The Emergence of an ‘Ecosystem Approach’ to the Protection of International Watercourses under International Law

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INTRODUCTION

Traditionally, customary and conventional rules relating to the utilization of shared natural resources have been based firmly on the notion of State sovereignty, and have therefore focused on the protection of territorial interests. Generally, environmental considerations have only had legal significance to the extent that they coincide with such territorial interests. In other words, environmental harm would only be legally prohibited to the extent that it involved a violation of territorial integrity. This has been particularly true in the case of shared freshwater resources, where ‘the focus of the equitable use principle is on the balancing of different use interests in the resource and not on the protection of ecological interests’ and where ‘rights and obligations under the equitable use rule also remain anchored in the territorial sovereignty of riparian States over the shared resource’. It has been pointed out that this approach is ‘inherently confrontational and does little to promote cooperation in the common environmental interests of States’. However, in recent years, many international instruments, creating regimes for the utilization and protection of international watercourses, appear to have moved beyond the traditional obligations. They now focus on utilizing international watercourses in an equitable and reasonable manner, and prevent significant transboundary harm by including more ‘purely’ environmental obligations, such as provisions that require the adoption of a more ecosystem-oriented approach to such protection. Although the concept has not been the subject of formal legal definition, Brunée and Toope state that:

Simply put, an ‘ecosystem approach’ requires consideration of the whole system rather than individual components. Living species and their physical environments must be recognized as interconnected, and the focus must be on the interaction between different sub-systems and their responses to stresses resulting from human activity. Not only does interconnectedness imply management approaches that are broad-based in a spatial sense; it requires as well that human interaction with and use of the environment respect the need for maintaining ‘ecosystem integrity’, in other words, the system’s capacity for self-organization.

The ecosystem concept itself developed in US scientific literature during the 1930s and 1940s, and modern definitions emphasize that ‘an ecosystem is the functional unit that includes both biotic (living) and abiotic (non-living) elements’. The Experts Group on Environmental Law (EGEL) of the World Commission on Environment and Development (WCED) proposed to define the concept as ‘a system of plants, animals and micro-organisms together with the non-living components of the environment’, while Article 2 of the

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2 Brunée and Toope, Yearbook of International Environmental Law, n. 1 above.
3 Ibid., at 55.
4 See, for example, A.G. Tansley, ‘The Use and Abuse of Vegetational Concepts and Terms’, 16:3 Ecology (1935), 284, at 299 who defined an ecosystem as ‘the whole system, including not only the organism–complex, but also the whole complex of physical factors forming what we call the environment of the biome – the habitat factors in the widest sense’ (original emphasis); or R.L. Lindeman, ‘The Trophic–Dynamic Aspect of Ecology’, 23:4 Ecology (1942), 399, at 400 who defined it as ‘the system composed of physical–chemical–biological processes active within a space–time unit of any magnitude, i.e. the biotic community plus its abiotic community’ (original emphasis); both quoted in V.P. Nanda, ‘The Law of the Non-Navigational Uses of International Watercourses: Draft Articles on Protection and Preservation of Ecosystems, Harmful Conditions and Emergency Situations, and Protection of Water Installations’, 3 Colorado Journal of International Environmental Law and Policy (1992), 175, at 178.
6 See EGEL, Legal Principles and Recommendations (WCED, 1987), Article 3, in R.D. Munro and J. Lammers (eds), Environmental Protection and Sustainable Development – Legal Principles and Recommendations (Graham & Trotman/Martinus Nihoff, 1987), at 45.
Convention on Biological Diversity (1992) provides that ‘ecosystem means a dynamic complex of plant, animal, and micro-organism communities and their non-living environment interacting as a functional unit’.7

The trend whereby legal instruments relating to international watercourses now tend to require States to take an ecosystem approach to the protection of such watercourses has been greatly advanced by the adoption, by the United Nations General Assembly, of the United Nations Convention on the Non-Navigational Uses of International Watercourses (1997)8 (not yet in force) (1997 Convention). This represents the culmination of over 20 years of deliberation within the International Law Commission (ILC) on the codification and progressive development of this important area of law,9 and expressly requires States party to the convention to act to protect and preserve international watercourse ecosystems.10 In the context of the elaboration of the 1997 convention, Tanzi and Arcari explain that the fact that:

... progress made in scientific research further shows that the uses of watercourses can affect and be affected by processes related to other natural elements, such as soil degradation and desertification, deforestation and climate change . . . has brought water specialists in the last decade to advocate the adoption of less economic-oriented criteria for the management of freshwater resources, following an ‘ecosystem approach’.11

STATE PRACTICE

It is possible to discern, from the recent practice of States and international organizations in relation to shared water resources, a shift in emphasis from a purely territorial and resource-utilization focus, to a more ecosystem-oriented approach. For example, Article 2(2)(d) of the 1992 Economic Commission for Europe (ECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention) requires parties ‘to ensure conservation and, where necessary, restoration of ecosystems’, while Article 3(1)(i) requires them to ensure that ‘sustainable water-resources management, including the application of the ecosystems approach, is promoted’.12 Article 2(2)(b) further requires that ‘transboundary waters are used with the aim of ecologically sound and rational water management, conservation of water resources and environmental protection’. Although each of the above provisions is located within articles expressly aimed at preventing or controlling transboundary impact, the parties,13 at the first Meeting of the Parties in 1997,14 adopted the Helsinki Declaration, which commits them to regulating internal waters in accordance with appropriate provisions of the convention, in order to ensure consistency with the management of transboundary waters. The parties also adopted a programme of integrated management of water and related ecosystems.15 Furthermore, Article 1(2) of the Helsinki Convention defines ‘transboundary impact’ as:

any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of a Party . . . Such effects on the environment include effects on human health and safety, flora, fauna, soil, air, water, climate, landscape . . . or the interaction among these factors . . .

Significantly for the potential scope of an ecosystem approach to environmental protection, the Helsinki Convention alludes to, and distinguishes between, ‘parties’16 and ‘riparian parties’,17 and between provisions relating to all parties and those relating to riparian parties alone. The provisions relating to all parties mostly contain common environmental protection and ecosystem-management obligations,18 whereas those relating to the riparian parties alone are mostly concerned with cooperation among the riparian States and joint management of the water resource.19

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8 (New York, 21 May 1997), printed in 36 ILM (1997), 719 (not yet in force). While 103 States approved the 1997 resolution to adopt the convention, ratifications remain insufficient to bring it into force. Under Article 36 of the convention, entry into force requires 35 instruments of ratification, acceptance, accession, or approval, but as of July 2002, only 12 States were party to the convention. However, although the convention has not entered into force, it is likely to remain highly influential and persuasive as a statement of current customary and general international law on watercourses, as it is the culmination of over 20 years of in-depth research by the International Law Commission into the state of international watercourse law and practice.  
10 See Convention on the Non-Navigational Uses of International Watercourses, n. 8 above, Articles 20, 22 and 23; and see below.  
13 In January 2000, the convention had 24 parties including the EU.  
14 Report of the First Meeting of Parties (ECE/MP.WAT/12, 1997).  
16 Helsinki Convention, n. 12 above, Article 1(3).  
17 Ibid., Article 1(4).  
18 Ibid., Articles 2–8.  
19 Ibid., Articles 9–16.
In addition, a number of recent treaties governing the Rhine, Danube, Meuse and Scheldt negotiated in accordance with the Helsinki Convention, demonstrate a broad commitment to ecosystem protection. Article 2 of the Rhine Convention, for example, applies to ‘aquatic and terrestrial ecosystems which interact or could again interact with the Rhine’. The Danube Convention, in turn, is aimed at the protection of the ‘riverine environment’, ‘aquatic ecosystems’, ‘sustainable development and environmental protection of the Danube River’, and at ‘the conservation and restoration of ecosystems’. Indeed, the Elbe Convention, which pre-dates the Helsinki Convention, requires parties to cooperate to achieve a healthy diversity of river species and as natural an ecosystem as possible.

One of the first international agreements to reflect the concept of ecosystem integrity was the 1978 Great Lakes Water Quality Agreement. Article II of which states its purpose to be ‘to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem’. Indeed, Article I defines its area of application, the ‘Great Lakes Basin Ecosystem’, as ‘the interacting components of air, land, water and living organisms, including humans, within the drainage basin’. The 1995 Mekong Agreement comprehensively requires parties to protect the environment, natural resources, aquatic life and ecological balance of the Mekong River Basin, and to avoid or minimize harmful effects.

Interestingly, regional water resources treaties adopted by developing countries have tended to demonstrate some of the earliest and most ardent support for the ecosystem approach. For example, Article 1 of the Rio Plata Basin Treaty, concluded by Argentina, Bolivia, Brazil, Paraguay and Uruguay, includes among its objectives the conservation and development of the flora and fauna of the basin. Article 36 of the 1975 Statute of the Uruguay River committed Argentina and Uruguay to coordinate, through a commission established under the agreement, ‘appropriate measures to prevent the alteration of the ecological balance, and to control impurities and other harmful elements in the river and its catchment area’. Article I of the 1978 Treaty for Amazonian Cooperation records the parties’ commitment to the preservation of the environment, and to the conservation and rational utilization of the natural resources of the Amazonian territories. Article VII recognizes the need to exploit the flora and fauna of the region, while requiring that such exploitation be done rationally so as to ensure ecological balance and to preserve the species. In 1989, the parties further adopted the Amazon Declaration, expressing support for the newly created Amazonian Special Environmental Commission and thus for joint activities for the protection of the Amazonian environment. Indeed, it is worth noting that the adoption of an ecosystem approach to the protection of an international watercourse system under an international regime tends to enhance the collective interest dimension of such a regime, and thus encourages the establishment of formal machinery for the joint or common management of the watercourse.

Article 2 of the Statute of the Senegal River requires the parties to cooperate towards the rational

management of the resources of the Senegal basin; while Article 4 requires them to carry out projects for, *inter alia*, the maintenance of water quality and of the biological characteristics of the fauna and flora of the basin. Article 4(2)(c) of the Convention Creating the Niger Basin Authority (1980) commits the parties\(^{38}\) to protect the environment by establishing norms and measures applicable to, *inter alia*, prevention and reduction of water pollution and preservation of human health, as well as flora and fauna. Pursuant to the action plan adopted under the 1987 Zambezi Agreement,\(^{39}\) protection of species of flora and fauna is provided for in its Programme of Work No 6(c), which specifically requires conservation and improvement of reproductive capacity of water-related ecosystems.

This obligation is further developed in Programme No 18, which requires the parties\(^{40}\) to implement a living-resource conservation programme, and Programme No 19, which provides for the eradication or the prevention of the spread of harmful alien species. The agreement further concerns itself with the issue of marine pollution from land-based sources, calling for the development and adoption of a regional convention for the protection, management and development of the river-basin resources, and the coastal and marine environment relevant to the basin. Further African treaties which lend support to the ecosystem approach include the 1977 Agreement Creating the Organization for the Management and Development of the Kagera Basin,\(^{41}\) the Convention relating to the Status of the River Gambia (1978)\(^{42}\) and the 1989 Treaty on the Highland Water Project.\(^{43}\) More generally, the Organization of African Unity (OAU) has tended to support the ecosystem approach in the elaboration of regional environmental conventions. Article V of the African Convention on the Conservation of Nature and Natural Resources\(^{44}\) obliges the parties to manage their water resources so as to maintain them at the highest possible quantitative and qualitative levels, and, further, to establish and implement policies that maintain water-based essential ecological processes. Also, the 1991 Treaty Establishing the African Economic Community,\(^{45}\) adopted by the 51 OAU Member States, specifically requires the parties to cooperate in ‘the development of river and lake basins’,\(^{46}\) and ‘the development and protection of marine and fishery resources’.\(^{47}\) However, Okidi argues that the protection of species of flora and fauna and the prevention of introduction of alien or new species may be more directly covered by Article 46(2)(d), which requires the States to cooperate in the field of plant and animal protection.\(^{48}\) The original 1995 Protocol on Shared Watercourse Systems in the Southern African Development Community (SADC)\(^{49}\) had required Member States to ‘maintain a proper balance between resource development . . . and conservation and enhancement of the environment to promote sustainable development’,\(^{50}\) to ‘prevent the introduction of alien aquatic species into a shared watercourse system which may have detrimental effects on the ecosystem’\(^{51}\) and to ‘maintain and protect shared watercourse systems . . . in order to prevent pollution or environmental degradation’.\(^{52}\) However, the revised 2000 SADC Watercourses Protocol closely follows the approach taken under the 1997 Convention, more or less reproducing its provisions on pollution and protection of ecosystems.\(^{53}\)

Generally, few international river-utilization regimes demonstrate the need for ecosystem protection more dramatically than that of the Colorado River and the resulting deterioration of the ecosystem of the Colorado Delta. Due to over-allocation of the waters of the Colorado, freshwater flows into the delta have been reduced by nearly 75% during the course of the twentieth century, resulting in a concomitant reduction of delta wetlands to about 5% of their original extent.\(^{54}\) The delta’s current ecological condition is characterized by dried mudflats, vegetation loss and species endangerment. Stakeholders now advocate the addition of a minute to the 1944 Treaty between the USA and Mexico governing allocation of the waters of the river,\(^{55}\) which would expressly dedicate water to delta conservation.\(^{56}\)

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\(^{38}\) Benin, Cameroon, Ivory Coast, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad.


\(^{40}\) Botswana, Mozambique, Tanzania, Zambia and Zimbabwe.


\(^{42}\) (Kaoalck, 30 June 1978), Article 4, concluded by Gambia, Guinea and Senegal.

\(^{43}\) Agreed between Lesotho and South Africa.

\(^{44}\) (Algiers, 15 September, 1968), printed in 1001 UNTS (1968), 4.


\(^{46}\) Ibid., Article 46(2)(b).

\(^{47}\) Ibid., Article 46(2)(c).

\(^{48}\) See n. 29, at 169.


\(^{50}\) Ibid., Article 2(3).

\(^{51}\) Ibid., Article 2(11).

\(^{52}\) Ibid., Article 2(12).

\(^{53}\) Revised Protocol on Shared Watercourses in the Southern African Development Community (Windhoek, 7 August 2000), Article 4(2).

\(^{54}\) D.F. Luecke et al., *A Delta Once More: Restoring Riparian and Wetland Habitat in the Colorado Delta* (Environmental Defence Fund, 1999), at 4.


A broad-based ecosystem approach has also received varying degrees of support among the declarations and resolutions of international organizations and codifying bodies, including various United Nations water and environmental conferences, the EGEL of the WCED, and the Commission on Sustainable Development and the International Law Association. In 1982, the United Nations Environment Programme noted in the period from 1972 to 1982, the ‘increasing recognition of the need for better management of water resources by treating river basins as unitary wholes’, and in 1991 the Organization for Economic Cooperation and Development (OECD) noted the increasing number of calls for ecosystem management of international watercourses. The United Nations medium-term plan for the period 1992–1997 expressly recognized the threats posed to international watercourse ecosystems by socio-economic development and activities, stating:

Interactions between freshwater ecosystems on the one hand and human activities on the other are becoming more complex and incompatible as socio-economic development proceeds. Water basin development activities can have negative impacts too, leading to unsustainable development, particularly where these water resources are shared by two or more States.

The approach was expressly endorsed by Chapter 18 of Agenda 21, which stated that the general objective is:

...to make certain that adequate supplies of water of good quality are maintained for the entire population of this planet, while preserving the hydrological, biological and chemical functions of the ecosystems, adapting human activities within the capacity limits of nature ...

Chapter 18 goes on to explain the significance of the ecosystem approach for integrated water resources management and, thus, for the effective protection of the quality and supply of freshwater resources:

Integrated water resources management is based on the perception of water as an integral part of the ecosystem, a natural resource and a social and economic good, whose quantity and quality determine the nature of its utilization. To this end, water resources have to be protected, taking into account the functioning of aquatic ecosystems and the perenniality of the resource, in order to satisfy and reconcile needs for water in human activities. In developing and using water resources, priority has to be given to the satisfaction to basic needs and the safeguarding of ecosystems.

Tanzi and Arcari point out that, notwithstanding the non-binding character of Agenda 21, more than 180 States participating in the United Nations Conference on Environment and Development (UNCED) process have subscribed to it and that it is likely to prove influential in ‘reconceptualizing the problems concerning the use and management of watercourses’ in the further elaboration of the overarching concept of sustainable development. Indeed, in considering the scope of the ecosystem concept in the context of water resources, it is useful to note that, in the course of the preparations for the UNCED, the Conference Secretary-General produced a special report on this topic as provisionally included in Agenda 21, in which he emphasized the links between freshwater resources and other issues. An earlier version of the same report stated:

Water in rivers, lakes and underground is in permanent contact with other environmental compartments and is used in a variety of human activities, many of which would not be possible without a water supply of adequate quantity and quality. In turn, however, these activities produce contamination and this has led to severe deterioration of natural ecosystems.

In particular, this report highlighted seven inter-sectoral issues: the relationship between water and

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56 See, for example, Article 3 of the EGEL’s Legal Principles and Recommendations and the accompanying commentary, which defines an ecosystem as a system of plants, animals and micro-organisms, together with the non-living components of their environment; Munro and Lammers, n. 6 above, at 45–54.
54 See, for example, Article 3 of the Eigel’s Legal Principles and Recommendations and the accompanying commentary, which defines an ecosystem as a system of plants, animals and micro-organisms, together with the non-living components of their environment; Munro and Lammers, n. 6 above, at 45–54.
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67 In particular, this report highlighted seven inter-sectoral issues: the relationship between water and
agriculture; the removal of forests; the use of water in energy development; the supply of water to human settlements; water consumption by industry; the close links between the atmosphere and the aquatic environment; and the human health impacts associated with water-borne infectious diseases.  

THE 1997 CONVENTION

Articles 20 and 22 of the 1997 Convention specifically provide for the protection and preservation of watercourse ecosystems. The inclusion of the term ‘ecosystem’, however, reflects a relatively late development in the process of the elaboration of the draft articles, stemming from the ILC’s 1988 discussions, where it was suggested that the draft articles should include:

*a definition of the expression ‘environment of an international watercourse’ in a futureintroductory article so as to make it clear that the ecology or ecosystems of international watercourses were also covered.*

Also, Article 23 requires that watercourse States take measures to protect and preserve the ‘marine environment’, thereby linking the use and protection of watercourses with protection of the marine environment in a manner consistent with a broad ecosystem approach.

ARTICLE 20

Article 20 provides that ‘watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses’. The ILC, in its commentary to the 1994 draft articles, explains that:

‘...[the] obligation to protect the ecosystems of international watercourses is a specific application of the requirement contained in article 5 that watercourse States are to use and develop an international watercourse in a manner that is consistent with adequate protection thereof.’

The commentary defines the term ‘ecosystem’ as an ‘ecological unit consisting of living and non-living components that are interdependent and function as a community’. It further suggests that Article 20 provides an ‘essential basis for sustainable development’. Providing broad support in relation to the normative legal status of the ecosystem approach, the ILC concludes that ‘there is ample precedent for the obligation contained in Article 20 in the practice of States and the work of international organizations’ and proceeds to cite several leading examples.

In relation to the Commission’s comments that the obligation to preserve applies particularly to ‘freshwater ecosystems that are in a pristine or unspoilt condition’, which must be maintained ‘as much as possible in their natural state’, Birnie and Boyle point out that ‘this preservationist interpretation not only goes well beyond any concept of equitable balancing, it is inconsistent with the International Court of Justice’s (ICJ) more cautious approach to sustainable development in the context of the previously pristine Danube in the Gabčíkovo-Nagymaros Case’. It should also be noted, however, that the ICJ appears implicitly to have linked the potentially far-reaching precautionary principle with the ecosystem approach in the context of international watercourses, stating that:

The Court is mindful that, in the field of environmental protection, vigilance and prevention are required on account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage.

The ILC explicitly links both concepts, stating categorically that ‘the obligation to protect the ecosystems of international watercourses is thus a general application of the principle of precautionary action’ and, further, referring subsequently to ‘the principle of precautionary action as reflected in article 20’. Indeed, it would seem to be beyond debate that the obligation contained in Article 20 is intended to function as an application of the precautionary principle and, therefore, to require that States take preventive measures against threats of serious or irreversible harm to watercourse ecosystems, even in the absence of clear scientific evidence of the likelihood or inevitability of

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69 ILC Report (1994), n. 71 above, at 280–281. It also refers approvingly to a report on the issue prepared by the ECE which states that ‘an ecosystem is commonly defined as a spatial unit of Nature in which living organisms and the non-living environment interact adaptively’, see Ecosystems Approach to Water Management (ENVWA/WP.3/R.7/Rev.1), para. 9, at 3; cited in ibid., at 281.
75 ibid., at 287.
such harm.86 This is particularly apposite having regard to the complex science, and resulting level of scientific uncertainty, surrounding the processes involved in ecosystem functioning, damage and remediation.

The definition of ‘ecosystem’ provided in the ILC commentary would appear to correspond with the concept of ‘the environment’ as used in Article 21 which, according to the Commission, includes, inter alia, ‘flora and fauna dependent on the watercourse’88 and ‘is thus broader than the concept of the “ecosystem” of an international watercourse, which is the subject of article 20’.89 However, despite the fact that the Commission justifies Article 20’s application to the watercourse ‘ecosystem’ rather than the watercourse ‘environment’, on the ground that the latter might potentially include surrounding land areas,90 thus suggesting that the ‘ecosystem’ concept is not intended to cover areas beyond the watercourse itself, Birnie and Boyle conclude that:

[I]t is doubtful if the Commission’s careful choice of terminology really does confine the potential scope of this obligation in a meaningful way. Any attempt to protect a river ‘ecosystem’ cannot avoid affecting the surrounding land areas or their ‘environment’.91

Any expansive understanding of ‘ecosystems’, as noted by McCaffrey, would be almost certain to include:

... not only the flora and fauna in and immediately adjacent to a watercourse, but also the natural features within its catchment that have an influence on, or whose degradation could influence, the watercourse.92

McCaffrey proceeds to cite the examples of grazing and logging practices that could have such an influence.93

Therefore, although the more expansive concept of an ‘international drainage basin’ was rejected during negotiation of the 1997 Convention in favour of the purportedly more restrictive concept of an ‘international watercourse’,94 the ecosystem approach may permit, at least as regards environmental protection and nature conservation, the provisions of the convention to apply so as to regulate a wide range of activities carried out over a wide area of the territories of both riparian and non-riparian States. This may prove somewhat ironic in light of the fact that the ecosystem concept was adopted for the express purpose of limiting the scope of application of the convention. According to the ILC:

These obligations relate to the ‘ecosystems of international watercourses’, an expression utilized by the Commission because it is more precise than the concept of the ‘environment’ of a watercourse. The latter term could be interpreted quite broadly, to apply to areas ‘surrounding’ the watercourses that have minimal bearing on the protection and preservation of the watercourse itself.95

Tanzi and Arcari point out that:

... since the concept of ecosystem encompasses a dynamic interrelationship between flora, fauna and the geographical elements which sustain them, inclusive of land areas, one cannot discard a priori the territorial implications of this concept in relation to the duty of protection of international watercourses.96

The same authors go on to conclude that:

[I]f the reach of an ecosystem is to be assessed in relation to the physical reactions among its components which are caused by an external factor, it is inevitable that the scope of the ecosystem is to cover also those land areas whose use may affect a watercourse, more or less directly.97

Similarly, Sohn, commenting on the territorial implications of the concept as employed in the ILC draft articles, notes conclusively that ‘the ecosystems of the watercourses are affected by activities on land, not only in the immediate vicinity but often far away from the river valleys and neighbouring mountain ranges’.98 Indeed, concerns over the territorial implications of the ecosystem concept would appear to have been behind the Chinese proposal during the deliberations.

82 ILC Report (1994), n. 71 above, at 293.
83 Ibid., at 294.
84 Ibid., at 280.
85 Birnie and Boyle, n. 15 above, at 314.
86 McCaffrey, n. 31 above, at 393.
90 Tanzi and Arcari, n. 9 above, at 240.
91 Ibid., at 240–241.
of the UN General Assembly Working Group on the Convention to replace the term ‘ecosystem’ with that of ‘ecological balance’, which received the support of a number of delegations. 93

In addition, a comprehensive ecosystem approach may give rise to obligations in respect of purely internal waters, as well as the waters of international watercourses. In other words, it may aim to protect a watercourse State’s own ecosystem, irrespective of any obvious transboundary impact. Although Articles 21, 22 and 23 are explicitly concerned with harm caused to other States or to the marine environment, and are generally regarded as codifying existing customary international law, Article 20 could certainly be interpreted so as to impose obligations in respect of a watercourse State’s own ecosystem, as well as that of other watercourse States. It is interesting to note that Article 20 of the 1997 Convention makes absolutely no mention of transboundary impact. Indeed, it would appear from the ILC Commentary that the Commission regards watercourse ecosystem protection as a specific application of a more general obligation to protect ecosystems, regardless of any transboundary impact. 94 Therefore, a State may be able to make a claim in respect of this obligation before any transboundary harm is readily perceived or imminent, and so the ecosystem approach could prove to be inherently precautionary and capable of facilitating action to prevent harmful activity before it is altogether too late to restore the ecological balance. McCaffrey points out that widely accepted international instruments already exist that ‘contribute to the protection of watercourse ecosystems even though they do not concern international watercourses per se’, including the Ramsar Convention, 95 which imposes ecological obligations on States that affect both international and non-international watercourses, and the Convention on Biological Diversity. 96 McCaffrey states that:

[As] understanding of the interactions between various species and natural systems increases, it seems inevitable that States in their practice will recognize an expansion of both the notion of the watercourse ecosystem and the legal protection thereof. 97

These considerations are recognized in a number of watercourse treaties, including the Elbe Convention 98 and the Rhine Convention. 99 Similarly, the various regional treaties concerned with land-based sources of pollution tend to provide the same ecosystem protection for otherwise non-international watercourses. 100 Further, Fuentes points out that:

Recourse to the notion of sustainable development might also result in the inclusion of the national environmental effects of the utilization of international watercourses as a relevant factor to consider in the application of the principle of equitable utilization. 101

It is also significant that an ecosystem approach may have implications for, and create rights and obligations on behalf of, both riparian and non-riparian States in the region of the international watercourse that can cause or be affected by adverse impacts on the watercourse ecosystem. Where this might occur, such non-riparian States would enjoy interests in ecological preservation that might relate to the protection of the marine environment or of biodiversity, to the preservation of broader ecosystem integrity or to the maintenance of regional climate, and their right to take action would not be triggered by interferences with territorial interests but with ecological interests that may not be rooted directly in territorial integrity. It could quite easily be argued, for example, that a species of waterfowl that migrates through the territory of a number of States, spending only a short while on the watercourse, is in fact part of the watercourse ecosystem. This is the reasoning behind the distinction, as regards rights and obligations between ‘parties’ and ‘riparian parties’, contained in the Helsinki Convention. 102

The obligation contained in Article 20 is prospective in nature in that watercourse States are to ‘protect and preserve’ the ecosystem, implying that they must maintain its current condition, whatever that may be. The ILC’s commentary states that the obligation to ‘protect’ requires that watercourse States shield the ecosystems of international watercourses from harm or damage and ‘includes the duty to protect those ecosystems from a significant threat of harm’, whereas the obligation to preserve applies particularly to ‘freshwater ecosystems that are in a pristine or unspoilt condition’, which must be maintained ‘as much as possible in their natural state’. 103 Therefore, it would appear

93 The proposal was supported by the delegations of Russia, Spain, Turkey, Thailand, Sudan, Ethiopia, Malaysia, Colombia, Lebanon, Switzerland and Rwanda. See further, Tanzi and Arcari, n. 9 above, at 241.
94 See ILC Report (1994), n. 71 above, at 280, where it states that ‘Article 20 introduces Part IV of the draft articles by laying down a general obligation to protect and preserve the ecosystems of international watercourses’.
95 Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 2 February 1971), printed in 11 ILM (1972), 969.
96 See Convention on Biological Diversity, n. 7 above.
97 See S. McCaffrey, n. 31 above, at 393.
98 See Elbe Convention, n. 25 above, Article 1(2).
99 See Rhine Convention, n. 29 above, Article 3(1).
100 See further Birnie and Boyle, n. 15 above, at 315.
102 See Helsinki Convention, n. 12 above, Articles 2–8 and Articles 9–16.
at first glance that no obligation to act may arise in respect of international watercourse ecosystems that are currently in a degraded state as a result of soil erosion, for example. The more proactive obligation contained under Article 21 would seem unlikely to apply to the rectification of existing ecosystem degradation, where that degradation is not caused by activities falling within that article’s definition of pollution. However, in response to the proposals of a number of delegations during the deliberations of the General Assembly Working Group on the convention that Article 20 be amended in order explicitly to include an obligation to restore degraded river ecosystems, the Expert Consultant to the Working Group explained that restoration and regeneration of ecosystems ‘was addressed in Article 21 in that prevention, reduction and control of pollution referred to the restoration of the status quo ante’. However, irrespective of whether Article 20 would apply so as to require ecosystem restoration, Nanda concludes more generally that it is likely to ‘direct the attention of watercourse system restoration, Nanda concludes more generally that restoration and regeneration of ecosystems ‘was addressed in Article 21 in that prevention, reduction and control of pollution referred to the restoration of the status quo ante’. However, irrespective of whether Article 20 would apply so as to require ecosystem restoration, Nanda concludes more generally that it is likely to ‘direct the attention of watercourse States to the broader causes of ecosystem degradation’, such as poverty and population growth, which may give rise to deforestation and resulting soil erosion. Also, although neither Article 20, nor the commentary thereto, make any express mention of the impact of alterations to the quantity of water in a watercourse, it is apparent that the consequences of damming or diverting an international watercourse ‘would need to be looked at carefully in terms of the mandate to protect and preserve the ecosystem of international watercourses provided in Article 20’. This is supported by the OECD’s recommendation that ‘the quantitative relationship between water quality and quantity must be thoroughly evaluated prior to a management decision’.

It seems reasonable to assume that the obligation to protect watercourse ecosystems under Article 20 is one of due diligence, rather than a ‘strict’ obligation for which there are only very limited defences. In fact, in its commentary to Article 21, the ILC stated that ‘as with the obligation to “protect” ecosystems under Article 20’, the obligation under Article 21 to prevent significant pollution harm ‘includes the duty to exercise due diligence to prevent the threat of such harm’. Therefore, Article 20 requires all States who potentially impact on the ecosystems of a watercourse, possibly including States party to the convention who are non-riparians of that watercourse, to take all appropriate measures to protect and preserve the ecosystems of the watercourse. The standards to be expected of States will be informed by ‘any standards and practices applicable in the region, among the States in question, or among States of a comparable level of development’. Indeed, such standards of State behaviour may, in the light of the continuing evolution of the precautionary principle, be interpreted to require ‘the establishment of holistic programmes of watercourse protection, which should be proactive and anticipatory rather than reactive and remedial in nature’. The precautionary nature of the obligation may impose quite a rigorous, proactive duty on States and it is significant that the 1990 statement of the Chairman of the ILC Drafting Committee emphasized that the earlier reference to draft Article 20 to the duty of States ‘to take all reasonable measures’ was deleted in order to strengthen the obligation of protection. Indeed, McCaffrey has noted that:

...this affirmative obligation of protection goes further than the ‘no appreciable harm’ rule... since it requires the taking of positive steps; such steps may be necessary even if no pollution harm would be caused to other States.

Additionally, although it is not made explicit under Article 20 that the obligation to protect watercourse ecosystems would be subject to equitable balancing in the same way as other environmental obligations relating to watercourse use, it would appear that it is to be interpreted in a manner consistent with the general principles of the convention. The ILC has expressly linked the obligation contained in Article 20 to the predominant principle of equitable utilization.

\[104\] The 1997 Convention, Article 21(1) provides ‘[f]or the purposes of this Article, “pollution of an international Watercourse” means any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct. In relation to the restoration of watercourse ecosystems generally, see L.A. Teclaff and E. Teclaff, ‘Restoring River and Lake Basin Ecosystems’, 34:4 Natural Resources Journal (1994), 907.\n
\[105\] See, for example, the proposal of the Netherlands (UN Doc. A/C.6/51/NJW/WG/CRP.50, 1997).\n
\[106\] (UN Doc. A/C.6/51/SR.21, 1996), para. 59, at 12. See also Bankes, n. 87 above, at 184. See generally, Tanzi and Arcari, n. 9 above, at 245–246.\n
\[107\] See V.P. Nanda, n. 4 above, at 183–184.\n
\[108\] Ibid., at 184–185.\n
\[109\] See OECD, n. 62 above, at 65.\n
\[110\] See generally McCaffrey, n. 31 above, at 394–395; Tanzi and Arcari, n. 9 above, at 246.

\[111\] ILC Report (1994), n. 71 above, at 291–292.\n
\[112\] See S. McCaffrey, n. 31 above, at 395.\n
\[113\] Ibid.\n
\[116\] Though somewhat obtuse and therefore difficult to define, Birnie and Boyle describe the principle of ‘equitable utilization’ as follows: ‘Equitable utilization rests on a foundation of equality of rights, or shared sovereignty, and is not to be confused with equal division. Instead, it will generally entail a balance of interests which accommodates the needs, and uses of each state... What constitutes “equitable and reasonable” utilization is not capable of precise definition. As in other contexts... the issue turns on a balancing of relevant factors [including environmental protection] and must be responsive to the circumstances of individual cases’.

as set out under Article 5 of the convention by stating that it is ‘a specific application of the requirement contained in Article 5 that watercourse States are to use and develop an international watercourse in a manner that is consistent with adequate protection thereof’. Further, the ecosystem approach has been closely linked to the concept of sustainable development, which is central to the notion of equitable utilization. Leading commentators have noted in relation to the principle of equitable utilization, the primary substantive principle of international water law – as set out under Articles 5 and 6 of the 1997 Convention, that:

[The principle provides, indeed requires, that States take into consideration the factors tied to sustainable development of the resource, thus providing the legal framework for operationalizing this concept.]

In the context of the Gabčíkovo-Nagymaros Case, the present author has suggested that ‘in seeking to reconcile these two principles, it might be wiser to think of equitable utilization as a formulation of sustainable development applicable to international water resources’. Therefore, although ecosystem protection would appear to be subject to equitable balancing, it is likely to enjoy a certain significance, especially as several of the factors expressly enumerated for consideration under Article 6, including ecological factors, economy of use and potential uses of the watercourse, could only further the related objectives of sustainable development and ecosystem protection. The ILC has noted that ‘protection and preservation of aquatic ecosystems help to ensure their continued viability as life supporting systems, thus providing an essential basis for sustainable development’. Indeed, several commentators have concluded that ‘under the Convention, ecosystem protection is conceived as inherent in the idea of equitable use’. McCaffrey refers to the requirement that ‘equitable utilization must be re-oriented’ for the purpose of effective ecosystem protection and, more generally, observes that:

... such action is to be taken on an equitable basis... What constitutes action on an equitable basis will, of course, vary with the circumstances. Among the factors to be taken into account in this connection are the extent to which the watercourse States concerned have contributed to the problem and the extent to which they will benefit from its solution.

This position is also supported in various declaratory instruments.

**ARTICLE 22**

Article 22 is concerned specifically with prevention of the introduction of alien or new species detrimental to the ecosystem and, according to the ILC, was necessary because the concept of pollution employed in the convention does not include biological alterations. Article 22 provides that:

Watercourse States shall take all measures necessary to prevent the introduction of species, alien or new, into an international watercourse which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse States.

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118 P.K. Wouters and A.S. Rieu-Clarke, ‘The Role of International Water Law in Promoting Sustainable Development’, 12 Water Law (2001), 281, at 283. See also Kroes, n. 35 above, who points out, at 83, that the concept of sustainable development and the principle of equitable utilization resemble each other insofar as both revolve around a balancing of interests and involve an amalgamation of method and aim.
119 Gabčíkovo-Nagymaros Case, n. 78 above.
121 1997 Convention, Article 6(a).
122 Ibid., Article 6(f).
123 Ibid., Article 6(e).
125 Tanzi and Arcari, n. 9 above, at 245. See also Brunnée and Tooke, ‘Environmental Security and Freshwater Resources: A Case for International Ecosystem Law’, n. 1 above, at 66.
127 Birnie and Boyle, n. 15 above, at 315.
128 See Mekong Agreement, n. 28 above.
129 See SADC Protocol, n. 49 above.
130 This position is also supported in various declaratory instruments.
131 McCaffrey, n. 31 above, at 20.
132 See SADC Protocol, n. 49 above.
The ILC Commentary to the Draft Articles notes that:

...the introduction of alien or new such species of flora or fauna into a watercourse can upset its ecological balance and result in serious problems including the clogging of intakes and machinery, the spoiling of recreation, the acceleration of eutrophication, the disruption of food webs, the elimination of other, often valuable species, and the transmission of disease. Once introduced, alien and new species can be highly difficult to eradicate.133

There is evidence of a growing trend among international environmental instruments, concerned with nature protection, to attempt to control the introduction of such species. The Convention on Conservation of Nature in the South Pacific (1976)134 and the Convention on the Conservation of European Wildlife and Natural Habitats (1979)135 are cited as examples of such instruments by the WCED’s Expert Group.136 Article 196 of the UN Convention on the Law of the Sea (UNCLOS),137 on which Article 22 is based,138 provides that States ‘shall take all necessary measures to prevent, reduce and control...the intentional or accidental introduction of species, alien or new, which may cause significant and harmful changes’. There are few precedents for this provision in other watercourse treaties, although Article 4(2)(c) of the revised 2000 SADC Protocol on Shared Watercourse Systems contains a similar obligation, providing that:

State Parties shall take all measures necessary to prevent the introduction of species, alien or new, into a shared watercourse which may have effects detrimental to the ecosystems of the watercourse resulting in significant harm to other watercourse States.

Article 22 applies to both deliberate and accidental introduction of species, and one commentator has noted that ‘it is significant because the sustainability of an ecosystem depends on the natural balance among its components, including the flora and fauna’.139 However, in keeping with the general rule in Article 7 of the 1997 Convention, the threshold for detrimental impact is that of ‘significant harm to other watercourse States’ and the obligation is one of due diligence, requiring that each watercourse State must do ‘all that can reasonably be expected to prevent the introduction of such species’.140 The ILC Commentary explains that ‘“species” includes both flora and fauna, i.e. plants, animals and other living organisms’ and ‘would include parasites and disease vectors’.141 It further defines the term ‘alien’ as referring to non-native species and ‘new’ as including species produced or altered through biological engineering, thereby raising issues for watercourse States permitting the agricultural or aquacultural cultivation of genetically modified organisms (GMOs) in the vicinity of the watercourse.142

By way of an example, Okidi cites an International Union for Conservation of Nature and Natural Resources (IUCN) report on Lake Victoria which notes that:

Lake Victoria is one of the richest lakes in the world in terms of fish diversity and endemism, yet has no protection. Introduction of Nile Perch into Lake Victoria has already had serious ecological consequences as well as reducing local fish catches. Some protective mechanism is required in cooperation with Tanzania and Uganda.143

Similarly, in the controversy over the proposed Garrison Dam project, which planned a large inter-basin transfer of water and substantial return flows from irrigated lands in North Dakota in the USA, discharging into rivers entering the Canadian Province of Manitoba, the risk of inter-basin, and thus international, biota transfer was a serious concern.144 Further examples include the infestation of the St Lawrence River and the Great Lakes by lamprey, and the spread of the water hyacinth, first brought to Africa to adorn pools in private gardens, throughout the Nile and Zaire Rivers and several African lakes to the extent that it now hampers navigation and fishing.145 Okidi further points out, in relation to such introductions, that:

Once the alien or new species is in the ecosystem it may be very difficult to control its behaviour or rate of reproduction or propagation. This is particularly true in the era of biotechnology when it may be scientifically attractive to introduce species of flora and fauna whose long-range behaviour is totally unpredictable.146

133 Ibid.
134 (Aapia, 12 June 1976), reproduced in Burhenne, n. 36 above, at 978.
135 (Berne, 19 September 1979), printed in UKTS (1982), 56.
136 See R.D. Munro and J. Lammers, n. 6 above, at 49.
137 (Montego Bay, 10 December 1982), printed in 21 ILM (1982), 1261.
138 On the background to the provision, see Tanzi and Arcari, n. 9 above, at 271–274.
139 See C.O. Okidi, n. 29 above, at 153.
141 Ibid. However, the commentary adds that ‘the article concerns the introduction of such species only into the watercourse itself, and does not concern fish farming or other activities that are conducted outside the watercourse’.
144 See L.B. Sohn, n. 92 above, at 215, 221.
145 See C.O. Okidi, n. 29 above, at 154.
Therefore, as the potential detrimental impact on the ecosystem of the introduction of an alien or new species is invariably unpredictable, one would expect that the precautionary principle would have a significant role to play in the application and interpretation of the obligation contained in Article 22. This point is confirmed by the ILC in its commentary to the draft articles.\(^{153}\) Indeed, Agenda 21 recommends the ‘introduction of the precautionary approach in water quality management . . . where appropriate’,\(^{148}\) while Brunnée and Toope conclude more generally that ‘the [precautionary] principle is the single most important underpinning of any regime intended to promote ecological balance and ecosystem integrity’.\(^{149}\) Interestingly, Nanda suggests that:

\[\text{\ldots} \text{since such species may severely disrupt the ecosystem of the international watercourse, this is one article where the Commission’s task of providing ‘progressive development of international law’ should lead it to explore seriously the use of strict liability.}^{150}\]

\section*{ARTICLE 23}

Article 23 of the 1997 Convention requires that:

Watercourse States shall, individually or jointly, take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards.

The commentary to the draft articles explains that ‘marine environment’ includes, inter alia, ‘the water, flora and fauna of the sea, as well as the sea-bed and ocean floor’.\(^{153}\) Tanzi and Arcari conclude that, in line with the other provisions of the convention concerned with ecosystem protection, the standard of responsibility under Article 23 is one of due diligence.\(^{152}\) They similarly suggest that:

\[\text{\ldots} \text{given the interconnection between the present provision and Articles 20–22, the case can be made that the principle of precautionary action applies also to the implementation of Article 23.}^{153}\]

The aims of this provision are consistent with those arising under UNCLOS and with the network of regional treaties concerned with land-based sources of pollution.\(^{154}\) For instance, in defining pollution of the marine environment, Article 1(1)(4) of UNCLOS refers to ‘marine environment, including estuaries’. Similarly, Article I(1) of the Convention for the Prevention of Marine Pollution from Land-Based Sources (1974) refers to ‘harm to marine ecosystems’.\(^{155}\) Indeed, the obligation contained in Article 23 enjoys the support of codification bodies going back decades. For example, the six ‘Articles on Marine Pollution of Continental Origin’, adopted by the International Law Association at its New York meeting in August 1972, provide distinct support.\(^{156}\)

By requiring watercourse States to take into account ‘generally accepted international rules and standards’ (GAIRS), when taking measures in respect of the protection of the marine environment, the convention appears both to reaffirm existing State obligations under customary and conventional marine environmental law, and to seek to reconcile the growing bodies of law relating to international watercourses and to the marine environment. The Commentary to the 1994 Draft Articles explains that the phrase ‘refers both to rules of general international law and to those derived from international agreements, as well as to standards adopted by States and international organizations pursuant to those agreements’.\(^{157}\) The Commentary to the ILC’s 1991 Draft Articles provides that:

Watercourse States are to take these rules and standards into account in planning and implementing the measures to be taken under the present article, with a view to ensuring that such measures are consistent with any applicable rules and standards governing protection and preservation of the marine environment.\(^{158}\)

Therefore, GAIRS might well include guidelines of the type contained in the 1995 Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities, which was adopted by an intergovernmental conference attended by 109 States and is intended:

\[\text{\ldots} \text{to be a source of conceptual and practical guidance to be drawn upon by national and/or regional authorities in devising and implementing sustained action to prevent, reduce, control and/or eliminate marine degradation from land-based activities.}^{159}\]

\(^{147}\) ILC Report (1994), n. 71 above, at 298.

\(^{148}\) Agenda 21, Chapter 18, n. 64 above, para. 18.40(b)(v).


\(^{150}\) Nanda, n. 4. above, at 199.

\(^{151}\) ILC Report (1994), n. 71 above, at 300.

\(^{152}\) Tanzi and Arcari, n. 9 above, at 276.

\(^{153}\) Ibid.

\(^{154}\) UNCLOS, n. 137 above, Articles 194(3)(a) and 207. On regional instruments on land-based sources of marine pollution, see further Birnie and Boyle, n. 15 above, at 410–415.


\(^{157}\) ILC Report (1994), n. 71 above, at 300.


According to Sohn, Article 23, which is modelled on Article 207 of UNCLOS, is often underestimated as it goes beyond an obligation to apply rules previously accepted by a State through ratification of international agreements. He argues that by accepting Article 23, a State accepts all pertinent rules and standards whether or not it had ratified the convention embodying these rules and standards. In fact, concern over the scope of the provision led, during the deliberations of the General Assembly Working Group, to a proposal by Turkey to restrict the requirement under Article 23 to take account of ‘rules of international law in force’. However, it should be pointed out that the provision is primarily concerned with international watercourses rather than the marine environment, and the ILC Commentary stresses that:

... the obligation set forth in Article 23 is not, however, to protect the marine environment, per se, but to take measures ‘with respect to an international watercourse’ that are necessary to protect the environment.

The provision has the potential to benefit non-riparian States, such as Belgium, a non-riparian which adjoins the mouth of the Rhine, thereby suffering from the consequences of the pollution of that international watercourse. Further, it may create obligations for land-locked riparian States in respect of the marine environment. Also, it may result in obligations for watercourse States in respect of their internal marine environment. As the Commentary to the 1994 Draft Articles explains, the State’s obligation under Article 23 is:

... separate from, and additional to, the obligations set forth in Articles 20 to 22. Thus a watercourse State could conceivably damage an estuary through pollution of an international watercourse without breaching its obligation not to cause appreciable [now significant] harm to other watercourse States. Article 23 would require the former watercourse State to take the measures necessary to protect and preserve the estuary.

The general obligation envisaged under Article 23 has the potential to play a particularly significant role in marine environmental protection, as it is now estimated that more than 80% of the pollution of the marine environment originates from land-based sources.

CONCLUSION

In relation to the 1997 Convention, and the ILC Draft Articles which preceded it, Brunée and Toope suggest that, due to the ILC’s particular role within the UN system, and the resulting constraints that the reality of international State practice placed on its progressive development efforts in the course of its codification, the Commission took a very cautious approach, seeking to reinforce existing rules and to improve them gradually from an ecosystem perspective. They provide a number of examples which illustrate the ways in which the Commission attempted, subtly, to introduce and improve ecosystem protection. Most significantly, in adopting the ‘international watercourse’ as the geographical reference point for the draft articles, the ILC employed a concept that is less implicitly ecosystem oriented than the concepts of ‘shared natural resource’ or ‘international drainage basin’, which it had considered during the course of its deliberations. Both concepts had met with resistance, due to the concerns of States that they would progressively limit sovereignty over the land areas surrounding the watercourses in question. However, having regard to the broad definition given to the concept of an ‘international watercourse’ under Article 2(a), Brunée and Toope conclude that:

... the ILC may be said to have brought much of the basin approach into the Draft Articles, while avoiding overt use of controversial terminology, [while] the question of ecosystem orientation is addressed at best implicitly, through the reach of other rules such as those prohibiting harm to other watercourse States and their environment, rather than explicitly through the provision on scope.

Similarly, by placing emphasis on procedural rules, concerning mechanisms for information exchange,
warning, and scientific and technical cooperation, rather than substantive rules, which are notoriously difficult to elaborate, these commentators claim that the ILC aimed to create frameworks ‘establishing a process for the subsequent development of substantive obligations, rather than seeking to elaborate an immediate set of specific substantive rules’. They argue that procedural rules act as ‘catalysts’ for the development of substantive rules and that:

[T]he exchange and cooperative practice they generate can contribute significantly to the convergence of positions, thus allowing gradual agreement on substantive obligations and standards. At the same time, cooperative practice serves important trust-building and conflict-prevention functions.

However, despite the ILC’s suggestion that there exists a more general obligation to protect ecosystems, regardless of any transboundary impact, and the growing support in State and treaty practice for this emerging approach noted above, Birnie and Boyle conclude that:

... whatever its merits, comprehensive ecosystem protection remains an underdeveloped concept in general international law, and ... it is not yet possible to conclude that States have a general duty to protect and preserve ecosystems in all areas under their sovereignty.

Fuentes similarly concludes that ‘it can hardly be said that Articles 20 and 21 codify customary international law’ and she points out that, on inclusion of these provisions in the Draft Articles, the ILC Commentary cited precedents which could only provide ‘evidence of recognition by States of the necessity of protecting essential ecological processes’ and of ‘a long-standing concern of States with the problem of pollution of international watercourses’. Brunée and Toope further point out that, although Article 20 of the 1997 Convention introduces the ecosystem concept, it confers no corresponding enforcement right upon other States. They conclude that, instead:

[T]he Commission has shied away, however, from formulating rights that would mirror these tentative ecosystem obligations. The Draft Articles adhere to the traditional approach pursuant to which environmental harm triggers enforceable rights only where it affects another watercourse State as envisaged in Articles 7 and 21(2).

McCaffrey, on the other hand, is rather more optimistic in relation to the status in general international law of the ecosystem approach, stating that:

While this obligation may be described as ‘new’ or ‘emerging’, its basic elements are already part of general international law. The obligation, as formulated in Article 20 of the UN Convention, simply reflects advances in scientific knowledge about the interrelationships of natural systems.

Irrespective of which position one takes in relation to its precise legal status, few would disagree that this scientifically sound and potentially far-reaching approach to environmental rights and obligations has much to offer in relation to the continuing evolution of international environmental law. In a range of ways, it permits consideration of relevant and related ecological factors which would otherwise be excluded under narrower approaches, based on traditional notions of State sovereignty. It has particular potential in relation to the environmental protection of international watercourses, where short-term, anthropocentric ideas of the self-interest of sovereign States have traditionally taken priority over the longer-term protection of shared freshwater resources.

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