Political Economy and International Water Law: Political Economy Induced Changes to the Uptake of Benefit Sharing in International Water Law

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I. INTRODUCTION: THE BENEFIT SHARING NOTION AND TRANSBOUNDARY WATER COOPERATION

Over recent decades, the sharing of benefits derived from the use of natural resources has emerged as a governing principle in some Multilateral Environmental Agreements (MEAs), most notably the 1992 Convention on Biological Diversity (CBD)\(^1\) and its 2010 Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol) explicitly refer to and operationalize it.\(^2\) Interestingly, neither document defines the concept of ‘fair and equitable’. As pointed out in the 2002 Bonn Guidelines, which were adopted to assist the Parties and other stakeholders in developing

* The authors would like to thank Jason Rudall for his help with the editing of the present contribution. The findings, interpretations and conclusions expressed in this Chapter are entirely those of the authors and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.


benefit sharing strategies, it was considered that what is regarded as fair and equitable will vary ‘in light of the circumstances’.³

This very same argument is also reflected in the principle of equitable and reasonable utilization of transboundary water resources. Similar to the Bonn Guidelines and the Nagoya Protocol, which adopted an approach that reflects the various proportionate contributions in the distribution of benefits,⁴ International Water Law (IWL) provides criteria to determine equitable and reasonable utilization. In the context of benefit sharing on genetic resources, the contributions to access, knowledge, innovation and value addition are taken into account; whereas in the context of transboundary water resources, factors such as geographic, hydrologic and climatic conditions, as well as dependence on the resource, and existing and future uses, are considered.

The differences in the factors taken into account to assess equity and their implications for benefit sharing arrangements ultimately being adopted are due to the economic, social and resource specific factors that intervene in these two areas of environmental regulation. An in-depth analysis of the International Political Economy (IPE), given the interaction between national politics and – in the context of transboundary waters more importantly – the behavior of States on the international plane, can explain the provenance of such rules and shed light on potential future trends.

In an effort to expand the discipline of IPE analysis, which has so far largely been confined to the discipline of international economic relations,⁵ this Chapter analyzes the anchoring of benefit sharing arrangements between States sharing hydrologic systems in IWL. IPE analysis is mostly premised on the interaction between economic and political considerations in the context of inter-State relations,⁶ and as such it represents a useful tool to analyze in a comprehensive way the considerations at stake in benefit sharing arrangements. While economic considerations are a key factor in benefit sharing arrangements, such as in the


⁵ See Anne van Aaken and Joel P Trachtman, ‘Political Economy of International Law: Towards a Holistic Model of State Behaviour’, above in this Volume.

⁶ Ibid 10.
context of the CBD, in the case of internationally shared waters, hydrologic factors are an additional endogenous determinant to State relations. Similar to economic (for example, trade) relations between States, transboundary water systems establish interdependence, which obliges countries to engage in international relations and enter into agreements with their neighbors and countries sharing the same hydrologic system.

This Chapter responds to the questions as to why IWL emerged and on the increasing influence of local and national political processes as determinants for the international principles and norms of water law. IPE analysis is used to explain the determinants of IWL creation – law as *explanandum*. Given the strategic importance that governments attribute to their water resources, the State is the primary unit of analysis. Though, as this Chapter shows, the increasingly accented impact of the transboundary management of waters on national and local water availability (both in terms of quantity and quality) give national and local stakeholders and interest groups an increasingly deterministic role in shaping the content of IWL.

IPE analysis in this context can help highlight that the consequences of benefit sharing can be in the interests of a given State (a function of law as *explanans*). It can also add to the calculus of considerations (for example in theorizing negotiations) that were previously – advertently or otherwise – not taken into account (such as the concerns of local populations and the protection of the environment). Further still, it can be used to show that States should be discouraged from ‘defecting’ on their benefit sharing obligations or from exclusively pursuing narrow, short-term interests.

II. THE NOTION OF BENEFIT SHARING: ENVIRONMENTAL, SOCIAL, ECONOMIC AND LEGAL FACETS

Benefit sharing is the outcome of a process of realization that in a complex and interdependent world (i) there are fewer benefits that can be achieved by unilateral action than through cooperation with stakeholders in the same challenge; and (ii) that formulas to share the benefits of cooperative behavior need to be agreed upon to achieve equity that will spur continued cooperation.
In behavioral science and game theory this has been demonstrated through the concept of the prisoner's dilemma.⁷ This is a symmetric two-person game in which non-cooperation pays for both players individually no matter what the other does. Yet, together, they are both better off if they cooperate. Through iterations of interaction, they learn over time that cooperative behavior pays off and yields higher benefits, even if there are short-term incentives for defection.⁸ The situation of the iterated prisoner's dilemma is similar to the one faced in the management of transboundary water systems as States sharing these systems cannot escape their hydrologic interdependence.

II.1. The Benefit Sharing Notion and Its Origins

The physical availability of water is one of the many benefits transboundary water systems provide to riparian countries. Accessibility is a direct benefit of hydrologic systems running through or straddling a State's territory. In addition, these systems provide a wide range of other benefits that can be derived from the water flowing within. These include the food that can be produced using the resource for irrigation or animal husbandry, as well as benefits derived from non-consumptive uses such as navigation, recreation, biodiversity, fisheries and hydropower. The amount of benefits that can ultimately be derived from a hydrologic system depends to a large extent on the quality of its management. The quantity of available water for instance can be influenced through good watershed management that minimizes erosion, maximizes infiltration into the ground and thus slowing run-off, as well as through storage reservoirs of a size that can store and 'transfer' the resource from water abundant to water deficient years.⁹

In a transboundary water system, potential benefits available from the entire system cannot always be maximized by one riparian alone. In most transboundary situations, optimizing benefits requires some sort of coordination among riparian States sharing the water resources. Water creates interdependency between them; a downstream riparian, for example, may not be in a position to reduce sediment transport in the river without positive watershed management intervention upstream. At the same time, uses by one State are likely to affect one or more of its

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⁷ See Meredith Kolsky Lewis, 'International Political Economy and the Prisoner's Dilemma: Compliance with International Law', above in this Volume.
⁸ This game yields the same results for two-player and multi-player settings.
co-riparian States either immediately – for instance in case of serious pollution – or over time through, for example, significant abstraction that establishes existing uses and may foreclose future uses of others.

The prospective additional benefits that can be gained through coordinated activities with a co-riparian country become the driver for cooperation on transboundary water resources management and development. Cooperation is the process by which States work together to achieve a common purpose that produces additional mutual benefits that would be unavailable with unilateral action. Countries cooperate where they can see that the benefits of collaboration outweigh the costs; these costs include the benefits of unilateral water uses a country has to forgo to reduce the negative impact of its uses to the country it would like to cooperate with in order to realize net gains overall. These net benefits are then being shared across boundaries and among the cooperating States.

These ideas have been analyzed in economic and political science literature and have led to the crystallization of the so called ‘benefit sharing concept’ in the context of transboundary water cooperation. The underlying idea of the benefit sharing concept is that, to say it in a simplified way, cooperation creates win-win situations. Cooperation – rather than conflict or competition among actors – leads to an increase of overall benefits which can subsequently be shared among all actors. A useful and current illustration of the application of the benefit sharing concept to transboundary rivers has been developed by Sadoff and Grey. The two authors distinguish between four types of benefits that can be derived from cooperative management of transboundary watercourses: (1) benefits to the river, (2) benefits from the river, (3) reduction of costs because of the river, and (4) benefits beyond the river. The first type of benefits focuses on the ecological benefits that occur if riparian States join together to maintain a healthy aquatic environment in the river basin.

12 Sadoff and Grey (n 11) 389–403; Sadoff et al. (n 9) 23–5.
To a certain extent, the authors argue, these benefits to the river are a pre-requisite to derive the second type of benefits, benefits from the river. This second type is linked to the economic benefits that can be reaped from the river; again the argument goes that cooperative action will increase the benefits that can be generated. The third type of benefits comes closest to explaining how benefit sharing in itself can contribute to increasing the ‘basket of benefits’, which is the range of different benefits that become available. Here the benefit is the reduction of costs that arise because of the river, alluding to the costs of political conflict over the river. Cooperation and benefit sharing can reduce these tensions. Benefits beyond the river are those that occur as a follow-on effect of benefits derived from and reduction of costs because of the river; they concern forward linkages in the economy into sectors that are indirectly related to the management of transboundary water resources. These forward linkages are the result of improved relationships among riparian States. They occur, for example, where riparian States experience improvements in their political relationships due to profitable or successful cooperation with respect to their shared waters and subsequently seek additional cooperative relationships in other sectors of their economy, including trade, scientific cooperation and technology exchange. Benefits that occur because of these new relationships are benefits of the fourth type.

The Sadoff-Grey model illustrates the various types of benefits that can be created along transboundary rivers; yet, the concept can also be applied to transboundary aquifers and lakes. The model describes benefit sharing in the context of promoting cooperation on transboundary river basins: when countries acknowledge the additional benefits that can be derived from cooperation on transboundary water systems, they are more

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13 Sadoff and Grey (n 11) 395.
14 The term ‘basket of benefits’ was coined in Phillips et al., (n 11).
15 It goes without saying that successful cooperation in non-water-related sectors can be the source of cooperation on transboundary waters. Often forward linkages travel both ways.
16 Other models include Transboundary Waters Opportunity Analysis (TWO Analysis), a framework which identifies all potential benefits that can be derived from the basin and can be shared equitably among basin States (see Phillips et al., (n 11)); and the ECO2 Model, which focuses on finding a balance between development and protection of the resource in the framework of sustainable development (see Marius Claassen, Focus on CSIR Research in Water Resources: ECO2 – Sharing Benefits from Water Resources (CSIR, Conference Paper presented at the Stockholm World Water Week, 13–17 August 2007) <http://researchspace.csir.co.za/dspace/handle/10204/1127> accessed 13 October 2014.
likely to cooperate in the pursuit of generating and sharing these additional benefits. The actors in this conceptualization are countries. The benefit sharing concept, however, equally applies to actors at the local, community and individual level. These are often the major stakeholders of benefit sharing arrangements between countries. Benefits that accrue between countries trickle down to government authorities, local communities, individual water users and other affected people. Other descriptions of the benefit sharing concept, such as in the literature on benefit sharing around forest development and in the context of hydropower development and its impact on local communities, focus more on sharing among all those who are affected by a new project or legislation. Rather than just analyzing the benefits a project or policy brings for a country as a whole, the distribution of benefits among different communities – at the local level – is analyzed.

This Chapter investigates the question of how the concept of benefit sharing is reflected in International Law (IL) and which beneficiary parties are considered. For the purpose of this analysis, which considers the uptake of the concept in IWL, the focus will be on benefit sharing between States as the primary subjects of IL.

II.2. The Legal Framing of Benefit Sharing in International Water Law

The benefit sharing approach has been hailed by some as a new and innovative way to operationalize the principle of equitable and reasonable utilization, one of the cornerstone principles of IWL. The document associated with firmly establishing the principle of equitable and reasonable utilization as one of the key principles of IWL is the 1966 Helsinki Rules on the Use of the Waters of International Rivers. These rules were drawn up based on existing water treaties and State practice on the use of transboundary waters to that date. Article IV of the Helsinki Rules

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entitles each basin State, 'within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin'. At the heart of this principle lies the obligation to utilize transboundary watercourses in an equitable manner. This obligation is accompanied by a correlative right of each basin State to an equitable share of the uses and benefits therefrom.20

The first sentence of Article 5 (1) of the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses (1997 UN Watercourses Convention) expresses the obligation. It states that: ‘Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner.’ The second sentence of Article 5 (1) obliges watercourse States to use and develop an international watercourse ‘with a view to attaining optimal and sustainable utilization thereof and benefits therefrom [...]’. According to the International Law Commission (ILC), the objective to be sought therefore is the attainment of ‘maximum possible benefits for all watercourse States’.21 As much as this paragraph refers to both actions by individual States as well as to cooperative measures, this formula anchors the benefit sharing approach in the principle of equitable and reasonable utilization.22 States enter into agreements on benefit sharing when they expect that cooperative management and development of a hydrologic system allows them to increase the benefits available from the common resource and share them equitably.

What equity means in each specific basin context has to be first and foremost decided by the watercourse States concerned. In the case of unilateral development and the absence of cooperative development for optimal utilization, the various formulations of the principle of equitable and reasonable use in the 1997 UN Watercourses Convention and other documents provide guidance through non-exhaustive lists of criteria to consider. In line with the principle of the equality of rights, each State has an equal right to an equitable share of the water resources and benefits that can be derived therefrom.23 State entitlements follow equity considerations that are to be based on the specific circumstances of each transboundary watercourse or aquifer system.

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21 Ibid 97.
22 Ibid.
23 Ibid 98; ILA (n 19) 487; ILC (n 20) 98.
Before discussing how equity is assessed, the following paragraphs will present an analysis of the characteristics of and the Political Economy (PE) influences on the interpretation and formulation of the principle of equitable and reasonable use.

**Political economy influences on early conceptualization of benefit sharing in International Water Law**

While the principle of equitable and reasonable utilization is today one of the core principles of IWL, its origins are found at the national level. Early formulations of the principle occurred in particular in the jurisdiction of the United States Supreme Court concerning disputes between federal States with respect to consumptive use of shared watercourses. In the decisions addressing interstate disputes about water apportionment, the US Supreme Court referred to the ‘doctrine of equitable apportionment’. For example, the case *State of Kansas v State of Colorado* – decided by the US Supreme Court in 1907 – concerned irrigation benefits. Kansas demanded an interdiction of diversions by Colorado of the water of the Arkansas River. Kansas claimed that the increase in the area of irrigated fields in Colorado harmed irrigation in its western counties due to a decrease in flow volume. The decision of the Court is remarkable: while acknowledging that the ‘irrigation of Colorado has worked some detriment to the southwestern part of Kansas’, at the same time it also noted that the material damages in Kansas did not outweigh the benefits derived from irrigation in Colorado. The Supreme Court held that ‘when we compare the amount of this detriment with the great benefit which has obviously resulted to the counties in Colorado, it would seem that equality of right and equity between the two States forbids any interference with the present withdrawal of water in Colorado for purposes of irrigation’. The Court based its decision on the

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25 McCaffrey (n 24) 385.


27 *State of Kansas v Colorado* 206 (n 26) 113f.

28 Ibid 114.
equitable distribution of economic benefits that were derived from the river,\textsuperscript{29} which at that time brought economic benefits to Colorado that went far beyond the benefits that could have been and had been achieved by Kansas so far. At the same time, the Court made it clear that this decision was without prejudice to the right of Kansas to file a claim in the future in case their benefits (and harm) were no longer equitably distributed.\textsuperscript{30}

This decision highlights that the doctrine of equitable apportionment looks at a much wider understanding of benefits derived from water than just access and right to a certain water volume. The Court looked at the gains that can be derived from the availability of water in general. In the case of irrigation, benefits include crops, food security, socioeconomic development as well as the benefit of flow regulation that ensures regular water supply to fertile grounds or otherwise non-arable land and makes agriculture resistant to unexpected rainfall variations. At the same time, the Court acknowledged that underlying circumstances may change and did not preclude future claims by Kansas.

As can be seen, the principle of equitable utilization of transboundary waters is not limited to an understanding that merely focuses on the attribution of water quantity. This would overlook the multiplicity of possibilities to generate additional benefits with efficient water management. The principle applies in a much wider scope and looks at all forms of utilization, as well as the equitable allocation of the benefits therefrom.

This and other cases, as well as treaty practice, constitute the basis for the formulation of the equitable and reasonable use principle in the International Law Association’s (ILA) Helsinki Rules, and subsequently in the 1997 UN Watercourses Convention. The ILA interpreted the notion of ‘beneficial use’ in a broad sense; as not limited to efficiency and economic optimization considerations. The commentary of the Association notes that ‘beneficial use’, according to the principle of equitable utilization, ‘need not be the most productive use […] nor need it utilize the most efficient methods known in order to … insure maximum utilization’.\textsuperscript{31} Reflecting the spirit of the time when the Helsinki Rules were formulated, this interpretation in 1966 was to a large part based on


\textsuperscript{30} State of Kansas v Colorado (n 26) at 117: ‘[…] there will come a time when Kansas may justly say that there is no longer an equitable division of benefits and may rightfully call for relief against the action of Colorado […].’

\textsuperscript{31} ILA (n 19) 487.
the intention not to impose an undue burden on financially weak and technologically less advanced countries. In recognition of the economic divergence between States, in particular with respect to the new States that emerged from decolonization, the idea in the formulation of the principle was to put States under a duty of efficiency, yet one that would be ‘commensurate with their financial resources’.32

Reframing due to changes in the Political Economy

The principle of equitable and reasonable utilization does not establish an obligation to develop and manage transboundary waters merely based on economic optimization and efficiency criteria. The absence of such a duty has not changed over time; however, the motivation behind it has changed. The objective of integrated water resources management has moved into the fore. The ILC argued in 1994 that attaining ‘optimal utilization and benefits’ is not about achieving maximum and most efficient use, nor about achieving the monetarily most valuable outcomes.33 Optimal utilization is utilization that balances and integrates monetarily valuable uses with environmentally and socially beneficial uses. Thus, the motivation and interpretation of the principle has slightly shifted over time: equity with respect to economically less developed States formed an important priority in the interpretation of the principle in the mid-1960s at the height of decolonization. In the early 1990s, after the 1972 Stockholm Conference on the Human Environment and the 1992 Rio Conference on Environment and Development had taken place, the aspects of integrated management, sustainability and environmental considerations moved into the foreground.

In this evolving interpretation, the principle of equitable and reasonable utilization adopted a wider notion of what constitutes a benefit that can be derived from the utilization of transboundary water resources. The definition of ‘beneficial use’ has evolved and expanded over time with an increasing realization that human society and its economic activities negatively affect ecosystems and the environment. The legal definition has equally evolved. Article 5 (1) of the 1997 UN Watercourses Convention reads:

Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits

32 Ibid.
33 ILC (n 20) 97.
therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.\textsuperscript{34}

The last clause of this paragraph shows evidence of the evolution of the notion of ‘beneficial use’. Economic and social gains need to be balanced against ecosystem needs. In its commentary, the ILC puts emphasis on the concept of sustainability as one of the guiding principles for the realization of equitable and reasonable use. The spirit of aiming at sustainability is also reflected in Article 1 of the 1997 UN Watercourses Convention, which highlights the objective of achieving a balance between water uses and the protection and preservation of the watercourse itself.\textsuperscript{35}

**Criteria for equity**

Legal instruments that spell out the principle of equitable utilization (as well as commentaries thereto) do not usually make a clear distinction between uses and benefits. The principle of equitable utilization aims at an equitable attribution of both uses and benefits among basin States.\textsuperscript{36}

Equity is assessed through the consideration of a series of factors that will be particular to each individual basin and to the needs of individual basin States. For this reason, the formulation of these criteria in the 1966 Helsinki Rules and the 1997 UN Watercourses Convention remains general. Article 6 of the 1997 UN Watercourses Convention provides a non-exhaustive list of criteria to be considered. The provision opens with an affirmation that the ‘[u]tilization of an international watercourse in an equitable and reasonable manner […] requires taking into account all relevant factors and circumstances.’ The indicative list includes criteria of a geographic, hydrographic, climatic, and ecologic character; the economic and social needs of basin States; the dependent basin population; current and potential uses; the conservation, protection, development and

\textsuperscript{34} Adopted by the UN General Assembly in UNGA Res 51/229 (21 May 1997), UN Doc A/RES/51/229.

\textsuperscript{35} Art 1 (1): ‘The present Convention applies to uses of international watercourses and of their waters for purposes other than navigation and to measures of protection, preservation and management related to the uses of those watercourses and their waters.’

\textsuperscript{36} The following description on the implementation of the principle draws on Laurence Boisson de Chazourmes and Mara Tignino, ‘Droit international et eau douce’ (2013) 2900 Jurisclasseur, Environnement 1–40.
economy of water use; as well as the availability of comparable alternatives to existing or potential uses.37

The process of assessing benefit sharing opportunities in transboundary river basins bears a lot of similarity with the process aimed at operationalizing the principle of equitable and reasonable utilization.38 States which apply the benefit sharing concept look at the same set of criteria that are to be taken into account when determining equitable and reasonable utilization in order to determine their proper *formulae* on how to share the benefits. For instance in the scalable three-step approach to joint identification of potential benefits in a basin developed by Granit and Claassen, the TWO Analysis is used for the assessment of joint investment opportunities.39 According to the basic framework of the TWO Analysis, countries assess various key categories of development opportunities and related benefits – power production and trading, primary production, urban and industrial development, environmental and ecosystem services – and other basin specific opportunities and uses.40 The framework is thus adjustable to the specific basin context as each river basin is different. In this three-step approach, the opportunity analysis is followed by two more steps, which analyze the impacts of identified investments and possible barriers to implementation.41

The criteria and basin conditions to consider according to the principle of equitable and reasonable allocation are those that are analyzed by countries to assess benefit sharing opportunities, as exemplified by the application of the Transboundary Waters Opportunity (TWO) Analysis in the Nile and Jordan basin contexts.42 The legal principle establishes

40 Phillips et al. (n 11) 7.
41 Granit and Claassen (n 39) 147.
rights and obligations to equitable sharing of the uses of a transboundary basin and the benefits therefrom, whereas benefit sharing is the coming together of riparian States to agree to develop and/or increase the benefits to be had from a river and to share them. This State practice on benefit sharing has contributed and continues to contribute to the evolution of the legal principle of equitable and reasonable utilization over time.

III. BENEFIT SHARING IN LEGAL PRACTICE: AN EXAMINATION OF INTERNATIONAL WATER TREATIES

The uptake of benefit sharing can also be traced in treaty practice. Among international water treaties, one can generally distinguish between legal instruments that focus on the allocation of water itself, on the one hand, and those which provide for the sharing of benefits that can be derived from water resources. For example, the treaties between India and Bangladesh regarding the release of flow at Farakka barrage on the Ganges River\(^3\) can be considered as a water allocation treaty falling under the first category. In contrast, the 1961 Treaty relating to the Cooperative Development of the Water Resources of the Columbia River Basin,\(^4\) which regulates the sharing of hydropower and flood regulation benefits among the two riparian countries, belongs to the second group. Hydroelectricity production and its trade generate benefits from and beyond the river, whereas flood control reduces the costs because of the river. Here, the focus is on this second group of treaties, which regulate the generation and sharing of the additional benefits derived from cooperative water resources management and development.

Benefit sharing treaties consider the broadening of the basket of benefits beyond what is achievable by unilateral resource development and sharing of these benefits. These elements are common in agreements regulating navigation and joint infrastructure. However, they are not the

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\(^4\) Signed by the United States and Canada in Washington, DC on 17 January 1961.
only treaties to regulate benefit sharing; there are a number of instruments regulating other uses, or regulating overall basin development more generally that also establish principles on how benefits are shared in these individual basins.

III.1. Early Examples – Navigation

One of the oldest examples of a treaty establishing general principles on how benefits – and costs – are to be shared is the 1921 Convention and Statute on the Regime of Navigable Waterways of International Concern.\textsuperscript{45} Navigation was one of the first uses to be recognized in treaties as having an international economic value. Article 10 of the Statute on the Regime of Navigable Waterways regulates the upstream/downstream benefit of maintaining navigability of waterways; it stipulates that a riparian which is under the obligation to undertake works in order to guarantee continued navigability of the river has the right to demand from others a reasonable contribution to the costs involved.\textsuperscript{46} The State that creates or maintains a benefit to others, the benefit of continued navigability of the waterway, has the right to demand a contribution for the realization of this benefit and thus share in the benefits derived by others of its actions.

III.2. Benefits from Infrastructure Development

The majority of bilateral treaties developing benefit sharing rules are those establishing joint infrastructure. The infrastructure is put in place by co-riparian States in order to benefit from the joint or coordinated management and use of the transboundary water resources. In general, they include a specific formula on how benefits are shared; in particular where joint infrastructure generates benefits on contiguous river stretches these will be shared in equal parts. This is for instance the case for the Yacyretá, Itaipú and Iron Gates projects. The treaties which form the legal base for the projects\textsuperscript{47} distribute hydropower benefits at equal parts to the respective contracting parties.

\begin{footnotesize}
\textsuperscript{45} Opened for signature 20 April 1921, entry into force 31 October 1922 (1921) 7 LNTS 35.
\textsuperscript{46} Statute on the Regime of Navigable Waterways of International Concern (signed 20 April 1921) 7 LNTS 35.
\textsuperscript{47} Equal sharing of power benefits according to the Treaty of Yacyreta (signed 3 December 1973) 1380 UNTS 80, Art XIII; Treaty between the Federative Republic of Brazil and the Republic of Paraguay concerning the
\end{footnotesize}
The case of the 1961 Columbia River Treaty\textsuperscript{48} in which Canada and the United States agreed to a series of dam and reservoir constructions in the upper reaches for flood control and improvement of hydroelectric power generation shares similar traits. It entitles Canada to one half of the downstream power benefits that can be generated due to flow regulation on its territory and attributes one-half of the estimated value of the flood damage reduction that the Canadian reservoirs provide to this country. However, due to the impossibility of quantifying future benefits of flood control with certainty, the amounts paid by the United States to Canada remain an approximation of equal shares. Reimbursements for flood control benefits are accomplished according to a schedule of one-time payments to be effected once the agreed infrastructure is operational. Payments are reduced if the operation of storage infrastructure is delayed.\textsuperscript{49}

The benefit sharing arrangements of the Columbia River Treaty were agreed to last for a period of at least 60 years; thereafter either party may terminate the treaty, with a minimum of ten years' advance notice. Given that 16 September 2024 is the earliest date the treaty can be terminated, both parties have actively assessed the adequacy of the benefit and cost sharing arrangements to determine whether either of them may want to make use of their right of notification of treaty termination at the earliest possible date in the fall of 2014.\textsuperscript{50} At the time of treaty negotiation, the benefits of flood protection and energy production were of uppermost consideration; social, economic and environmental impact, in particular on local populations, received relatively less attention in the benefit sharing agreement between the US and Canada. Over the period of treaty implementation, these topics have however moved up on the priority list of political agendas in both countries and, more generally, on the international policy agenda. Today, the benefits and costs for local

\textsuperscript{48} Treaty Relating to Cooperative Development of the Water Resources of the Columbia River Basin (opened for signature 17 January 1961, entry into force 16 September 1964) 542 UNTS 244 (Columbia River Treaty).

\textsuperscript{49} Columbia River Treaty, Art VI.

\textsuperscript{50} At the time of writing (March 2016), neither party has invoked the right to terminate the treaty.
stakeholders and the environment have a different political weight than in the 1950s and 1960s when the treaty was negotiated.

The Lesotho Highlands project between South Africa and the Kingdom of Lesotho is another example where the idea of benefit sharing was pursued. The Highlands project is a river diversion project which delivers water from the Senqu/Orange River in Lesotho into the Vaal River and Gauteng province of South Africa and generates hydropower in Lesotho.\footnote{51} Ancillary benefits made possible by the investment, such as irrigation, tourism, and fisheries accrue to the country on the territory of which they occur. In the 1986 Treaty, which forms the basis for the project, two riparians of one river basin, the Senqu/Orange River Basin, agree that equitable utilization of the rivers’ resources consists in diverting waters from one tributary to another. South Africa would have been able to divert this water entirely within its own territory, but this would have come at higher costs requiring a more complex system of civil works. The Lesotho Highlands project therefore represents what is called a \textit{win-win} project for the two riparians.\footnote{52}

The agreements that have been described have the benefits \textit{from} the river and \textit{to} States in mind. Over time, the benefits \textit{to} the river and to directly dependent local communities were increasingly considered by States, which can be partly attributed to a more vocal and more empowered civil society in many countries since the 1990s.

\section*{III.3. Considering Ecosystems and Local Communities}

In the case of the Senegal River, initially the three downstream riparians have developed a complex treaty system which serves as a basis for equitable utilization and benefit sharing by means of specific infrastructure projects and navigation regulation, before a basin-wide framework agreement was established with the 2002 Senegal Water Charter.\footnote{53} The legal framework for joint management established by Mali, Mauretania


and Senegal since 1972 is regularly cited as one of the prime examples of benefit sharing regimes through infrastructure development.54 The initial motivation of the three States was to increase flood protection, hydropower, irrigation, and navigation benefits through joint management of the flow regime.55 For this purpose a tri-partite management mechanism was set up: the *Organisation pour la Mise en Valeur du fleuve Sénégal* (OMVS).56 Two jointly owned57 multi-purpose reservoirs, at Diama and at Manantali, were constructed in the late 1980s, after the Council of Ministers had adopted a formula, known as the ‘key’,58 for the sharing of benefits and costs associated with the two reservoirs. When the Senegal Water Charter was adopted in 2002 in order to update and consolidate the legal framework applicable to the basin, it also opened the door for participation of the fourth riparian, Guinea. Of importance for the present analysis, the Charter has placed emphasis on the Parties’ objective to develop the River’s resources in a sustainable way, taking into consideration, in particular, environmental and ecosystem needs and giving priority to the satisfaction of vital human needs in recognition of a human right to water. In the Charter, the Parties explicitly agree to the principle of equitable and reasonable utilization as a principle for the allocation of waters for different uses.59 The range of uses that the Senegal Water Charter refers to is also larger than the uses enumerated in the 1972 Convention on the Statute of the River Senegal honoring the concept of Integrated Water Resources Management (IWRM) and thus adding, among others, flood risk reduction, the consideration of human uses and the protection of the environment.60

The principle of equitable and reasonable utilization governs the rights and duties of riparian States with respect to each other. In consequence, the majority of treaties which establish principles on how to share benefits designate only States as subjects and beneficiaries. With the

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54 See Yu (n 52); Paisley (n 18).
58 For a summary presentation of the ‘key’ see Yu (n 52) 17–20.
60 Ibid Art 5.
trend of increased civil society engagement on issues of international concern, there has also been an increase in the number of treaties considering benefits to local communities and their participation in the decision making process. One such example is the Convention on the Sustainable Management of Lake Tanganyika. This Convention includes ‘[t]he principle of fair and equitable benefit sharing by virtue of which local communities are entitled to share in the benefits derived from local resources’ as one of the general principles for the sustainable development of the lake.\textsuperscript{61} This is in particular of relevance with regard to the fisheries resources of this shared lake. Furthermore, the Convention provides for public participation in the decision making processes that affect the lake basin or the livelihoods of local populations and mandates each contracting Party to ensure that appeal or review procedures exist for decisions on activities that are likely to cause harm.\textsuperscript{62} Another basin where the environment and public participation rights have increasingly found their way into the legal framework governing management and development is the Great Lakes Basin in North America shared by the United States and Canada. The last amendment, which became effective in 2012,\textsuperscript{63} was drafted based on extensive consultations with local communities and other stakeholders and includes new regulations on ecosystem protection and the effects of climate change, and increases opportunities for public participation.

The increased voice of civil society in many countries and the tendency towards greater inclusion of affected stakeholder groups in the decision making process on transboundary water management has led to a new focus of international water treaties. As a result, treaties increasingly include rules that ensure benefits to the river and other hydrologic systems and provide for public participation and consultation in decision making, promoting a trickling down of benefits to local communities and stakeholders.

\textsuperscript{62} Ibid Arts 5, 17.
IV. REASONS WHY BENEFIT SHARING IS NOT MORE WIDELY RECOGNIZED IN LEGAL PRACTICE

The practice remains limited to a small number of examples where concise benefit sharing formulae have been developed by States at the basin level, such as the ‘key’ in the case of the Senegal River Basin and the agreements between Canada and the United States on the Columbia River. The overwhelming majority of treaties which include benefit sharing arrangements are project related, whereas a smaller number of treaties concern categories of uses, and only in very rare instances do treaties refer to a ‘principle of benefit sharing’. Benefit sharing more often seems to have arisen out of exigency or the interest in generating additional mutual benefits rather than out of a sense of duty. In some cases, it is employed as a way to raise finance for projects that one State would not be able to finance on its own; in other cases, projects – in particular those projects on contiguous stretches of rivers (for example, Itaipú and Yacyreta) – could not have been implemented by one State alone because the territory of another State is affected.

IV.1. Complexity of Negotiations Involving Issues Other Than Water

The resort to framework agreements for basin management and regional integration

Achieving agreement on defined benefit sharing rules at the basin level, rather than in the context of a specific project, is a challenging task given the multitude of benefits that are possible to, from, because of, and beyond the river. In basins that are shared by more than two countries this becomes an even more complex matter. The presence of multiple parties at the negotiation table increases the possible combinations of benefits shared exponentially and makes it more difficult to achieve an agreement that is accepted as equitable by all participating parties. Hence, the most prevalent way by which multilateral water treaties give consideration to benefits and their distribution among riparian States is by a general recognition of the contribution of cooperation and joint activities in increasing benefits and improving living standards.64 The recognition of a

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64 Treaty for Amazonian Cooperation (signed July 1978) 1202 UNTS 71, Preamble; Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (signed 5 April 1995) 2069 UNTS 3, Arts 1, 2; Framework Agreement of the Sava River Basin (signed 3 December 2002, entered into force 29 December 2004) 2366 UNTS 479, Preamble.
common aim to share and equitably distribute benefits is expressed in a large number of treaties in their preambles or first articles. At the same time, however, the ensuing treaty text regularly does not establish any detailed rules or guidance according to which future benefits will be shared among riparian States. This is due to the fact that the majority of multilateral water treaties serve as framework agreements for basin management. They leave the regulation of specific uses or investments to subsequent bilateral or plurilateral agreements concluded by the Parties.\textsuperscript{65}

In the absence of more specific rules in framework treaties, the principle of equitable and reasonable utilization, as codified by the 1997 UN Watercourses Convention, applies, but nevertheless has its limits. It provides guidance on criteria to consider in assessing equity in the use and distribution of benefits, but it does not provide clear guidance on how to distribute the shares.\textsuperscript{66}

One of the difficulties is the quantification of benefits in terms of their economic or financial value due to, for instance, constantly fluctuating market prices for electricity, crops and other goods, and the difficulty of quantifying costs that arise in cases of flood damage, in particular in respect of the loss of human life. Once a benefit sharing arrangement is agreed, time also presents a challenge. Circumstances – not only market prices – change over time; with a change in the structure of the economy or changes in population size or migration, water needs within countries change over time and a once agreed upon benefit sharing arrangement may, after some time, no longer be considered equitable. It is for these reasons that, for example, the ‘key’ which defines the sharing of hydropower, navigation and irrigation benefits in the Senegal Basin is regularly adjusted and renegotiated. Similarly, parts of the benefit sharing arrangements in the Columbia River Basin are renegotiated regularly.

Treaties which provide the flexibility of renegotiating benefit sharing arrangements are, however, rare. In most cases, States enter into legal agreements to achieve stability and predictability\textsuperscript{67} in their relationship and therefore avoid rules that open up legal arrangements to flexibility.

\textsuperscript{65} Treaty of the River Plate Basin (signed 23 April 1969) 875 UNTS 11.

\textsuperscript{66} Bruce Lankford, ‘Does Article 6 (Factors Relevant to Equitable and Reasonable Utilization) in the UN Watercourses Convention misdirect riparian countries?’ (2013) 38 WI 130–145.

\textsuperscript{67} Laurence Boisson de Chazournes, \textit{Fresh Water in International Law} (OUP 2013) 8.
Benefit sharing through issue linkage
A small number of agreements provide for issue linkages to benefits beyond the river or hydrologic system in order to increase the ‘basket of benefits’ under consideration for the sharing arrangements. The 1998 Agreement on the Use of Water and Energy Resources of the Syr Darya Basin\textsuperscript{68} provides a framework based on which the Parties agree on annual energy and water sharing rules. Water management on the Syr Darya River, a tributary to the disappearing Aral Sea, is significantly challenged by conflicting water demands; on the one hand, there is increased demand for water releases during freezing Central Asian winters to produce electricity and, on the other hand, there is a need for considerable upstream water storage for irrigation and water supply downstream during the long hot and dry summer seasons. In the 1998 Agreement, the Parties express their common desire to find the most equitable solution to use the basin’s water and energy resources and benefits derived from the joint management of the Naryn-Syr Darya Cascade and future hydropower facilities. Annual agreements are supposed to specify the particular water and energy sharing rules for the respective calendar year and in this way determine the distribution of benefits to the countries.\textsuperscript{69} An interesting feature of these annual operating regimes is that the benefit transfer streams negotiated in these agreements are not limited to benefits derived from water resources utilization but include the transfer of electricity generated from natural gas and coal.\textsuperscript{70} In order to arrive at a formula of equitable utilization acceptable for all riparian States, the ‘basket of benefits’ on the negotiation table was enlarged by including other natural resources so as to allow for additional trade-offs in reaching agreement.

As this case study exemplifies, the fact that agreements with issue linkages are dependent on variables that are exogenous to water resources management means they are at the same time challenging to implement.

\textsuperscript{68} Finalized by Kazakhstan, the Kyrgyz Republic and Uzbekistan in Bishkek on 17 March 1998, and amended by a Protocol which adds Tajikistan as a Party to the Agreement on 7 May 1999 <http://ocid.nacse.org/tfdd/treaties.php> accessed 13 October 2014.


The water for energy trading scheme among the riparian countries of the Syr Darya collapsed in the face of fluctuating hydro-energy and fossil fuel energy market prices and diverging price expectations among the countries. While the treaty is still in force, the Parties withdrew from annual negotiations and opted for unilateral strategies to make them less dependent on the basin-level water-for-energy exchange.  

*Role of institutions*

Benefit sharing arrangements are not common in international treaties since there is often a lack of trust as to how the resulting benefits may in practice be shared. It has been observed that scenarios of this type are analogous to Stag Hunt situations.  

That is, in a collective arrangement that will increase water availability to all concerned riparian States, all concerned Parties sharing a given water resource will have to risk, sacrifice or contribute something, whether that is the upstream State ensuring an uninhibited flow, the midstream State giving up land to facilitate the construction of a dam, or the downstream State losing control over the flow of water. In a Stag Hunt situation, a Pareto-optimal outcome relies on all players cooperating to distribute the benefits after a stag is captured by one of the players. However, stag hunters have a tendency for defection after the stag has been captured, and this assumption results in a lack of trust. To mitigate this lack of trust, institutions and effective enforcement mechanisms can play a role in ensuring obligations are discharged. At the very least, institutions can be important channels of communication and dialogue, which can be vital to overcoming a lack of trust. Moreover, the coordination of water-related activities through institutions can also result in efficiency savings to the extent that duplication is avoided.

Generally speaking, basin organizations and commissions are symptomatic of the need for cooperation and can allow the participation of other actors. They offer a defined framework within which cooperation can take place and be strengthened. Beyond communication and dialogue, institutions can facilitate tangible cooperation to ensure the benefits that

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73 Ibid.
74 See Boisson de Chazournes (n 67) 176.
can be obtained from a resource are focused upon and optimized, and can help to avoid ‘defection’ as in the Stag Hunt scenario.

Over time, the need for a broader scope of cooperation became evident as a wider variety of uses were made of international waterways. This has meant extending representation on commissions and bodies to include non-riparian States, as well as a broadening of the issues (and potential benefits) over which such institutions have competence. In recent times, their mandates have extended to environment or energy related issues, as well as monitoring, the propagation of policy objectives, the regulation of standards or the facilitation of negotiation.\footnote{UN Water, ‘Transboundary Waters: Sharing Benefits, Sharing Responsibilities’ (2008), <http://www.unwater.org/downloads/UNW_TRANSBOUNDARY.pdf> accessed 5 October 2014.}

\section*{IV.2. Recognition of Interests of Other (Water) Actors Not Present at the Negotiation Table}

Legal developments are increasingly making space for other actors that are not directly involved in, yet are nevertheless affected by, arrangements between countries agreeing on benefit sharing arrangements. Compared to the 1966 Helsinki Rules, the 1997 UN Watercourses Convention provides a wider consideration of the interests of other watercourse States by introducing and reinforcing strong procedural requirements for the implementation of the obligation to notify planned measures with potentially significant adverse effects.\footnote{1997 UN Watercourses Convention, Art 12.} At the same time, Article 5 of the 1997 UN Watercourses Convention provides a ‘voice’ to the environment as another ‘actor’ interested in benefit sharing, stipulating the optimal and sustainable utilization shall be consistent with the protection of the environment. Ultimately, the Convention introduces a ‘voice’ to individuals through its Article 32 on the obligation not to discriminate in the access to justice for individuals who suffered transboundary harm.\footnote{Laurence Boisson de Chazoumes, ‘Chapter 1’, in Laurence Boisson de Chazoumes and Salman A Salman (eds), \textit{Les ressources en eau et le droit international/Water Resources and International Law} (Hague Academy of International Law 2005).} However, in general, these other actors – the environment and individuals – are not given an equal voice as they are not party, but rather subject, to the agreement. States remain the primary authors of IL and treaties, yet an indirect voice can be given to actors not present at the negotiation table, either through their influence within the intra-State
process of decision making or their ‘voice’ can be expressed by others, including through dispute settlement bodies.

**Other basin countries**

Bilateral treaties concerning one or a limited number of uses by and large distribute benefits equitably and, more often than not, equally between the two signatory States. In general, these agreements do not cause problems in basins which are shared by two States only. However, if such a bilateral agreement takes place within the context of a multi-riparian system, such as in the case of the Lesotho Highlands Project, it should be assessed *a priori* whether the specific agreement supports equitable sharing also with respect to the entire basin and all its riparians. It is possible that a bilateral benefit sharing treaty in a multi-riparian basin precludes equitable and reasonable utilization of the basin’s water resources by other riparians. One way to give not directly affected States a voice and opportunity to join in the benefit sharing arrangements is by notifying planned measures to them.

The World Bank Operational Policy 7.50 on International Waterways which requires notification of all riparian States of projects that use water independent of a threshold of impact on their territories is the most progressive rule in this regard. It was applied to Phase 1 of the Lesotho Highlands Water Project since the World Bank participated as financier. A large part of the water is diverted outside of the Orange/Senqu watershed and eventually evacuates into the Indian Ocean and not, as the normal flow of the river, into the Atlantic. At the time the project was conceived in the mid-1980s, the territory of Namibia was under the administration of the United Nations Council for South West Africa. Both the UN Council and the South West Africa People’s Organization (SWAPO) were notified of the project; neither of them voiced an objection to the project. In this case, it is an international financial institution that ensured that each basin State and interested party was heard in the process.

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Where two riparian States of a pluri-country basin intend to enter into a bilateral agreement on sharing benefits of specific uses, according to Article 5 of the 1997 UN Watercourses Convention, they should consider the interests of other watercourse States and thus the impact of their agreement on the equitable distribution of overall benefits and uses. Assessing the interests of other watercourse States requires a large amount of data and not all of this information may easily be available, in particular information which concerns future uses. The promotion of sub-basin or basin scale assessments through international organizations is therefore another useful tool to ensure that impacts on and interests of other basin countries are taken into account. The Global Environmental Fund (GEF) encourages the preparation of transboundary diagnostic assessments or strategic action plans, in part as a tool to facilitate investments addressing issues of transboundary concern.\textsuperscript{80} These diagnostic assessments consider the panoply of possible benefit sharing trade-offs between all riparian States.

The environment
Another 'beneficiary' that receives assistance at times from third parties is the environment. In the decision on the \textit{Gabčíkovo-Nagymaros Project},\textsuperscript{81} the ICJ confirmed that the environment forms part of the protection provided by the principle of equitable use. The Court pronounced itself on the question whether a water diversion carried out by Czechoslovakia,\textsuperscript{82} was proportional in accordance with the principle of equitable and reasonable use. In deciding that the diversion was contrary to the principle, the Court noted that not only had Czechoslovakia (then still one State) diverted a disproportionate share of water away from Hungarian territory, but also that this diversion negatively impacted on the ecology of the Szigetköz.\textsuperscript{83} The fauna and flora of the alluvial plains in that area would have been at risk of extinction.\textsuperscript{84} The Court declared that Hungary was thereby deprived 'of its right to an equitable and reasonable

\begin{itemize}
\item \textsuperscript{81} \textit{Gabčíkovo-Nagymaros Project (Hungary/Slovakia)} [1997] ICJ Rep 7.
\item \textsuperscript{82} Czechoslovakia is the predecessor State of Slovakia, one of the two parties to the dispute concerning a joint hydropower infrastructure project on the Danubian border with Hungary.
\item \textsuperscript{83} \textit{Gabčíkovo-Nagymaros Project} (n 81) para 85.
\item \textsuperscript{84} Ibid para 40 on the environmental risks and impacts of the diversion.
\end{itemize}
share of the natural resources of the Danube. With this the Court confirmed that environmental concerns are an important factor to take into account in determining beneficial use. It is one of the instances where an international dispute settlement mechanism ensured consideration of benefits to the river and its ecosystems that had not been included in the original treaty-based benefit sharing arrangements.

**Affected population**

Benefit sharing on international waters is most often regulated by international treaties. Affected individuals and communities are traditionally not present at the negotiation table. As discussed further above, in the last two decades the trend has been toward increasing inclusion of affected stakeholders, either through influence on their national governments during negotiations or through their inclusion in the decision making process based on treaty provisions.

At the same time, the interests of affected populations have also been promoted by third parties. International organizations have intervened in some cases to ensure benefits to project-affected populations in international benefit sharing schemes. One such case occurred in the implementation of the Lesotho Water Highlands project. The World Bank required the Kingdom of Lesotho to establish a community development fund as a prerequisite for its funding assistance. Parts of the project revenues were channeled to this fund in order to ensure employment generation, poverty reduction and improvement of the livelihoods of people living in the project-affected area.

**V. CONCLUSION: TOWARDS ENLARGING THE BASKET OF BENEFITS**

The benefit sharing concept goes beyond the principle of equitable and reasonable utilization; though this IWL principle provides useful guidance for benefit sharing between States. Codified in the 1997 UN Watercourses Convention, this principle contains important elements that can be applied by States in setting up benefit sharing rules. The list of

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85 Ibid para 85.
86 Others being the arbitration awards on the Iron Rhine (Award) (24 May 2005) and the Indus Waters Kishenganga Arbitration (Partial Award) (19 February 2013) and (Final Award) (20 December 2013), all available at <http://www.pca-cpa.org/> accessed 13 October 2014.
87 Yu (n 52) 61.
criteria that are to be taken into account in the assessment of equitable and reasonable use provides, at the same time, a useful list of elements to be considered in the design of benefit sharing frameworks. The fact that Article 5 does not only refer to utilizations but also to benefits encourages countries to focus their cooperation not only on the allocation of water for specific uses, but also on the increase of benefits that can be derived from alternative water uses, thereby increasing the ‘basket of benefits’ available to them. Alternative methods of increasing the benefits that can be derived from transboundary rivers through reservoir management, not only for flood protection but also for the optimization of energy production, become more frequent in practice. Countries develop benefit sharing mechanisms and institutions to increase the scale of benefits available to them, and also to prevent and settle disputes concerning competing demands on transboundary water resources.

The practice on benefit sharing has led to an evolved interpretation of the content of the equitable and reasonable use principle. Over time, the principle has been reframed due to changes in the PE, including in-country priorities concerning the use and management of transboundary water resources. Utilization for economic means and ends of States has been complemented over time by management principles that increasingly take the interests of local stakeholders and individuals, as well as the environment, into account. International organizations, dispute settlement bodies and national actors in one country can have an indirect spill-over effect into law making and the implementation of benefit sharing arrangements at the national level in other countries. International treaties can be the conduit through which benefit sharing with local stakeholders and for the benefit of the environment becomes harmonized across countries, including in countries where the national policy making process would otherwise not prioritize the inclusion of local stakeholders and the environment.

The IWL principle of equitable and reasonable utilization, conceived as a principle that primarily concerns the optimization of the use of shared waters and benefits derived therefrom for States, has evolved to consider the impact on the protection of the resource. The practice of States and dispute settlement bodies is opening up this principle to the integration of more holistic benefits for connected ecosystems – and the environment more generally – as well as individual stakeholders.