.danubeday.org/> (last visited Oct. 10, 2014).

³¹⁰ International Commission for the Protection of the Danube River, *English Version of the Danube Box*, DANUBEDAY.ORG, <http://www.danubebox.org/en/version-en> (last visited Oct. 10, 2014).

cooperation and information sharing on sustainable water management and environmental protection in the Danube River Basin.”³¹¹

5.5 Guarani Aquifer

In 2003 Argentina, Brazil, Paraguay and Uruguay launched the Project for Environmental Protection and Sustainable Development of the Guarani Aquifer System (PGAS). It was funded in part by the World Bank and executed by the OAS, and as such the project was required to be consistent with the obligations under the relevant MEAs.

As noted in chapter 2, the Guarani Agreement is not yet in force; and the regional follow-up steps recommended by the Strategic Action Program of the PGAS have not been carried out. On a national level, however, countries have implemented some of the recommended steps pertaining to those countries. Moreover, the process of developing the scientific and political bases for the agreement demonstrated several good practices, described below.

5.5.1. Baseline data collection

The overall objective of PGAS was the creation of a common institutional framework for managing and preserving the Guarani Aquifer in a sustainable manner. However there was not sufficient knowledge about the aquifer in order to design such a framework: “Nobody really understood how they were connected”³¹² It was thus necessary to assess all known data and conduct further research to understand the GAS and determine its location and size. After the scientific information was compiled and provided to all parties, the baseline data “finally provided different stakeholders and policy-makers with a better understanding of how the countries would need to collaborate to protect the aquifer.”³¹³ All the data collected is available in each Signatory country within government and public venues, i.e. libraries, universities, and hydrological institutions. Twenty-six volumes of data were collected and this information is also available in digital format. Baseline data collection and dissemination was a necessary first step to establish a common institutional framework that all countries could agree upon.

5.5.2. Principle of prevention

³¹¹ International Commission for the Protection of the Danube River, *Danube Watch*, ICPDR.ORG, <http://www.icpdr.org/main/publications/danube-watch> (last visited Oct. 10, 2014).

³¹² FROM COMMUNITY TO CABINET, *supra*, at 35.

³¹³ *Id.* at 35.

Among the different rationales for PGAS was prevention. Groundwater pollution is expensive to clean up and on some occasions may also be almost impossible to reverse.³¹⁴ Also, groundwater is seen as a strategic reserve because the quality of the water due to biogeochemical filtering is of a better quality than any river, lake, or impoundment can achieve and groundwater rarely needs to be treated.³¹⁵ Inter-regional water-resources management cooperation could avoid or at least minimize the possibility of the Guarani aquifer getting polluted. The Strategic Action Program of PGAS concluded that the aquifer is of high strategic value to all four countries because it provides water security to the region. The Guarani aquifer contains about 40,000 cubic kilometres of freshwater (approximately 90% potable) and reportedly can “meet the water demands of 360 million people on a sustainable basis”³¹⁶ Consequently the Strategic Action Program recommended that all Parties “adopt common management principles and policies, based on shared knowledge on the current status and changes taking place within the GAS”³¹⁷ to ensure the ability to carry out productive, economic and social-development activities.

5.5.3. Open dialogue and coordination among the four States

Starting from the project proposal through the end of PGAS, the Secretary General of PGAS organised biannual meetings with technicians and diplomats from the four countries. This practice was important as it provided an ongoing forum for addressing all relevant technical and legal issues and contributed to a healthy environment of cooperation and trust that enabled each Party voluntarily to undertake responsibilities with respect to coordinated international management of the Guarani aquifer. For example, Argentina is responsible for having a central physical and digital platform where the Signatories and the public can access all known information on Guarani; Brazil will coordinate and manage the data to monitor the status of Guarani; Paraguay will coordinate the diffusion of information on Guarani and training individuals on Guarani management; and Uruguay will house the headquarters for the Guarani Authority. In addition, Brazil took advantage of its role regarding monitoring the GAS to create a uniform monitoring system for all of Brazil, which had not existed before, thus leading to a multi-basin benefit.

Because the discussions on the hydrography of the Guarani aquifer system and potential management needs were complicated and challenging, it was essential that the participants in

³¹⁴ GLOBAL ENVIRONMENTAL FACILITY, PROJECT APPRAISAL DOCUMENT: ENVIRONMENTAL PROTECTION & SUSTAINABLE DEVELOPMENT OF THE GUARANI AQUIFER SYSTEM PROJECT 17 (2002) [hereinafter GUARANI PROJECT APPRAISAL DOCUMENT].

³¹⁵ *Id.* at 7.

³¹⁶ *Id.*

³¹⁷ GUARANI SAP, *supra*, at 122.

the biannual meetings and other negotiations were well-prepared and knowledgeable about the political and legislative realities of their respective country and about technical matters. This was achieved in part because almost all participants were the same throughout the entire process: all the technicians, starting from the project proposal to the finalisation of the project, remained the same. Although the diplomats who participated at the proposal stage were not the same as those at the project phase, these changes were not disruptive, perhaps because of the continuity of the technical personnel and the trust that had been established among them.

An example of the role of the technicians is that many hydromyths (i.e. myths about water) were addressed in order to dispel concerns and misunderstandings. For example, there was a mistaken belief on the part of some that all of the water of the Guarani aquifer could be drawn from a single well. Once the hydromyths were addressed, the political and legislative matters could be, and were, worked out, taking into account the facts that each country has its own unique set of laws that could be applied in a manner consistent with the effective management of the Guarani aquifer and that progress would not be possible if effective management would infringe on domestic laws, require that domestic laws be modified, or upset existing political interactions.

5.5.4. Coordination within each State

Achieving a successful framework to manage the Guarani aquifer required cooperation and coordination among all levels of government in all of the four countries. In addition to the cooperation among Argentina, Brazil, Paraguay and Uruguay, cooperation among national, state and local levels also occurred. For example, “in Brazil, the Federal Government has no jurisdiction over groundwater but the . . . project helped the states to start talking to the national government and to each other about the joint management of the aquifer.”³¹⁸ A few examples of the measures of cooperation and coordination are: (1) a National Inter-Ministry Committee was established in each country to promote cross-sector action within the country,³¹⁹ followed by the establishment of a similar committee in Brazil among its local states;³²⁰ (2) national and regional institutions now have a mandate to conserve and protect the groundwater supply to ensure that transboundary surface and groundwater are addressed in an integrated manner and that groundwater can be sustained during periods of drought;³²¹ and

³¹⁸ FROM COMMUNITY TO CABINET, *supra*, at 37.

³¹⁹ *Id.*

³²⁰ *Id.*

³²¹ *Id.* at 38; GLOBAL ENVIRONMENTAL FACILITY, FROM RIDGE TO REEF: WATER, ENVIRONMENT, AND COMMUNITY SECURITY-GEF ACTION ON TRANSBOUNDARY WATER RESOURCES 25 (n.d.).

(3) water governance-related reforms occurred in each country.³²² Examples of the last-mentioned are: (a) the six Guarani aquifer provinces of Argentina are now represented on the Federal Water Resources Council; (b) Brazil has integrated groundwater considerations into its National Water Resources Plan and allocated \$8.26 million to support the implementation of its Surface and Groundwater Integrated Management Program; (c) Paraguay's 2007 Water Resources Law includes groundwater; and (d) Uruguay has established a national Guarani Management Unit.

5.5.5. Public participation

During the nearly three years required to launch the PGAS, more than 100 institutions, government agencies and non-governmental agencies participated and contributed information for the project proposal, sometimes on a collaborative basis.³²³ The participants included 19 universities, 27 NGOs, and 3 private organisations; the rest were local, state and federal government agencies.³²⁴ The non-governmental participation was diverse and involved information-sharing and collaboration.³²⁵ Once PGAS was underway, more than 40 NGOs were involved, the indigenous communities of Argentina, Brazil and Paraguay were involved, Local Pilot Project Committees³²⁶ were formed, and environmental education was undertaken regarding groundwater and sustainable usage.³²⁷ The Guarani Citizenship Fund was also established during PGAS, which supports Guarani civil society in various ways: communications, public participation, awareness building, and promotion of formal and informal groundwater environmental education.³²⁸ Outreach occurred to 2.3 million people through the Guarani Citizenship Fund.³²⁹

Creating community awareness was a key element towards the goal of managing and protecting the aquifer in a sustainable manner. One of the main threats to Guarani is pollution and PGAS found that some agricultural activities would pollute the aquifer with agricultural chemicals. Due to the successful public participation developed during the PGAS, NGOs and the public are now more aware of the importance of the aquifer and how to protect it. Consequently, measures to avoid potential threats are being taken.

³²² FROM COMMUNITY TO CABINET, *supra*, at 38.

³²³ ROBERTO E. KIRCHHEIM, APLICACIÓN DEL ENFOQUE ECOSISTÉMICO EN LA GESTIÓN DE LOS RECURSOS HÍDRICOS – ESTUDIO DE CASO SOBRE LA PROTECCIÓN AMBIENTAL Y DESARROLLO SOSTENIBLE DEL SISTEMA ACUÍFERO GUARANÍ 10 (Griselda Castagnino, n.d.).

³²⁴ PROJECT APPRAISAL DOCUMENT, *supra*, at 122-123 (Annex 15).

³²⁵ *Id.* at 21.

³²⁶ A committee formed to influence the Guarani public policy decisions that will also disseminate, apply and evaluate local actions. See GUARANI SAP, *supra*, at 32.

³²⁷ PROJECT APPRAISAL DOCUMENT, *supra*, at 32.

³²⁸ GUARANI SAP, *supra*, at 52 (annex 5).

³²⁹ *Id.* at 21.

5.5.6. Involvement of Indigenous Peoples

During the project proposal phase of PGAS a conscious decision was made to involve indigenous communities in order to comply with national laws. Argentina and Brazil initiated contact with some indigenous communities, and during meetings with those communities a letter was drafted in which the communities formally requested to be informed about, and incorporated into, the project. Consequently an Indigenous Peoples Strategy (IPS) was formulated for PGAS.³³⁰ The main mechanism of the IPS was to have effective and informed participation of Indigenous Peoples. Though the project itself did not have an impact on the communities, it was key to get the Indigenous Peoples involved because it was anticipated that a management framework for GAS would have an impact on their rights and obligations, e.g. registration of new wells.³³¹ There were 119 participants from the indigenous communities of Argentina, 36 from Brazil and 59 from Paraguay.³³² The Uruguayan area of the GAS does not have Indigenous Peoples and thus none were involved.³³³

The participation of indigenous communities allowed for coordinated management of the project. Effective means of involvement included: providing informative and educational material in the Guarani language; carrying out a multidisciplinary study on the relationship between water and the indigenous cultures; holding regional meetings in which the villages could exchange their experiences on preserving natural resources and sustainable practices;³³⁴ and identifying regional needs at a state level. Among the regional needs identified were: translation of the new Water Resources Law into Guarani; a law allowing Indigenous Peoples to exploit mineral water;³³⁵ creation of national standing committees; capacity building and leadership development within the indigenous communities; sharing technical knowledge on the GAS; dissemination of best practices on how to drill new boreholes that would provide access to the water of the Guarani aquifer.³³⁶

5.5.7. Climate change

Among the various reasons to pursue this project was to reduce greenhouse gas (GHG) emissions. A motivator to carry out PGAS was that the countries could generate geothermal

³³⁰ PROJECT APPRAISAL DOCUMENT, *supra*, at 30. No mitigation plan of potential harm was formulated for Indigenous Peoples because PGAS did not include any activities that were perceived as likely to impact them.

³³¹ *Id.* at 55.

³³² GUARANI SAP, *supra*, at 156.

³³³ PROJECT APPRAISAL DOCUMENT, *supra*, at 105.

³³⁴ GUARANI SAP, *supra*, at 52, 136.

³³⁵ *Id.* at 136.

³³⁶ *Id.* at 156-57.

energy from the Guarani aquifer. All the Signatories to the Guarani Agreement are Parties to the Kyoto Protocol and committed to using alternative sources of energy that do not emit high levels of GHG emissions.³³⁷ Also, adequate access and conservation of underground water is of great value during climate change conditions because underground water does not evaporate as atmospheric temperature rises.

The success of PGAS also set the groundwork for the GEF/UNEP Plata Basin Project. Trust and constructive dialogue developed among the four countries while working on PGAS. The positive PGAS experience encouraged all these governments and Bolivia to submit a proposal to the GEF for a transboundary project on La Plata Basin, which has experienced multiple water conflicts. The GEF/UNEP Plata Basin project is the first GEF IW project that is specifically meant to address flooding and climate adaptation, in addition to other transboundary issues.³³⁸

5.5.8. Dispute avoidance

Among PGAS' objectives was to avoid conflict in the management and usage of Guarani's water reserve: there were major concerns about pollution, deterioration, and water depletion by neighbouring countries.³³⁹ The Guarani Agreement includes dispute resolution clauses that ultimately result in arbitration, the details of which are to be set forth in an additional protocol to be negotiated in the future. All countries agreed that it was best to address any conflicts within the region and with arbitrators also located in the region.

A beneficial result from PGAS was the resolution of a growing dispute between Argentina and Uruguay. One of the pilot programs conducted under PGAS concerned Salto-Concordia, a popular thermal tourist location on the border between Argentina and Uruguay and a source of income for both countries. Previous to the pilot, unregulated and wasteful extractions of water caused controversies between the two countries. As a result of the pilot, the disputes ended. Mathematical modelling allowed the countries to determine the best locations to open new wells and settled some misunderstandings about one Party's depleting aquifer water from the other Party. Also both countries approved new legislation to better manage the aquifer and signed a cooperation agreement to promote sustainable development of the thermal corridor.³⁴⁰

5.6 Mekong River Basin

³³⁷ KIRCHHEIM, *supra*, at 2.

³³⁸ FROM COMMUNITY TO CABINET, *supra*, at 38-39.

³³⁹ See KIRCHHEIM, *supra*, at 11; PROJECT APPRAISAL DOCUMENT, *supra*, at 6.

³⁴⁰ GUARANI SAP, *supra*, at 199-200.

As noted in chapter 2, only four of the six basin States are Party to the Mekong Agreement on Cooperation for Sustainable Development of Mekong Basin (Mekong Agreement). The upstream States of Burma (Myanmar) and China are not members but are in dialogue with the Mekong River Commission (MRC), the authority established by the Mekong Agreement.

5.6.1. In-stream flows

Five years after signing the Mekong River Agreement, the four member States (Cambodia, Lao PDR, Thailand, and Vietnam), partnered with the GEF and the World Bank to implement the 8-year (2000-2008), \$18 million Mekong Water Utilization Project. The project provided support to those States in the implementation of key components of the Mekong Agreement with the overall objectives of “establishing mechanisms to promote and improve coordinated and sustainable water management in the Basin, including reasonable and equitable water utilisation and water quality management . . . and protection of sensitive ecological systems including wetlands, flooded forests and the estuary system that support globally significant biodiversity.”³⁴¹

The project developed a “transboundary hydrological model” for the assessment of the effects of hydrological structures such as dams on any of the riparian States of the Mekong River. The model became a basis for the MRC and the four member States to coordinate water resources development. The project also developed in-stream environmental flow rules. The procedures developed under the project were adopted by the four member States and contributed to increasing understanding of the importance of environmental flow in these countries, including with respect to legal requirements regarding environmental flow.³⁴²

5.6.2. Regular Exchange of Information, Monitoring, and Notification and Consultation

The MRC adopted procedures regarding data and information exchange and sharing in 2001. Technical guidelines were developed thereafter. In addition, the MRC and China (which is not a Party to the Mekong Agreement) signed a Memorandum of Understanding in 2002 regarding the provision of daily river flow and rainfall data from two monitoring stations in Yunnan Province, China, during the wet season. This information serves to improve the MRC’s forecast of downstream water levels on the Mekong River during the flood season. In 2003, the MRC

³⁴¹ IW-LEARN, INTERNATIONAL WATERS RESULTS NOTES: MEKONG WATER UTILIZATION PROJECT 2 (n.d.) <http://iwlearn.net/iw-projects/615/evaluations/2011-result-notes-mekong-water-utilization-results>.

³⁴² *Id.*

adopted procedures regarding Water Use Monitoring and regarding Notification, Prior Consultation and Agreement. It also adopted technical Guidelines for each of these areas.³⁴³ These procedures, each of which relates to international water law, are being utilised in connection with a mainstream dam proposed by Lao PDR.

5.6.3. Climate Change

The MRC includes the Climate Change Adaptation Initiative (CCAI), a collaborative effort among the four Parties to demonstrate and share adaptation strategies. The CCAI engages in planning, coordination, awareness raising and education.

The MRC, the International Commission for the Hydrology of the Rhine Basin, and the International Commission for protection of the Rhine, co-organized the First Rhine-Mekong Symposium, held in 2014 in Germany, on the theme of “Climate Change and its Influence on Water and Related Sectors”. Other participants included government representatives, experts and scientists from the two basins. The symposium’s Topics included the development of a climate change adaptation strategy and the assessment of climate change, its influence on the hydrological regimes and impacts on relevant sectors in the basin in a transboundary context.³⁴⁴

In 2014, the MRC published *Cooperation for Water, Energy and Food Security in Transboundary Basins under Changing Climate*. The technical paper is a collection of case studies and views regarding, inter alia, climate change adaptation in a transboundary context.³⁴⁵

The four country coordinators interact with the UNFCCC secretariat. MRC staff may interact informally with staff of the UNFCCC secretariat at international conferences, but they do not interact formally or otherwise initiate contact with the secretariat.

5.6.4. Coordination with other Basin Authorities

In addition to the First Rhine-Mekong Symposium mentioned above, the MRC organized an international conference in 2010 with the theme “Transboundary Water Resources Management in a Changing World”. Approximately 300 people participated, including from the

³⁴³ *About MRC*, MRCMEKONG.ORG, <http://www.mrcmekong.org/about-mrc/> (last visited Feb. 20, 2015).

³⁴⁴ For symposium conclusions see SYMPOSIUM CONCLUSIONS: FIRST RHINE-MEKONG SYMPOSIUM ‘CLIMATE CHANGE AND ITS INFLUENCE ON WATER AND RELATED SECTORS (2014), <http://www.mrcmekong.org/assets/Events/Rhine-Mek-Symp/1st-Rhine-Mekong-Symposium.pdf>.

³⁴⁵ *MRC Introduces Publication on Transboundary Cooperation at World Water Week 2014*, MRCMEKONG.ORG, <http://www.mrcmekong.org/news-and-events/news/mrc-introduces-publication-on-transboundary-cooperation-at-world-water-week-2014/> (last visited Feb. 20, 2015).

Amazon, Danube, Lake Victoria, Plata, Rhine, Senegal and Yangtze basins. Among other topics, the conference addressed climate change, food security, how to ensure that investments in water infrastructure are financially, socially and environmentally sustainable, and the need for increased participation of civil society in planning and decision-making.

5.7 Murray-Darling Basin

Australia's 2007 Water Act requires the preparation of a Basin Plan "to provide for the integrated management of the basin water resources in a way that promotes the objects of this Act".³⁴⁶ One of those objects is "to protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin . . . ;" another, which is discussed in further detail below, is that of giving "effect to relevant international agreements".³⁴⁷ The Murray-Darling Agreement³⁴⁸ (Schedule 1 of the Water Act 2007) provides that its purpose is "to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water and other natural resources of the Murray-Darling Basin . . . to give effect to the Basin Plan . . .".³⁴⁹ The Murray-Darling Basin Authority (MDBA), which was established by the Water Act and charged with developing the Basin Plan, finalised the Basin Plan in 2012.³⁵⁰ In addition to publishing the plan, the MDBA published several related documents intended to explain the process leading up to the plan and its content: Guide to the Proposed Basin Plan;³⁵¹ Proposed Basin Plan Consultation Report (hereinafter referred to as Consultation Report);³⁵² and the Explanatory Statement.³⁵³ The MBDA also published a document, elaborated on below, for an indigenous and aboriginal audience, in relation to public participation and consultations, and a range of technical documents.

³⁴⁶ Murray-Darling Agreement, *supra*, at pt. 2, div. 1, subdiv. A, § 19(2).

³⁴⁷ *Id.* at pt. 1, § 3(d)(ii) & § 3(b).

³⁴⁸ The Murray Darling Agreement between the Contracting Governments came into effect upon commencement of Schedule 1 of the Water Amendment Act 2008 of the Commonwealth, which amended the Water Act to set out the text of the Agreement as a schedule to the Water Act.

³⁴⁹ *Id.* at sched. 1, pt. I.1.

³⁵⁰ Commonwealth of Australia, *Water Act 2007 – Basin Plan 2012, Text*, COMLAW.GOV.AU, <http://www.comlaw.gov.au/Details/F2012L02240> (last visited Oct. 9, 2014) [hereinafter Murray-Darling Basin Plan 2012 Text].

³⁵¹ MURRAY DARLING BASIN AUTHORITY, GUIDE TO THE PROPOSED BASIN PLAN: TECHNICAL BACKGROUND, VOL. 2 (2010), <http://www.mdba.gov.au/sites/default/files/archived/Guide-to-proposed-BP-vol2-0-12.pdf> [hereinafter Murray-Darling Guide to the Proposed Basin Plan].

³⁵² MURRAY DARLING BASIN AUTHORITY, PROPOSED BASIN PLAN CONSULTATION REPORT (2012), http://www.mdba.gov.au/sites/default/files/archived/revised-BP/PBP_Consultation_report.pdf [hereinafter Murray-Darling Consultation Report].

³⁵³ Commonwealth of Australia, *Water Act 2007 – Basin Plan 2012, Explanatory Statement*, COMLAW.GOV.AU, <http://www.comlaw.gov.au/Details/F2012L02240/Explanatory%20Statement/Text> (last visited Oct. 9, 2014) [hereinafter Murray-Darling Basin Plan 2012 Explanatory Statement].

The Basin Plan, which provides for “the integrated management of Basin water resources,”³⁵⁴ has 13 chapters. These chapters and accompanying schedules describe basin water resources and the context of their use; lay out water resource plan areas and the water accounting periods for each; provide strategies for managing identified risks to the health or continued availability of water in the Basin; and establish limits on the quantity of water that can be withdrawn from the Basin as well as diversion limits and provisions, both long-term and short-term along with the criteria for determining compliance. Chapter 8, the Basin Plan’s “environmental watering” plan, which includes an environmental management framework, is followed by the water quality and salinity management plan, provisions relating to critical human water needs, rules for the trading of water rights, and the program for monitoring and evaluating the effectiveness of the Basin Plan.³⁵⁵ Although still in the early stages of implementation, the Basin Plan and the process surrounding its creation and presentation to the Australian public contain several good practices, described below.

5.7.1. Treatment of MEAs

According to the Explanatory Statement, an official publication explaining the Basin Plan, mentioned above, the purpose of the Basin Plan includes giving effect to the CBD and Ramsar Convention “to the extent they relate to the use and management of Basin water resources.”³⁵⁶ This also applies with respect to other “relevant international agreements”. In its definition of “relevant international agreements”, the agreement specifically names five of the MEAs covered in this Study: CBD, CMS, Ramsar Convention, UNCCD and UNFCCC.³⁵⁷ The agreement also requires taking into account other international conventions to which Australia is a party.³⁵⁸ Because Australia is a Party to the Basel and Stockholm Conventions, all the MEAs in this study except the UN Watercourses Convention are covered.

Ramsar-listed wetlands are mentioned throughout the Basin Plan; the Ramsar Convention and CMS are mentioned specifically in relation to the protection and restoration of water-dependent ecosystems addressed in chapter 8 of the plan; and the MDBA contributes to Australia Ramsar National Report to the COP. The MDBA does not formally engage directly with MEA secretariats, however. That is done by the relevant officials in the Australian government. MDBA officials interact informally with relevant MEA secretariat officials in the context of international conferences and other international meetings. One of the MDBA’s objectives is to exchange knowledge and good practices with the international community.

³⁵⁴ *Id.* at § General Overview.

³⁵⁵ Murray-Darling Basin Plan 2012 Text, *supra*, at § Table of Contents, ch.8.

³⁵⁶ Murray-Darling Basin Plan 2012 Explanatory Statement, *supra*, at § General Overview.

³⁵⁷ Murray-Darling Agreement, *supra*, at pt. 1, § 4 “relevant international agreement”.

³⁵⁸ *Id.*

Informal discussion with relevant international agencies is an important dimension of this work.

5.7.2. Protecting the watercourse and ecosystem

The importance of protecting the environment is very clear: one of the objectives for creating the Basin Plan is to “protect and restore the ecosystems, natural habitats and species that are reliant on the Basin water resources and to conserve biodiversity.”³⁵⁹ One key component of the plan is an environmental watering plan, which includes a strategic framework for the management of Basin water resources. Its purposes, in accordance with the overall plan, are to “protect and restore the wetlands and other environmental assets of the Murray-Darling Basin; and protect biodiversity dependent on the Basin water resources and achieve other environmental outcomes for the Murray-Darling Basin.”³⁶⁰ An example of this is that the MDBA conducted work on sustainable water recovery in the basin.³⁶¹

5.7.3. Public consultation and participation

As part of the process of preparing the Basin Plan, the MDBA held extensive public consultations, which consisted of years of collecting feedback, hearing out varying positions and exploring ideas. This process is prescribed in the Water Act of 2007.³⁶² A report of the MDBA, the Consultation Report mentioned earlier, describes in detail part of that process consisting of a 12-month consultation process launched in November 2011.³⁶³ A 20-week period for receiving formal submissions on the proposed Basin Plan prior to its finalisation was established and widely publicized by the MDBA.

According to the report, during this 20-week period, the MDBA organised “a total of 24 meetings open to the public, 56 round table and technical meetings, 18 social and economic briefings for representatives from rural financial organisations, 5 regional briefings on water trading issues, and 31 bilateral and working group meetings with Basin States. Further, a tailored Indigenous consultation process took place in more than 30 towns in the Basin.” Over the 20-week consultation period, the MDBA received close to 12,000 submissions from individuals, businesses, organisations, and government both domestically and abroad, all of which are available to view online. In response to the feedback received during this process and in prior years, over 300 changes were made to the proposed plan. The changes ranged

³⁵⁹ *Id.* at pt. 2 div. 1, subdiv. B, § 21(2)(b).

³⁶⁰ *Id.* at pt. 2 div. 1, subdiv. C, § 28(1)(d) & (e).

³⁶¹ MURRAY-DARLING BASIN AUTHORITY, THE PROPOSED ENVIRONMENTALLY SUSTAINABLE LEVEL OF TAKE FOR SURFACE WATER OF THE MURRAY-DARLING BASIN: METHOD AND OUTCOMES 58-59 (2011),

http://www.mdba.gov.au/sites/default/files/archived/proposed/ESLT_MDBA_report.pdf.

³⁶² Murray-Darling Agreement, *supra*, at pt. 2, div. 1, subdiv. E, § 42 & 43.

³⁶³ Murray-Darling Consultation Report, *supra*.

from adding provisions to the proposed Basin Plan to modifying areas for increased clarity. All submissions were made available on the MDBA website with the exception of those that their submitters wanted kept confidential. The submissions received and changes adopted as a result are summarised in the Consultation Report, published on the MDBA website, as prescribed by paragraph 43(11)(a) of the Act.³⁶⁴

The availability of the submissions, Consultation Report, and other documents related to the development of the Basin Plan (including the *Guide to the Proposed Basin Plan*) is a good practice in terms of access to information and demonstrates the MDBA's commitment to being transparent.

The Basin Plan requires the MDBA to consult with the public on specific items of work. The MDBA recently consulted with the public using a variety of means regarding the first basin-wide Watering Strategy, which is due to be published by late November 2014.

5.7.4. Indigenous people and Aboriginal heritage

Australia endorsed the United Nations Declaration on the Rights of Indigenous Peoples in 2009, which includes the right of Indigenous Peoples to maintain their distinctive spiritual connection to water.³⁶⁵ As the Explanatory Statement to the Basin Plan demonstrates, both the process of developing the Basin Plan and the content of the document itself show a regard for the right to enjoy and benefit from culture expressed in the International Covenant on Economic, Social and Cultural Rights (ICESCR). For example, the Explanatory Statement refers to article 15 of the ICESCR and article 27 of the International Covenant on Civil and Political Rights, indicating that indigenous values and uses must be taken into account in water planning and management.

There are a number of ways in which the interests of Australia's indigenous people have been taken into account with positive outcomes, including in the process of developing the Basin Plan.

In developing the plan, for example, the Authority collaborated with "Traditional Owners". Two indigenous organisations in particular are mentioned for their input on the Basin Plan: the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Northern Murray-Darling Basin Aboriginal Nations (NBAN). As mentioned above, 30 Basin communities were involved in a "tailored Indigenous consultation process", which is described in the Basin Plan Consultation Report, which also includes amendments made in consideration of submissions during that process. The report contains a section specifically addressing indigenous values and uses and

³⁶⁴ Murray-Darling Guide to the Proposed Basin Plan, *supra*, at 7.

³⁶⁵ UNDRIP, *supra*, at art. 25.

other related matters. In addition, the Authority produced a booklet called *A Yarn on the River – Getting Aboriginal Voices into the Basin Plan* to raise awareness of the draft Basin Plan and encourage Aboriginal people to provide their input on the plan’s contents.³⁶⁶ The document highlighted the parts of the draft Basin Plan most relevant to Aboriginal people.

The Basin Plan requires that indigenous values and uses be taken into account in water planning and management. According to the Explanatory Statement to the Basin Plan, the plan “aims to ensure Indigenous people are able to participate in water resource planning and management and that their values, aspirations and views about the impacts of various decisions are fully considered”.³⁶⁷ This aim is met, in part, through the participation of indigenous people in the consultation and preparation of water resource plans,³⁶⁸ as required by the Basin Plan.

Provisions related to the environmental watering plan and water resource plan contained within the Basin Plan take into consideration “the social, spiritual and cultural uses of Basin water resources by Indigenous people”.³⁶⁹ Indications that unacceptable risks are occurring include that “insufficient water is available, or water is not suitable to maintain social, cultural, Indigenous and other public benefit values”.³⁷⁰

The Indigenous Values and Uses section of the plan requires that the views of indigenous organisations be taken into account in carrying out the plan. This includes consideration of “registered Aboriginal heritage relating to the water resources of the water resource plan area”.³⁷¹ The term “registered Aboriginal heritage” is defined as “Aboriginal heritage registered or listed under a law of a Basin State or the Commonwealth that deals with the registration or listing of Aboriginal heritage (regardless of whether the law deals with the listing of other heritage).”³⁷² Another provision pertains to “cultural flows”. The plan references “cultural flows” as “Water entitlements that are legally and beneficially owned by the Indigenous Nations and are of sufficient and adequate quantity to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations. This is our inherent right”. This definition was developed by the MLDRIN.

³⁶⁶ MURRAY DARLING BASIN AUTHORITY, *A YARN ON THE RIVER – GETTING ABORIGINAL VOICES INTO THE BASIN PLAN* (2011), <http://www.mdba.gov.au/sites/default/files/pubs/MDBA-a-yarn-on-the-river-20120110-web.pdf>.

³⁶⁷ Murray-Darling Basin Plan 2012 Explanatory Statement, *supra*, at ch. 11, § Right to enjoy and benefit from culture.

³⁶⁸ Water resource plans must be developed by the Basin states, which includes consultation with Indigenous people, and accredited by the Commonwealth Minister by 30 June 2019.

³⁶⁹ Murray-Darling Basin Plan 2012 Text, *supra*, at ch. 4, pt. 2, § 4.03(3)(g)(ii).

³⁷⁰ *Id.* at ch. 4, pt. 2, § 4.02(2)(b).

³⁷¹ *Id.* at ch. 10, pt. 14, § 10.53(1)(b).

³⁷² *Id.* at ch. 10, pt. 14, § 10.53(2).

The MDBA is also involved in a project, still in its initial stage, aimed at testing a Cultural Health Index based on the New Zealand Māori Cultural Health Index. The index is a tool intended to measure cultural value by assessing the following areas: traditional site status (the significant cultural values that the site holds); utilitarian use (food, camping and cultural use); and stream health indicators (the “Western science view”).

5.7.5. Human right to water

Neither the Water Act 2007 nor the Basin Plan expressly mentions human rights. However, the first part of the Explanatory Statement evaluates the Basin Plan’s impact on human rights. It examines the plan’s impact on two categories of human rights: (1) right to adequate standard of living and right to health; and (2) right to enjoy and benefit from culture.³⁷³ The evaluation concludes that the plan is compatible with, and prepared in accordance with, “the human rights and freedoms recognized or declared in the international instruments listed in section 3 of the Human Rights (Parliamentary Scrutiny) Act 2011”.³⁷⁴ These instruments, the explanatory document goes on to explain, include the International Covenant on Economic, Social and Cultural Rights (ICESCR).³⁷⁵ Specifically, the plan engages “the Right to adequate standard of living and right to health”, set out in article 11 of the ICESCR, which includes the right to “sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses”.³⁷⁶ The Explanatory Statement concludes that this right is supported in the plan through specific provisions relating to “critical human water needs” and water quality.³⁷⁷

5.7.6. Monitoring

Section 22 of the *Water Act* 2007 requires that the Basin Plan include a program for monitoring and evaluating the effectiveness of the plan. Chapter 13 of the plan accordingly provides a program for monitoring and evaluating the effectiveness of the plan, including the principles to be applied in the monitoring and evaluation process. The Act and the plan include a requirement for the MDBA to evaluate the effectiveness of the Basin Plan annually, as well as more in-depth evaluation and reports every five years. The first report is due for release by early 2015. The plan also stipulates that the MDBA must “take all reasonable steps” to publish on its website the information obtained in monitoring the effectiveness of the plan and the

³⁷³ Murray-Darling Basin Plan 2012 Explanatory Statement, *supra*, at § Human Rights Implications pp. 4-8.

³⁷⁴ *Id.* at § Conclusion p. 9.

³⁷⁵ International Covenant on Economic, Social, and Cultural Rights, Dec. 16, 1966, 993 U.N.T.S. 3, 6 I.L.M. 368 (entered into force Jan. 3, 1976), <http://www.un-documents.net/icescr.htm>.

³⁷⁶ U.N. Econ. & Soc. Counsel, Comm. on Econ., Soc. & Cultural Rights, Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights, para. 2, U.N. Doc E/C.12/2002/11 (Jan. 20, 2003), http://www2.ohchr.org/english/issues/water/docs/CESCR_GC_15.pdf.

³⁷⁷ Murray-Darling Basin Plan 2012 Explanatory Statement, *supra*, at ch. 11.

findings and recommendations arising from its evaluations. Prior to the publication of findings and recommendations the MDBA must provide the Basin states, the Department of the Environment and other relevant bodies the opportunity to comment.

MDBA has developed a Basin Plan Evaluation Framework over the past 12 months, with input from stakeholders.³⁷⁸ The framework was recently published on the MDBA website. The Evaluation Framework sets out how the MDBA will assess the impacts of the water reforms on social and economic systems and the basin's environment.

5.8 The 1909 Boundary Waters Treaty

The 1909 Boundary Waters Treaty and the International Joint Commission (IJC) established by the treaty have evolved over the past century. In some instances this evolution was based on the IJC's own experience and in others it was due to new legal instruments entered into by Canada and the United States, most notably the 2012 Protocol Amending the Great Lakes Water Quality Agreement,³⁷⁹ which is referred to in several instances below. As a result, the IJC has developed a robust process of science-based decision-making, monitoring, dispute avoidance and settlement, transparency, and public participation, and has embarked on new activities relating to ecosystem protection and climate change. Each of these areas is related to international water law principles and provisions. Some aspects of the IJC's activities are described below.

As background, several of those activities relate to the facts that the IJC has authority pursuant to articles III and IV of the treaty to approve or reject applications for "the use, obstruction or diversion of waters"³⁸⁰ and under article IX³⁸¹ to address (in a non-binding manner) "questions or matters of difference arising between"³⁸¹ the Parties. According to the treaty the latter may occur by a "reference" from either Party, though in practice it usually proceeds via an agreement between the Parties.³⁸² Applications are first provided to the government of the country in which the project would be, which communicates it to the other government. After

³⁷⁸ Murray-Darling Basin Authority, Murray-Darling Basin Water Reforms: Framework for Evaluating Progress (2014), <http://www.mdba.gov.au/sites/default/files/Evaluation-Framework-final.pdf>.

³⁷⁹ 2012 Protocol to the GLWQA, *supra*.

³⁸⁰ Rules of Procedure of the International Joint Commission, pt. II, para. 12 (1964), <http://www.ijc.org/files/tinymce/uploaded/RULES%20OF%20PROCEDURE%20OF%20THE%20INTERNATIONAL%20JOINT%20COMMISSION.pdf>.

³⁸¹ 1909 Boundary Waters Treaty, *supra*, at art. IX.

³⁸² For an example of the two countries sending separate letters to the IJC regarding a reference, see Flathead River docket 110R, http://ijc.org/en_/Dockets?docket=111 and <http://www.ijc.org/files/dockets/Docket%2046/Docket%2046%20Order%201942-01-27.pdf>.

discussing the application, the two governments can decide to deal with the project themselves (through a special agreement) or to forward the application to the IJC. After the IJC receives an application (i.e. a request by either government to use, obstruct or divert water pursuant to articles III or IV) or a reference, it may form a technical board (also referred to by terms such as “Advisory Board” or “Study Board”) composed of an equal number of relevant experts from Canada and the United States, to advise the IJC.

5.8.1. Science-based decision-making and precaution

In establishing an Advisory Board in response to a reference, the IJC appoints “qualified persons to conduct on its behalf investigations and studies that may be necessary . . . and to report to the Commission”³⁸³. The IJC sometimes follows a similar process with respect to applications. Each Advisory Board is time-limited and has a defined mandate to make findings of fact regarding the physical characteristics relevant to the directive, and often to make recommendations as well. This approach has been pivotal to making well-informed decisions on how to proceed with an application or a question or matter of difference.

For example, in 2005 the IJC requested that the International Red River Board “investigate the risk that an outlet from Devils Lake in North Dakota [a state in the United States] would release invasive species and lethal fish parasites and pathogens into the Red River and Lake Winnipeg.”³⁸⁴ For more than 1000 years Devils Lake was a closed basin; however as of the 1940s water levels started increasing and eventually flooded farmland and residential areas. In 2003 North Dakota began to construct an outlet to the Red River, which flows northward along North Dakota’s border with Minnesota (in the United States) to Canada. Minnesota and Canada objected, arguing among other things that parasites and pathogens from Devils Lake might harm the ecosystem of the Red River, including its fish. The situation was becoming increasingly more contentious, in particular because of the value of recreational fishery in Canada’s Red River and Lake Winnipeg.³⁸⁵ Ultimately the data collected by the Board showed that there “is limited risk to downstream fish species or communities from the organisms found in Devils Lake”³⁸⁶ and provided recommendations to ensure that any risk was minimized. The study thus reduced the number of issues of concern between the two countries.³⁸⁷

³⁸³ Rules of Procedure of the International Joint Commission, *supra*, at pt. III, para. 28(1).

³⁸⁴ AQUATIC ECOSYSTEM COMMITTEE, DEVILS LAKE – RED RIVER BASIN FISH PARASITE AND PATHOGEN PROJECT: QUALITATIVE ASSESSMENT 3 (2011), http://ijc.org/files/tiny/mce/uploaded/IRRB/DEVILS%20LAKE%20%20FISH%20PARASITE%20AND%20PATHOGEN%20RISK%20REPORT%20_8_.pdf.

³⁸⁵ *Id.*

³⁸⁶ *Id.* at 41.

³⁸⁷ *Id.* at 42-43.

The focus on science-based decision-making was strengthened by the 2012 Protocol to the Great Lakes Water Quality Agreement (2012 Protocol to the GLWQA), which provides that the Parties shall be guided by a science-based management approach to fulfill the purpose of the agreement.³⁸⁸ The agreement defines “science-based management” as “implementing management decisions, policies and programs that are based on best available science, research and knowledge, as well as traditional ecological knowledge, when available.”³⁸⁹ The emphasis on science-based management is reinforced throughout the protocol. For example, article 7 mandates the IJC to assist and advise on scientific matters relating to the Great Lakes; article 8 mandates the IJC to establish a Great Lakes Science Advisory Board to provide advice on research; annexes 3 (“Chemicals of Mutual Concern”), 4 (“Nutrients”), 6 (“Aquatic Invasive Species”), 7 (“Habitat and Species”), 8 (“Groundwater”), and 9 (“Climate Change Impacts”) all contain a section on “Science”; and annex 10 is entirely devoted to Science and “enhancing coordination, integration, synthesis, and assessment of science activities.”³⁹⁰

The IJC’s approach to science-based decision-making takes account of the need for precaution. The IJC’s Guiding Principles state that “While emphasizing the importance of a sound scientific basis for its conclusions and recommendations, the Commission also recognizes that it may sometimes be necessary to adopt a precautionary approach and to act even in the absence of a scientific consensus where prudence is essential to protect the public welfare.”³⁹¹ The 2012 Protocol takes the same approach: article 2.4(i) calls for a precautionary approach (defined in terms of Principle 15 of the Rio Declaration on Environment and Development), and article 2.4(j) calls for a preventive approach. Similarly, annex 6 calls for a “prevention-based approach, informed by risk assessment” and recognises that new species may pose a risk “even in the absence of scientific certainty”.

5.8.2. Monitoring

When the IJC issues an order of approval³⁹² for a use, obstruction or diversion of water, it establishes a Board of Control to monitor and report on compliance with the terms of that order. As with the technical boards described above, each Board of Control has an equal number of members from each country. These members’ appointment is based on technical background and knowledge of the water body at issue; they serve in an impartial manner; and

³⁸⁸ 2012 Protocol to the GLWQA, *supra*, at art. 2.4(l).

³⁸⁹ *Id.*

³⁹⁰ *Id.* at annex 10.A.

³⁹¹ Guiding Principles of the International Joint Commission, para. 10 (1998), http://www.ijc.org/files/tiny_mce/uploaded/GUIDING%20PRINCIPLES%20OF%20THE%20INTERNATIONAL%20JOINT%20COMMISSION.pdf.

³⁹² An Order of Approval is a ruling of an application for a project like a dam or hydro-electric power station. The IJC regulates the terms and conditions to maintain water levels and flows in lakes and connecting channels.

they receive no monetary compensation. The Boards of Control, which are administratively supported by the treaty's joint secretariat, continue for the entire life of the project.

An example of a Board of Control is the International St. Lawrence River Board of Control (ISLRBC).³⁹³ The ISLRBC was established in 1952 and is still functioning. In addition to abiding by the Order of Approval, the board, at the request of the Commission, develops regulation plans³⁹⁴ and special studies. When considering issues requiring a decision, the ISLRBC engages the public through public meetings, teleconferences, and briefings, and its members and staff respond to phone calls, letters, and emails.³⁹⁵ The Order of Approval, ISLRBC decisions and other relevant information are accessible on the IJC website (www.IJC.ORG).

The 2012 Protocol to the GLWQA also emphasises monitoring. Article 3.3 requires monitoring environmental conditions to determine whether various objectives are being met; article 3.4 requires publicly reporting on progress in meeting those objectives and other topics; and each of the ten annexes contains a reporting requirement.

5.8.3. Dispute avoidance and settlement

Article X of the treaty provides for binding dispute resolution, but it has never been used.³⁹⁶ Articles III and IV, mentioned above, deal with issues that if not addressed may become disputes by providing for an application process to the IJC; and article IX addresses “questions or matters of difference arising between”³⁹⁷ the Parties that could become, or have already become, a dispute. The procedures under articles III, IV, and IX have worked well, particularly through the use of technical boards, described above, which have been successfully utilised on more than 100 occasions. One reference led to recommendations³⁹⁸ that were not accepted by

³⁹³ International Joint Commission, *Home-International St. Lawrence River Board of Control*, IJC.ORG, http://ijc.org/en/_islrbc/Home.

³⁹⁴ Plans implemented as of 1921, which regulates “the outflows from Lake Superior to meet the needs . . . [and] interests in the upper Great Lakes basin.” International Joint Commission, *About the Board, Regulation Plans*, IJC.ORG, http://ijc.org/en/_islrbc/About_the_Board (last visited Sept. 26, 2014).

³⁹⁵ International Joint Commission, *Section 3: Governance and Decision-Making*, IJC.ORG (go to § 3.3.5), http://ijc.org/en/_islrbc/FAQ_3%20#topofpage (last visited Oct. 2, 2014).

³⁹⁶ Disputes involving pollution of Canada-United States international watercourses are also sometimes resolved by private litigation. See, e.g. *Pakootas v. Teck Cominco Metals, Ltd.*, No. CV-04-256-LRS, 2012 U.S. Dist. LEXIS 177550, 42 ELR 2026 (9th Cir. Dec. 14, 2012) (holding Teck Cominco Metals Ltd., a Canadian mining smelter company, jointly and severally liable to a native American tribe and the State of Washington for the release of hazardous substances in the Upper Columbia River which polluted territory in the United States).

³⁹⁷ 1909 Boundary Waters Treaty, *supra*, at art. IX.

³⁹⁸ Trail Smelter Reference, I.J.C. Docket 25R (Feb, 28, 1931) (report), <http://ijc.org/files/dockets/Docket%2025/Docket%2025%20IJC%20Report%201931-02-28.pdf>.

the governments, however, and led to an agreement to settle the dispute by arbitration, the well-known Trail Smelter case.³⁹⁹

Dispute avoidance and settlement takes various forms. Three examples are provided below. The first recognises the value of reaching a compromise that takes into account the needs of both parties. The second involves stopping a project that would cause transboundary pollution. The third is an initiative that is proactively preventing conditions that may give rise to disputes.

In 1941 the city of Seattle, Washington, submitted an application to the IJC to raise the height of the Ross Dam to produce more electricity. The increase in height would have flooded approximately 8.55 square miles (22.14 square kilometres) of recreational area in Canada, mostly in British Columbia. Canada seemingly agreed to the change of height of the Ross Dam on the condition that all Canadian interests affected were proportionately compensated,⁴⁰⁰ but in 1974 that was deemed null by Canada.⁴⁰¹ After much discussion, in 1983, Seattle agreed not to raise the dam's height and British Columbia agreed to sell to Seattle the amount of power that the additional dam height would have generated.⁴⁰²

In 1984 and 1985, the United States and Canada submitted a reference to the IJC regarding a proposed coal mine in British Columbia on the North Fork of the Flathead River. The North Fork flows into the United States along the western boundary of Glacier National Park (which is a World Heritage Site) and is used intensively for sports fishing, including for Dolly Varden char (also known as bull trout). The Study Board found that the mine's operation would pollute the spawning grounds in Canada of the bull trout (which migrate downstream to the United States) and thus would cause "injury to health or property" in the United States, which is prohibited by article IV of the treaty; it recommended that the mine be stopped. The IJC made the same recommendation, and the countries agreed.⁴⁰³

In 1997 the two governments requested advice on how the IJC could "best assist the Parties to meet the environmental challenges of the 21st century within the framework of their treaty

³⁹⁹ Trail Smelter Case (U.S. v. Can.) 3 R.I.A.A. 1905 (1941), http://legal.un.org/riaa/cases/vol_III/1905-1982.pdf.

⁴⁰⁰ City of Seattle, I.J.C. Docket 46A (Jan. 27, 1942) (order of approval), <http://www.ijc.org/files/dockets/Docket%2046/Docket%2046%20Order%201942-01-27.pdf>.

⁴⁰¹ City of Seattle, I.J.C. Docket 46A, (46)3-1-2-2-4 (June 25, 1974) (letter), <http://www.ijc.org/files/dockets/Docket%2046/Docket%2046%20Request%20in%20the%20Application%201974-06-25.pdf>.

⁴⁰² City of Seattle, I.J.C. Docket 46A, (46)3-1-2-2 (Apr. 14, 1983) (sup. order), <http://ijc.org/files/dockets/Docket%2046/Docket%2046%20Supplemental%20Order%201983-04-14.pdf>.

⁴⁰³ INTERNATIONAL JOINT COMMISSION, IMPACTS OF A PROPOSED COAL MINE IN THE FLATHEAD RIVER BASIN 11 (1998).

responsibilities.”⁴⁰⁴ Later that year the IJC submitted a report, *The IJC and the 21st Century*, which proposed the establishment of International Watershed Boards,⁴⁰⁵ “based on the premise that local people, given appropriate assistance, are those best positioned to resolve local transboundary issues.”⁴⁰⁶ The governments approved this proposal, which grew into the International Watersheds Initiative (IWI). The IWI is a holistic ecosystem approach intended to “assist citizens and governments by providing information and facilitating discussions on local concerns such as fish habitat, pollution, and low and high water flows.”⁴⁰⁷ The principles of the IWI are now used in a number of watersheds, including the St. Croix River, Red River, Souris River, and Rainy River-Lake of the Woods watersheds. It has maintained continuity by converting pre-existing Boards of Control into Watershed Boards, with modified membership according to local circumstances. The IWI has successfully helped defuse tensions: it led to the scientific report about pathogens/parasites at Devils Lake described above; it provided a mechanism to reach an agreement between hydropower interests and agencies at a provincial, state and federal level regarding the Rainy River; and it eliminated inconsistencies between the two countries regarding hydrographic datasets and maps.⁴⁰⁸

5.8.4. Transparency

The IJC operates with considerable transparency. For example, the treaty authorized the IJC to adopt rules of procedure in accordance “with justice and equity.”⁴⁰⁹ The IJC adopted its first set of rules 1912, and amended them in 1964. The rules are publicly available. Article 11 of the Rules of Procedure specifies that many types of documents are to be publicly available, as well as several types that are to be kept confidential unless decided otherwise by the IJC.⁴¹⁰ According to article 11(6) of the Rules, the person requesting documents must pay the cost of reproduction; modern telecommunications technology may have reduced this cost. For

⁴⁰⁴ Environmental Challenges of the 21st Century, I.J.C. Docket 114R (Apr. 16, 1997) (reference), <http://ijc.org/files/dockets/Docket%20114/Docket%20114%20Watershed%20Can.Letter%20of%20Refernce%201997-04-16.pdf>.

⁴⁰⁵ INTERNATIONAL JOINT COMMISSION, *THE IJC AND THE 21ST CENTURY* (1997), <http://ijc.org/files/dockets/Docket%20114/Docket%20114%20IJC%20&%20the%2021st%20Century.pdf>.

⁴⁰⁶ INTERNATIONAL JOINT COMMISSION, *A DISCUSSION PAPER ON THE INTERNATIONAL WATERSHEDS INITIATIVE 1* (2005), <http://ijc.org/files/dockets/Docket%20114/Docket%20114%20Watershed%20Report%202.pdf>.

⁴⁰⁷ INTERNATIONAL JOINT COMMISSION, *THE INTERNATIONAL WATERSHEDS INITIATIVE BROCHURE*, <http://ijc.org/files/tinymce/uploaded/documents/IWI-Brochure-IJC-April2014.pdf>.

⁴⁰⁸ INTERNATIONAL JOINT COMMISSION, *THE INTERNATIONAL WATERSHEDS INITIATIVE: IMPLEMENTING A NEW PARADIGM FOR TRANSBOUNDARY BASINS 1* (2009), <http://www.ijc.org/files/tinymce/uploaded/ID1627.pdf>.

⁴⁰⁹ 1909 Boundary Waters Treaty, *supra*, at art. XII.

⁴¹⁰ “[S]hall be available for public information at the permanent offices of the Commission: Applications; References; Public Notices; Press Releases; Statements in Response; Statements in Reply; Records of hearings, including exhibits filed; Briefs and formal Statements submitted at hearings or at other times.” The readily available documents also include the decisions, orders, and formal opinions of the Commission or a Commissioner.

example, currently many documents dating back to 1912 can be obtained via the IJC website. These include references and applications, minutes of meetings, and studies.

5.8.5. Public participation

The treaty and its Rules of Procedure mandate public participation. Article XII of the treaty requires that “all parties interested [in any IJC proceeding, inquiry or other matter within its jurisdiction] shall be given convenient opportunity to be heard” The Rules establish specific standards for public participation when the IJC is dealing with an application or a reference.⁴¹¹ Overall the Rules establish the procedure of notice, comments, responses, and hearings.

Accordingly, there are examples as early as 1912 of public hearings held in both countries. For example, in August 1912 Canada and the United States submitted a reference with two questions for the IJC to determine the extent, causes, and location of pollution injurious to the public and unfit for domestic uses; and thereafter determine a remedy or means of prevention. All of the following steps occurred and were made part of a public record: the study report, the notification for hearings, to whom the report and notifications were distributed, and the transcript of the public comments. The record of public comments illustrates that there was public and official attendance and that all were given the opportunity to share their views. Currently, technical boards established by the IJC regarding an application or a reference sometimes have members of the general public as members, they may be assisted by an advisory group composed of members of the general public, and they typically hold at least one public hearing in the course of their study. The IJC invites public participation and input when it deals with reference studies and approval orders, and when it prepares reports to governments.

That process for public participation has become more robust and iterative under the 2012 Protocol to the GLWQA. The preamble to the agreement recognises that “the involvement and participation of State and Provincial Governments, Tribal Governments, First Nations, Métis, Municipal Governments, watershed management agencies, local public agencies, and the Public are essential to achieve the objectives” of the agreement.⁴¹² The protocol defines “Public” broadly: “individuals and organizations such as public interest groups, researchers and research institutions, and businesses and other non-governmental entities.”⁴¹³ This point is emphasised by several substantive provisions in the protocol. For example, the protocol provides that the

⁴¹¹ See Rules of Procedure, *supra*, at paras. 15(2), 16(1)(2), 17(1)(2), 19, 20, 23(1)-(10), 27(2), 29(3)(4)(5).

⁴¹² 2012 Protocol to the GLWQA, *supra*, at pmb. para. 10.

⁴¹³ 2012 Protocol to the GLWQA, *supra*, at art. 1(f).

principle of “Public engagement”⁴¹⁴ shall guide the Parties in achieving the purpose of the agreement; the protocol mandates the Parties to cooperate⁴¹⁵ and consult⁴¹⁶ with various parties⁴¹⁷ including the Public to achieve the protocol’s objectives; the protocol requires the Parties to seek “public input and advice on all pertinent matters, as appropriate;”⁴¹⁸ article 5.1 of the protocol is specifically focused on public participation, providing for a Great Lakes Public Forum every three years;⁴¹⁹ the protocol obliges the IJC to consult “on a regular basis” with the Public regarding water quality, protection and options for restoration, to “provide the Public with the opportunity to raise concerns and tender advice and recommendations”,⁴²⁰ and to engage with the Public to increase awareness about various issues relating to the Great Lakes;⁴²¹ and the protocol requires the IJC’s Great Lakes Regional Office to provide public notice and outreach, including public hearings, for all activities carried out by the IJC and its Boards.⁴²²

Public participation under the IWI is also expansive. Overall the IWI promotes a participatory approach through local involvement. An example of public participation expanded is the 2013 International Rainy-Lake of the Woods Watershed Board – the first to have members from First Nations, Métis and Tribes; in addition the same board receives support from a Community Advisory Group and an Industry Advisory Group. The focus in forming the IWI Boards is to have members who live within or are closely connected to the basin at issue.⁴²³

5.8.6. Ecosystem protection

The 1909 Treaty is silent in this respect, though the prohibition on pollution that would cause “injury to health or property” might be viewed as a step in this direction. In any case, as with other aspects, the treaty regime and the IJC have evolved. The IJC’s Mission Statement states that the IJC “assists the two countries in the protection of the transboundary environment, including the implementation of the Great Lakes Water Quality Agreement and the

⁴¹⁴ Public engagement is defined as “incorporating Public opinion and advice, as appropriate, and providing information and opportunities for the Public to participate in activities that contribute to the achievement of the objectives of this Agreement.” *Id.* at art. 2.4(k).

⁴¹⁵ *Id.* at arts. 3.1(b) and 4.3(d).

⁴¹⁶ *Id.* at art. 3.1(b)

⁴¹⁷ “State and Provincial Governments, Tribal Governments, First Nations, Métis, Municipal Governments, watershed management agencies, other local public agencies, downstream jurisdictions, and the Public.” *Id.* at art. 3.1(b).

⁴¹⁸ *Id.* at art. 4.3(e).

⁴¹⁹ *Id.* at arts. 5.1, 5.5.

⁴²⁰ *Id.* at art. 7(g).

⁴²¹ *Id.* at art. 7(h).

⁴²² *Id.* at art. 8.7(b).

⁴²³ THE INTERNATIONAL WATERSHEDS INITIATIVE BROCHURE, *supra*.

improvement of transboundary air quality”.⁴²⁴ The Guiding Principles further state that “In environmental matters, the Commission affirms the concept of sustainable development [and] the ecosystem approach”⁴²⁵ The IWI also takes an ecosystem approach, as discussed above: an underlying concept of the IWI is that “dealing effectively with environmental issues at the border requires an ecosystem approach.”⁴²⁶ The 2012 Protocol to the GLWQA expressly takes an ecosystem approach⁴²⁷ and requires that “Lake Ecosystem Objectives” be established for each of Great Lakes, including its connecting river systems.⁴²⁸

In connection with the IWI, the IJC has referred to the “ecosystem approach” as evaluating how “people’s use of an ecosystem affects its functioning and productivity”,⁴²⁹ with an emphasis on local people.⁴³⁰ Also it is described as considering: “the entire range of goods and services that can be derived from the environment and that attempts to maximize the mix of benefits”; “tak[ing] a long-term view”; and “linking human needs to the capacity of ecosystems”.⁴³¹ To apply the ecosystem approach four steps are carried out: (1) acquire actual knowledge of conditions and functions of the ecosystem to know what trade-offs are being made with management decisions; (2) set a value on ecosystem services, which are then factored into planning processes; (3) engage in public dialogue regarding the trade-offs and management policies; and (4) involve local communities in managing ecosystems.⁴³²

5.8.7. Climate change

The 1909 Treaty is understandably silent on climate change. In 2009, however, the IJC identified climate change and vulnerability as an “emerging issue” that requires attention by the IWI boards and inclusion in their strategic planning process. Some IWI boards reported “climate variability” while others reported “noticeable trends.”⁴³³ The International Upper Great Lakes Study reviewed climate trends (modeling of climate scenarios on levels and outflows) and concluded that scientific consensus appears to indicate that “the border area may experience significant climatic changes in the coming decades”.⁴³⁴ Moreover, the 2012

⁴²⁴ International Joint Commission, *IJC Mission and Mandates - Mission Statement*, IJC.ORG (1998), http://www.ijc.org/en/IJC_Mandates (last visited Oct. 2, 2014).

⁴²⁵ Guiding Principles of the International Joint Commission, *supra*, at para. 10.

⁴²⁶ THE INTERNATIONAL WATERSHEDS INITIATIVE: IMPLEMENTING A NEW PARADIGM FOR TRANSBOUNDARY BASINS, *supra*, at 8.

⁴²⁷ 2012 Protocol to the GLWQA, *supra*, at art. 2.4(f).

⁴²⁸ *Id.* at art. 3.1(b)(i).

⁴²⁹ THE INTERNATIONAL WATERSHEDS INITIATIVE: IMPLEMENTING A NEW PARADIGM FOR TRANSBOUNDARY BASINS, *supra*, at 8.

⁴³⁰ The IWI has been inclusive with all local citizenry: “First Nations, Métis and Tribal members . . . non-government and government members.” THE INTERNATIONAL WATERSHEDS INITIATIVE BROCHURE, *supra*.

⁴³¹ THE INTERNATIONAL WATERSHEDS INITIATIVE: IMPLEMENTING A NEW PARADIGM FOR TRANSBOUNDARY BASINS, *supra*, at 8.

⁴³² *Id.*

⁴³³ *Id.* at 11.

⁴³⁴ *Id.*

Protocol to the GLWQA specifically refers to the goal of “coordinating efforts to identify, quantify, understand and predict the climate change impacts on the quality of the Waters of the Great Lakes, and sharing information that Great Lakes resource managers need to proactively address these impacts.”⁴³⁵ These activities are nascent.

The IJC has not directly engaged with the UNFCCC secretariat. Rather, it relies on the two governments to deal with the secretariat.

5.8.8. International outreach

The United Nations University in Hamilton, Canada, arranged for two skill-sharing workshops between the IJC and the International Conference on the Great Lakes Region when the latter was being established. These workshops, which were held in Canada and Uganda, involved officials from the African Great Lakes organisation and IJC.

5.9 Volta River Basin

The Volta Basin Authority (VBA) is a relatively young organisation established in 2007 by the Convention on the Status of the Volta River and Establishment of the Volta Basin Authority. That convention was designed primarily to establish the VBA. It contains general principles that are to form the basis for cooperation among the Parties,⁴³⁶ but few details beyond that.

To provide information regarding the problems facing the basin and possible approaches to dealing with them, a Transboundary Diagnostic Analysis (TDA) of the Volta Basin was undertaken as part of the UNEP-GEF Volta Project, Addressing Transboundary Concerns in the Volta Basin and its Downstream Coastal Areas. The TDA, which was completed in 2013, contained a “participatory and science-based assessment” of basin resources, which included identifying risks to the condition and continued availability of basin water, as well as the key causes of threats to the basin.⁴³⁷ The existence of the TDA allowed the development of a Strategic Plan, which was completed in 2014. The Strategic Plan outlines policy, legal and institutional reforms and investments necessary to tackle environmental challenges facing the Volta ecosystem.⁴³⁸

5.9.1. Ecological and Environmental Protection - Water Charter

⁴³⁵ 2012 Protocol to the GLWQA, *supra*, at annex 9, pt. A.

⁴³⁶ Volta Convention, *supra*, at art. 4.

⁴³⁷ VOLTA BASIN AUTHORITY, BIENNIAL REPORT 2012-2013, at 34 (2014).

⁴³⁸ VOLTA BASIN AUTHORITY, STRATEGIC PLAN 2010-2014 (2011).

The Volta Convention commits the Parties to “cooperate closely for the rational and sustainable utilization of the water resources of the Volta Basin . . .”⁴³⁹ on the basis of nine principles. Several of the principles relate to the environment (e.g. “The protection and conservation of ecosystems” and “Precaution and prevention”);⁴⁴⁰ but the convention provides no details about how this should occur or the more precise content of these principles. The VBA is currently in the process of establishing a Water Charter, recognising the need for adequate basin resource management and measures aimed at protecting the environment. The basin States have established the terms of reference for the charter and are currently awaiting approval from the World Bank, which is providing technical assistance and financial support for the document. The Water Charter is one of the primary actions outlined under the 2014 Volta Basin Strategic Action Programme (SAP)⁴⁴¹ and had already been identified before then as a key element in managing the basin in a sustainable manner.⁴⁴²

Those involved in drafting the Volta Water Charter are taking into account the experience under the Senegal Water Charter.⁴⁴³ Senegal, Mauritania, Mali and Guinea, the riparian countries of the Senegal River Basin, have a long history of cooperation over their shared water resources. This cooperation dates back to 1963, shortly after they each gained independence, when the four States signed the Bamako Convention,⁴⁴⁴ which established that the Senegal River was an international river to be jointly managed by the riparian States. Eventually, the *Organisation pour la mise en valeur du fleuve Sénégal* (OMVS) was established and has been referred to “as the most progressive of river institutions” in the region. Agreements regarding the Senegal River Basin initially focused on economic development. The evolving nature of the cooperation between the States led in 2002 to the adoption of the Senegal Water Charter, which addressed environmental concerns arising from a host of issues resulting from the building of dams and other development efforts.⁴⁴⁵ Today, management efforts undertaken for the Senegal River serve as a model for riparian States of other basins in the region, including the Volta basin.

5.9.2. Climate change

⁴³⁹ Volta Convention, *supra*, at art 4.

⁴⁴⁰ Volta Convention, *supra*, at arts. 4(f), 4(e).

⁴⁴¹ UNEP-GEF VOLTA PROJECT, STRATEGIC ACTION PROGRAMME FOR THE VOLTA BASIN (Project No. 53885, 2014) [hereinafter VOLTA SAP].

⁴⁴² Preliminary work had begun on the Water Charter as early as 2013.

⁴⁴³ Charter of Senegal River Waters, *supra*.

⁴⁴⁴ Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, Jan. 30, 1991, 30 I.L.M. 773 (entered into force Apr. 22, 1998) <http://www.ecolex.org/server2.php/libcat/docs/TRE/Full/En/TRE-001104.txt>.

⁴⁴⁵ Margaret J. Vick, *The Senegal River Basin: A Retrospective and Prospective Look at the Legal Regime*, 46 Nat. Resources J. 211, (2006), http://lawschool.unm.edu/nrj/volumes/46/1/07_vick_senegal.pdf.

The TDA identified climate change as one of the main factors contributing to transboundary problems in the region. In the context of increasing pressure being placed on water resources due to population growth and uncertainties concerning water security, the VBA is engaged in several efforts related to climate change.

In response to recommendations made under the Water, Climate and Development Programme, which is managed by the Global Water Partnership (GWP), West Africa, on behalf of the African Ministers' Council on Water (AMCOW), the VBA has installed an "Observatory for Water Resources and Associated Ecosystems" for the purpose of determining the current state of the basin through monitoring climate change, amongst other conditions. As part of the Observatory, the VBA has reached out to a variety of stakeholders and has identified approximately 45 national NGOs as potential participants.

Another ongoing initiative is known as WASCAL, West African Science Service Centre on Climate Change and Adapted Land Use. This program is implemented by the German Federal Ministry of Education and Research in order to establish, in collaboration with its West African partners, a hub of knowledge on "climate change and adapted land use in West Africa". By training graduate students, undertaking research, and setting up a competence center, the program is generating knowledge and building capacity in the region to address present and future land management issues brought on by climate change and weather conditions.

Several actions outlined in the SAP are concerned with addressing water availability in the basin. The plan recognises climate change as a direct factor affecting water availability in the Volta, thus proposing actions that deal with "adaptation to risks relating to water availability and with improving knowledge of prevailing situations in order to respond adequately to changing conditions". One such action involves integrating climate change into national policies on water usage across the Volta region, as well as raising awareness on adaptation methods for dealing with conditions brought forth by climate change.

The VBA has not interacted directly with the UNFCCC secretariat. Its partners and the governments of the Parties are in direct contact with that secretariat. The VBA does participate in international conferences on climate change, such as the 2014 Fourth Annual Conference on Climate Change and Development in Africa (organised by the UN Economic Commission for Africa), which authorities from other basins also attended.

5.9.3. Transparency and public participation

The SAP sets out to “design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta”⁴⁴⁶. In order to achieve this, it intends to: “Develop and implement a programme for capacity-building and public participation (information, education, awareness and training) in relation to river-bank erosion and degradation.”⁴⁴⁷ The VBA has conducted outreach to national and local NGOs via its Observatory project.

5.9.4. Wetlands

One of the demonstration projects under consideration by the VBA involves the Pendjari wetland, which affects four basin States: the wetland is in Benin and flows into Togo, Burkina Faso and the Oti River in Ghana. The Pandjari wetland is on the Ramsar Convention List of Wetlands of International Importance and is also a UNESCO Biosphere Reserve.⁴⁴⁸ As is the case regarding the UNFCCC secretariat, the Ramsar secretariat and the VBA have not directly interacted.

5.10 Summary

With the exception of the 1909 Boundary Waters Treaty (which was negotiated more than 100 years ago and whose implementation has become much more environmentally focused due to subsequent instruments), all of the watercourse agreements examined in this study have an object or purpose that includes protecting the environment of the watercourse or ecosystem, as well as significant other components relating to environmental protection.⁴⁴⁹ The agreements’ primary focus is on the watercourse to which they pertain; but conditions in those basins and all other international water basins are related to global environmental issues such as climate change, biological diversity, wetlands, and hazardous chemicals and waste. Nevertheless, only two of the regional and basin agreements examined herein (Amazon Treaty and Murray-Darling Agreement) expressly refer to the need to take MEAs into account. The other agreements do not prohibit taking global issues into account or working with MEAs bodies, however. Similarly, none of the watercourse agreements encountered in this study expressly mandated communicating or cooperating with other watercourse authorities, but neither did they prohibit such activities.

⁴⁴⁶ VOLTA SAP, *supra*, at viii, § B.4.

⁴⁴⁷ *Id.* at 68.

⁴⁴⁸ Ramsar Secretariat, *Ramsar Convention-Briefing Notes, The Annotated Ramsar List: Benin*, RAMSAR.ORG, http://www.ramsar.org/cda/en/ramsar-pubs-notes-anno-benin/main/ramsar/1-30-168%5E16662_4000_0__ (last visited Oct. 10, 2014).

⁴⁴⁹ Sometimes this concern is phrased in terms of protecting the environment or ecosystem, but other terms such as ensuring “sustainability” are used as well.

As a general matter, regional and basin authorities rely on the governments of their Parties to interact directly with MEA bodies. The only exception to that encountered in this study is the Guiana Shield project, which includes part of the Amazon basin. Regional and basin authorities do participate in conferences and workshops relating to issues covered by MEAs if invited by another entity. The same appears to be true with respect to being in contact with other watercourse authorities. The advantages of appropriate interactions between regional and basin authorities, on the one hand, and MEA bodies, on the other, should not be ignored. Similarly, based on the record of other experience-and skill-sharing exercises, regional and basin authorities could gain considerably from exchanges with other regional and basin authorities.

Quite apart from the questions of interactions between regional and basin authorities and MEA bodies and between regional and basin authorities among themselves, this study revealed many good practices engaged in with respect to regional and water agreements. Consistent with the increased attention being focused on environmental protection, each of the regional and watercourse agreements examined herein had engaged in good practices relating to protecting the environment of the watercourse, such as practices involving biological diversity, climate change, agricultural pollution, industrial pollution, pollution from mineral extraction, forests and hazardous chemicals and waste.

This chapter also reports on many good practices regarding transparency and public participation. These involve all aspects of the process of scoping, planning, implementing and monitoring. The practices relate to the public generally and to specific segments of the public, including indigenous people, and they include activities aimed at outreach and education. Other good practices reported herein relate to the science-based decision-making, consultation, equitable and reasonable utilisation, prevention of harm, dispute avoidance and settlement, and human rights, including the rights of Indigenous Peoples.

The good practices related in this chapter differ in their details. This study did not explore the precise reasons for such differences, but it seems evident that they reflect a combination of several factors. These include: the precise language of the respective regional or basin agreement; the stage of development of the regional or basin regime under which they took place; the challenges faced in that region or basin; the approach taken by the respective authorities and governments to address those challenges; the human and other resources available to govern the region or basin or for a particular project; and requirements or practices of a project's outside funding or administering organisations, if any.

In spite of differences in detail, the good practices related in this chapter fall within several broad categories. These are: environmental protection; transparency and public participation; science-based decision-making; consultation; and dispute avoidance and settlement.

All of the regional and basin regimes examined in this study demonstrated good practices relating to protecting the environment. Some of these were general, relating to an entire aquifer or basin, while others related to specific issues such as biological diversity, chemical pollution, climate change or wetlands protection. Good practices involving environmental impact assessment occurred in several instances. In addition, the good practices summarised below regarding transparency and public participation, science-based decision-making and consultation relate to environmental impact assessment.

Good practices relating to transparency and public participation took several forms and often were not just a single effort to provide or collect information or opinion, but rather an interactive process of information provision and collection, iterative discussion and monitoring. The good practices spanned all segments of society, including indigenous people. The robust nature of these activities reflects an appreciation for the value of information and perspective provided by the public, the need for public acceptance of watercourse protection activities, and the increasingly important roles of civil society in watercourse management and protection.

Good practices relating to providing a scientific basis for decision-making covered a wide range of activities. These include establishing baseline information prior to drafting a legal framework for governing the water resource to determining information relating to particular proposed projects to reaching consensus on facts relating to a particular contentious situation or dispute to monitoring the performance of projects throughout their lives.

Good practices relating to consultation included both general interactions involved in participating in the watercourse regime in question and more specific procedures for discussion and even approval of specific projects. To some degree, consultation is inherent in the good practices relating to science-based decision-making, as well.

Good practices relating to human rights encompassed all three of the categories of human rights identified in chapter 3. Procedural human right to access to information, freedom of expression, right to assemble and right to participate were protected via the transparency and public participation good practices described above. The rights of indigenous people were taken into account in several good practices. The human right to water was also taken into account in good practices, though this was less frequent.

Good practices relating to dispute avoidance and settlement fall within a wide range. At the general level, these include efforts to establish factual bases for legal regimes and specific projects, and monitoring generally. Specific good practices include consultation processes and procedures for addressing differences before they become legal disputes and for addressing actual disputes.

CHAPTER 6: CONCLUSIONS – BASIN, REGIONAL AND GLOBAL SOLUTIONS

The governance of international freshwater must deal with a vast range of important economic, social environmental and human health issues. Moreover, pressures on water supply, water quality and access to water from population growth, climate change, agricultural changes, migration, pollution, salinisation and depletion of water resources are increasing at a fast pace and in uncertain ways, presenting ever-growing challenges to efficient and effective international water governance. Technological innovations relating to consumption, agriculture and industry undoubtedly will help alleviate these and other stresses, but there is no reason to conclude they will counteract completely the pressures just described. Moreover, these increased stresses are subject to significant uncertainty in terms of magnitude and timing. International watercourse governance thus must be prepared to operate in an era of increased uncertainty and decreased per capita availability of freshwater and, as a result, increased need for water resources both internally and internationally.

The seven regional and basin agreements examined in this study,⁴⁵⁰ as well as the activities carried out with respect to them, demonstrate an increasing awareness that international watercourses must be managed in a manner that maintains the integrity of the watercourse and its ecosystem if sustainable utilisation of the watercourse is to be achieved. A central challenge facing the international community today is thus to ensure that both people and the natural environment have access to adequate freshwater of sufficient quality to satisfy basic human needs, advance economic and social progress, and maintain the integrity of the ecosystems on which attaining the other goals depends. International water governance structures must be robust and flexible in order to successfully cope with the stresses identified above, while at the same time providing security regarding water quantity, quality and access. Accordingly, international law and institutions, including regional and basin agreements and authorities, must continue to evolve to achieve that outcome.

The governance structure relevant to international watercourses is complex. At the global level, the UN Watercourses Convention is in force, but it specifically recognises the validity of existing and future regional and basin agreements and does not have a secretariat or conference of the Parties to help coordinate communications and other functions. Perhaps 400 regional and basin agreements are in force dealing directly with international watercourses, all of which establish some sort of authority to administer the agreement. An enormous number of other actors are also involved, including all levels of government (from global to local) and all

⁴⁵⁰ Amazon Treaty, Danube Convention, Guarani Aquifer Agreement, Mekong Agreement, Murray-Darling Agreement, 1909 Boundary Waters Treaty and Volta Convention, *supra*.

manner of civil society organisations and entities (including non-governmental organisations, financial institutions and other business enterprises).

International watercourse governance also involves innumerable norms (e.g. laws, principles, non-binding standards, and guidelines) from many sources (e.g. international agreements, national, local and tribal laws, loan or contractual provisions, and voluntary standards). Some of these norms are water-specific, such as those in the UN Watercourses Convention and the regional and basin agreements mentioned above; others have direct relevance to water but are broader in their application. The obligations contained in a regional or basin agreement apply only to the States that are Party to that agreement, but the normative network is much wider. Most States are subject to one or more water-specific international agreements; all States are subject to some norms relevant to water (e.g. the obligation to settle disputes peacefully and human rights); and the vast majority of States are subject to many of the norms, such as those contained in the MEAs considered in this report⁴⁵¹). At the same time, however, the governance web is not complete: some international waters are not governed by a legal framework.

The normative and institutional situation can be especially complex when watercourse agreements are nested, for example when a State that is a Party to a basin watercourse agreement is also a Party to another agreement regarding a sub-part of the same basin. This is quite common and results in the need to comply with multiple norms, which can include needing to meet duplicative procedural requirements and reconcile potentially different norms, and work with multiple institutions at the global, regional, basin and sub-basin levels. A similar situation results when a State has parallel watercourse obligations arising because it is a Party to more international agreements regarding more than one basin.

An additional factor creating complexity is that, unlike the case for climate change or international trade, there is no global treaty with a dedicated secretariat and conference of the Parties to assist in educating about emerging threats and good practices, developing normative approaches and coordinating communication among organisations such as regional and basin authorities.

The result is that the legal architecture relating to international watercourses is multi-layered, over-lapping, incomplete, complex and fragmented with respect to both institutions and norms.

⁴⁵¹ The MEAs examined in this study are: Basel Convention on the Transboundary Movement of Hazardous Waste, Convention on Biological Diversity, Convention on Migratory Species, Ramsar Convention on Wetlands, Stockholm Convention on Persistent Organic Pollutants, UN Convention on Combating Desertification, UN Framework Convention on Climate Change and UN Watercourse Convention, *supra*.

This situation interferes with efficient and effective governance, as well as with the needed evolution of international law towards better protection of freshwater ecosystems and sustainable utilisation of international watercourses.

Two principles of international law may help rationalise this complex and potentially inconsistent normative situation. These are the principle of inter-temporal law and the harmonisation principle. In addition, article 31 of the Vienna Convention on the Law of Treaties, in particular paragraph 3(c), may be of assistance.

The principle of inter-temporal law provides that when new norms of customary international law develop, particularly norms relating to environmental protection or sustainable development, they must “be taken into consideration, and such new standards given proper weight, not only when States contemplate new activities but also when continuing with activities begun in the past.”⁴⁵² This principle may assist in harmonising interpretations and applications of different watercourse agreements and in facilitating the evolution of international water law.

The harmonisation principle may have the same effect in the context of potentially conflicting treaty-based obligations. This principle is that when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations. The application of this principle thus could be helpful in reducing fragmentation and facilitating the evolution of international water law.

Article 31.3(c) of the Vienna Convention on the Law of Treaties points in the same direction, because it refers to “any relevant rules of international law applicable in the relations between the parties” as appropriate considerations in interpreting treaty provisions. This could allow taking into account various treaty provisions and customary international law norms in certain circumstances.

Different regional and basin water authorities have successfully engaged in projects and activities that effectively integrate good management practices with normative and institutional realities. Moreover, some MEAs and financial institutions have played constructive roles in trying to ensure an integrated approach that involves multiple actors and takes multiple norms into account.

The good practices related in this report differ in their details. This study did not explore the precise reasons for such differences, but it seems evident that they reflect a combination of

⁴⁵² *Id.*; see also *Pulp Mills on the River Uruguay*, *supra*, at para. 177.

several factors. These include: the stage of development of the regional or basin agreement under which they took place; the challenges faced in that region or basin; the approach taken by the respective authorities and governments to address those challenges; the human and other resources available to govern the region or basin or for a particular project; and requirements or practices of a project's outside funding or administering organisations, if any. The last two-mentioned factors underscore the importance of the actors involved. As indicated in chapter 2, there is a vast array of actors involved in watercourse governance. Not surprisingly, an examination of these good practices indicates that it matters a great deal which actors are involved in a particular situation.

In spite of differences in detail, the good practices related in this chapter fall within several broad categories. These are: environmental protection; transparency and public participation; science-based decision-making; consultation; human rights; and dispute avoidance and settlement.

All of the regional and basin regimes examined in this study demonstrated good practices relating to protecting the environment. Some of these were general, relating to an entire aquifer or basin, while others related to specific issues such as biological diversity, chemical pollution, climate change or wetlands protections. Good practices involving environmental impact assessment occurred in several instances. In addition, the good practices summarised below regarding transparency and public participation, science-based decision-making and consultation relate to environmental impact assessment.

Good practices relating to transparency and public participation took several forms and often were not just a single effort to provide or collect information or opinion, but rather an interactive process of information provision and collection, iterative discussion and monitoring. The good practices spanned all segments of society, including indigenous people. The robust nature of these activities reflects an appreciation for the value of information and perspective provided by the public, the need for public acceptance of watercourse protection activities, and the increasingly important roles of civil society in watercourse management and protection.

Good practices relating to providing a scientific basis for decision-making covered a wide range of activities. These include establishing baseline information prior to drafting a legal framework for governing the water resource, determining information relating to particular proposed projects, reaching consensus on facts relating to a particular contentious situation or dispute, and monitoring the performance of projects throughout their lives.

Good practices relating to consultation included both general interactions involved in participating in the watercourse regime in question and more specific procedures for discussion and even approval of specific projects. To some degree, consultation is inherent in the good practices relating to science-based decision-making, as well.

Good practices relating to human rights encompassed all three of the categories of human rights identified in chapter 3. Procedural human right to access to information, freedom of expression, right to assemble and right to participate are protected via the transparency and public participation good practices described above. The rights of indigenous people are taken into account in several good practices. The human right to water is also taken into account in good practices, though this is less frequent.

Good practices relating dispute avoidance and settlement fall within a wide range. At the general level, these include efforts to establish factual bases for legal regimes and specific projects, and monitoring generally. More specific good practices include consultation processes and procedures for addressing specific differences before they become legal disputes and for addressing actual disputes.

Each of those categories relates to one or more of the international water law principles, including as expressed in the UN Watercourses Convention, identified in chapter 3. For example, the impressive array of good practices regarding environmental protection relate to the principles of no significant harm, protection of watercourses and their ecosystems, environmental impact assessment, cooperation, regular exchange of information, human rights, reasonable and equitable utilisation, and peaceful settlement of disputes. The good practices regarding transparency and public participation relate to the principles of reasonable and equitable utilisation, protection of watercourses and their ecosystems, and human rights, including the rights of indigenous people. The good practices regarding science-based decision-making relate to the principles of peaceful settlement of disputes, environmental impact assessment, regular exchange of information, reasonable and equitable utilisation and no significant harm. The good practices regarding consultation relate to the principles of cooperation, notification and consultation, and peaceful settlement of disputes. The good practices regarding human rights relate to procedural human rights (right to access to information, freedom of expression, right to assemble and right to participate), the rights of indigenous peoples, the human right to water and peaceful settlement of disputes. The good practices relating to dispute avoidance and settlement relate to the principles of peaceful settlement of disputes, cooperation, protection of watercourses and their ecosystems and notification and consultation.

These good practices are impressive in their own right, and they suggest that the evolution of international water law will be influenced by increased focus on six themes: environmental protection; transparency and public participation; science-based decision-making; consultation; human rights; and dispute avoidance and settlement. This is already evident with respect to the customary international law obligation to conduct transboundary impact assessments. Moreover, in spite of the fragmented legal architecture, that evolution is occurring not only at a global level, such as via the UN Watercourses Convention and the International Court of Justice, but also in the legal architectures and good practices of the regional and basin agreements examined in this study. Finally, the importance of the myriad activities at local, national, basin, regional and global levels and the fragmented nature of the legal architecture point to a need for communication, cooperation and coordination among the various actors involved in international watercourse governance, as well as to the importance of the continued evolution of international water law.