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30. The emergence of the ‘common management’ approach to international watercourse governance and its significance for environmental protection

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Introduction

While international law relating to the management of international watercourses, and to the environmental protection of shared freshwater resources in particular, has undergone significant development and clarification in recent years, the institutional machinery that basin states need to achieve the needed level of cooperation has been developing apace. It is now clear that the principle of 'equitable and reasonable utilization' enjoys pre-eminence as the cardinal rule of international law relating to the utilization of international watercourses, and considerations of environmental protection are of steadily growing significance for the application of this principle. Indeed, it is arguable that the very normative sophistication and comprehensive scope of general environmental rules give added 'voice' to environmental concerns when determining a reasonable and equitable regime for the utilization of an international watercourse (McIntyre, 2007). With the ongoing elaboration and adoption of increasingly sophisticated regional and global conventional arrangements, as well as myriad declaratory and codification instruments, there exists greater clarity as to the normative requirements inherent in established and emerging legal obligations and principles relating to the utilization and environmental protection of international freshwater resources. Such obligations and principles include, *inter alia*, the due diligence obligation to prevent transboundary harm, the general duty to cooperate, the obligation to conduct transboundary environmental impact assessment, the precautionary principle, and the so-called 'ecosystems approach'.

The most significant development in relation to institutional machinery has been the widespread adoption of some form of the 'common management' approach, whereby the drainage basin is regarded as an integrated whole and is managed, to a greater or lesser extent, as an economic unit, with the waters either vested in the community of co-basin states or divided among them by agreement. This approach is accompanied by the establishment of

international machinery to formulate and implement common policies for the management and development of the basin. Such an orientation has long been advocated by learned associations and diplomatic conferences, but has become all the more necessary due to the complexity of modern water resources utilization and environmental protection obligations. Interestingly, developing states have demonstrated particular interest in the adoption of common management institutions for water resources, and this trend may reflect their more ready acceptance of such *avant-garde* legal arrangements than of the so-called 'ecosystems approach'.

This chapter aims to trace the history of state practice in establishing common management institutions, to examine the normative character of a requirement to do so, and to outline the implications of this trend towards 'denationalising' international watercourses in respect of environmental governance in particular. Specifically, such common management institutions tend to be charged with a variety of functions, ranging from information-sharing and fact-finding roles to the settlement of inter-state disputes or, crucially, the conduct or oversight of transboundary environmental impact assessment procedures. As their environmental responsibilities are normally expressly included in their founding instruments, they usually enjoy a clear mandate to act in the interests of environmental protection, as well as the technical, legal, political and administrative expertise to do so effectively.

Community of interests approach to international watercourses and common management institutions

The institutional structure and purposes of common management regimes vary from basin to basin, with different economic problem structures likely to have implications for institutional design, (Dombrowsky, 2007: 37) and not all having as yet a role in

environmental regulation.[1] Common management is an approach to managing water problems rather than a normative principle of international law, and as such it has been endorsed by the international community,[2] and adopted by international codification bodies, including the Institute of International Law (IIL/IDI),[3] the International Law Association (ILA),[4] and the International Law Commission (ILC)[5] (Birnie and Boyle, 1992: 223-224). Recommendation 51 of the *Action Plan for the Human Environment* adopted at the 1972 Stockholm Conference called for the 'creation of river basin commissions or other appropriate machinery for co-operation between interested States for water resources common to more than one jurisdiction' and set down a number of basic principles by which such commissions should be guided.[6] Significantly, the introduction to Chapter 18 of Agenda 21 –an agenda for environmental action adopted as part of the 1992 UN Conference on Environment and Development held in Rio – provides that

> The widespread scarcity, gradual destruction and aggravated pollution of freshwater resources in many world regions, along with the progressive encroachment of incompatible activities, demand integrated water resources planning and development.[7]

Indeed, Chapter 18 goes on to suggest what role any institutional machinery established to affect such integrated water resources planning and development might play, by stating that

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[1] Early examples include the International Commission for the Protection of the Rhine (1963 Agreement concerning the International Commission for the Protection of the Rhine, reprinted in (1963) *Tractatenblad Van Het Koninkrijk Der Nederlanden,* No. 104), and the Moselle Commission (1961 Protocol concerning the Constitution of an International Commission for the Protection of the Moselle Against Pollution).

[2] UN Committee on Natural Resources, UN Doc. W/C.7/2 Add. 6, 1-7; Economic Commission for Europe, Committee on Water Problems 1971, UN Doc. E/ECE/Water/9 Annex II; Council of Europe Rec. 436 (1965); 1972 Stockholm Action Plan for the Human Environment, UN Doc. A/Conf.48/14/Rev. 1, Rec. 51; *Report of the UN Water Conference, Mar del Plata,* 14-25 March 1977.

[3] See, for example, the 1961 Resolution on Non-Maritime International Waters, Article 9; the 1979 Resolution on the Pollution of Rivers and Lakes, Article 7(G).

[4] See the International Law Association's 2004 Berlin Rules on Water resources, Articles 64 and 65. Indeed, the ILA's 1999 Campione Consolidation provides, in Article 45, a definition of an 'international watercourse administration' and even provides guidelines on the establishment of such a body (Bogdanović 2001: 72-73, 78-81).

[5] See, for example, the 1984 *Yearbook of the International Law Commission*, 2 (1): 112-116.

[6] *Report of the United Nations Conference on the Human Environment* , Stockholm 5-16 June 1972 (UN Publication Sales No. E.73.II.A.14), Chapter II, Section B.

[7] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992,* UN Doc. A/CONF.151/26 (1992), 2: 167, para. 18.3.

> In the case of transboundary water resources, there is a need for riparian States to formulate water resources strategies, prepare water resources action programmes and consider, where appropriate, the harmonisation of those strategies and action programmes.[8]

Prominent examples of common management institutions for water resources include the Danube Commission,[9] the US-Canadian International Joint Commission,[10] the Lake Chad Basin Commission,[11] the River Niger Commission,[12] the Permanent Joint Technical Commission for Nile Waters,[13] the Zambezi Intergovernmental Monitoring and Co-ordinating Committee,[14] the Intergovernmental Co-ordinating Committee of the River Plate Basin,[15] and the Amazonian Cooperation Council.[16] Indeed, a 1979 survey conducted by the United Nations identified 90 common management institutions concerned with non-navigational uses of shared freshwater resources, distributed throughout every region of the world.[17] Recent estimates suggest that 'well over one hundred international river commissions have been established by states' (McCaffrey, 2001: 159).

Community of interests

The idea that a community of interests exists in international watercourses, and the related idea that those interests can be identified and safeguarded on the basis of equity, have

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[8] *Ibid.*, p. 169, para. 18.10.
[9] 1948 Convention regarding the Regime of Navigation on the Danube, 33 *UNTS* 196; 1990 Agreement Concerning Co-operation on Management of Water Resources of the Danube Basin. *UNTS:* United Nations Treaty Series**.**
[10] 1909 Treaty relating to Boundary Waters, and Questions Arising Along the Boundary between the US and Canada, UN Legislative Texts and Treaty Provisions, ST/LEG/SerB/12, 260; 36 Stat. 2448; *Legislative Texts*,79: 260; 102 *British and Foreign State Papers* 137; 4 *American Journal of International Law (Suppl.)* 239.
[11] 1964 Convention and Statute Relating to the Development of the Chad Basin.
[12] 1963 Act regarding Navigation and Economic Co-operation between the States of the Niger Basin, 587 *UNTS* 9.
[13] 1959 Agreement between the UAR and the Republic of Sudan for the Full Utilization of Nile Waters, 453 *UNTS* 51, and 1960 Protocol Establishing Permanent Joint Technical Committee.
[14] 1987 Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System (1987) 27 International Legal Materials~~*ILM*~~ 1109. ~~*ILM*: International Legal Materials~~]
[15] 1969 Treaty on the River Plate Basin, (1969) 8 *ILM* 905; 1973 Treaty on the River Plate and its Maritime Limits, (1974) 13 *ILM* 251.
[16] 1978 Treaty for Amazonian Co-operation (1978) 17 *ILM* 1045.
[17] See United Nations, *Annotated list of multipartite and bipartite commissions concerned with non-navigational uses of international watercourses* (April, 1979), which lists 48 entries for Europe, 23 for the Americas, 10 for Africa, and 9 for Asia.

received some support in the deliberations of international judicial tribunals. In the *Territorial Jurisdiction of the International Commission of the River Oder* case, though concerned with rights of navigation, the Permanent Court of International Justice (PCIJ) referred to 'principles governing international fluvial law in general' and concluded that

> [T]his community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian States in the use of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others.[18]

Indeed, in the same passage, the PCIJ refers to 'the possibility of fulfilling the requirements of justice and the considerations of utility', suggesting that the Court anticipated a role for considerations of equity in giving effective protection to the rights of states (McCaffrey, 2001: 152). This is an example of how the doctrine of equitable utilization functions to require the equitable balancing of factors and interests when determining a regime for the utilization of a watercourse. In the recent *Gabčíkovo-Nagymaros* case, the International Court of Justice quoted from the above passage from the *River Oder* case and stated that

> [M]odern development of international law has strengthened this principle for non-navigational uses of international watercourses as well, as evidenced by the adoption of the Convention of 21 May 1997 on the Law of the Non-Navigational Uses of International Watercourses by the United Nations General Assembly. [19]

On the basis of this principle, the Court concluded that

> Czechoslovakia, by unilaterally assuming control of a shared resource, and thereby depriving Hungary of its right to an equitable and reasonable share of the natural resources of the Danube … failed to respect the proportionality which is required by international law.

This statement of the Court illustrates that 'the concept of community of interest can function not only as a theoretical basis of the law of international watercourses, but also as a principle that informs concrete obligations of riparian states, such as that of equitable utilization' (McCaffrey, 2001: 152). Where a community of interests approach is adopted and

[18] Judgment no. 16 (10 Sept. 1929), PCIJ Series A, No. 23, 5-46: 27-28.
[19] *Case Concerning the Gabcikovo-Nagymaros Project (Hungary/Slovakia),* (1997) *ICJ Reports* 7, para. 85.

implemented by means of common management institutions, '[A] state's "interests" in an international watercourse system would generally be defined by its present and prospective uses of the watercourse as well as its concern for the health of the watercourse ecosystem' (McCaffrey, 2001: 165).

In terms of state practice, the concept of community of interests is usually traced back to a French decree of 1792 dealing with the opening of the Scheldt River to navigation.[20] The position expressed in this decree was quickly adopted in a number of instruments concerned primarily with rights of navigation in international rivers[21] (Vitányi, 1979: 34-37). The Vienna Congress of 1815 'led to the foundation of the Central Commission for Navigation on the Rhine, which was not only the first international river basin organization, but also the first international organization in general' (McCaffrey, 1998: 733; Dombrowsky, 2007, p. 94). Indeed, Dombrowsky finds it 'interesting to note that it was the interdependence created by the use of water that gave rise to the foundation of the first modern international organization'. However, some early agreements giving expression to the concept of community of interests were not restricted to navigational uses of water. For example, Article 4 of the 1905 Treaty of Karlstad between Sweden and Norway provides that '[T]he lakes and watercourses which form the frontier between the two States or which are situated in the territory of both or which flow into the said lakes and watercourses shall be considered as common' (Berber, 1959: 24). In terms of modern treaty practice, the 1995 Protocol on Shared Watercourse Systems, adopted by the Southern African Development Community (SADC), provided in Article 2 that the Member States are to 'respect and abide by the principle of community of interests in the equitable utilization of [shared watercourse] systems and related

[20] Décret du 16 Nov. 1792, L. le Fur and G. Chklaver, *Recueil des Textes de Droit International* (2nd edn, Paris, Dalloz, 1934), p. 67.

[21] These include the Treaty of Peace and Alliance between the French and the Batavian Republic of 16 May 1795, Article 18, 6 *Martens*, p. 532, which concerned the Rhine, the Meuse, the Scheldt and the Hondt; the Principal Resolution of the Imperial Deputation (*Reichsdeputationshauptschluss*) of 25 February 1803, 3 *Martens*, Supp., p. 239, which concerned the portion of the Rhine shared between Bavaria and Switzerland; the Treaty of 14 May 1811 demarcating the frontiers between Prussia and Westphalia, Articles 7 and 9.

resources.'[22] The 2000 Revised SADC Protocol on Shared Watercourses,[23] however, which supersedes the 1995 Protocol, does not contain any corresponding provision but rather follows the approach taken under the 1997 UN Watercourses Convention.[24] Nevertheless, renewed efforts to establish basin-wide cooperative institutions in Southern Africa, in accordance with the Revised SADC Protocol, can be observed in the establishment of the Orange-Senqu River Commission in 2000, the Limpopo Watercourse Commission in 2003 and the Zambezi Watercourse Commission in 2004 (Dombrowsky, 2007: 99).

Article 1(2) of the 1992 Agreement between Namibia and South Africa on the Establishment of a Permanent Water Commission provides that the Commission's objective is, *inter alia*, 'to act as technical adviser to the Parties on matters relating to the development and utilization of *water resources of common interest to the Parties*'.[25] Also, in 1990, Nigeria and Niger concluded an agreement concerning the equitable sharing in the development, conservation and use of their common water resources, though the text of the agreement uses the term 'shared river basins' (McCaffrey, 2001: 157). The more striking examples of treaties expressly employing a 'community of interests' approach often concern a single shared watercourse system or water resource. For example, Article 1 of the 1957 Agreement between Bolivia and Peru - a Preliminary Economic Study of the Joint Utilization of the Waters of Lake Titicaca - expressly refers to 'the fact that the two countries have joint, indivisible and exclusive ownership over the waters of Lake Titicaca'.[26] Indeed, these states went on to establish in the early 1990s a Binational Authority for the implementation of the Binational Master Plan of the Titicaca-Desaguadero-Poopo-Salar de Copaisa System. It is more usual for modern treaties 'to *treat* international watercourses as being of common

[22] FAO, *Treaties Concerning the Non-Navigational Uses of International Watercourses: Africa* (FAO Legislative Study 61, 1997), p. 146.
[23] (2001) 40 *ILM* 321.
[24] United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (New York, 21 May 1997), (1997) 36 *ILM* 700.
[25] (1993) 32 *ILM* 1147 (emphasis added).
[26] *Legislative Texts*, 45: 168.

interest than to *refer* to them expressly as common rivers or property,' (McCaffrey, 2001: 158). Examples include agreements which entail the use of the territory of one riparian state by another for purposes such as storage[27] and agreements which relate to the production and division of hydro-electric power in a manner which entails an equitable division of the benefits of the shared waters.[28]

Numerous commentators have advocated the principle of a community of interests in international watercourses and use of the associated common management approach, though few would contend that such an approach has evolved, or is likely soon to evolve, into a requirement of general or customary international law. For example, Godana (1985: 49), while observing that the notion of a community of interests in international watercourses 'is the legal principle most appropriate for a fully developed legal community', concedes that 'the international community is far from being fully developed' and that 'the idea has yet to develop into a principle of international law governing international water relations in the absence of treaties'. Similarly, Kaya (2003: 205) concludes that '[T]here is not enough support for the theory of common management from customary international law' and, further, that

> Despite the dramatic increase in the scale of international cooperation regarding international watercourses, it does not suffice [*sic*] the argument for a common management of international watercourses. In practice, states are seldom willing to relinquish their power over a vital resource to international institutions authorized to manage an international watercourse independently, or even autonomously.

Caflisch (1992: 59-61; McCaffrey, 2001: 163-164) notes the emergence of the idea in international law that certain shared natural resources, such as the deep seabed and celestial bodies, are the 'common heritage of humanity' and asks whether and to what extent this idea

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[27] Treaty Relating to Cooperative Development of the Water Resources of the Columbia River Basin, Article 6 (17 January 1961), 15 *UST* 1555, 542 *UNTS* 244; Agreement for the Utilization of the Waters of the Yarmuk River between Jordan and Syria (4 June 1953), 184 *UNTS* 15.

[28] Convention between France and Switzerland for the Development of the Water Power of the Rhone, Article 5 (Berne, 4 October 1913), *Legislative Texts*, 197: 708; Treaty between the United States and Canada Relating to the Uses of the Waters of the Niagara River, Article 6 (Washington, DC, 27 February 1950), 132 *UNTS* 228.

could be transposed to international watercourses. He proceeds to consider the merits of 'denationalizing' international watercourses and transferring their management from individual states to a joint organization, and concludes that 'while it is clear that a condominium could be established by treaty, one cannot maintain that, by virtue of the rules of customary law, the whole of an international watercourse, including its resources, forms a condominium'. Similarly, in the course of her study of international agreements creating water management institutions, Dombrowsky (2007: 97) notes that

> While some authors have recommended basin-wide agreements, others have argued that membership should be kept as small as possible in order to enhance the respective agreement's problem-solving capacity. From a legal perspective, affected parties should be able to participate as appropriate, but a basin-approach is no strict requirement.

Common management institutions

Common management regimes must, therefore, necessarily be voluntary arrangements, established by treaty between basin states. The rules of general international law will not impose a positive obligation and compel basin states to create such regimes. According to Olmstead (1967: 9), '… international law limits only the state's freedom of unilateral action but does not require joint utilization'. Indeed, the commentary to Article 64 of the International Law Association's (ILA) 2004 Berlin Rules on Water Resources requires, '[W]hen necessary', the establishment of 'a basin-wide or joint agency or commission with authority to undertake the integrated management of waters of an international drainage basin', and freely concedes that

> While often basin management mechanisms will be the best or even a necessary means for achieving equitable and sustainable management of waters, customary international law does not specifically require [that] such institutions be established nor does it provide specific details for such mechanisms.

Of course, overarching supra-national legal arrangements for regional integration may not care about the creation of transnational water management institutions. In accordance with

the requirements of the EU Water Framework Directive, basin-wide institutional arrangements have recently been set up for most international rivers basins in Europe, whether lying within or stretching beyond the boundaries of the EU.[29]

A number of studies examine state practice in respect to international basin management organizations and their founding agreements in an effort to characterize a number of key types of organization and to identify key features of their institutional design (Teclaff, 1967; LeMarquand, 1977; Teclaff, 1996; Kliot *et al*, 1997; Hamner and Wolf, 1998; McCaffrey, 1998; Wolf, 1998; Burchi and Spreij, 2003; Mostert, 2003; Dombrowsky, 2007). One recent study of 86 river basin organizations, which includes a detailed review and comparative analysis of 12 bodies selected 'in order to reflect a broad spectrum of scope, forms, functions and contexts', identifies a total of 18 different categories of water uses or 'issue areas' with which such organizations might be concerned. These include: 'water quality; water quantity; hydropower; ecology; flood control; navigation; irrigation; economic development; infrastructure; fishing; river regulation; joint management; hydrological monitoring; erosion control; hazard prevention; melioration; recreation/tourism; border issues and timber floating' (Dombrowsky, 2007: 91). Of course, the organizational structure of such institutions will vary greatly depending, *inter alia*, on the range of issue areas covered, the powers and mandate of the institution and the degree of integration and cooperation envisaged by the riparian states. Dombrowsky (2007: 108) observes that

> On the one end of the continuum there are organizations with a hierarchy of decision-making organs and international secretariats in place. On the other end are commissions and committees composed of representatives of each member state that serve as negotiation fora without any formal administrative support.

However, though organizational structures may differ, all international water management institutions appear, formally or effectively, to employ decision-making mechanisms requiring

[29] Directive 2000/60/EC, (2000) OJ L327/1, Articles 3(3)–(5).

unanimous vote or consensus (Dombrowsky, 2007: 111-112). It is possible to identify broad trends indicating which international watercourses are more or less likely to benefit from the adoption of common management arrangements. For example, joint mechanisms are particularly likely to be established by states that use international watercourses intensively (McCaffrey, 2001: 159), and for contiguous rather than successive watercourses. Here the interests of riparian states/countries are often more obviously and intimately interconnected, and where 'It is obvious that any works involving both banks of a river – such as a dam – would have to be the subject of agreement and close co-operation between the co-riparians' (McCaffrey, 2001: 168). In addition, though empirical evidence 'seems to indicate the likelihood that organizations are set up appears to be higher in multipartite basins than in bipartite basins' … 'the number of multipartite river basins with strictly basin-wide arrangements is small' (Dombrowsky, 2007: 95, 99).

Though common management arrangements must be entered into by states voluntarily, it is apparent that the accumulated practice of states in participating in such arrangements should serve to bolster the normative status, in customary or general international law, of the various rules comprising the general duty to cooperate. This arrangement is generally understood as consisting of a number of specific procedural obligations, such as the duty to notify, the duty to consult and/or negotiate in good faith, the ongoing exchange of information, the duty to warn, and duties in relation to the settlement of disputes (Okowa, 1996: 275 *et seq.*; Sands, 2000: 374; McIntyre, 2007: 317-357). State practice in relation to common management could, in turn, inform the normative content of such procedural rules by making it clear that *bona fide* participation in common management institutions would satisfy the obligations inherent therein. Interestingly, the 1992 United Nations Economic Commission for Europe (UNECE) Convention on the Protection and Use

of Transboundary Watercourses and International Lakes,[30] which, at the end of 2000, had 26 signatories and 32 parties, requires parties to 'enter into bilateral or multilateral agreements or other arrangements' which 'shall provide for the establishment of joint bodies' having a wide range of environmental tasks.[31] Furthermore, it seems reasonable to assume that common management would become a more acceptable and attractive approach if recognition of the physical unity of the drainage basin were to gain ground in international law. Indeed, the ongoing evolution and development of the so-called 'ecosystems approach' to the environmental protection of international watercourses is likely to considerably enhance legal recognition of the physical unity of drainage basins and so to highlight the need for common management institutions (McIntyre, 2004: 1 *et seq*.). In the context of a discussion on 'the need for ecomanagement' of international watercourses, Kaya (2003: 189) concludes that

> Under the light of the findings of the examination of the relevant sources of international law in the present study, it seems necessary to establish a treaty regime with an active and continuing revisional element which can only be achieved by setting up a joint water institution with adequate powers and means in each basin.

Similarly, the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses would appear expressly to encourage watercourse states to enter into common management arrangements. Most significantly, the principle of 'equitable participation', which is set out under Article 5(2) and is closely linked to practical implementation of the cardinal principle of equitable utilization,[32] suggests the nature and scope of the role potentially to be played by joint mechanisms. The ILC commentary to its 1994 Draft Articles, which preceded the Convention, explains that Article 5(2) involves 'not only the right to utilize an international watercourse, but also the duty to cooperate actively with other

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[30] (1992) 31 *ILM* 1312.

[31] Article 9(1) and (2).

[32] Article 5(2) provides that 'Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention'.

watercourse States in the protection and development of the watercourse'[33] and it is persuasively argued that the provision 'not only requires co-ordination but also more significant forms of co-operation' (Tanzi and Arcari, 2001: 109). Indeed, the same authors contend that a state's failure to participate actively in the procedural requirements inherent in equitable participation 'will make it difficult for that State to claim that its planned or actual use is … equitable under Article 5 of the Convention.' Therefore, any invitation to join or participate in a regional water body or river basin commission is likely to be considered carefully by riparian states. Also, in the context of the general obligation imposed upon watercourse states by Article 8 of the UN Convention to cooperate 'in order to attain optimal utilization and adequate protection of an international watercourse', Article 8(2) expressly proposes the use of joint mechanisms and commissions, providing that

> In determining the manner of such cooperation, watercourse States may consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate cooperation on relevant measures and procedures in the light of experience gained through cooperation in existing joint mechanisms and commissions in various regions.

It is interesting to note that the explicit reference to 'the establishment of joint mechanisms or commissions' under Article 8(2) was not included in the 1994 ILC Draft Articles, but inserted later, perhaps signalling growing acceptance of the common management approach and growing awareness of its merits.

It is to be assumed that such arrangements would also generally be regarded as effective in facilitating the regular exchange of data and information required under Article 9. Article 9(1) provides that

> Pursuant to Article 8, watercourse States shall on a regular basis exchange readily available data and information on the condition of the watercourse, in particular that of a hydrological, meteorological, hydrogeological and ecological nature and related to the water quality as well as related forecasts.

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[33] *Report of the International Law Commission on the Work of its Forty-Sixth Session* (1994), A/49/10/1994, p. 220. See also, (1994) 24/6 *Environmental Policy and Law*, pp. 335-368.

From the kinds of information listed under Article 9(1), it is apparent that regular and effective exchange of such information, facilitated by common management institutions, could have a significant role to play in determining an equitable regime for the use or development of an international watercourse. This follows the principle of equitable utilization as elaborated under Articles 5 and 6 of the Convention, and in ensuring that environmental issues are anticipated, detected and understood.

In addition, Article 21 provides, in relation to the 'prevention, reduction and control of pollution' that '[W]atercourse States shall, individually and, where appropriate, *jointly*, prevent, reduce and control the pollution of an international watercourse that may cause significant harm …' and that '[W]atercourse States shall take steps to harmonize their policies in this connection.'[34] As the 'mutually agreeable measures and methods' envisaged under Article 21 for this purpose include, *inter alia*, '[S]etting joint water quality objectives and criteria',[35] the potential role for common management machinery is obvious. Furthermore, Article 24, which deals with the 'management' of international watercourses, provides that '[W]atercourse States shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, *which may include the establishment of a joint management mechanism*.'[36] This provision would appear to suggest the efficacy of using permanent common management institutions for the purpose of planning the environmental protection of the watercourse, as it further provides that 'management' refers, in particular, to:

> (a) Planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted; and
>
> (b) Otherwise promoting the rational and optimal utilization, protection and control of the watercourse.'[37]

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[34] Article 21(2), (emphasis added).
[35] Article 21(3) (a).
[36] Article 24(1) (emphasis added).
[37] Article 24(2).

While the 1994 commentary to ILC Draft Article 24 notes that 'States have, in practice, established numerous joint river, lake and similar commissions, many of which are charged with management of the international watercourses', it emphasises that it 'does not require … that they establish a joint organization, such as a commission, or other management mechanism', and points out that '[M]anagement of international watercourses may also be effected through less formal means, however, such as by the holding of regular meetings between the appropriate agencies or other representatives of the States concerned.'[38] Finally, the Convention envisages a role for common management mechanisms in relation to the settlement of disputes concerning the interpretation or application of the Convention, providing that

> If the parties concerned cannot reach agreement by negotiation … they may jointly seek the good offices of, or request mediation or conciliation by, a third party, *or make use, as appropriate, of any joint watercourse institution that may have been established by them* ….[39]

In relation to its merits, most commentators would agree that 'the notion that all riparian states have a community of interests in an international watercourse reinforces the doctrine of limited territorial sovereignty [and thus, equitable utilization], rather than in any way contradicting that doctrine' and put forward several advantages of such an approach where it is adopted (McCaffrey, 2001: 168). For example, it 'expresses more accurately the normative consequences of the physical fact that a watercourse is, after all, a unity' and that 'it implies collective, or joint action' and 'evokes shared governance'. Commentators have for some time expressed concern that, in the absence of common management arrangements, the traditional substantive rules of international watercourses law, including the no-harm rule and the principle of equitable utilization, may be of limited avail in handling problems of water

[38] *Supra*, n. 33, p. 301.
[39] Article 33(1), (emphasis added).

scarcity and quality (Caflisch, 1992: 139; Tanzi and Arcari, 2001: 18). For example, one leading commentator noted in 1974 in relation to equitable utilization that

> Yet there is a narrowness in the doctrine that contains the seeds of nationalistic inefficiency. The doctrine of equitable utilization contemplates cutting the resources of the river basin up into equitable shares, each share to be independently developed by each riparian … However, as admirable as equitable independent development may be, independent development is not likely to make the most productive use of the resource (Utton, 1974: 182).

Similarly, according to Tanzi and Arcari (2001: 18 – 21),

> [I]t is against the background of such considerations that the concept of optimal utilization of international watercourses to be pursued by riparian States *through the integrated management and development thereof* has gained widespread acceptance in legal literature and in the international governmental fora.

The same authors also note that 'in the modern formulation of the equitable utilization principle, the goal of sustainable use should be coordinated with the more utilitarian paradigm of optimal utilization', and that

> …it is apparent that the sound realisation of sustainable use depends on the same co-operation and participation among riparian States in the joint and integrated management of the shared watercourse that we have previously indicated as prerequisites for optimal utilization.

They go on to conclude that the procedural requirements inherent in the clearly established legal obligation of states to cooperate can only be facilitated by means of permanent technical institutional machinery:

> [I]f … exchange of information, consultation and notification are critical for the concrete determination of the substantive entitlement of States in the use of international watercourses, it is patent that the long-term goals of optimal and sustainable use of river waters can be adequately served only when procedural co-operation among riparians is carried out on a permanent, rather than on an occasional, basis.

It would appear, however, that the effectiveness of establishing common management machinery for the specific purpose of environmental management of international

watercourses in particular has been obvious for some time and is becoming ever more so. One commentator noted in 1988 that:

> The tendency to create new institutions for environmental management is not a new one; it is inherent in the nature of the issues. Among the oldest institutions for the management of an environmental resource are those dealing with the allocation and use of water … (Von Moltke, 1988: 89-91).

He goes on to cite early examples, including the Commission of the River Rhine established at the Congress of Vienna,[40] but made operational by the 1868 Treaty of Mannheim, the Danube Commission established in 1878, and the International Boundary and Water Commission of the US and Mexico established in 1889. Von Moltke quotes at length from the concluding remarks of a report compiled during a seminar on the work of international river basin commissions organized by the OECD in 1977, which could then observe that

> During the last ten years, a marked strengthening of international cooperation has been noted for solving problems of transfrontier pollution in international water basins. More Commissions had been established and yet more were now the subject of negotiations, with the result that there would soon be a Commission responsible for each frontier in OECD countries where bodies of fresh water were exposed to transfrontier pollution.

The report commented on the significance of one common feature of such commissions, *i.e.* that they tended to possess scientific and technical expertise and were usually in a position to provide impartial advice based on such expertise.

Therefore, although the more radical concept of 'shared natural resources', which was based on notions of common property and mooted by several international fora as a means of describing the legal status of some transboundary natural resources,[41] including freshwaters,[42]

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[40] For the text of the 1815 Final Act of the Congress of Vienna, see *Droit International et Histoire Diplomatique*, (Paris 1970), 2: 6. .

[41] See, in particular, the 1978 UNEP Governing Council's Draft Principles of Conduct in the Field of the Environment for the Guidance of States in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States, 17 *ILM* 1097 (1978); Article 3 of the Charter of Economic Rights and Duties of States, UNGA Res. 3281(XXIX).

[42] See, in particular, Sections G and H of the Mar del Plata Action Plan, *Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977*, UN Doc. E/CONF.70/29 (1977), pp. 49-55.

has been comprehensively rejected by states (Schwebel, 1980: 180-197), some of the 'basic ideas underlying the concept of shared resources and the theory of community of interests are, nonetheless, taking root in the field of the law of international watercourses' (Tanzi and Arcari, 2001: 22-23). In the absence of legal compulsion, states are simply entering into practical and effective arrangements which recognise the unitary nature of international watercourses or drainage basins, and the resulting interdependence of riparian states, and the advantages of cooperating to achieve optimal utilization thereof. Indeed, as Cecil Olmstead could observe (1967: 7):

> Since man cannot change the given geographical facts and has difficulty altering established political boundaries, he must learn to develop co-operatively these international resources for the maximum benefits of all. Although international law … does not require that such co-basin States jointly develop these waters. However, in recognition of their common interest, increasingly such States will voluntarily enter into joint planning and development agreements governing international drainage basins.

International river commissions and environmental protection

It is, of course, very difficult to study empirically the relative significance attached to environmental factors in state practice relating to the utilization of international watercourses, as such practice will often take place at a confidential and unrecorded diplomatic level. Therefore, it is very useful to examine the practice of the many international joint commissions established to facilitate inter-governmental agreement in river basin planning and utilization. Such bodies vary greatly in terms of their composition and function, but almost all possess considerable technical skills and resources and operate under an express mandate to further the environmental protection of the international watercourse and, possibly, the wider natural environment. This trend has become more marked in recent years. For example, the 1994 Agreements on the Protection of the Rivers Meuse and Scheldt created an international commission to facilitate cooperation between the parties for the purposes of

the environmental protection of the rivers.[43] Similarly, the 1994 Convention on Co-operation for the Protection and Sustainable Use of the Danube River[44] established an international commission[45] to ensure cooperation to 'at least maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment area and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused.'[46] The Danube Commission has more specific functions including, where appropriate, the establishment of emission limits applicable to individual industrial sectors, the prevention of the release of hazardous substances and the definition of water quality objectives.[47]

The practice of the US-Canada International Joint Commission (IJC) is particularly instructive as it is one of the longest established such bodies and provides a comprehensive record of reported environmental impact considerations in the context of the use of shared freshwaters (Fuentes, 1998: 150-155). The IJC was established by the 1909 Boundary Waters Treaty for the purpose of issuing orders of approval in response to applications for the use, obstruction, or diversion of the shared boundary waters which may affect the natural water levels or flows.[48] The IJC may also investigate specific issues if so requested by both states.[49] For example, in 1975 the state parties requested the IJC examine and report on the transboundary implications of the proposed completion and operation of the Garrison Diversion scheme in the State of North Dakota. The Commission was asked to make recommendations in relation to modifications, alterations or adjustments that might assist in meeting the obligations of Article IV of the 1909 Treaty, which provides, *inter alia*, that 'the waters herein defined as boundary waters and waters flowing across the boundary shall not be

[43] (1995) 34 *ILM* 851 and 859, Article 2(2).
[44] (1994) 5 *Yearbook of International Environmental Law*, Doc. 16.
[45] Under Article 4.
[46] Article 2(2).
[47] Article 7.
[48] Articles III and IV.
[49] Article IX.

polluted on either side to the injury of health or property on the other'. The governments of Canada and Manitoba objected to the project, *inter alia*, on the grounds that it would adversely affect water quality as well as fish and wildlife resources in Manitoba by the transfer of foreign biota. The IJC concluded that the project as originally envisaged by the United States would cause injury to health and property in Canada as a result of adverse impacts on the water quality and on the biological resources of Manitoba, and that domestic, industrial and agricultural uses of boundary waters in the province would be detrimentally affected.[50] For example, it calculated that the local commercial fishing industry would suffer a loss of CAD 6 million and that 'under such conditions the commercial fishing industry could be eliminated with all the attendant consequences'. Furthermore, the Commission anticipated the annual loss of 35,000 ducks in Manitoba. The IJC concluded generally that, although most of the adverse impacts could be mitigated, those from possible biota transfers were so serious that the only acceptable solution was to delay the construction of those features of the project which could result in such transfers. Thus the IJC was effectively adopting an 'ecosystems approach' in its consideration of the potential adverse impacts of the project.

Similarly, in 1977, the state parties requested the IJC to examine and report on the water quality of the Poplar River,

> including the transboundary water implications of the thermal power station of the Saskatchewan Power Corporation and its ancillary facilities, including coal mining, at a site near Coronach, Saskatchewan, and to make recommendations which would assist Governments in ensuring that the provisions of Article IV of the said [1909] Treaty are honoured.[51]

The Commission found that the resulting reduction in the quantity of water crossing the boundary was expected to have an adverse effect on the existing biological community in the

[50] International Joint Commission, *Transboundary Implications of the Garrison Diversion Unit* (1977), pp. 59-60.
[51] International Joint Commission, *Water Quality in the Poplar River Basin* (1981), pp. 197-210.

East Fork of the Poplar River. Although this did not amount to pollution that would violate Article IV of the 1909 Treaty, the Commission suggested that the detrimental effect should nevertheless be taken into account by the governments. Once again, the IJC appears to have taken an expansive view of the project's environmental impacts based on an 'ecosystems approach'. Also, between December 1984 and February 1985, the IJC was requested

> to examine and report upon the water quality and quantity implications of the proposed coal mine development on Cabin Creek in British Columbia near its confluence with the Flathead River, and to make recommendations which would assist Governments in ensuring that the provisions of Article IV of the said treaty are honoured.[52]

The Commission concluded unequivocally that the development would pollute the waters of the Flathead River so as to have a serious impact on its fisheries, and that the effects of the proposed coal mine would constitute a breach of Article IV of the 1909 Treaty. It is interesting to note that in its report on this controversy, the IJC appears to have provided a very early articulation of the precautionary principle as it might apply to the environmental protection of international watercourses. In respect to transboundary pollution in possible contravention of Article IV of the 1909 Boundary Waters Treaty, it observed:

> when any proposed development project has been shown to create an identifiable risk … existence of that risk should be sufficient to prevent the development from proceeding. This principle should apply, even though the degree of the risk cannot be measured with certainty, unless and until it is agreed that such an impact – or the risk of it occurring – is acceptable to both parties (Benidickson, 2007: 509).

However, despite the fact that '[O]ver nearly a century the IJC has investigated and advised on dozens of controversies and concerns along roughly three thousand miles of shared border' (Benidickson, 2007: 507-510), its remit is limited by the fact that the Boundary Waters Treaty does not provide for automatic or mandatory referral to the ICJ, nor for citizen or NGO enforcement. This shortcoming has been clearly illustrated by the recent controversy over the construction of an artificial outflow for the removal of excess water from Devil's Lake in the

[52] International Joint Commission, *Impacts of a Proposed Coal Mine in the Flathead River Basin* (1988), p. 3.

US state of North Dakota into the Sheyenne River, a tributary of the Red River which flows into the Canadian province of Manitoba. Though concerns have been raised in relation to the level of dissolved solids in these waters, and biota transfer and nutrient loadings in Lake Winnipeg, the federal governments of both states have declined to refer the matter to the IJC and the Commission on Environmental Cooperation (CEC) – the latter established in the context of the North American Free Trade Agreement (NAFTA). The CEC dismissed a submission by Canadian and US environmental NGOs contending that by neglecting to refer the cross-border dispute to the ICJ, Canada and the USA have failed in their obligation of effective enforcement of environmental laws. This situation has prompted one commentator to note:

> Thus, if the federal governments choose to jointly ignore a transboundary pollution problem or resolve it through other means, citizens or other affected parties have no recourse under the treaty or through new mechanisms (Hall, 2007: 723).

Indeed, in respect to persistent controversies concerning the Columbia River, commentators have recently concluded that the US and Canada 'have yet to fully demonstrate that they are willing to trust international institutions or processes with responsibility for transboundary watershed management' (Saunders and Wenig, 2006: 136). This aptly illustrates the reservations that states may have when it comes to entrusting their vital interests to common management institutions, even institutions as long and well established as the IJC, and may explain why very few such bodies have as yet a central role in inter-state dispute settlement.

Nevertheless, the potential role of such joint bodies has been considerably augmented in recent years by means of their express mention in a number of important framework and regional conventions relating to international watercourses. This chapter has outlined above the express recognition of the valuable role that joint commissions can play under Article 8 of the 1997 UN Watercourses Convention, which sets out the general duty to cooperate under international law. Such joint mechanisms or commissions would be particularly useful in

giving effect to the specific measures and methods for preventing, reducing, and controlling pollution of an international watercourse suggested under Part IV of the UN Convention.[53] For example, the 2000 Southern African Development Community (SADC) Revised Protocol on Shared Watercourses, which was adopted largely to give effect to key provisions contained in the 1997 UN Convention,[54] sets out a very detailed institutional framework for its implementation.[55] It lists four SADC Water Sector Organizations:

(i) the Committee of Water Ministers;

(ii) the Committee of Water Senior Officials;

(iii) the Water Sector Co-ordinating Unit; and

(iv) the Water Resources Technical Committee and sub-Committees.

These organizations are intended to function, at various levels, to assist in the implementation of the Protocol and to coordinate the work of shared watercourse institutions. Article 5(2) (c), for example, charges the Water Sector Co-ordinating Unit to, *inter alia*:

> (ii) Liaise with other SADC organs and shared watercourse institutions on matters pertaining to the implementation of this protocol; and
>
> (ix) Keep an inventory of all shared watercourse management institutions and their agreements on shared watercourses within the SADC region.

Article 5(3) goes on to deal with such shared watercourse institutions, stating:

> (a) Watercourse states undertake to establish appropriate institutions such as watercourse commissions, water authorities or boards as may be determined.
>
> (b) The responsibilities of such institutions shall be determined by the nature of their objectives which must be in conformity with the principles set out in this Protocol.

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[53] For example, Article 21(3) proposes that watercourse states introduce the following measures and methods:
> (a) Setting joint water quality objectives and criteria;
> (b) Establishing techniques and practices to address pollution from point and non-point sources;
> (c) Establishing lists of substances the introduction of which into the waters of an international watercourse is to be prohibited, limited, investigated or monitored.

[54] 40 *ILM* (2001) 321. Not in force. The Revised Protocol incorporates all the key substantive provisions contained in the 1997 Convention, and its Preamble expressly refers to the Convention, stating at para.1:
> 'Bearing in mind the progress with the development and codification of international water law initiated by the Helsinki Rules and that the United Nations subsequently adopted the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses.'

[55] Article 5.

(c) Shared watercourse institutions shall provide on a regular basis or as required by the Water Sector Co-ordinating Unit, all the information necessary to assess progress on the implementation of the provisions of this Protocol, including the development of their respective agreements.

This provision strongly suggests that the state parties consider active participation in watercourse commissions to be a practical necessity for meeting the requirements and objectives of the Revised Protocol.

In contrast to the 1997 UN Convention, Article 9 of the 1992 ECE Helsinki Convention, which concerns bilateral and multilateral cooperation, expressly requires that bilateral or multilateral agreements or other arrangements entered into by the parties pursuant to the Convention '*shall* provide for the establishment of joint bodies'.[56] Article 9(2) goes on to elaborate in some detail on the various roles that such bodies shall undertake, stating that

> The tasks of these joint bodies shall be, *inter alia,* and without prejudice to relevant existing agreements or arrangements, the following:
>
> (a) To collect, compile and evaluate data in order to identify pollution sources likely to cause transboundary impact;
>
> (b) To elaborate joint monitoring programmes concerning water quality and quantity;
>
> (c) To draw up inventories and exchange information on the pollution sources mentioned [above];
>
> (d) To elaborate emission limits for waste water and evaluate the effectiveness of control programmes;
>
> (e) To elaborate joint water-quality objectives and criteria … and to propose relevant measures for maintaining and, where necessary, improving water quality;
>
> (f) To develop concerted action programmes for the reduction of pollution loads from both point sources (*e.g.* municipal and industrial sources) and diffuse sources (particularly from agriculture);
>
> (g) To establish warning and alarm procedures;
>
> (h) To serve as a forum for the exchange of information on existing and planned uses of water and related installations that are likely to cause transboundary impact;
>
> (i) To promote cooperation and exchange of information on the best available technology in accordance with the provisions of article 13 of this Convention, as well as to encourage cooperation in scientific research programmes;
>
> (j) To participate in the implementation of environmental impact assessments relating to transboundary waters, in accordance with appropriate international regulations.

[56] Article 9(2) (emphasis added).

Article 9 further provides for non-riparian coastal states, directly and significantly affected by transboundary impacts stemming from the use of international watercourses, to participate in the activities of multilateral joint bodies established by riparians.[57] It also states that coordination is necessary where two or more joint bodies exist in the same catchment area.[58] The 1992 Convention even provides a definition of a 'joint body' as 'any bilateral or multilateral commission or other appropriate institutional arrangements for cooperation between the Riparian Parties'.[59]

It is clear that practical application of a normative principle involving 'multi-layered complexity' which is, almost by definition, somewhat legally indeterminate, can be greatly assisted by means of expert institutional machinery. In a discussion of so-called 'sophist principles', among which he includes equitable utilization, Franck (1995: 67, 81-82) observes that they 'usually require an effective, credible, institutionalized, and legitimate interpreter of the rule's meaning in various instances'. Obviously, the increasingly common practice of establishing international joint commissions creates technically competent inter-governmental bodies with responsibility for identifying, in detail, the adverse environmental effects of any ongoing or planned use of an international watercourse, and a formal procedural mechanism for presenting its findings and recommendations in this regard. Therefore, this practice almost inevitably serves to bring environmental considerations to the fore. However, two specific elements central to the development of modern international environmental law relating to international watercourses tend to further encourage and support the establishment of permanent, joint technical commissions: firstly, the advent of the so-called 'ecosystems' approach, which has potentially very far-reaching implications for international watercourse utilization and which requires considerable technical cooperation and competence; and

[57] Article 9(3) and (4).
[58] Article 9(5).
[59] Article 1(5).

secondly, the widespread use and increasing sophistication of procedures for transboundary environmental impact assessments (EIA) provide a clear role for joint technical commissions. Such commissions may often be required to oversee or to assist in the implementation of a formal transboundary EIA process.

Ecosystems approach

Traditionally, customary and conventional rules relating to environmental protection and 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' (Brunnée and Toope, 1995: 54). 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 to utilize an international watercourse in an equitable and reasonable manner and to prevent significant transboundary harm. They now increasingly include 'purely' environmental obligations, including provisions which require the adoption of a more ecosystem-oriented approach to such protection (McIntyre, 2004: 1).

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 of the 1997 UN Watercourses Convention. It expressly

requires states party to the Convention to act to protect and preserve international watercourse ecosystems.[60] In the context of the elaboration of the 1997 Convention, Tanzi and Arcari (2001: 8-9; Francis, 1993: 315; Tarlock, 1996: 181) 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'.

For example, central to the adoption of an ecosystems approach to the protection of an international watercourse is the establishment of a regime of 'environmental flows', which 'is increasingly accepted as an essential component in achieving integrated water resources management (IWRM)[61] and for addressing issues of river health, sustainable development, and the sharing of benefits between users' (Scanlon and Iza, 2003: 83). The environmental flow concept has been defined by the International Union for Conservation of Nature (IUCN) as 'the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing uses and where flows are regulated' (Dyson, Bergkamp and Scanlon, 2003: 3-5). The IUCN guide document goes on to explain that '[T]he goal of environmental flows is to provide a flow regime that is adequate in terms of quantity, quality and timing for sustaining the health of the rivers and river systems', but also stresses the significance of social and economic factors.

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

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[60] See, in particular, Article 20. See also Articles 22 and 23.

[61] IWRM has been defined by the Global Water Partnership as

> 'the process which promotes the co-ordinated development and management of water, land and related issues in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.'

See Global Water Partnership, *IWRM, Technical Paper No. 4*, available online at www.gwpforum.org/gwp/library/TACN04.pdf.

2(2)(d) of the 1992 UNECE Convention requires parties '[T]o ensure conservation and, where necessary, restoration of ecosystems', while Article 3(1)(i) requires them to ensure that '[S]ustainable water-resources management, including the application of the ecosystems approach, is promoted'. 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'. Significantly for the potential scope of an ecosystem approach to environmental protection, the Helsinki Convention alludes to and distinguishes between 'Parties'[62] and 'Riparian Parties'[63] 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,[64] whereas those relating to the riparian parties alone are mostly concerned with cooperation among the riparian states and joint management of the water resource.[65] Also, a number of recent treaties governing the Rhine,[66] Danube,[67] Meuse, and Scheldt,[68] negotiated in accordance with the 1992 Helsinki Convention, demonstrate a broad commitment to ecosystem protection. Article 2(3) of the 1998 Rhine Convention, for example, applies to 'aquatic and terrestrial ecosystems interacting with the Rhine or whose interaction with the Rhine could be re-established'. The Danube Convention, in turn, aims at the protection of the 'riverine environment' and the 'aquatic ecosystems', at 'sustainable development and environmental protection of the Danube River', and at 'the conservation and restoration of ecosystems.'[69] Moreover, the 1990 Elbe Convention,[70] which predates the Helsinki

[62] Article 1(3).
[63] Article 1(4).
[64] Articles 2-8.
[65] Articles 9-16.
[66] Convention on the Protection of the Rhine (Rotterdam, 22 January 1998), Articles 2, 3 and 5.
[67] Convention on Co-operation for the Protection and Sustainable Use of the Danube River (Sofia, 29 June 1994), Articles 1(c), 2(3) and (5).
[68] Agreements on the Protection of the Meuse and Scheldt (Charleville Mezieres, 26 April 1994), Article 3.
[69] Articles 1(c) and 2(3).
[70] Convention of the International Commission for the Protection of the Elbe (Magdeburg, 8 October 1990).

Convention, requires parties to cooperate to achieve a healthy diversity of river species and as natural an ecosystem as possible.

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,[71] the Experts Group on Environmental Law of the WCED[72] (Munro and Lammers, 1987: 45-54), the Commission on Sustainable Development,[73] and the International Law Association.[74] 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' (Holdgate, Kassas and White, 1982: 124), and in 1991 the Organisation for Economic Co-operation and Development noted the increasing number of calls for ecosystem management of international watercourses (OECD, 1991: 69). The UN medium-term plan for the period 1992-1997 expressly recognised 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.[75]

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

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[71] See, for example, *Report of the United Nations Water Conference, Mar del Plata*, 14-25 March 1977, UN Doc. E/CONF.70/29; *Dublin Statement on Water and Sustainable Development*, reprinted in (1992) 22 *Environmental Policy and Law* 54.

[72] See, for example, Article 3 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.

[73] See Commission on Sustainable Development, *Review of Sectoral Clusters: Freshwater Resources*, Report to the Secretary-General, UN Doc. E/CN.17/1994, reported in (1994) 24 *Environmental Policy and Law* 212.

[74] See the ILA Draft Articles on the Relationship Between Water, Other Natural Resources and the Environment, *Report of the Fifty-Ninth Conference* (1980) 374.

[75] Medium-term plan for the period 1992-1997, UN GAOR, 47th Sess., Supp. No. 6, UN Doc. A/47/6/Rev.1, vol. I, major programme IV, International economic cooperation for development, Programme 16 (Environment), p. 221, para. 16.25 (McCaffrey, 2001: 388).

> … 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 ….[76]

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 of basic needs and the *safeguarding of ecosystems.*[77]

Notwithstanding the non-binding character of Agenda 21, more than 180 states participating in the UNCED process have subscribed to it. This subscription is likely to prove influential in 'reconceptualising the problems concerning the use and management of watercourses' in the further elaboration of the overarching concept of sustainable development (Tanzi and Arcari, 2001: 10). Also, while the 1997 UN Convention, which endorses the ecosystems approach by means of Articles 20-23, [is not yet in force, it is contained in a General Assembly Resolution that was adopted with a majority of 103 to 3, with 27 abstentions (McCaffrey, 2001: 390).

It seems reasonable to assume that the obligation to protect watercourse ecosystems, as set out under Article 20 of the 1997 UN Convention, is one of due diligence, rather than a 'strict' obligation for which there are only very limited defences (ILC Report, 1994: 291-292;Tanzi and Arcari, 2001: 246). Therefore, Article 20 requires all states potentially impacting upon the ecosystems of a watercourse to take all appropriate measures to protect and preserve these ecosystems. 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

[76] Agenda 21, Chapter 18, para. 18,2, UN Doc. A/CONF.151/26 (Vol. I), p. 167.
[77] Para. 18.8, p. 168 (emphasis added).

States of a comparable level of development' (McCaffrey, 2001: 395). 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 a rigorous, proactive duty on states. It is significant that the 1990 statement of the Chairman of the ILC Drafting Committee emphasized that the earlier reference in draft Article 20 to the duty of states 'to take all reasonable measures' was deleted in order to strengthen the obligation of protection (ILC Yearbook, 1990: 281). Also, though 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 is bound 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 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' (ILC Report, 1994: 282).

Furthermore, 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 and reasonable utilization – the primary substantive principle of international water law as set out under Articles 5 and 6 of the 1997 Convention – that '[T]he principle provides, indeed requires, that states take into consideration the factors tied to sustainable development of the resource, thus providing the legal framework for operationalising this concept' (Wouters and Rieu-Clarke, 2001: 283). Another points out 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 (Kroes, 1997: 83). In the context of the Gabčíkovo-Nagymaros case, the present author has suggested that '[I]n 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' (McIntyre, 1998: 88). Clearly, ecosystem protection would be subject to equitable balancing under the principle of equitable utilization. However, it is likely to enjoy a certain significance, especially as several of the factors expressly enumerated for consideration under Article 6 of the UN Convention, including ecological factors,[78] economy of use[79] and potential uses of the watercourse,[80] could only emphasize 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' (ILC Report, 1994: 281-282). Indeed, several commentators have concluded that 'under the Convention, ecosystem protection is conceived as inherent in the idea of equitable use' (Brunnée and Toope, 1995: 65; Tanzi and Arcari, 2001: 245). McCaffrey (2001: 20; Hey, 1995: 141-143; Nollkaemper, 1996: 67-69) refers to the requirement that 'equitable utilization must be re-oriented' for the purpose of effective ecosystem protection.

Involving immensely complex scientific determinations about the likelihood and seriousness of possible ecological impacts, the ecosystems approach, as elaborated under international law, necessarily makes the standards of due diligence expected of states more complex. This is especially true of the expectation that states will protect the watercourse ecosystem while equitably balancing ecosystems protection objectives against other relevant factors. In light of this, it is evident that the emergence of the ecosystems approach can only

[78] Article 6(a).
[79] Article 6(f).
[80] Article 6(e).

emphasize the benefits offered by permanent joint technical commissions, without which it seems unlikely that such a sophisticated approach could ever be effectively implemented.

Transboundary environmental impact assessment

In practical terms, the customary obligation to prevent transboundary pollution, one of the fundamental rules of international environmental law, requires that states consider the likely impacts of present and anticipated activities on the environment of other states, and that this has inspired the introduction of legal procedures generally referred to as 'environmental impact assessment' (Dupuy, 1991: 66-68). Leading commentators link the introduction of transboundary environmental impact assessment procedures with implementation of the general obligation to prevent harm and, more particularly, with the duty to cooperate, concluding that '[W]ithout the benefit of an EIA the duty to notify and consult other states in cases of transboundary risk will in many cases be meaningless' (Birnie and Boyle, 2002: 108, 113 and 131). Another commentator writes that 'Principle 21 [of the Stockholm Declaration] does seem logically to require … transboundary environmental impact assessment. Otherwise, the substantive prohibition on transboundary harm would be largely meaningless …' (Knox, 2002: 295-296). The EIA technique is now widely supported and utilized in international law. Several international organizations concerned with protection of the environment have adopted recommendations and declarations which endorse EIA, including the Organisation for Economic Co-operation and Development (OECD),[81] the Food and Agriculture Organization (FAO),[82] and the United Nations Environment Programme (UNEP).[83] Significantly, Principle 17 of the 1992 Rio Declaration states that

[81] OECD Council Recommendation C(74)216, Analysis of the Environmental Consequences of Significant Public and Private Projects (14 November 1974); OECD Council Recommendation C(79)116, Assessment of Projects with Significant Impact on the Environment (8 May 1979); OECD Council Recommendation C(85)104, Environmental Assessment of Development Assistance Projects and Programmes (20 June 1985).
[82] FAO Comparative Legal Strategy on Environmental Impact Assessment and Agricultural Development (1982).
[83] UNEP, Goals and Principles of Environmental Impact Assessment (UNEP/GC/DEC/14/25, 1987).

> Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

Similarly, among many references to EIA, Agenda 21 calls on states to ensure that 'relevant decisions are preceded by environmental impact assessments and also take into account the costs of any ecological consequences'.[84]

In addition, numerous binding international treaties include provisions requiring the performance of an EIA in specific circumstances. More prominent examples include the 1974 Nordic Environmental Protection Convention,[85] the 1982 United Nations Convention on the Law of the Sea,[86] the UNEP Regional Seas Conventions,[87] the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources,[88] the 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region,[89] the 1989 Basle Convention on Transboundary Movements of Waste,[90] the 1991 Antarctic Protocol,[91] the 1992 Climate Change Convention,[92] and the 1992 Biodiversity Convention.[93] In 1991, the United Nations Economic Commission for Europe (UNECE) adopted a specific and comprehensive Convention on Environmental Impact Assessment in a Transboundary Context, which had 42 state parties by December 2007.[94] The International Law Commission's Draft Convention on the Prevention of Transboundary Harm, itself a long-term and influential exercise in the codification of customary and general international law,

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[84] Para. 8.4. See also, *inter alia*, paras. 7.41(b), 8.5(b), 10.8(b).
[85] (1974) 13 *ILM* 511, Article 6.
[86] (1982) 21 *ILM* 1261, Article 206.
[87] 1976 Barcelona Dumping Protocol, Annex III; 1978 Kuwait Convention, Article XI; 1981 Abidjan Convention, Article 13; 1981 Lima Convention, Article 8; 1982 Jeddah Convention, Article XI; 1983 Cartagena Convention, Article 12; 1985 Nairobi Convention, Article 13; 1986 Noumea Convention, Article 16.
[88] (1985) 15 *Environmental Policy and Law*, p. 64., Article 14(1).
[89] (1987) 26 *ILM* 38.
[90] 28 *ILM* (1989) 657, Article 4(2)(f) and Annex V(A).
[91] 30 *ILM* (1991) 1461, Article 8 and Annex I.
[92] 31 *ILM* (1992) 851, Article 4(1)(f).
[93] 31 *ILM* (1992) 818, Article Articles 7(c) and 14(1)(a).
[94] 30 *ILM* (1991), 802 (Espoo, 25 February 1991). In force 27 June 1997.

includes an article on transboundary EIA, which requires an evaluation of the possible impacts of projects or activities on persons, property, and the environment of other states.[95] For planned projects or activities potentially affecting shared international freshwater resources, some form of transboundary EIA is now usually required in bilateral and multilateral treaties, and common in state practice (Teclaff, 1985: 240; Cooper, 1986: 303; Nollkaemper, 1993: 180). The 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes expressly requires that

> The Parties shall develop, adopt, implement and, as far as possible, render compatible relevant legal, administrative, economic, financial and technical measures, in order to ensure … that … [E]nvironmental impact assessment and other forms of assessment are applied.[96]

The 1992 Convention further provides for ongoing assessment, Article 11(3) requiring that

> The Riparian Parties shall, at regular intervals, carry out joint or coordinated assessments of the conditions of transboundary waters and the effectiveness of measures taken for the prevention, control and reduction of transboundary impact. The results of these assessments shall be made available to the public in accordance with the provisions set out in article 16 of this Convention.

Though the 1997 UN Convention does not expressly require the conduct of an EIA before the implementation of planned projects or activities which may have a significant effect, Okowa (1996: 279) suggests generally that

> [I]t is nevertheless arguable that even in those instances where no specific provision is made, environmental impact assessment may be taken to be implicit in other procedural duties, in particular the duty to notify other States of proposed activities that may entail transboundary harm.

Indeed, it is under Article 12 of the UN Convention, relating to the duty of watercourse states to notify other watercourse states of planned measures with possible adverse effects, that the EIA process receives its only explicit mention under the Convention. Article 12 provides:

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[95] *Report of the International Law Commission* (2001), GAOR A/56/10, Article 7.
[96] Article 3(1)(h).

> Before a watercourse State permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof. Such notification shall be accompanied by available technical data and information, *including the results of any environmental impact assessment*, in order to enable the notified States to evaluate the possible effects of the planned measures.

Therefore, the utility of the EIA process for the purpose of discharging the obligation to notify is expressly acknowledged. An identical reference to EIA, made in connection with the obligation to notify, is contained in the 2000 SADC Revised Protocol on Shared Watercourses.[97]

Also, since 1989, when the World Bank's Environmental Assessment Directive was first issued,[98] development projects funded by the Bank have been required to undergo an EIA procedure in order to assess their potential domestic, transboundary and global environmental effects, and such procedures are now the norm for all major development agencies.[99] This is of particular significance for international watercourses where planned measures to utilize or develop water resources usually involve massive infrastructural investment and where most of the underdeveloped watercourses are situated in developing countries. Indeed, several commentators have noted that '[I]n practice, many least-developed countries conduct EIA for projects only when it is required as a condition of international aid' (Knox, 2002: 297).

States have relied on the existence of a general requirement to carry out an EIA in several international disputes. This argument has been used by both New Zealand and Hungary before the International Court of Justice. In its request to the Court concerning French underground nuclear tests, New Zealand contended

> … that France's conduct is illegal in that it causes, or is likely to cause, the introduction into the maritime environment of radioactive material, *France being*

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[97] Article 4(1)(b).

[98] Summarized in (1990) 1~~2~~ *Yearbook of International Environmental Law*, p. 333. For the current rules, see Operational Manual OP 4.01: Environmental Assessment (1999).

[99] For the rules on EIA required for development projects funded by the Asian Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and the Inter-American Development Bank, see (1993) 4~~2~~ *Yearbook of International Environmental Law*, pp. 528-549.

> *under an obligation, before carrying out its new underground nuclear tests, to provide evidence that they will not result in the introduction of such material to that environment*, in accordance with the 'precautionary principle' very widely accepted in contemporary international law.[100]

In its original application to the ICJ in the *Gabčikovo-Nagymaros Case*,[101] Hungary also relied on the precautionary principle, which it perceived as a link between the obligation to cooperate and the duty to prevent transboundary environmental damage. Hungary argued that the precautionary principle was supported by, *inter alia*, Article 3 of the 1991 ECE Convention on Transboundary EIA, which it argued represented general international law in relation to dams. The Convention also required states proposing measures which may have an appreciable adverse transboundary effect to notify other potentially affected states, to share available technical data and information, and to consult and negotiate with them in good faith. Hungary contended that this obligation required that an adequate EIA be carried out and, though the Court did not address the need for prior EIA, it did stress that new environmental norms and standards have to be taken into account 'not only when States contemplate new activities, but also when continuing activities begun in the past'.[102]

It would appear, therefore, that states, international organizations and codification bodies regard environmental impact assessment procedures as essential to the effective discharge of the duty to prevent transboundary environmental harm and the related obligation to cooperate. In addition, it is seen as one means to effectively apply the precautionary principle, particularly in situations involving large-scale developments or projects or ultra-hazardous activities (McIntyre and Mosedale, 1997: 238-239). At any rate, the requirement of prior transboundary EIA is very widely accepted. By 1986, the Experts Group on Environmental

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[100] *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment of 20 December 1974 in the Nuclear Tests [New Zealand v. France] Case* Order 22IX 95, I.C.J. Rep. [1995] 288, p. 290 (emphasis added). See also, Paras. 34 and 35. (Craven, 1996: 725-734).
[101] *Application of the Republic of Hungary v. The Czech and Slovak Republic on the Diversion of the Danube River*. (Sands, Tarasofsky and Weiss, 1994: 693-698).
[102] At para. 140.

Law of the World Commission on Environment and Development had identified environmental impact assessment as an 'emerging principle of international law', suggesting that, under customary international law, states planning to carry out or permit activities which might significantly affect the environment should make or require an assessment of their effects before carrying out or permitting the planned activities (Munro and Lammers, 1987: 58-62).

Though EIAs are context-dependent in terms of their content and adequacy, Okowa (1996: 282-285) identifies certain minimum core components of a good assessment, largely on the basis of the 1991 ECE Convention and the 1987 UNEP Guidelines. These include that the assessment must be carried out when the proposed project or activity is still at the planning stage so that the results may be properly taken into consideration and, pending full consultations with those states likely to be affected, that the state proposing the activity entailing transboundary harm should be debarred from proceeding with it. Also, the nature of the proposed activity and its likely environmental consequences, as identified by the EIA, must be clearly articulated and communicated to those likely to be affected. In addition, the requirements of good faith should apply to any notification and ensuing consultations. Moreover, the practice of assessment evolves through, *inter alia*, the collection and study of environmental impact statements in central repositories, the adoption of a general convention on transboundary EIA, which is widely taken to set universal minimum standards for transboundary EIA procedures, and the elaboration of sector-specific guidelines by multilateral development banks[103] or non-governmental organizations.[104] Therefore, an increasingly sophisticated means of identifying,

[103] For example, the European Bank for Reconstruction and Development (EBRD) has adopted an Environmental Policy which seeks to ensure, through a detailed environmental appraisal process, that the projects it finances are designed to operate in compliance with applicable environmental requirements. To this end, the EBRD has prepared detailed Environmental Procedures which provide guidance as to how the environmental appraisal should be conducted with over 80 sets of Sub-Sectoral Environmental Guidelines covering, for example, fish processing, logging, stone, sand and gravel extraction, pulp and paper, hazardous waste management, potable water supplies, etc.

[104] See, for example, the guidelines published by the World Wide Fund for Nature (WWF) in relation to the construction and operation of large dams, at http://www.panda.org/dams

understanding and communicating environmental concerns is developing which ensures that such concerns can readily be taken into account by decision makers and policy makers. Numerous international expert groups, such as the World Water Council (WWC)[105] and the Global Water Partnership (GWP),[106] have contributed to the formulation of guidelines, codes of conduct, or practice standards for the exploitation of shared water resources, all advocating the use of EIA procedures. The World Commission on Dams (WCD), a forum which brought together representatives of all stakeholders with an interest in dam-building, including environmental NGOs, reported its conclusions in 2000 and proposed 26 guidelines for the building of dams, including guidelines for the protection of the environment that advocate the use of EIA procedures.[107] In view of the increasing legal significance and sophistication of the transboundary EIA process, the role for permanent technical joint commissions is obvious.

Conclusion

Although states cannot be bound to adopt a community of interests approach to inter-state cooperation on the management of international freshwater resources, or to join or participate in related institutional machinery of common management, such as permanent technical river basin commissions, governments increasingly volunteer to do so. Such agreement assists them in establishing compliance with their legal obligation to cooperate in the management of the shared waters. Though institutional arrangements have much to commend them, it seems that one of their most significant contributions is to the effective environmental protection of international watercourses. Though these bodies can vary greatly in terms of their functions, powers and organizational structure, most enjoy an express mandate to pursue environmental protection under their founding instruments, as well as a technically competent and relatively

[105] See www.worldwatercouncil.org for the WWC's World Water Actions Inventory which lists 840 actions, campaigns, legal proceeding, policy initiatives, etc. where the issue of EIA of freshwater projects is central.
[106] See www.gwpforum.org, which lists numerous technical papers and reports prepared or commissioned by the Global Water Partnership.
[107] World Commission on Dams, *Dams and Development: A New Framework for Decision-Making* (The Report of the World Commission on Dams) (Earthscan, 2000).

well resourced permanent staff. Furthermore, the mandate and ability of such bodies to participate in, undertake, or oversee the conduct of transboundary environmental impact assessment procedures provides them with a central role in the key process under international law for ensuring that considerations of environmental protection are adequately taken into account in the determination of an equitable and reasonable regime for the utilization of an international watercourse. The emergence of the so-called 'ecosystems approach' to the environmental protection of international watercourses broadens the range of issues that come within the ambit of environmental protection, and greatly complicates the tasks of anticipating, preventing and mitigating environmental harm. This lies at the heart of the EIA process, thus increasing reliance on joint commissions with trusted technical expertise and established procedures and methodologies. One can only conclude that where there is a genuine will among states to cooperate to achieve optimal utilization of a shared freshwater resource, joint institutional machinery will quickly follow which will have environmental protection as one of its key tasks. Indeed, it has long been understood among international environmental lawyers that such institutional arrangements are essential for effective environmental protection. As one commentator notes

> States party to modern international environmental agreements confirm through their practice that 'sustainable development' has an institutional as well as substantive side [and, further, that] states have a clear preference for institutionalised treaties as the basis for administration of natural resources (Röben, 2000: 442).

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