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Fourth report on the law of the non-navigational uses of international watercourses, by Mr. Stephen C. McCaffrey, Special Rapporteur

Topic:

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THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES

[Agenda item 6]

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Fourth report on the law of the non-navigational uses of international watercourses, by Mr. Stephen C. McCaffrey, Special Rapporteur

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* Incorporating documents A/CN.4/412/Add.1/Corr.1 and A/CN.4/412/Add.2/Corr.1 to 3.

Introduction

1. The chief purpose of the present fourth report on the law of the non-navigational uses of international watercourses[1] is to submit, for the consideration of the International Law Commission, draft articles, together with reference material, on the question of exchange of data and information and on that of environmental protection, pollution and related matters. Before turning to these questions, the Special Rapporteur will offer a tentative overview of the topic as a whole, together with an indication of the schedule he intends to follow in presenting the remaining parts of the draft articles to the Commission. The overview and schedule will of course be subject to any decisions the Commission may take concerning the content of the present topic or concerning its programme of work in general (e.g. staggering the consideration of topics); they are offered with a view to assisting the Commission in the planning of its overall programme of work and in order to provide an indication of the projected content of the topic as a whole.

[1] The three previous reports are: (*a*) preliminary report: *Yearbook . . . 1985*, vol. II (Part One), p. 87, document A/CN.4/393; (*b*) second report: *Yearbook . . . 1986*, vol. II (Part One), p. 87, document A/CN.4/399 and Add.1 and 2; (*c*) third report: *Yearbook . . . 1987*, vol. II (Part One), p. 15, document A/CN.4/406 and Add.1 and 2.

Chapter I

Status of work on the topic and plan for future work

A. Status of work

2. Since the history of the Commission's work on the present topic has been reviewed in previous reports,[2] it need not be retraced here. However, in order to place the ensuing overview of the topic as a whole in context, it may be useful to recall the current status of the articles that have been presented to the Commission.

3. At its thirty-ninth session, in 1987, the Commission provisionally adopted articles 2 to 7, which are based on articles 2 to 8[3] referred to the Drafting Committee at its thirty-sixth session, in 1984, and on articles 1 to 5[4] provisionally adopted at its thirty-second session, in 1980. The titles of the articles provisionally adopted in 1987 are as

[2] See the introductory paragraphs of the three reports cited in the preceding footnote.

[3] Articles submitted by Mr. Evensen, Special Rapporteur from 1982 to 1984, who presented the following reports to the Commission: (*a*) first report: *Yearbook . . . 1983*, vol. II (Part One), p. 155, document A/CN.4/367; (*b*) second report: *Yearbook . . . 1984*, vol. II (Part One), p. 101, document A/CN.4/381.

[4] Articles submitted by Mr. Schwebel, Special Rapporteur from 1977 to 1980, who presented the following reports to the Commission: (*a*) first report: *Yearbook . . . 1979*, vol. II (Part One), p. 143, document A/CN.4/320; (*b*) second report: *Yearbook . . . 1980*, vol. II (Part One), p. 159, document A/CN.4/332 and Add.1; (*c*) third report: *Yearbook . . . 1982*, vol. II (Part One) and corrigendum, p. 65, document A/CN.4/348.

follows: "Scope of the present articles" (art. 2); "Watercourse States" (art. 3); "[Watercourse] [System] agreements" (art. 4); "Parties to [watercourse] [system] agreements" (art. 5); "Equitable and reasonable utilization and participation" (art. 6); and "Factors relevant to equitable and reasonable utilization" (art. 7).[5]

4. At its 1987 session, the Commission also took the following action: on the recommendation of the Drafting Committee, it provisionally left aside the question of article 1 (Use of terms) and that of the use of the term "system", and decided to continue its work on the basis of the provisional working hypothesis it had accepted at its thirty-second session, in 1980; and, after considering articles 10 to 15 proposed by the Special Rapporteur in his third report,[6] it referred them to the Drafting Committee.

5. The Drafting Committee thus remains seized of the following articles: article 9 (Prohibition of activities with regard to an international watercourse causing appreciable harm to other watercourse States),[7] referred to the Drafting Committee in 1984; article 10 (General obligation to co-operate); article 11 (Notification concerning proposed uses); article 12 (Period for reply to notification); article 13 (Reply to notification: consultation and negotiation concerning proposed uses); article 14 (Effect of failure to comply with articles 11 to 13); and article 15 (Proposed uses of utmost urgency).[8]

6. Having recalled this background, the Special Rapporteur will proceed to an overview of the topic as he currently envisages it.

B. Projected outline of the topic as a whole

7. The following outline provides an overview of the draft articles as a whole, as well as a tentative indication of the remaining subjects which might be dealt with therein. The outline also contains, under the rubric "Other matters", a list of subtopics that could be dealt with either in the draft articles themselves or in annexes to the draft. As indicated above, articles 2 to 7 have been provisionally adopted by the Commission; action on article 1 has been deferred until a future stage of the Commission's work; and articles 9 to 15 are before the Drafting Committee.

PART I. INTRODUCTION

Article 1. [Use of terms][9]

Article 2. Scope of the present articles

Article 3. Watercourse States

Article 4. [Watercourse] [System] agreements

Article 5. Parties to [watercourse] [system] agreements

PART II. GENERAL PRINCIPLES

Article 6. Equitable and reasonable utilization and participation

Article 7. Factors relevant to equitable and reasonable utilization

Article 8 [9].[10] Obligation not to cause appreciable harm to other watercourse States[11]

Article 9 [10]. General obligation to co-operate[12]

PART III. NEW USES AND CHANGES IN EXISTING USES

Article 10 [11]. Notification concerning proposed uses

Article 11 [12]. Period for reply to notification

Article 12 [13]. Reply to notification: consultation and negotiation concerning proposed uses

Article 13 [14]. Effect of failure to comply with articles 11 to 13

Article 14 [15]. Proposed uses of utmost urgency

PART IV. EXCHANGE OF DATA AND INFORMATION

Article 15 [16]. Regular exchange of data and information

PART V. ENVIRONMENTAL PROTECTION, POLLUTION AND RELATED MATTERS

Article 16 [17]. Pollution of international watercourse[s] [systems]

Article 17 [18]. Protection of the environment of international watercourse[s] [systems]

Article 18 [19]. Pollution or environmental emergencies

PART VI. WATER-RELATED HAZARDS AND DANGERS

[Article . . .]

PART VII. RELATIONSHIP BETWEEN NON-NAVIGATIONAL AND NAVIGATIONAL USES

[Article . . .]

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[5] For the texts of articles 2 to 7, and the commentaries thereto, as provisionally adopted by the Commission, see *Yearbook . . . 1987*, vol. II (Part Two), pp. 25 *et seq.*

[6] Document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), para. 59 (art. 10) and paras. 88-91 (arts. 11-15); see also *Yearbook . . . 1987*, vol. II (Part Two), pp. 21-23, footnotes 76 and 77.

[7] Article proposed by the previous Special Rapporteur, Mr. Evensen; see *Yearbook . . . 1987*, vol. II (Part Two), p. 23, footnote 80.

[8] See footnote 6 above.

[9] In addition to the term "international watercourse [system]", it may be useful to define other expressions in article 1, for example: "watercourse State" (currently defined in article 3); "new use(s)"; "pollution"; and "optimum utilization".

[10] For the purpose of this outline, this and subsequent articles have been renumbered in order to ensure continuity of numeration. The original numbers of the articles appear in square brackets.

[11] Article 9, proposed by Mr. Evensen (see footnote 7 above) and referred to the Drafting Committee in 1984, was entitled "Prohibition of activities with regard to an international watercourse causing appreciable harm to other watercourse States"; the title has been shortened for ease of reference.

[12] Originally, the Special Rapporteur proposed that this article should be contained in part III of the draft; however, he agrees with the suggestions of a number of members that the article would be better placed in part II, along with the other general principles.

OTHER MATTERS

As indicated above, the following subtopics, grouped together under the rubric "Other matters" for convenience, could be dealt with either in the draft articles or in annexes thereto.

(i) *Regulation of international watercourses*

(*Note*: The term "regulation" is used in the sense in which it was employed by the International Law Association in the articles on river regulation which it adopted in 1980.[13] "Regulation" is there defined as follows:

Article 1

For the purpose of these articles, "regulation" means continuing measures intended for controlling, moderating, increasing or otherwise modifying the flow of the waters in an international watercourse for any purpose; such measures may include storing, releasing and diverting of water by means such as dams, reservoirs, barrages and canals.)

(ii) *Management of international watercourses*

(*Note*: This subtopic would deal with the formation of commissions and other administrative arrangements for the management and development of international watercourses.)[14]

(iii) *Security of hydraulic installations*

(iv) *Settlement of disputes*

C. Schedule for submission of remaining material

8. The following schedule indicates the dates at which the Special Rapporteur estimates that the remaining material could be submitted to the Commission for its consideration. As noted above (para. 1), these forecasts are of course subject to any decisions the Commission may take concerning the substantive coverage of the present topic or concerning its overall programme of work, including the possible staggering of the consideration of topics.

Material to be submitted	*Year*
Parts IV (Exchange of data and information) and V (Environmental protection, pollution and related matters)	1988
Parts VI (Water-related hazards and dangers) and VII (Relationship between non-navigational and navigational uses); regulation of international watercourses	1989
Management of international watercourses; security of hydraulic installation; settlement of disputes	1990

9. If this schedule is adhered to and if the Commission is able to complete its consideration of the material submitted by 1991, work on the draft articles could be completed on first reading by the end of the current quinquennium (1991).

10. Following this overview of current and future work, the other two chapters of the report will deal with the subjects of data and information, and environmental protection, pollution and related matters.

[13] ILA, *Report of the Fifty-ninth Conference, Belgrade, 1980* (London, 1982), pp. 362 *et seq*. See also the discussion of this question by Mr. Schwebel in his third report, document A/CN.4/348 (see footnote 4 (*c*) above), paras. 381-389.

[14] See a general discussion of this question in the third report of Mr. Schwebel, document A/CN.4/348, paras. 452-471.

CHAPTER II

Exchange of data and information

11. The subject of exchange of data and information, which the Special Rapporteur introduced in his third report,[15] had previously been discussed both by the Commission[16] and by the Sixth Committee of the General Assembly.[17] Since the sources on this subject—including treaty provisions, resolutions, recommendations and declarations of intergovernmental meetings and opinions of experts—have been exhaustively catalogued in previous reports,[18] they will not be reproduced in their entirety in the present chapter; nor will the Special Rapporteur repeat the extensive previous discussions of the rationale for provisions on the exchange of data and information.[19] Instead, he will briefly recall the main reasons for the importance of regular exchange by watercourse States of a broad range of information and data and will summarize

[15] Document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), paras. 92-111.

[16] Chapter IV of Mr. Schwebel's first report, document A/CN.4/320 (see footnote 4 (*a*) above), was entirely devoted to the question of "Regulation of data collection and exchange" and contained, for the preliminary consideration of the Commission, three articles on data collection and exchange (arts. 8, 9 and 10). The Commission discussed those articles at its thirty-first session (*Yearbook . . . 1979*, vol. II (Part Two), p. 168, paras. 141-143). At its next session, in 1980, the Commission referred to the Drafting Committee an article entitled "Collection and exchange of information" (art. 6), which Mr. Schwebel had submitted to it at that session; however, the Drafting Committee was unable to examine the article for lack of time (*Yearbook . . . 1980*, vol. II (Part Two), p. 108, paras. 85-87). Mr. Evensen also dealt with this subject in articles 16-19 of the draft articles which he submitted to the Commission at its thirty-fifth session (*Yearbook . . . 1983*, vol. II (Part Two), p. 74, paras. 251-252 and footnote 253), and at its thirty-sixth session (*Yearbook . . . 1984*, vol. II (Part Two), p. 87, para. 279).

[17] The comments of the Sixth Committee are analysed in Mr. Schwebel's second report, document A/CN.4/332 and Add.1 (see footnote 4 (*b*) above), paras. 128-129.

[18] See the treatment of this subject in Mr. Schwebel's three reports (see footnote 4 above): document A/CN.4/320, paras. 111-136; document A/CN.4/332 and Add.1, paras. 124-139; document A/CN.4/348, paras. 187-242; and in the Special Rapporteur's third report, document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), paras. 92-111.

[19] See the reports referred to in the preceding footnote.

examples of support for articles on the subject. He will then submit for the Commission's consideration an article on the subject.

A. Need for the regular exchange of data and information and place of such exchange in the legal régime

12. During the Commission's discussion of the topic at its last session, there emerged broad support for the proposition that co-operation between watercourse States was necessary to ensure the equitable and reasonable utilization of an international watercourse. One of the concrete, and most important, means available to those States to achieve an equitable distribution of the uses and benefits of an international watercourse is the regular exchange of a broad range of information and data relating to the watercourse. Furthermore, as noted in the third report of the Special Rapporteur, such regular exchange of data and information will permit individual watercourse States to plan their own water uses in order to minimize the possibility of conflicts with the uses of other States and may even lead to the development of integrated systems of international watercourse planning and management.[20] It would thus seem apparent that the exchange of data and information between watercourse States would "be required for the success of any attempt to deal with the use of international fresh water on a co-operative rather than on an adversary basis".[21] Moreover, as the Special Rapporteur pointed out in his third report,

> . . . States require data and information relating to the physical characteristics of a watercourse as well as present and planned uses by other States in order to determine their rights and comply with their obligations under the principle of equitable utilization.[22]

Indeed, this need for physical and socio-economic data and information is implicit in article 7, provisionally adopted at the thirty-ninth session,[23] which requires watercourse States to take into account "all relevant factors and circumstances" in implementing the obligation of equitable utilization laid down in article 6. A perusal of the indicative list of factors contained in article 7 reveals that in most cases States will require, for their own evaluation, data and information from other watercourse States. Those factors are as follows:

(*a*) Geographic, hydrographic, hydrological, climatic and other factors of a natural character;

(*b*) The social and economic needs of the watercourse States concerned;

(*c*) The effects of the use or uses of an international watercourse [system] in one watercourse State on other watercourse States;

(*d*) Existing and potential uses of the international watercourse [system];

(*e*) Conservation, protection, development and economy of use of the water resources of the international watercourse [system] and the costs of measures taken to that effect;

(*f*) The availability of alternatives, of corresponding value, to a particular planned or existing use.

13. In its final report,[24] the Experts Group on Environmental Law, a group of international jurists responsible for assisting the World Commission on Environment and Development in its work, recognized the function of exchange of data and information. The report notes that "the duty to provide information may in principle pertain to many factors . . . which may have to be taken into account in order to arrive at a reasonable and equitable use of a transboundary natural resource".[25] The report also recognizes that an important objective of co-operation between States with regard to transboundary environmental problems is "the collection and exchange of data concerning transboundary natural resources, including . . . the uses made of such resources".[26]

14. In summary, if an international watercourse system is being significantly utilized by watercourse States, each of those States must regularly receive data and information from the others in order to determine its rights and obligations under the rule of equitable and reasonable utilization and participation set forth in article 6. It seems clear that effective and efficient exchange of information can be accomplished only through co-operation between watercourse States, whether through the reciprocal transmission of data and information, the establishment of joint institutions for the collection and processing of relevant data and information, or some intermediate method. Whatever the means by which it is accomplished, the regular exchange of data and information by watercourse States is necessary to the fulfilment of the obligations under articles 6 and 7, and provisions regulating such exchange are thus a logical complement to those articles.

B. Survey of State practice, work of intergovernmental and non-governmental organizations and expert opinion

15. As already explained (para. 11 above), the following survey will not be exhaustive since most of the material relevant to the subject has been presented on previous occasions. The function of this section, then, is merely to remind the Commission of the wide-ranging precedents and support for the systematic exchange of data and information relating to the watercourse and the use thereof by watercourse States. The authoritative sources on exchange of data and information range from general provisions on the sharing of such material to specific rules or recommendations relating to particular problems, such as pollution or water-related hazards. The following paragraphs contain a general overview of these categories of provi-

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[20] Document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), which refers to extracts from studies by N. Ely and A. Wolman and by D. Schachter, cited in the same report (*ibid.*, paras. 35-37).

[21] Second report by Mr. Schwebel, document A/CN.4/332 and Add.1 (see footnote 4 (*b*) above), para. 126.

[22] Document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), para. 92, referring to the discussion, in the same report, of the relationship between procedural rules and the principle of equitable utilization (paras. 29-37).

[23] See footnote 6 above.

[24] *Environmental Protection and Sustainable Development: Legal Principles and Recommendations* (Dordrecht, Martinus Nijhoff, 1987).

[25] Commentary to article 15 (Exchange of information) adopted by the Experts Group, *ibid.*, p. 95.

[26] Commentary to article 14 (General obligation to co-operate on transboundary environmental problems), *ibid.*, p. 91.

sions; examples will be given in the text, while the sources proper will for the most part be cited in footnotes.[27]

16. A large number of international agreements,[28] declarations and resolutions adopted by intergovernmental organizations, conferences and meetings[29] and studies by intergovernmental and non-governmental organizations[30] contain general provisions concerning, or recognizing the need for, the regular collection and exchange of a broad range of data and information relating to international watercourses. A good example is article 8, paragraph 1, of the Agreement of 17 July 1964 between Poland and the USSR concerning the use of water resources in frontier waters, which provides:

Article 8

1. The Contracting Parties shall establish principles of co-operation governing the regular exchange of hydrological, hydrometeorological and hydrogeological information and forecasts relating to frontier waters and shall determine the scope, programmes and methods of carrying out measurements and observation and of processing their results and also the places and times at which the work is to be done.

17. The practice of States in utilizing data and information for the specific purpose of maintaining an equitable allocation of the uses and benefits of an international watercourse, and attaining optimum utilization thereof, is borne out in numerous international agreements,[31] resolu-

[27] For greater clarity, full references to the international instruments cited in the text and in the footnotes are provided in the annex to the present report.

[28] Among the agreements relating to contiguous and successive watercourses, see e.g.—*Africa*: Agreement of 25 November 1964 concerning the River Niger Commission and navigation and transport on the River Niger, *art. 2 (c)*; this agreement was superseded by the Convention of 21 November 1980 creating the Niger Basin Authority, *art. 4, para. 2 (a)*; *America*: Treaty of 3 February 1944 between the United States of America and Mexico relating to the utilization of the waters of the Colorado and Tijuana Rivers and of the Rio Grande (Rio Bravo) from Fort Quitman, Texas, to the Gulf of Mexico, *art. 9 (j)*; Agreement of 22 November 1978 between the United States of America and Canada relating to the water quality of the Great Lakes, *art. VII, para. 1 (a) and (b)*; *Asia*: the Indus Waters Treaty of 19 September 1960 (India, Pakistan and IBRD), *art. VI*; Agreement of 5 November 1977 between Bangladesh and India on the sharing of the Ganges waters at Farakka and on augmenting its flows, *art. VI*; *Europe*: Minutes of 1 September 1957 of meetings held at Stari Dojran from 26 August to 1 September 1957 by the delegations of Yugoslavia and Greece to work out a procedure and plan for co-operation in effecting hydro-economic studies of the drainage area of Lake Dojran (hereinafter referred to as the "Agreement of 1 September 1957") (see also the Agreement of 18 June 1959 between the same parties concerning hydro-economic questions, creating a Permanent Yugoslav-Greek Hydro-economic Commission); Agreement of 17 July 1964 between Poland and the USSR concerning the use of water resources in frontier waters, *art. 8*; Agreement of 23 October 1968 between Bulgaria and Turkey concerning co-operation in the use of the waters of the rivers flowing through the territory of both countries, *art. 3*; Agreement of 16 September 1971 between Finland and Sweden concerning frontier rivers, *chap. 9, art. 3*.

Cf. agreements relating to environmental protection—*America*: Agreement of 26 March 1975 between Canada and the United States of America relating to the exchange of information on weather modification activities; Treaty of 3 July 1978 for Amazonian co-operation, *arts. VII and XV*; Agreement of 14 August 1983 between the United States of America and Mexico on co-operation for the protection and improvement of the environment in the border area, *art. 6*; *General conventions*: the 1979 Convention on Long-range Transboundary Air Pollution, *arts. 3, 4, 8 and 9*; the 1982 United Nations Convention on the Law of the Sea, *art. 200*.

[29] See e.g. *(a)* the Declaration of Asunción on the utilization of international watercourses, paras. 3-4—resolution No. 25 of the Act of Asunción—relating to the utilization of international watercourses, adopted by the Ministers for Foreign Affairs of the River Plate Basin States (Argentina, Bolivia, Brazil, Paraguay and Uruguay) at their Fourth Meeting, from 1 to 3 June 1971; *(b)* the Act of Santiago of 26 June 1971 concerning hydrographic basins (Argentina and Chile), para. 8; *(c)* the Action Plan for the Human Environment, recommendation 51 *(c)*, adopted by the United Nations Conference on the Human Environment (*Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972* (United Nations publication, Sales No. E.73.II.A.14 and corrigendum), part one, chap. II); *(d)* the Mar del Plata Action Plan, recommendation A 3 *(j)* (United Nations, *Report of the United Nations Water Conference, Mar del Plata, 14-25 March 1977* (Sales No. E.77.II.A.12 and corrigendum), part one, chap. I); *(e)* Proceedings of the United Nations Interregional Meeting of International River Organizations, held at Dakar, Senegal, from 5 to 14 May 1981 (hereinafter referred to as the "Dakar Meeting") (United Nations, *Experiences in the Development and Management of International River and Lake Basins*, Natural Resources/Water Series No. 10 (Sales No. E.82.II.A.17), part one), Report of the meeting, para. 49, conclusions 6 and 11, and para. 64; *(f)* the Principles regarding co-operation in the field of transboundary waters, adopted by the Economic Commission for Europe on 10 April 1987, at its forty-second session (hereinafter referred to as the "1987 ECE Principles"), especially paras. 2, 7 *(a)*, 10, 11, 11*(a)* and 11*(b)* (whose action is limited, according to the preamble, to the prevention and control of pollution and to flood management) (see the ECE annual report (28 April 1986-10 April 1987), *Official Records of the Economic and Social Council, 1987, Supplement No. 13* (E/1987/33-E/ECE/1148), chap. IV, decision I (42)).

[30] See e.g. *(a)* the proceedings of ILA: (i) the resolution on the uses of the waters of international rivers, known as the "New York resolution", recommendation 3 (ILA, *Report of the Forty-eighth Conference, New York, 1958* (London, 1959), p. ix, cited in the Special Rapporteur's third report, document A/CN.4/406 and Add.1 and 2 (see footnote 1 *(c)* above), para. 102); (ii) the Helsinki Rules on the Uses of the Waters of International Rivers, art. XXIX, para. 1 (ILA, *Report of the Fifty-second Conference, Helsinki, 1966* (London, 1967), pp. 484 *et seq.*, reproduced in part in *Yearbook . . . 1974*, vol. II (Part Two), pp. 357 *et seq.*, document A/CN.4/274, para. 405); (iii) the Rules on international groundwaters, known as the "Seoul Rules" (ILA, *Report of the Sixty-second Conference, Seoul, 1986* (London, 1987), pp. 251 *et seq.*, cited in the Special Rapporteur's third report, document A/CN.4/406 and Add.1 and 2, para. 105 *in fine*); *(b)* the proceedings of the United Nations Interregional Seminar on River Basin and Interbasin Development (Budapest, 16-26 September 1975), hereinafter referred to as the "Budapest Seminar" (United Nations, *River Basin Development: Policies and Planning* (Sales No. E.77.A.4)); see the passages cited in Mr. Schwebel's third report, document A/CN.4/348 (footnote 4 *(c)* above), paras. 193-198; *(c)* United Nations, *Institutional Issues in the Management of International River Basins: Financial and Contractual Considerations*, Natural Resources/Water Series No. 17 (Sales No. E.87.II.A.16), chap. I, sect. B.

[31] Provisions concerning the use of data and information for the purpose of maintaining equitable shares and achieving optimum utilization are particularly evident in agreements establishing commissions to implement planning and development schemes relating to a watercourse as a whole. In addition to the provisions cited in the text, see e.g. the Treaty of 11 January 1909 between Great Britain and the United States of America concerning the boundary waters between Canada and the United States, in particular *arts. VIII, IX and X*; the Agreement of 24 April 1964 between Finland and the USSR relating to frontier waters, *art. 8*; the statute of the Intergovernmental Co-ordinating Committee of the River Plate Basin, adopted by the Ministers for Foreign Affairs of the River Plate Basin States at their Second Meeting, held at Santa Cruz de la Sierra, Bolivia, from 18 to 20 May 1968, *arts. 1 and 3 (b)* (OEA, *Ríos y Lagos Internacionales (Utilización para fines agrícolas e industriales)*, 4th ed., rev. (OEA/Ser.I/VI,CIJ-75 Rev.2) (Washington (D.C.), 1971), pp. 157-158).

Cf. also numerous examples of administrative arrangements made to provide for the management of international watercourses and to facilitate co-operation among watercourse States, considered e.g. in: *Yearbook . . . 1974*, vol. II (Part Two), pp. 351 *et seq.*, document A/CN.4/274, paras. 382-398; the Proceedings of the Dakar Meeting (see

tions,[32] recommendations[33] and studies.[34] The principle is stated clearly and succinctly in the Charter of Economic Rights and Duties of States[35] as follows:

Article 3[36]

In the exploitation of natural resources shared by two or more countries, each State must co-operate on the basis of a system of information and prior consultations in order to achieve optimum use of such resources without causing damage to the legitimate interest of others.

Also illustrative is the Treaty of 3 February 1944 between the United States of America and Mexico, article 9 (*j*) of which calls for a joint body, the International Boundary and Water Commission, to collect data and information and to employ them in implementing the water allocations provided for in the Treaty:

(*j*) The Commission shall keep a record of the waters belonging to each country and of those that may be available at a given moment, taking into account the measurement of the allotments, the regulation of the waters in storage, the consumptive uses, the withdrawals, the diversions, and the losses. For this purpose the Commission shall construct, operate and maintain on the main channel of the Rio Grande (Rio Bravo) and each Section (of the Commission) shall construct, operate and maintain on the measured tributaries in its own country, all the gauging stations and mechanical apparatus necessary for the purpose of making computations and of obtaining the necessary data for such record. The information with respect to the diversions and consumptive uses on the unmeasured tributaries shall be furnished to the Commission by the appropriate Section. . . .

18. State practice reveals frequent instances of reliance upon shared data and information relating to the measurement of water flow, extractions, releases from reservoirs and the like.[37] The 1960 Indus Waters Treaty between India and Pakistan contains the following detailed provisions on the exchange of data concerning water flow and extractions:

Article VI. Exchange of data

1. The following data with respect to the flow in, and utilization of the waters of, the rivers shall be exchanged regularly between the Parties:

(*a*) Daily (or as observed or estimated less frequently) gauge and discharge data relating to flow of the rivers at all observation sites.

(*b*) Daily extractions for or releases from reservoirs.

(*c*) Daily withdrawals at the heads of all canals . . ., including link canals.

(*d*) Daily escapages from all canals, including link canals.

(*e*) Daily deliveries from link canals.

These data shall be transmitted monthly by each Party to the other as soon as the data for a calendar month have been collected and tabulated, but not later than three months after the end of the month to which they relate: Provided that such of the data specified above as are considered by either Party to be necessary for operational purposes shall be supplied daily or at less frequent intervals, as may be requested. Should one Party request the supply of any of these data by telegram, telephone, or wireless, it shall reimburse the other Party for the cost of transmission.

2. If, in addition to the data specified in paragraph 1 of this article, either Party requests the supply of any data relating to the hydrology of the rivers, or to canal or reservoir operation connected with the rivers, or to any provision of this Treaty, such data shall be supplied by the other Party to the extent that these are available.

Collection of data on water flow is frequently one of the principal tasks entrusted to joint administrative bodies, such as the Frontier River Commission established by the Agreement of 16 September 1971 between Finland and Sweden concerning frontier rivers. Article 3 of chapter 9 of that agreement provides as follows:

Article 3

The Frontier River Commission shall maintain continuous observation of water flow at the point where the river Tärentö . . . flows out of the River Torne. As the basis for this activity the Commission shall have the necessary studies and calculations made as soon as possible in order to determine the volume of water flowing in each of the two rivers under prevailing natural conditions.

19. States have often found it practical to establish observation stations, sometimes even on each other's territories, to facilitate the regular gathering of data and information.[38] In Protocol No. 1 annexed to the Treaty of 29 March 1946 between Iraq and Turkey concerning the

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footnote 29 (*e*) above), part three; United Nations, *Management of International Water Resources: Institutional and Legal Aspects*, Natural Resources/Water Series No. 1 (Sales No. E.75.II.A.2), annex IV; and the Special Rapporteur's third report, document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), footnote 46.

Similar provisions, but not involving joint administrative bodies, may be found in certain bilateral agreements, such as the Convention of 4 October 1913 between France and Switzerland for the development of the water power of the Rhône between the projected power plant at La Plaine and a point to be specified upstream of the Pougny-Chancy bridge, *art. 5, last para.* (illustrating the use of data and information in the apportionment of the benefits—in this case power—of an international watercourse); and the Protocol concerning the regulation of the waters of the Tigris and Euphrates and their tributaries (Protocol No. 1) annexed to the Treaty of friendship and neighbourly relations of 29 March 1946 between Iraq and Turkey, *art. 5*.

[32] See e.g. article 3 of the Charter of Economic Rights and Duties of States, cited below.

[33] See e.g. the first set of recommendations contained in the Mar del Plata Action Plan (footnote 29 (*d*) above), especially recommendations 2 and 3; and recommendation 2 of the Budapest Seminar (footnote 30 (*b*) above), vol. I, p. 20.

[34] See e.g. United Nations, *Institutional Issues in the Management of International River Basins* . . . (footnote 30 (*c*) above); and Proceedings of the Budapest Seminar (footnote 30 (*b*) above).

[35] General Assembly resolution 3281 (XXIX) of 12 December 1974.

[36] See the discussion of this article in the Special Rapporteur's third report, document A/CN.4/406 and Add.1 and 2 (footnote 1 (*c*) above), para. 94.

[37] In addition to the provisions cited in the following paragraphs, see e.g. the Treaty of 3 February 1944 between the United States of America and Mexico, *art. 9* (j) (cited in para. 17 above); the Agreement of 1 September 1957 between Yugoslavia and Greece, especially *sect. A.II*; the Agreement of 17 July 1964 between Poland and the USSR, *art. 8, para. 1* (cited in para. 16 above); and the Declaration of Asunción of 3 June 1971, *para. 4*.

[38] In addition to the provisions cited in the following paragraphs, see e.g. the Treaty of 3 February 1944 between the United States of America and Mexico, *art. 9* (j) (cited in para. 17 above); the Agreement of 1 September 1957 between Yugoslavia and Greece, *sect. A.II*; and the Act of Santa Cruz de la Sierra of 20 May 1968, *part II, A*.

waters of the Tigris and Euphrates, Turkey (the upstream State) agreed, under article 2, to allow technical experts from Iraq to have access to Turkish territory for purposes of information-gathering and observation.[39] Turkey further agreed to construct permanent observation stations on its territory which, together with the conservation works envisaged in the Treaty, would ensure the maintenance of a regular water supply, regulate the water flow and avoid the danger of floods during the annual periods of high water:

Article 3

Turkey shall install permanent observation stations and shall ensure their operation and maintenance. The cost of operation of these stations shall be defrayed in equal parts by Iraq and Turkey, as from the date of entry into force of the present Protocol.

The permanent observation stations shall be inspected at stated intervals by Iraqi and Turkish technical experts.

During periods of high-water the levels of water observed every day at 8 a.m. by the stations equipped for telegraphic communication, such as Diyarbakir, Cizre, etc., on the Tigris and Keban, etc., on the Euphrates, shall be communicated by telegram to the competent authorities designated by Iraq for this purpose.

The levels of water observed outside periods of high-water shall be communicated to the same authorities by means of bi-monthly bulletins.

The cost of the above-mentioned communications shall be defrayed by Iraq.

20. The 1960 Indus Waters Treaty between India and Pakistan provides another interesting example of co-operation between watercourse States in the collection of data and information through the establishment of observation stations. Article VII, paragraph 1 (*a*) provides:

Article VII. Future co-operation

1. The two Parties recognize that they have a common interest in the optimum development of the rivers, and, to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent. In particular:

(*a*) Each Party, to the extent it considers practicable and on agreement by the other Party to pay the costs to be incurred, will, at the request of the other Party, set up or install such hydrologic observation stations within the drainage basins of the rivers, and set up or install such meteorological observation stations relating thereto and carry out such observations thereat, as may be requested, and will supply the data so obtained;

21. A relatively large number of agreements between watercourse States,[40] as well as a variety of declarations and resolutions,[41] call for joint research to determine the hydrologic characteristics and development potential of a watercourse. In 1956, the Soviet Union and the People's Republic of China entered into a specific agreement on the subject of "joint research operations to determine the natural resources of the Amur River basin and the prospects for development of its productive potentialities and on planning and survey operations to prepare a scheme for the multipurpose exploitation of the Argun River and the upper Amur River". Article 1 of the Agreement provides that "the Parties shall carry out joint research operations [over a specified period] to determine the natural resources of the Amur River basin and the prospects for development of its productive potentialities in accordance with . . . annex I to this Agreement". Section 1 of annex I specifically provides for a survey of the physical and geographical characteristics of the Amur River basin, in particular the "geomorphological, climatological, hydrological, pedological, pedologico-geochemical, geobotanical, silvicultural and piscicultural conditions". Article 3 of the Agreement provides, in its first paragraph, that the parties shall organize, through their Academies of Science, "all-purpose field parties" to carry out the operations referred to in article 1, and, in its second paragraph, that:

The two all-purpose field parties, using their own personnel and their own resources, shall carry out research operations to determine the natural resources and the prospects for developing the productive potentialities of areas in their own territories, whilst in frontier sectors they shall carry out joint research operations with equal participation by the Soviet and Chinese sides.

22. The regular exchange of data and information is particularly important for the effective protection of international watercourses, preservation of water quality and prevention of pollution. This is recognized in a number of international agreements,[42] declarations and resolutions adopted by intergovernmental organizations, conferences and meetings,[43] and in studies made by intergovernmental

[39] Cf. *art. 2, fourth para.*, of the Treaty of 3 February 1944 between the United States of America and Mexico, providing that the International Boundary and Water Commission established by the parties, and its personnel, "may freely carry out their observations, studies and field work in the territory of either country"; and the Agreement on co-operation of 14 August 1983 between the United States of America and Mexico, *art. 15*.

[40] See e.g. the Treaty of 3 February 1944 between the United States of America and Mexico, particularly *art. 2, fourth para., and arts. 6 and 7*; the Agreement of 1 September 1957 between Yugoslavia and Greece, and the Agreement between the same parties of 18 June 1959 concerning hydro-economic questions, particularly *art. 1*; the 1960 Convention for the protection of Lake Constance against pollution, particularly *art. 4*; the Act of Santa Cruz de la Sierra of 20 May 1968, *part II, A*; the 1978 Treaty for Amazonian co-operation, *art. VII*; S.A. Ricks, "The Mano River Basin development project" (Liberia and Sierra Leone), in Proceedings of the Dakar Meeting (footnote 29 (*e*) above), part three.

Cf. the 1979 Convention on Long-range Transboundary Air Pollution, *art. 7*; the 1982 United Nations Convention on the Law of the Sea, *art. 200*; and the Agreement on co-operation of 14 August 1983 between the United States of America and Mexico, *articles 6, 8 and 9*.

[41] See e.g. the Action Plan for the Human Environment (footnote 29 (*c*) above), recommendation 51 (*c*); and the Proceedings of the Dakar Meeting (footnote 29 (*e*) above), part one, para. 64.

[42] See e.g. the 1960 Convention for the protection of Lake Constance against pollution, *art. 4*; the Agreement of 24 April 1964 between Finland and the USSR relating to frontier waters, *art. 8*; and the Agreement of 22 November 1978 between the United States of America and Canada on Great Lakes water quality, *art. VII, para. 1*.

Cf. the 1978 Treaty for Amazonian co-operation, *art. VII*; the 1979 Convention on Long-range Transboundary Pollution, *art. 3*; the 1982 United Nations Convention on the Law of the Sea, *art. 200*; and the Agreement on co-operation between the United States of America and Mexico of 14 August 1983, *art. 6*.

[43] See e.g. recommendation C(74)224 adopted by the OECD Council on 14 November 1974, setting forth "Principles concerning transfrontier pollution", part G: Exchange of scientific information, monitoring measures and research (OECD, *OECD and the Environment* (Paris, 1986), pp. 142 *et seq.*); the Action Plan for the Human Environment (footnote 29 (*c*) above), recommendation 51 (*c*); and the Proceedings of the Dakar Meeting (footnote 29 (*e*) above), part one, para. 49, conclusion 4.

and non-governmental organizations.[44] The 1987 ECE Principles on co-operation in respect of transboundary waters[45] may be cited as an example:

Exchange of information

11. Contracting parties should, by means of transboundary agreements or other relevant arrangements, provide for the widest possible exchange, as early as possible, of data and information regarding transboundary water quality and quantity relevant to the control of water pollution, accidental pollution, floods and ice drifts in transboundary waters.

11. (*a*) In addition to supplying each other with information on events, measures and plans at the national level affecting the other contracting parties, as well as on implementation of jointly harmonized programmes, contracting parties should maintain a permanent exchange of information on their practical experience and research. Joint commissions offer numerous opportunities for this exchange, but joint lectures and seminars serve also as suitable means of passing on a great deal of scientific and practical information.

23. The desirability of dealing with an international watercourse as a whole, rather than piecemeal, was addressed in some detail in the Special Rapporteur's third report.[46] Such a comprehensive approach to watercourse planning and development is often implemented by commissions or other joint bodies formed by watercourse States for that purpose. These commissions are frequently charged with the collection and dissemination of data and information concerning an entire river basin or watercourse system.[47] An example is the Convention of 21 November 1980 establishing the Niger Basin Authority, whose responsibilities include the following:

Article 4

. . .

2. . . . the Authority shall notably undertake, in harmony with the development plans of States relating to the Niger Basin and in accordance with the general objectives of integrated development of the Basin, the following activities:

(a) *Statistics and planning*

(i) Collection, centralization, standardization, exploitation, dissemination, exchange of technical and related data;

(ii) Co-ordination of plans, projects and research carried out in the member States;

. . .

24. A number of agreements containing provisions on the exchange of data and information also address—sometimes in the same article—the subject of planned uses, such as conservation or engineering works, that may adversely affect the other party. They generally require that information concerning such planned uses be communicated, either directly or through a joint commission or other body, to the potentially affected watercourse State. While this subject is dealt with in part III of the draft articles, concerning "New uses and changes in existing uses", an example of a provision on planned uses will be included in the present survey since this type of provision also involves the communication of data and information, albeit not the *regular* exchange of the kinds of data and information envisaged in the article proposed below. Article VII of the 1960 Indus Waters Treaty between India and Pakistan[48] provides in paragraph 1 for the construction of hydrologic and meteorological observation stations, new drainage works and engineering works at the request of the other party or in co-operation (see para. 20 above). Paragraph 2 of the same article provides as follows:

2. If either Party plans to construct any engineering work which would cause interference with the waters of any of the rivers and which, in its opinion, would affect the other Party materially, it shall notify the other Party of its plans and shall supply such data relating to the work as may be available and as would enable the other Party to inform itself of the nature, magnitude and effect of the work. If a work would cause interference with the waters of any of the rivers but would not, in the opinion of the Party planning it, affect the other Party materially, nevertheless the Party planning the work shall, on request, supply the other Party with such data regarding the nature, magnitude and effect, if any, of the work as may be available.

25. A final category of provisions on the exchange of data and information deserving of mention is that which concerns the duty to warn of water-related hazards or dangers. These provisions are commonly addressed to threats posed by floods, floating ice and pollution.[49] Article 19 of the Treaty of 24 February 1950 between Hungary and the Soviet Union concerning the régime of the Soviet-Hungarian frontier is an interesting example, in that it calls for the exchange of information regarding such dangers but expressly precludes liability for any damage resulting from failure to do so:

Article 19

The competent authorities of the Contracting Parties shall exchange information concerning the level of rivers with which the Contracting Parties are concerned, and concerning ice conditions in such

[44] See e.g. the New York resolution adopted in 1958 by ILA (footnote 30 (*a*) (i) above); the resolution on "The pollution of rivers and lakes and international law", known as the "Athens resolution", adopted by the Institute of International Law at its 1979 session, held at Athens, *art. IV (b)* (*Annuaire de l'Institut de droit international, 1979*, vol. 58-II, pp. 196 *et seq.*); the report of the OECD Environment Committee, "Application of information and consultation practices for preventing transfrontier pollution", OECD, *Transfrontier Pollution and the Role of States* (Paris, 1981), p. 8.

[45] See footnote 29 (*f*) above.

[46] Document A/CN.4/406 and Add.1 and 2 (see footnote 1 (*c*) above), paras. 9 *et seq.*

[47] See e.g. the Agreement of 18 June 1959 between Yugoslavia and Greece relating to hydro-economic questions, *art. 1*; the Convention and Statutes of 22 May 1964 relating to the development of the Chad Basin, *art. 9 (b)* of the Statutes; the Agreement of 25 November 1964 concerning the River Niger Commission and navigation and transport on the River Niger, *art. 2 (c)* (superseded by the Convention of 21 November 1980 establishing the Niger Basin Authority); the Convention of 30 June 1978 establishing the Gambia River Basin Development Organization, *art. 1, para. 2*; the Agreement of 22 November 1978 between the United States of America and Canada on Great Lakes water quality, *art. VII, para. 1.*

[48] See also e.g. Protocol No. 1 annexed to the Treaty of 29 March 1946 between Iraq and Turkey, *art. 5*; the Convention of 11 March 1972 concerning the status of the River Senegal, *art. 4*; the Convention of 30 June 1978 concerning the status of the River Gambia, *art. 4*; the Convention of 21 November 1980 establishing the Niger Basin Authority, *art. 4.*

[49] In addition to the provision cited in the text, see e.g. the Treaty of 23 June 1960 between Finland and the USSR relating to the régime of the Finnish-Soviet State frontier, *art. 17*; the Agreement of 17 July 1964 between Poland and the USSR concerning water resources in frontier waters, *art. 8, para. 2*; the Agreement on co-operation of 23 October 1968 between Bulgaria and Turkey, *art. 3*; the Treaty of 3 July 1978 for Amazonian co-operation, *art. VII* (a) ("prevent and control diseases"). See also the 1987 ECE Principles (footnote 29 (*f*) above), para. 9 (*a*) (reduction of the risk of floods and ice drifts), and paras. 12 to 12 (*c*) (warning and alarm systems concerning pollution incidents, floods and ice drifts).

rivers, if this information may help to avert danger from floods or from drifting ice. The said authorities shall also agree upon a regular system of signals to be used during periods of high water or drifting ice. Delay in communicating, or failure to communicate, such information shall not constitute ground for a claim to compensation for damage caused by flooding or drifting ice.

26. The foregoing survey of authorities reveals a broad recognition of the need for the systematic exchange of a wide range of data and information relating to international watercourses. Also included in the survey are provisions on the furnishing of other kinds of data and information, namely those relating to planned uses and to water-related dangers. It is hoped that this survey, together with the material placed before the Commission on previous occasions, will provide a sound basis for the article proposed in the following section.

C. The proposed article

27. In the light of the broad recognition of the need for the regular exchange between watercourse States of a wide range of data and information, which they need, in particular, in order to be in a position to comply fully with their obligations relating to the use of the international watercourse, the following article is submitted for the Commission's consideration. The article also covers two related matters: imminent dangers and sensitive information.

PART IV.[50]
EXCHANGE OF DATA AND INFORMATION

Article 15 [16].[51] Regular exchange of data and information[52]

1. In order to ensure the equitable and reasonable utilization of an international watercourse [system], and to attain optimal utilization thereof, watercourse States shall co-operate in the regular exchange of reasonably available data and information concerning the physical characteristics of the watercourse, including those of a hydrological, meteorological and hydrogeological nature, and concerning present and planned uses thereof, unless no watercourse State is presently using or planning to use the international watercourse [system].

2. If a watercourse State is requested to provide data or information that are not reasonably available, it shall use its best efforts, in a spirit of co-operation, to comply with the request but may condition its compliance upon payment by the requesting watercourse State or other entity of the reasonable costs of collecting and, where appropriate, processing such data or information.

3. Watercourse States shall employ their best efforts to collect and, where necessary, to process data and information in a manner which facilitates their co-operative utilization by the other watercourse States to which they are disseminated.

4. Watercourse States shall inform other potentially affected watercourse States, as rapidly and fully as possible, of any condition or incident, or immediate threat thereof, affecting the international watercourse [system] that could result in a loss of human life, failure of a hydraulic work or other calamity in the other watercourse States.

5. A watercourse State is not obligated to provide other watercourse States with data or information that are vital to its national defence or security, but shall co-operate in good faith with the other watercourse States with a view to informing them as fully as possible under the circumstances concerning the general subjects to which the withheld material relates, or finding another mutually satisfactory solution.

Comments

(1) Article 15 sets forth the general minimum requirements for the exchange between watercourse States of the data and information necessary to assure the equitable and reasonable utilization of an international watercourse [system]. The rules contained in the article are, of course, residual: they apply in the absence of particularized regulation of the subject in an agreement of the kind envisaged in article 4 of the present draft articles, i.e. one relating to a specific international watercourse [system]. Indeed, the need is clear for watercourse States to conclude such agreements among themselves in order to provide, *inter alia*, for the collection and exchange of data and information in the light of the characteristics of the international watercourse [system] involved, as well as of their special requirements and circumstances.

(2) The smooth and effective functioning of the régime envisaged in article 15 is dependent upon co-operation between watercourse States. The rules in this article thus constitute a specific application of the general obligation of co-operation laid down in draft article 10 as proposed in the Special Rapporteur's third report and referred to the Drafting Committee at the Commission's thirty-ninth session, in 1987.[53] An attempt has been made to reflect this fact in paragraph 1: "watercourse States shall co-operate in the regular exchange of reasonably available data and information" but the Commission may wish to consider other possible formulations which place greater emphasis on the subject-matter of the article (e.g. "watercourse States shall exchange, on a regular basis and in a spirit of co-operation, reasonably available data and information").

(3) *Paragraph 1* begins by emphasizing the link between article 15 and articles 6 and 7: watercourse States require data and information concerning the international watercourse [system] and the needs of other watercourse States in order to comply with the obligation of equitable and reasonable utilization and participation as envisaged in articles 6 and 7. Since the rules set forth in the draft ar-

[50] Thus designated on the assumption that there will be a part III of the draft articles on new uses.

[51] The number in brackets is that which was originally to be attributed to the article (see footnote 10 above).

[52] Cf. art. 16 submitted by Mr. Evensen in his first report, document A/CN.4/367 (footnote 3 (*a*) above), para. 138; and art. 9 submitted by Mr. Schwebel in his third report, document A/CN.4/348 (footnote 4 (*c*) above), para. 230. These two articles were entitled: "Collection, processing and dissemination of information and data".

[53] See footnote 6 above.

ticle are of a residual character, watercourse States are obliged to provide only such data and information as are "reasonably available" (unless, as provided in paragraph 2, another watercourse State is willing to cover the cost of collection and, if necessary, of processing). The qualifying expression "reasonably available" is employed to indicate that, as a matter of general legal duty, a watercourse State is obligated to provide only such information as is reasonably at its disposal, e.g. that which it has already collected for its own use or is easily accessible.[54] In a specific case, whether data and information were "reasonably" available would depend upon an objective evaluation of such factors as the effort and cost their provision would entail, taking into account the human, technical, financial and other relevant resources of the watercourse State requested. In the absence of agreement to the contrary, the data and information provided need not be processed.

(4) Data and information must also be exchanged on a "regular" basis if they are to be useful in enabling watercourse States to comply with their obligation of utilizing the international watercourse [system], at any given time, in an equitable and reasonable manner. Data and information should also be provided in a timely fashion since they often lose their value over time, and in order to comply with their obligations watercourse States need to be aware, in so far as practicable, of current conditions.

(5) The provisions of paragraph 1 are obviously not nearly as elaborate as those that would be required for an international watercourse [system] that is used intensively or is intended for multipurpose development by the watercourse States. Such situations are best dealt with in the specific agreements provided for in article 4. However, as Mr. Schwebel observed in his third report,

> . . . a number of international watercourses are not yet being used or have not been developed sufficiently to justify the burdens of even technical information exchange. Should the system States of a little utilized international watercourse nonetheless deem it advisable to collect and exchange information or data—possibly with a view to future plans, disease or flood control or drought mitigation, for example—international law interposes no barrier. On the other hand, the law does not require a futile thing and, if information and data cannot or will not be turned to relevant use, there is no legal obligation to exchange or report.[55]

For this reason, paragraph 1 includes a proviso dispensing watercourse States from the obligations stated in that paragraph if "no watercourse State is presently using or planning to use the international watercourse [system]".

(6) *Paragraph 2* deals with requests for data or information that are not reasonably available to the watercourse State from which they are requested. It has been seen that paragraph 1 requires watercourse States to provide only such data and information as are "reasonably available". If a request is made for data and information that are not reasonably available to a watercourse State, paragraph 2 would require that State to "use its best efforts, in a spirit of co-operation, to comply with the request". Even this obligation is a qualified one, however, since the requested State would be permitted to condition its compliance with the request "upon payment by the requesting watercourse State or other entity of the reasonable costs of collecting and, where appropriate, processing such data or information".[56] If the requesting watercourse State is indeed willing to cover the costs of acquisition—indicating that it values the data and information in question—no reasonable request should be refused. Another possible approach to satisfying the request, for which there is precedent in State practice,[57] would be to permit the data or information to be collected by the requesting State itself, or by a third party, e.g. a joint body or international organization.

(7) In relation to the use of joint bodies, the reference in paragraph 2 to an "other entity" is intended in particular to allow for the possibility that the watercourse States have established a body such as a joint commission or data centre for the implementation of a system of data collection, processing and exchange.[58] It is conceivable that such an entity could request data or information that were not "reasonably available" to a watercourse State. The Commission may indeed wish to consider whether the establishment of such bodies should be recommended or expressly provided for in the text of the article itself. While previous special rapporteurs have included such provisions in articles on the exchange of data and information,[59] the present Special Rapporteur has refrained from doing so in keeping with his belief that the draft articles should set forth residual rules, while recommendations are best placed in annexes.

(8) It has already been noted that, where the data or information sought are not reasonably available, the requested State is required to use its "best efforts, in a spirit of co-operation, to comply with the request". While these expressions are perhaps self-explanatory, their fundamental importance requires that they not escape mention here. What is intended is, in essence, that the requested watercourse State respond to the inquiry in good faith by making every reasonable effort to provide the material in question ("use its best efforts") and that, in so doing, it work together with the requesting State for the common purposes of assuring equitable distribution of uses and benefits and achieving optimum utilization of the international watercourse [system] ("in a spirit of co-operation"). Of course, the requested State has the option of requiring that the requesting State pay for the cost of collecting and, if

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[54] Cf. art. XXIX, para. 1, of the Helsinki Rules,and the commentary thereto, which states:

> "The reference to 'relevant and reasonably available information' makes it clear that the basin State in question cannot be called upon to furnish information which is not pertinent and cannot be put to the expense and trouble of securing statistics and other data which are not already at hand or readily obtainable. The provision of the article is not intended to prejudge the question whether a basin State may justifiably call upon another to furnish information which is not 'reasonably available' if the first State is willing to bear the cost of securing the desired information." (ILA, *op. cit.* (footnote 30 (*a*) (ii) above), pp. 518-519.)

[55] Document A/CN.4/348 (see footnote 4 (*c*) above), para. 232.

[56] Cf. the last sentence of the excerpt from the commentary to article XXIX of the Helsinki Rules, quoted in footnote 54 above.

[57] See e.g. *articles 1, 2 and 3* of Protocol No. 1 annexed to the Treaty of 29 March 1946 between Iraq and Turkey, and the agreements cited in footnote 39 above.

[58] Cf. art. 16, para. 2, proposed by Mr. Evensen in his first report, and art. 9, para. 3, proposed by Mr. Schwebel in his third report (see footnote 52 above), both of which expressly provide for the case in which watercourse States have established joint commissions or data centres.

[59] See the preceding footnote.

necessary, processing data and information that are not reasonably available.

(9) *Paragraph 3* addresses the practical consideration that data and information should, in so far as practicable, be provided in a form which allows the State to which they are sent to utilize them. As was aptly observed by Mr. Schwebel in his third report,

> In *all** aspects of information and data sharing, the matter of usability is fundamental. . . . the methods employed by a system State in furnishing any information or data to its co-system States [must] be such as not to make difficult their incorporation into the larger information and data picture when received. Each system State benefits from the observance of such a basic requirement. . . .[60]

(10) The expression "co-operative utilization" refers to the above-described co-operation between watercourse States in employing data and information to maintain an equitable allocation of the uses and benefits of the watercourse and to strive towards optimum utilization thereof. The expression refers to utilization of the material by the watercourse States individually, in co-operation with other watercourse States; it goes perhaps without saying that the use of the data and information by any joint body which the States concerned may establish would similarly be facilitated by compliance with this paragraph.

(11) The standard of "best efforts", which has also been dealt with above, is used here in much the same sense as in paragraph 2, i.e. unless it is not reasonably practical or feasible to do so, data and information are to be provided to other watercourse States in a form which allows their utilization by the recipients.

(12) *Paragraph 4* concerns a kind of information that is different from that dealt with in the preceding paragraphs of the article. Recent events have only too amply demonstrated the need to warn other potentially affected States as early as possible of incidents resulting from human activities which pose an imminent threat of personal injury or serious property damage.[61] The need for early warning of imminent dangers is further borne out by the numerous treaty provisions[62] which require States to warn each other of such natural conditions as floods and floating ice. Paragraph 4 would require watercourse States to notify other potentially affected watercourse States of such incidents or conditions. Specifically, if a water-related condition or incident threatened to affect other watercourse States, paragraph 4 would require a watercourse State with knowledge of the condition or incident to provide as much information as possible, and as early and quickly as possible, to other watercourse States that might be affected.

(13) The Special Rapporteur has included in article 15 an obligation to warn of hazardous conditions or incidents because the article deals with the provision of information concerning the condition of the watercourse, and because the channels established for the routine exchange of data and information under this article might well be utilized for the emergency notification contemplated in paragraph 4. This obligation could, alternatively, be made the subject of a separate article in the same part of the draft,[63] or be included in a later article under part VI, which will deal with water-related hazards or dangers. As to the latter alternative, however, part VI, as currently envisaged, will deal specifically with the prevention and control of such hazards, and not necessarily with notification thereof. The Commission may wish to consider whether the duty to warn of water-related conditions or incidents would be better placed in article 15, in a separate article, or in part VI of the draft.

(14) *Paragraph 5* recognizes that there are certain kinds of data and information that States cannot share without compromising vital defence or security interests, and excuses watercourse States from providing such material. It nevertheless places watercourse States under an obligation to co-operate in good faith with the other States utilizing the same international watercourse [system], "with a view to informing them as fully as possible under the circumstances concerning the general subjects to which the withheld material relates, or finding another mutually satisfactory solution". The intent of the paragraph is therefore to achieve a balance between the legitimate needs of the States concerned: the need for the confidentiality of sensitive information, on the one hand, and the need for data and information pertaining to the international watercourse [system] and utilization thereof, on the other.

(15) The obligation to inform other watercourse States "as fully as possible under the circumstances" could be fulfilled in many cases by providing a general description of the physical situation, or of uses or impacts thereof upon the watercourse. The emphasis here is upon co-operation in good faith with other watercourse States, so as to provide them with sufficient facts to allow them to make plans, comply with their obligations and safeguard their own legitimate interests. OECD, which has done pioneering work in this area, made the following observations in a report published in 1981:[64]

C. Difficulties met with in transmitting certain types of information

. . .

41. On this score, it is interesting to refer to the most recent practice regarding information and consultation procedures between certain member countries concerning activities in their frontier regions. Documents which are classified as confidential according to national law may however be excluded from the exchange of information. In such cases, "the country of origin should nevertheless co-

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[60] Document A/CN.4/348 (see footnote 4 (*c*) above), para. 238.

[61] The accident at Basel, Switzerland, of 1 November 1986 comes readily to mind (see footnote 248 below). The spill of up to 2 million gallons of fuel oil into a tributary of the Mississippi River on 2 January 1988 did not involve other countries, but did affect the water supply in six or more States of the United States, thus illustrating the gravity of such incidents, see *International Environment Reporter*, Washington, D.C., 13 January 1988, p. 5. The accident at Chernobyl, USSR, while it did not affect an international watercourse, similarly illustrates the need to warn, as recognized in one of the instruments adopted by IAEA following that incident: the Convention of 26 September 1986 on Early Notification of a Nuclear Accident, especially *art.* 2.

[62] See the examples cited in para. 25 and footnote 49 above.

[63] This was the approach taken by Mr. Evensen: see art. 18 (Special obligations in regard to information about emergencies) presented in his first report, document A/CN.4/367 (footnote 3 (*a*) above), para. 150.

[64] Report of the Environment Committee, *loc. cit.* (footnote 44 above, *in fine*), p. 23.

operate with the exposed country with the aim of informing it as completely as possible, or of finding another satisfactory solution".[65]

(16) The exception embodied in this paragraph is obviously susceptible of abuse. In this connection, OECD observed in the same report:

42. . . . *The key principle in the matter of information and consultation is good faith.* On this account it need not be stressed that a country would depart from this principle, one underlying all neighbourly relations, were it to fall back on a too extensive "State-secret" concept, thus making entirely void [the duties to provide information and to consult].

(17) The previous special rapporteurs approached the subject dealt with in paragraph 5 by dividing "sensitive" information into two categories: information or data that are "vital" to the national security or defence of a watercourse State, and those that are merely "restricted".[66] As to the latter category, "the duty to furnish [facts] is not excused where the other system State can show that it is prepared to protect the restricted status and that its laws, regulations and practices give assurances that the information or data will in fact be so protected".[67] The present Special Rapporteur has refrained from utilizing such an approach on the ground that any provision of "restricted" data and information would most likely be preceded by consultations (and perhaps negotiations);[68] the separate treatment of such material might therefore introduce unnecessary complication into the paragraph (which reflects a residual rule), and procedures thereunder.

(18) Mr. Schwebel observed that "specialists in water resources have to date given little attention to this problem, although it certainly has been recognized; a number of treaties have exempted "defence" or "proprietary" information".[69] Both Mr. Schwebel and Mr. Evensen concluded that a provision dealing with "sensitive" data and information[70] was a necessary component of the draft. The present Special Rapporteur concurs in this judgment and therefore submits paragraph 5 for the Commission's consideration.

[65] Extract from recommendation C(78)77(Final), adopted by the OECD Council on 21 September 1978, setting forth "Guidelines for international co-operation with regard to environmental protection in frontier regions", para. 3 (OECD, *OECD and the Environment* (Paris, 1986), p. 156).

[66] See art. 19 presented by Mr. Evensen in his first report, document A/CN.4/367 (footnote 3 (*a*) above), para. 150, and art. 9, para 6, presented by Mr. Schwebel in his third report, document A/CN.4/348 (footnote 4 (*c*) above), para. 230.

[67] Third report by Mr. Schwebel, document A/CN.4/348, para. 239 *in fine*.

[68] Mr. Schwebel recognized that the State to which such information is provided is often one with which the State providing the material enjoys close relations:

"It is, after all, not uncommon for 'classified' information to be shared with friendly foreign Powers, although verifications from time to time of the receiving Government's safeguarding may be exacted." (*Ibid.*)

[69] *Ibid.*

[70] See footnote 66 above.

Chapter III

Environmental protection, pollution and related matters

28. The question of environmental protection and pollution was treated extensively by Mr. Schwebel in his third report,[71] in which he submitted draft article 10 "for the consideration of a successor Special Rapporteur and of the Commission".[72] Mr. Evensen submitted a total of six draft articles on environmental protection and pollution (arts. 20-25) and one draft article on the establishment of international watercourse systems or parts thereof as protected national or regional sites (art. 30).[73] In the present section, the Special Rapporteur will first briefly introduce the problems of pollution and the environment to be dealt with in the Commission's articles on the subject. He will then review representative examples of the authorities supporting these articles. Finally, he will submit for the Commission's consideration three draft articles on pollution and environmental protection: article 16 [17] (Pollution of international watercourse[s] [systems]); article 17 [18] (Protection of the environment of international watercourse[s] [systems]); and article 18 [19] (Pollution or environmental emergencies).

A. Introduction to the problem

29. Awareness of the fragility of the Earth's biosphere and of the interdependence of all forms of life and their ecosystems is a phenomenon of relatively recent origin. Thus the 1987 report of the World Commission on Environment and Development, an independent body established in 1983 by the General Assembly,[74] opens with the following observation:

In the middle of the 20th century, we saw our planet from space for the first time. Historians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset the human self-image by revealing that the Earth is not the centre of the universe. From space, we see a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery and soils. Humanity's inability to fit its doings into that pattern is changing planetary systems, fundamentally. Many such changes are accompanied by life-threatening hazards. This new reality, from which there is no escape, must be recognized—and managed.[75]

[71] Document A/CN.4/348 (see footnote 4 (*c*) above), paras. 243-336.

[72] *Ibid.*, para. 312.

[73] See the first report of Mr. Evensen, document A/CN.4/367 (footnote 3 (*a*) above), paras. 152-176 and 199.

[74] "Our common future", distributed at the forty-second session of the General Assembly as document A/42/427. Published as *Our Common Future* (Oxford University Press, 1987).

[75] *Ibid.*, Introduction, "From one earth to one world", para. 1. See also the UNEP study cited below, footnote 82.

30. In contrast, the pollution of fresh water has been a concomitant of human civilization since the dawn of history.

> . . . The sewage of human societies, all the waste and refuse of agrarian communities, have been discharged throughout the years into the waters of rivers, since there were no other means of disposal . . . Since the earliest civilizations flourishing along the Nile, the Tigris, the Euphrates, the Indus, the Ganges, the Yang-tze, etc., one of the oldest uses of river waters was the irrigation of arid lands . . . It is well known that irrigation is one of the most common sources of pollution through the process of increase in the salinity of the waters which percolate through the soil before the water is returned to the mainstream. . . .[76]

Of course, the concentration of people in cities meant increased potential for pollution of the rivers on which urban areas often developed.[77] "In the days of ancient Rome the water of the Tiber river was already seriously polluted by the filth of the city."[78]

31. Even by the Middle Ages, the capacity of humans to pollute fresh water had reached such proportions that water pollution has been linked to the "frequent outbreaks of terrible epidemics, such as the black plague of the fourteenth century which killed one third of mankind".[79] Cholera epidemics, as recently as the nineteenth century, have also been laid to water pollution.[80]

32. The advent of industrialization, along with increased urbanization and the accompanying development of sewage disposal systems (which originally were simply means of conveying untreated sewage to a river), exacerbated the problem tremendously. "In the light of these developments it is not surprising that this pollution, which had originally often only a local or regional character, increasingly came to transcend inter-State frontiers and even began to affect adversely the quality of marine waters."[81]

33. Unfortunately, despite the development over the years of sophisticated technology for the monitoring and control of fresh water pollution, recent studies have confirmed that the outlook for the future is not encouraging. One of the "shared perceptions of Governments of the nature of environmental issues and their interrelations with other international problems and the efforts to deal with them", identified by the Governing Council of UNEP in its 1987 study on the environmental perspective,[82] is the following:

> . . . Environmental degradation, in its various forms, has assumed such proportions as can cause irreversible changes in ecosystems which threaten to undermine human well-being. . . . (para. 3 (*d*)).

34. *The Global 2000 Report*,[83] prepared for the President of the United States by the Council on Environmental Quality, presents the following scenario concerning the use of water by man:

> By the year 2000, worldwide urban and industrial water withdrawals are projected to increase by a factor of about 5, reaching 1.8-2.3 trillion cubic metres . . .
>
> Urban and industrial effluent will be concentrated in the rivers, bays and coastal zones near the world's largest urban-industrial agglomerations. In the developing world—where 2 billion additional persons are projected to be living by the year 2000 and where rapid rates of urbanization continue—urban and industrial water pollution will become ever more serious because many developing economies will be unable or unwilling to afford the additional cost of water treatment.[84]

This sobering forecast is reinforced by the UNEP study on the environmental perspective,[85] which adds important information concerning the use and pollution of fresh water:

> 16. There have been significant changes in weather patterns as a result in part of loss of forests and vegetation cover. This has reduced river flows and lake levels and also lowered agricultural productivity. Irrigation has greatly improved arability . . . [and] has also been playing a vital role in the Green Revolution. Inappropriate irrigation, however, has wasted water, washed out nutrients and, through salinization and alkalinization, damaged the productivity of millions of hectares. Globally, salinization alone may be removing as much land from production as the land being irrigated . . .
>
> . . .
>
> 20. Over-use of pesticides has polluted water and soil, damaging the ecology of agriculture and creating hazards for human and animal health. . . .
>
> 21. Use of chemical fertilizers *per capita* increased fivefold between 1950 and 1983. In some countries excessive use of fertilizers, along with household and industrial effluents, has caused eutrophication of lakes, canals and irrigation reservoirs, and even coastal seas through runoffs of nitrogen compounds and phosphates. Ground water has also been polluted by nitrates in many places, and nitrate levels in rivers have risen steadily over the last two decades. Degradation of the quality of surface and ground water, caused by chemicals including nitrates, has been a significant problem in developed and developing countries alike.

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[76] J. Sette-Camara, "Pollution of international rivers", *Recueil des cours de l'Académie de droit international de La Haye, 1983-III* (The Hague, Martinus Nijhoff, 1985), vol. 186, p. 139.

[77] See C. Boasson, "Sociological excursions along international rivers", *Symbolae Verzijl* (The Hague, Martinus Nijhoff, 1958), pp. 52-54.

[78] J. G. Lammers, *Pollution of International Watercourses* (The Hague, Martinus Nijhoff, 1984), p. 3, footnote 2, referring *inter alia* to the following studies "for early instances of water pollution and their causes": L. Klein, *Aspects of River Pollution* (London, Butterworths, 1957), pp. 1-8, and L. E. Ellis, "A study of environmental problems in waste management", memorandum submitted by the United Kingdom at the symposium organized by ECE and held at Prague from 2 to 15 May 1971 (United Nations, *ECE Symposium on Problems relating to Environment* (Sales No. E.71.II.E.6), hereinafter referred to as "Prague Symposium", pp. 97 *et seq.*).

[79] *Casebook of the International Water Tribunal*, Rotterdam, 3-8 October 1983, pp. 1 and 13, chap. II, "A survey of the history of water, drinking water and water pollution", cited by Sette-Camara, *loc. cit.* (footnote 76 above), p. 139.

[80] *Ibid.*

[81] Lammers, *op. cit.* (footnote 78 above), p. 3.

[82] "Environmental perspective to the year 2000 and beyond", study adopted by the UNEP Governing Board at its fourteenth session (decision 14/13 of 19 June 1987); see *Official Records of the General Assembly, Forty-second Session, Supplement No. 25* (A/42/25), annex II. The study was adopted by the General Assembly "as a broad framework to guide national action and international co-operation aimed at achieving environmentally sound development", and annexed to its resolution 42/186 of 11 December 1987.

[83] *The Global 2000 Report to the President: Entering the Twenty-first Century*, study prepared by the Council on Environmental Quality and the Department of State of the United States of America under the direction of G. O. Barney (Washington (D.C.), 1980), 3 vols.

[84] *Ibid.*, vol. I, para. 162. The report states further that "fresh water, once an abundant resource in most parts of the world, will become increasingly scarce in coming decades" owing to greater net consumption and the impact of pollution and of hydraulic works (*ibid.*, p. 166). These two extracts are cited by Sette-Camara, *loc. cit.* (footnote 76 above), pp. 203-204.

[85] See footnote 82 above.

35. Of course, increased use and pollution of fresh water brings with it increased possibilities of disputes between watercourse States,[86] not to mention spiralling environmental harm. Of specific relevance to the present inquiry in this connection is the following "shared perception of Governments" identified in the UNEP study:[87]

> Environmental degradation can be controlled and reversed only by ensuring that the parties causing the damage will be accountable for their action, and that they will participate, on the basis of full access to available knowledge, in improving environmental conditions; (para. 3 (i)).

36. It has already been indicated that the articles to be proposed on the present subject concern not only the pollution of international watercourses but also protection of the environment thereof. Before a review of the authorities supporting the articles to be submitted, it should be emphasized that the proposed articles and the materials supporting them address two distinct types of damage: pollution damage, which ordinarily entails direct and adverse effects upon human activities; and damage to the environment, which is more subtle and does not normally have direct effects upon human activities.[88] As the studies mentioned in the foregoing paragraphs have amply demonstrated, environmental damage has become a prime concern of States precisely because it threatens sustainable development and, more fundamentally, human well-being. According to the UNEP study:[89]

> . . . the overall aspirational goal must be sustainable development on the basis of: (*a*) prudent management of available global resources and environmental capacities; and (*b*) the rehabilitation of the environment previously subjected to degradation and misuse. Development is sustainable when it meets the needs of the present without compromising the ability of future generations to meet theirs.

37. The concern of States that their water supply should not be polluted by other States and that the environment of their international watercourses should be capable of sustaining life and development will become evident in the following section, illustrating the various kinds of authorities supporting the draft articles to be proposed.

B. Survey of authorities

38. In the present section, the Special Rapporteur will survey representative examples of the authorities relating to pollution of international watercourses and protection of the environment thereof. The survey will be relatively brief in view of the fact that an exhaustive review of authorities relating to these problems has already been placed before the Commission.[90] The authorities presented below will be arranged in the following categories: international agreements; declarations, resolutions and recommendations adopted by intergovernmental organizations, conferences and meetings; reports and studies prepared by intergovernmental and international non-governmental organizations; studies by individual experts; and decisions of international courts and tribunals and other instances of State practice.

1. International agreements

39. International agreements are a particularly rich source of evidence of State practice in relation to the pollution of international watercourses. Lammers lists 88 international agreements "containing substantive provisions concerning pollution of international watercourses".[91] Provisions relating to pollution have been discovered in international agreements concluded as early as the 1860s. The approaches States have taken to the pollution of international watercourses, as reflected in their agreements, have evolved considerably. The early agreements often ban such pollution outright. An example is the Final Act of 11 July 1868 on the delimitation of the international frontier of the Pyrenees between France and Spain, which provides:

> . . . The discharge of foul or harmful water into the bed of the said river by riparian or other proprietors shall also be prohibited.[92]

40. The object of many of the early provisions was to protect fisheries.[93] Again, they were usually quite strict. For example, the 1904 Convention between France and Switzerland for the regulation of fishing in their frontier waters provides:

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[86] *The Global 2000 Report* (see footnote 83 above), vol. II, p. 153.

[87] See footnote 82 above.

[88] Mr. Schwebel, in his third report (document A/CN.4/348 (footnote 4 (*c*) above), para. 247), put it this way:

> ". . . for watercourse systems, pollution involves the use of water *by man* (or his animals, crops or industries) and the impact upon water of other activities for which man is responsible, with consequent detrimental effect. Commonly perceived, environmental damage is harm to *nature* in the broader sense, more especially, perhaps, to biological complexes of myriad sorts. The impact of such damage upon man, while probable, even if in the very long run, may be highly indirect or not even ascertainable."

[89] See footnote 82 above. See also e.g. the Stockholm Declaration on the Human Environment, *inter alia* principle 1. Portions of the Declaration and accompanying Action Plan are discussed in para. 55 below. The importance attached by States to the environment is also illustrated by the designation by EEC of the year 1987 as the "European Year of the Environment" (EYE). The EYE culminated on 21 March 1988 in the presentation of awards for "a range of initiatives undertaken by European industry and local authorities in the environmental field" (*International Environment Reporter* (Washington, D.C.), 13 April 1988, p. 232).

[90] See the third report of Mr. Schwebel, document A/CN.4/348 (footnote 4 (*c*) above), paras. 253-311.

[91] *Op. cit.* (footnote 78 above), pp. 124 *et seq.* See also the survey by J. J. A. Salmon, in the context of the study of the subject by the Institute of International Law, of the obligations relating to the protection of the aquatic environment (*Annuaire de l'Institut de droit international, 1979*, vol. 58-I, pp. 195 *et seq.*) and, more generally, the report by the secretariat of OECD, "Multilateral agreements in the field of environment having a bearing on transfrontier pollution problems", in OECD, *Transfrontier Pollution and the Role of States* (Paris, 1981), p. 191.

[92] Part Two of the Final Act, sect. I, para. 6. See also e.g. the 188[illegible] Convention between Switzerland, the Grand Duchy of Baden and Alsace-Lorraine establishing uniform rules on fishing in the Rhine and its tributaries, including Lake Constance, *art. 10*; and the 1906 Convention between Switzerland and Italy establishing uniform rules on fishing in frontier waters, *art. 12, para. 5*.

[93] In addition to the agreements cited in the preceding footnote, see e.g. the 1869 Convention between the Grand Duchy of Baden and Switzerland concerning fishing in the Rhine between Constance and Basel; the 1875 Convention between the same parties concerning fishing in the Rhine and in its tributaries as well as in Lake Constance; and the other agreements cited in Mr. Schwebel's third report, document A/CN.4/348 (footnote 4 (*c*) above), para. 250 and footnote 409.

Article 17

Factories, plants or establishments of any kind situated near the Doubs shall be prohibited from discharging into the water any waste or substances that may be harmful to fish.

. . .

A characteristic of these early fishery agreements, which is quite common in modern pollution-control instruments, is that they set what amounts to a water quality standard. In the case of the 1904 Convention referred to above, the standard is very general (as is typical of these agreements): avoidance of harm to fish. Similarly, the 1909 Treaty between Great Britain and the United States of America relating to the boundary waters between Canada and the United States, rather than prohibiting all pollution of boundary waters, proscribes only that which causes certain transfrontier damage:

Article IV

. . .

It is further agreed that the waters herein defined as boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other.

The 1975 Statute of the Uruguay River, entered into by Argentina and Uruguay, establishes the Uruguay River Administrative Commission and lays down broad obligations for the parties concerning the management of the river as well as the protection of the quality of its waters and its environment. Of present interest, however, is the following article:

Article 42

Each party shall be liable to the other for damage resulting from pollution caused by its own activities or by those of natural or juridical persons in its territory.

The article is similar in effect to the provision of the 1909 boundary waters Treaty quoted above, but, rather than obligating the parties not to cause injurious transboundary pollution *per se*, it provides expressly for the consequence of a breach of an implicit obligation not to cause or permit water pollution resulting in damage to the other party.

41. A different approach, but one that still provides a standard for determining the degree of permissible pollution, is that of the 1960 Indus Waters Treaty between India and Pakistan. Article IV, paragraph 10, of that agreement provides:

Article IV

. . .

10. Each Party declares its intention to prevent, as far as practicable, undue pollution of the waters of the rivers which might affect adversely uses similar in nature to those to which the waters were put on the effective date, and agrees to take all reasonable measures to ensure that, before any sewage or industrial waste is allowed to flow into the rivers, it will be treated, where necessary, in such manner as not materially to affect those uses: Provided that the criterion of reasonableness shall be the customary practice in similar situations on the rivers.

Thus, rather than focusing on harm to e.g. fish, health or property, this provision employs the standard of adverse effects upon certain uses of the waters in question.

42. There are other relatively recent agreements, however, that do not provide for water quality standards. Typically, agreements of this kind simply obligate the parties to protect the international watercourse in question against pollution without specifying how this is to be achieved or what standard of water quality is to be attained or maintained. For example, the Convention concerning the canalization of the Moselle, concluded in 1956 by the Federal Republic of Germany, France and Luxembourg, provides:

Article 55

The Contracting States shall take the necessary measures to protect the waters of the Moselle and its tributaries against pollution, and appropriate collaboration between the competent offices of the said States shall be established for that purpose.

Similarly, the 1958 Treaty between the Soviet Union and Afghanistan concerning the régime of the Soviet-Afghan frontier contains the following provision on pollution:

Article 13

The competent authorities of both Contracting Parties shall take the necessary measures to protect the frontier waters from pollution by acids and waste products and from fouling by any other means.[94]

43. The more recent agreements concerning the pollution of international watercourses are typically more precise in defining water quality standards to be met or maintained, in setting water quality objectives or in regulating the discharge into watercourses of different kinds of pollutants. The 1978 Agreement between the United States of America and Canada on Great Lakes water quality exemplifies this approach. Article II thereof sets forth the purpose of the agreement and the general policies to be implemented by later provisions:

Article II

The purpose of the Parties is to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes basin ecosystem. In order to achieve this purpose, the Parties agree to make a maximum effort to develop programmes, practices and technology necessary for a better understanding of the Great Lakes basin ecosystem and to eliminate or reduce to the maximum extent practicable the discharge of pollutants into the Great Lakes system.

Consistent with the provisions of this Agreement, it is the policy of the Parties that:

(*a*) The discharge of toxic substances in toxic amounts be prohibited and the discharge of any or all persistent toxic substances be virtually eliminated;

(*b*) Financial assistance to construct publicly owned waste treatment works be provided by a combination of local, State, provincial and federal participation; and

(*c*) Co-ordinated planning processes and best management practices be developed and implemented by the respective jurisdictions to ensure adequate control of all sources of pollutants.

Article III sets forth the "general objectives" to be achieved, while "specific objectives" are elaborated upon in annex 1 to the Agreement. "General objectives" are defined in article I as follows:

(*f*) "General objectives" are broad descriptions of water quality conditions consistent with the protection of the beneficial uses and the level of environmental quality which the Parties desire to secure and which will provide overall water management guidance.

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[94] See the discussion of provisions of this type in Lammers, *op. cit.* (footnote 78 above), pp. 100-101.

"Specific objectives" are defined as follows:

(*r*) "Specific objectives" means the concentration or quantity of a substance or level of effect that the Parties agree, after investigation, to recognize as a maximum or minimum desired limit for a defined body of water or portion thereof, taking into account the beneficial uses or level of environmental quality which the Parties desire to secure and protect.

Annex 1, which sets out the specific objectives, is divided into four sections, on chemical, physical, microbiological and radiological pollutants. While the objectives for these categories of pollutants are intended to establish minimum water quality standards,[95] article IV requires that, if water quality is higher than that set by the "specific objectives", such higher water quality is to be maintained and even improved.[96]

44. Another example of a recent agreement which classifies pollutants with regard to their character and regulates their discharge accordingly is the 1976 Convention for the Protection of the Rhine against Chemical Pollution.[97] Annex I to the Convention contains a "black list" of dangerous substances, whose discharge into the Rhine the parties are to take appropriate steps to eliminate. Under article 3, paragraph 1, of the Convention, "Every discharge . . . that may contain one of the substances listed in annex I shall require prior approval by the competent authority of the Government concerned". Annex II contains a "grey list" of less dangerous substances, whose discharge is to be reduced. The Convention also provides, in article 2, paragraphs 1 and 2, for national inventories of pollution discharges, which are to be reported to the International Commission for the Protection of the Rhine against Pollution.[98] If a party to the Convention notes a "sudden and large increase" in any of the substances listed in the annexes or becomes aware of an accident that may seriously endanger the quality of the waters, article 11 requires that party to inform the Commission and the parties likely to be affected "immediately".[99] An approach similar to that of the 1976 Convention was adopted by the Council of Europe in its 1974 draft European Convention for the protection of international watercourses against pollution.[100]

The European draft convention sets general water quality goals (arts. 2, 3 and 4), establishes "specific standards of water quality" (art. 15, para. 2) and, in the absence of such specific standards, requires the parties to "take all measures appropriate for maintaining [water quality] at, or for raising it to, a level not lower than . . . the minimum standards laid down in appendix I" (art. 4, para. 1 (*b*).[101]

45. Other agreements require consultation among the parties, or approval of the parties, or of a joint commission, before action is taken which would alter water quality. For example, article 4, paragraph 1, of the 1972 Convention on the status of the River Senegal provides that no plan that may appreciably modify, *inter alia*, the sanitary condition of the waters may be executed without prior approval of the contracting parties.[102] The 1963 Act regarding navigation and economic co-operation between the States of the Niger Basin contemplates that the parties will work together with regard to such projects. Article 4 of that agreement provides that:

Article 4

The riparian States undertake to establish close co-operation with regard to the study and the execution of any project likely to have an appreciable effect on certain features of the régime of the river, its tributaries and sub-tributaries, . . . the sanitary conditions of their waters, and the biological characteristics of their fauna and flora.

The approach taken by Argentina and Uruguay in the 1975 Statute of the Uruguay River is similar, although it relies on the commission established under that agreement to facilitate co-operative action. Thus article 36 of the Statute provides that:

Article 36

The parties shall, through the Commission, co-ordinate appropriate measures to prevent the alteration of the ecological balance, and to control impurities and other harmful elements in the river and its catchment area.

An analogous approach, reflected in a number of agreements, is to lay down only a general principle on pollution, leaving its elaboration and implementation to a joint commission.[103] This approach is envisaged, for example, in the 1974 draft European convention of the Council of Europe (see para. 54 below), as well as in other European

[95] For example, the "specific objective" for "DDT and metabolites" is as follows:

"The sum of the concentrations of DDT and its metabolites in water should not exceed 0.003 microgram per litre. The sum of the concentrations of DDT and its metabolites in whole fish should not exceed 1.0 microgram per gram . . . for the protection of fish-consuming aquatic birds." (Annex 1, sect. I, A, 1 (*a*).)

[96] ". . . all reasonable and practicable measures shall be taken to maintain or improve the existing water quality in those areas of the boundary waters of the Great Lakes system where such water quality is better than that prescribed by the specific objectives, and in those areas having outstanding natural resource value." (Art. IV, para. 1 (*c*).)

[97] The parties to the Convention are Switzerland, the European Economic Community, the Federal Republic of Germany, France, Luxembourg and the Netherlands.

[98] The Commission was established by the Agreement of 29 April 1963 concluded between the parties that subsequently became signatories to the 1976 Convention, with the exception of the European Economic Community; the Community became a member of the Commission in 1976.

[99] Article 11 provides that the notification is to be made in accordance with a procedure to be established by the Commission. A similar provision (art. 11), requiring immediate warning of a sudden increase in pollution, is to be found in the 1974 draft European convention.

[100] For further details on the draft convention, see para. 54 below.

[101] This paragraph also provides that the taking of such measures is "subject to any derogation provided for in paragraph 3" of article 4. Paragraph 3 allows derogations from the application of appendix I for watercourses and parameters listed in appendix IV, but requires co-operation as provided in article 10 of the convention with a view to the elimination of such derogations.

[102] See also article 4 of the 1978 Convention relating to the status of the River Gambia, which is very similar but also requires prior approval for "any project which is likely to bring about serious modifications [in] . . . the biological characteristics of [the river's] fauna and flora".

[103] See the discussion of this approach in Lammers, *op. cit.* (footnote 78 above), p. 107.

agreements.[104] It is also adopted in the 1964 Convention and Statutes relating to the development of the Chad Basin.[105]

46. An increasing number of agreements contain provisions, some of them quite elaborate, concerning action in favour of the protection of the environment of international watercourses. The 1975 Statute of the Uruguay River includes several provisions of this type.[106] In addition to article 36 of that agreement, set out above, these provisions include the following:

Article 37

The parties shall agree on measures to regulate fishing activities in the river with a view to the conservation and preservation of living resources.

Article 41

Without prejudice to the functions assigned to the Commission in the matter, the parties undertake:

(*a*) To protect and preserve the aquatic environment and, in particular, to prevent its pollution by enacting appropriate regulations and adopting appropriate measures, in accordance with the applicable international conventions and, where relevant, in conformity with the guidelines and recommendations of the international technical organizations;

(*b*) Not to attenuate, in their respective legislations:

(i) The technical requirements in force to prevent the pollution of the waters, and

(ii) The severity of the penalties established for infringements;

(*c*) To inform one another of any regulation that they intend to impose in connection with the pollution of the waters, with a view to establishing equivalent regulations in their respective legislations.

47. The 1982 United Nations Convention on the Law of the Sea contains several articles that concern effects on the marine environment of the pollution of international watercourses. After laying down in article 192 the general obligation "to protect and preserve the marine environment", the Convention provides as follows:

Article 194. Measures to prevent, reduce and control pollution of the marine environment

1. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.

2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

. . .

5. The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.

Article 207 of the Convention, which specifically addresses pollution from land-based sources,[107] provides:

Article 207. Pollution from land-based sources

1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.

Finally, article 235 of the Convention, entitled "Responsibility and liability", provides in its paragraph 1 that "States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment", and that they are "liable in accordance with international law". The article then requires, in paragraph 2, that States ensure the availability of "prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment", and refers in paragraph 3 to "the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment". These provisions reflect a shared perception on the part of the parties to this landmark instrument of the importance of protecting the marine environment from pollution originating in, *inter alia*, "rivers". They also provide a useful and highly significant model for provisions concerning the analogous subject of the protection and preservation of the environment of international watercourses. Indeed, the sea functions in many important respects like a watercourse, particularly when one takes into account the many important currents, or "streams" (such as the Gulf Stream) which, *inter alia*, affect climate and transport nutrients and oxygen from one region to another.[108] Many of the considerations supporting protection of the marine environment are therefore equally applicable to the protection of the environment of international watercourses.

48. In addition to their practice as evidenced in treaties, States have demonstrated a determination to control the pollution of international watercourses in declarations adopted at various kinds of intergovernmental meetings, examples of which are reviewed in the following section.

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[104] See e.g. the 1960 Convention on the Protection of Lake Constance against Pollution; and the 1960 Treaty between the Netherlands and the Federal Republic of Germany concerning the course of the common frontier, the boundary waters, real property situated near the frontier, traffic crossing the frontier on land via inland waters and other frontier questions.

[105] Art. 5, para. 1, and art. 6 of the Statute; see also art. 8 of the 1972 Convention establishing the Organization for the Development of the Senegal River.

[106] See also art. 2, para. 1, of the 1977 Agreement establishing the Organization for the management and development of the Kagera River Basin; art. 4 of the 1978 Convention relating to the status of the Gambia River; and the 1987 Agreement on the Action Plan for the environmentally sound management of the common Zambezi River system.

[107] See also the conventions relating to specific seas that contain provisions concerning pollution from watercourses, e.g. the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area; the 1974 Convention on the Prevention of Pollution from Land-based Sources; the 1976 Convention on the Protection of the Mediterranean Sea against Pollution; the 1978 Kuwait Regional Convention for Co-operation in the Protection of the Marine Environment from Pollution; and the 1981 Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region.

[108] See e.g. *The New Encyclopaedia Britannica*, vol. 5, 15th ed., 1987, pp. 564-565.

2. Declarations, resolutions and recommendations adopted by intergovernmental organizations, conferences and meetings

49. A relatively early example of a pronouncement by a group of States on principles concerning the quality of the waters of an international watercourse is the Declaration of Montevideo concerning the industrial and agricultural use of international rivers, approved by the Seventh Inter-American Conference in 1933.[109] Paragraph 2 of the Declaration provides, *inter alia*, as follows:

> 2. . . .
>
> . . . no State may, without the consent of the other riparian State, introduce into watercourses of an international character, for the industrial or agricultural exploitation of their waters, any alteration which may prove injurious to the margin of the other interested State.[110]

While this provision concerns watercourses constituting a frontier between two States, paragraph 4 of the Declaration provides that the same principles shall apply to rivers flowing successively through the territories of several States.[111]

50. Another Latin American instrument of significance to the present inquiry is the Act of Asunción, adopted by the Ministers for Foreign Affairs of the River Plate Basin States at their Fourth Meeting, in 1971. The Act comprises 25 resolutions, among which attention may be drawn to resolution No. 15 ("Importance of taking health problems into account in studies and plans for the development of the Basin") and resolution No. 23 ("Study and proposals on regulations for the prevention of hydrocarbon pollution of the rivers of the River Plate Basin"). Resolution No. 15 provides in particular that the Fourth Meeting of Foreign Ministers,

> *Considering*
>
> That there are grave health problems arising from ecological relationships in the geographic area of the River Plate Basin, which have an unfavourable impact on the social and economic development of the region;
>
> That this health syndrome is related to the quality and quantity of the water resources;
>
> That close co-ordination and co-operation between the countries concerned in programmes for the control and eradication of these diseases is important;
>
> . . .
>
> *Decides*
>
> 1. To emphasize the importance of taking health problems into account in plans and studies for the development of the Basin and to incorporate specific health activities in such plans and studies;
>
> . . .

Under the terms of resolution No. 23, the Fourth Meeting of Foreign Ministers,

> *In view of*
>
> The need to control water pollution and preserve as far as possible the natural qualities of the water as an integral part of a policy in the conservation and utilization of the water resources of the Basin;
>
> *Bearing in mind*
>
> The considerations and suggestions made by the Second Meeting of Experts on Water resources,
>
> *Decides*
>
> To recommend that the Intergovernmental Co-ordinating Committee should study and propose rules to prevent hydrocarbon pollution of the rivers of the River Plate Basin.

51. The Mar del Plata Action Plan, adopted in 1977 by the United Nations Water Conference,[112] includes two recommendations relating to pollution control and environmental protection. Recommendation No. 35, entitled "Environment and health", provides:

> 35. It is necessary to evaluate the consequences which the various uses of water have on the environment, to support measures aimed at controlling water-related diseases, and to protect ecosystems.

According to recommendation No. 38, entitled "Pollution control",

> 38. Concerted and planned action is necessary to avoid and combat the effects of pollution in order to protect and improve where necessary the quality of water resources.

Each of these principal statements is followed by a series of subsidiary recommendations concerning action to be taken to implement them.[113]

52. The Council of Europe has been particularly active in the matter of fresh water pollution control.[114] In 1965, the Consultative Assembly adopted recommendation 436,[115] in which member States were invited to take joint action to control fresh water pollution, and which contains "Guiding principles applicable to fresh water pollution control". Part I of the principles, entitled "National aspects", states

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[109] Carnegie Foundation for International Peace, *The International Conferences of American States, First Supplement, 1933-1940* (Washington (D.C.), 1940), pp. 105-106. Text reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 212, document A/5409, annex I, A.

[110] According to Sette-Camara, this is one of the rare examples of an instrument subsequent to the First World War concerned with the pollution of international rivers, *loc. cit.* (footnote 76 above), pp. 142-143.

The Declaration goes on to provide in paragraph 3 that, if damage of the kind referred to in paragraph 2 occurs, "an agreement of the parties shall always be necessary", and that reparation must be made before the works in question are executed.

[111] Two States, Venezuela and Mexico, entered reservations to the Declaration, and one State, the United States of America, made a declaration with respect thereto. While Mexico's reservation was general in nature, that of Venezuela simply preserved the effect of existing agreements. In its declaration, the United States delegation stated that it could not approve the Montevideo Declaration because it was not sufficiently "comprehensive in scope to be properly applicable to the particular problems involved in the adjustment of its rights in the international rivers in which it [was] interested" (see footnote 109 above).

[112] See footnote 29 (*d*) above.

[113] With regard to recommendation 35, see recommendations 36 (*a*) to (*t*); and with regard to recommendation 38, see recommendations 39 (*a*) to (*w*). The role of international organization in connection with each of the principal recommendations is dealt with in recommendations 37 and 40 respectively.

[114] For excerpts from the various instruments produced by the Council of Europe up to 1974, see *Yearbook . . . 1974*, vol. II (Part Two), pp. 340 *et seq.*, document A/CN.4/274, paras. 368 *et seq.* In addition to the instruments discussed below, see recommendation 629 (1971) of the Consultative Assembly on the pollution of the Rhine Valley water-table (*ibid.*, p. 349, para. 378).

[115] *Ibid.*, pp. 341 *et seq.*, para. 372.

in its paragraph 6: "Any discharge or deposit of waste directly or indirectly endangering human life should be forbidden." Paragraph 9 declares: "It is essential that legislation on water pollution control should be strictly applied and that, in case of violation, sufficiently severe administrative or penal sanctions should be imposed." In part II, entitled "International aspects", member States are called upon to reach agreement on certain questions, including whether downstream States have the right to require that waters flowing into their territories be of a quality equal to that of waters which remain in the territories of upstream countries; and whether downstream States "benefiting from exceptional efforts of purification made by upstream countries are liable on that account to make financial compensations therefor".

53. In 1967, the Consultative Assembly and the Committee of Ministers of the Council of Europe adopted the European Water Charter.[116] While of limited legal value,[117] the Charter none the less expresses the sense of States members of the Council of Europe concerning the importance of pollution control and environmental protection in relation to fresh water. For example, principles III to VI provide as follows:

III. To pollute water is to harm man and other living creatures which are dependent on water

. . .

IV. The quality of water must be maintained at levels suitable for the use to be made of it and, in particular, must meet appropriate public health standards

. . .

V. When used water is returned to a common source it must not impair the further uses, both public and private, to which the common source will be put

. . .

VI. The maintenance of an adequate vegetation cover, preferably forest land, is imperative for the conservation of water resources.

54. In 1969, the Consultative Assembly adopted recommendation 555 (1969), in which it recommended "that the Committee of Ministers instruct a committee of governmental experts to prepare as rapidly as possible a European convention based on the following draft".[118] The latter reference is to the draft European Convention on the protection of fresh water against pollution.[119] The Committee of Ministers, after giving careful consideration to the draft convention, concluded that, while

concerted action in the Council of Europe was justified and even indispensable, the draft convention could not, . . . in its present form, provide a suitable basis for such action. . . .[120]

. . .

. . . The Committee of Ministers . . . has accordingly taken steps to enable a legal instrument reflecting the aims set forth . . . in recommendation 555 to be drawn up as speedily as possible.[121]

In 1970, the Committee of Ministers established an *Ad Hoc* Committee of Experts with the mandate of preparing a European convention on the protection of international fresh waters against pollution. The *Ad Hoc* Committee, at its February 1974 meeting, prepared the draft European convention for the protection of international watercourses against pollution,[122] consisting of 22 articles, appendices on minimum water quality standards (appendix I), dangerous or harmful substances (appendix II), quality limits according to the uses of international watercourses (appendix III), watercourses for which certain derogations are permissible (appendix IV) and arbitration (appendix A). In addition to setting general water quality goals and specific standards, as noted above (para. 44), the 1974 draft European convention lays down the following general principle:

Article 3

1. Each Contracting Party undertakes, with regard to international watercourses, to take:

(*a*) all measures required to prevent new forms of water pollution or any increase in the degree of existing water pollution;

(*b*) measures aiming at the gradual reduction of existing water pollution.

2. This Convention is not to lead to the replacement of existing measures by measures giving rise to increased pollution.

The draft convention explicitly includes estuaries and brackish water within its scope (art. 1 (*a*) and (*b*), and art. 4, para. 2 (*b*)) and prohibits or restricts the "discharge into the waters of international hydrographic basins of any of the dangerous or harmful substances listed in appendix II" to the draft convention (art. 5, para. 1). As of this writing, the draft is still pending before the Committee of Ministers.[123]

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[116] Consultative Assembly recommendation 493 (1967), adopted on 28 April 1967; Committee of Ministers resolution (67) 10, adopted on 26 May 1967. The Charter was proclaimed at Strasbourg on 6 May 1968. For the text, *ibid.*, p. 342, para. 373.

[117] Lammers points out that, in addition to the "extremely general content" of the principles contained in the Charter, its purpose was primarily "to draw the attention of the general public to the necessity of protecting fresh waters both in their quantitative and qualitative aspect" (*op. cit.* (footnote 78 above), p. 257).

[118] See *Yearbook . . . 1974*, vol. II (Part Two), p. 343, document A/CN.4/274, para. 374.

[119] *Ibid.*

[120] The reasons for the conclusion of the Committee of Ministers related, *inter alia*, to the provisions of the draft on liability for damages; the "principle of State liability as laid down in the draft convention"; what was stated to be "an inequality between downstream States and upstream States with regard to the burdens following from water pollution"; and the system of arbitration provided for in the draft convention (*ibid.*, p. 346, para. 375).

[121] Council of Europe, Committee of Ministers, document CM. (70) 134 (*ibid.*).

[122] For the text, see Council of Europe, Consultative Committee, doc. 3417 (*ibid.*, p. 346, para. 377).

[123] Lammers writes that, owing to the opposition of certain member States of the Council of Europe, "no action of importance was taken by the Committee of Ministers in respect of the draft", *op. cit.* (footnote 78 above), p. 8, footnote 1. For further details on the draft, see also Lammers, "The draft European convention of the Council of Europe for the protection of international watercourses against pollution", *Netherlands Yearbook of International Law, 1975* (Leyden), vol. 6, p. 167.

55. The Declaration of the United Nations Conference on the Human Environment (the Stockholm Declaration), adopted by the Conference on 16 June 1972,[124] contains a number of principles of present interest. The General Assembly, in its resolution 2994 (XXVII) of 15 December 1972 on the United Nations Conference on the Human Environment,[125] took note "with satisfaction" of the report of the Conference, including the Declaration and the Action Plan for the Human Environment. Principle 6 of the Declaration, which may be applied *mutatis mutandis* to international watercourses, states as follows:

Principle 6

The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of all countries against pollution should be supported.

Similarly, recommendation 71 of the Action Plan for the Human Environment[126] provides as follows:

Recommendation 71[127]

It is recommended that Governments use the best practicable means available to minimize the release to the environment of toxic or dangerous substances, especially if they are persistent substances such as heavy metals and organochlorine compounds, until it has been demonstrated that their use is essential to human health or food production, in which case appropriate control measures should be applied.

Recommendation 51 of the Action Plan contains the following pertinent principles which, according to the recommendation, "should be considered by the States concerned when appropriate":

Recommendation 51

(*b*) . . .

(i) Nations agree that when major water resource activities are contemplated that may have a significant environmental effect on another country, the other country should be notified well in advance of the activity envisaged;

(ii) The basic objective of all water resource use and development activities from the environmental point of view is to ensure the best use of water and to avoid its pollution in each country;

Perhaps the best-known legal principle of the Stockholm Declaration is principle 21, which bears generally upon the rights and duties of watercourse States in respect of the utilization of international watercourses, including pollution thereof. Principle 21 provides:

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 21 was reinforced by the General Assembly in its resolution 2995 (XXVII) of 15 December 1972 on co-operation between States in the field of the environment[128] which provides, in paragraph 1, that, "in the exploration, exploitation and development of their natural resources, States must not produce significant harmful effects in zones situated outside their national jurisdiction". Lammers has observed that this language "seemed to hold that the exercise of sovereignty over natural resources was only permissible to the extent that such exercise did not lead to *significant* extraterritorial harmful effects".[129] Principles 21 and 22[130] were the subject of General Assembly resolution 2996 (XXVII) of 15 December 1972 on international responsibility of States in regard to the environment,[131] which provides that "no resolution adopted at the twenty-seventh session of the General Assembly can affect principles 21 and 22 of the Declaration of the United Nations Conference on the Human Environment".

56. At its forty-second session, in 1987, ECE adopted a set of principles on co-operation in the field of transboundary waters[132] and recommended that the Governments of ECE member States apply the principles in formulating and implementing their water policies. The principles, by their terms, "address only issues regarding control and prevention of transboundary water pollution, as well as flood management in transboundary waters". Several of the principles will be set forth in full in the present report since they have not previously been placed before the Commission. Principle 1, which appears under the rubric "General", provides:

1. In accordance with the Charter of the United Nations, the Final Act of the Conference on Security and Co-operation in Europe (CSCE), the Concluding Document of the Madrid Meeting of Representatives of the Participating States of the CSCE and the principles of international law, every State has the sovereign right to use its water resources pursuant to its national policy and must, in a spirit of co-operation, take measures such that activities carried out within its territory do not cause damage to the environment of other States or of areas beyond the limits of its national jurisdiction. The ECE Declaration of Policy on Prevention and Control of Water Pollution, including Transboundary Pollution, provides that riparian States shall undertake, on the basis of their national policies, concerted action to improve the quality of surface and ground water, to control pollution and to guard against accidental pollution.

The next set of principles concerns co-operation. Principle 2 (*a*) calls upon States to consult concerning, *inter alia*, pollution control and environmental protection. It provides as follows:

2. (*a*) On the basis of the principle of reciprocity, good faith and good-neighbourliness and in the interest of rational water-resource

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[124] *Report of the United Nations Conference on the Human Environment* (see footnote 29 (*c*) above), part one, chap. I. See generally L. B. Sohn, "The Stockholm Declaration on the Human Environment", *Harvard International Law Journal* (Cambridge, Mass.), vol. 14, 1973, p. 423.

[125] Adopted by a vote of 112 in favour, none against and 10 abstentions.

[126] *Report of the United Nations Conference on the Human Environment*. . ., part one, chap. II.

[127] Adopted unanimously by the Conference.

[128] Adopted by a vote of 115 in favour, none against and 10 abstentions.

[129] *Op. cit.* (footnote 78 above), p. 334.

[130] Principle 22 provides as follows:

"States shall co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction."

[131] Adopted by a vote of 112 in favour, none against and 10 abstentions.

[132] See footnote 29 (*f*) above.

management and protection of these resources against pollution, riparian countries are called upon to enter into consultation if a riparian country so desires, aiming at co-operation regarding:

—Protection of ecosystems, especially the aquatic environment;

—Prevention and control of transboundary water pollution;

—Protection against such dangerous hazards as accidental pollution, floods and ice drifts in transboundary waters; and

—Harmonized use of transboundary waters.

After a set of principles on "Treaties and other arrangements", there is a section on "Water-quality objectives and criteria", whose provisions have much in common with other modern instruments. That section provides:

5. In transboundary water agreements or in subsequent arrangements, contracting parties should jointly define water-quality objectives and commonly adopt water-quality criteria for the purpose of maintaining and, if necessary, improving water quality in transboundary waters.

5. (*a*) Such objectives also serve as a guide for co-ordinating national policies on water quality. A general limitation of emissions at the national level is considered to be an important means of ensuring good water quality. Even more stringent regulations may be necessary for attaining water quality in accordance with regional requirements.

5. (*b*) Each contracting party should implement, within the framework of its national legislation, on the basis of the principle that responsibility lies with the polluter, the necessary measures aimed at the preservation and, if possible, the significant improvement of water resources quality. In evaluating compliance with the qualitative characteristics of the agreed requirements, the criteria followed are the mutually observed water-quality standards and norms at the agreed site.

A final set of principles which should not escape mention is that concerning prevention of water pollution. Principles 8 and 8 (*d*) provide:

8. In order to protect transboundary waters against pollution, contracting parties should draw up control programmes, jointly if necessary, and implement these programmes. Contracting parties should commit themselves to taking all legal, administrative, financial and technical measures—compatible with balanced development—necessary to achieve at least an agreed-upon reduction in pollution of such waters.

. . .

8. (*d*) In the prevention and control of transboundary water pollution, special attention should be paid to hazardous substances, especially those which are toxic, persistent and bio-accumulative, whose introduction into transboundary waters should be prohibited or at least prevented by using the best available technology; such pollutants should be eliminated within a reasonable period of time.

57. OECD is another intergovernmental body that has been highly active in the field of pollution control and environmental protection.[133] In its recommendation C(74)224, adopted in 1974, the OECD Council proclaimed a set of "Principles concerning transfrontier pollution",[134] of which the following are of present interest:

B. International solidarity

1. Countries should define a concerted long-term policy for the protection and improvement of the environment in zones liable to be affected by transfrontier pollution.

Without prejudice to their rights and obligations under international law and in accordance with their responsibility under principle 21 of the Stockholm Declaration, countries should seek, as far as possible, an equitable balance of their rights and obligations as regards the zones concerned by transfrontier pollution.

. . .

2. Pending the definition of such concerted long-term policies countries should, individually and jointly, take all appropriate measures to prevent and control transfrontier pollution, and harmonize as far as possible relevant policies.

3. Countries should endeavour to prevent any increase in transfrontier pollution, including that stemming from new or additional substances and activities, and to reduce, and as far as possible eliminate, any transfrontier pollution existing between them within time-limits to be specified.

. . .

F. Warning systems and incidents

9. Countries should promptly warn other potentially affected countries of any situation which may cause any sudden increase in the level of pollution in areas outside the country of origin of pollution, and take all appropriate steps to reduce the effects of any such sudden increase.

10. Countries should assist each other, wherever necessary, in order to prevent incidents which may result in transfrontier pollution, and to minimize, and if possible eliminate, the effects of such incidents, and should develop contingency plans to this end.

OECD recommendation C(74)224 also contains principles concerning non-discrimination, equal right of hearing, information and consultation, exchange of scientific information, monitoring measures and research, institutions, disputes, and international agreements.

58. In 1977, the OECD Council adopted recommendation C(77)28(Final) on implementation of a régime of equal right of access and non-discrimination in relation to transfrontier pollution.[135] Part A of the annex to the recommendation contains "Principles to facilitate the solution at inter-State level of transfrontier pollution problems", in paragraph 2 of which it is recommended that States "attempt by common agreement" to achieve certain environmental objectives. Paragraph 3 provides in part as follows:

3. (*a*) Pending the implementation of the objectives laid down in paragraph 2, and without prejudice to more favourable measures taken in accordance with paragraphs 1 and 2 above, each country should ensure that its régime of environmental protection does not discriminate between pollution originating from it which affects or is likely to affect the area under its national jurisdiction and pollution originating from it which affects or is likely to affect an exposed country;

(*b*) Thus, transfrontier pollution problems should be treated by the country of origin in an equivalent way to similar domestic pollution problems occurring under comparable conditions in the country of origin.

59. The foregoing survey of statements produced by intergovernmental organizations and meetings further illustrates the concern shared by States that fresh water, as well as the environment of watercourses, should be protected from harmful pollution. Among the underlying reasons for this concern are the need to protect human life and health; to foster development; to promote and protect agricultural, industrial and other economic uses of water;

[133] OECD has published a number of studies on these issues, e.g. *Problems in Transfrontier Pollution* (Paris, 1974); *Environmental Damage Costs* (Paris, 1975); *Legal Aspects of Transfrontier Pollution* (Paris, 1978); *Transfrontier Pollution and the Role of States* (Paris, 1981); *OECD and the Environment* (Paris, 1986).

[134] See footnote 43 above.

[135] OECD, *OECD and the Environment* (Paris, 1986), p. 150.

to protect ecosystems; to protect populations, flora and fauna against persistent chemicals and toxic and other dangerous substances; and to prevent pollution accidents and other water-related hazards. Intergovernmental and international non-governmental organizations have reached similar conclusions in the reports and studies they have prepared, representative examples of which will be reviewed in the following section.

3. Reports and studies prepared by intergovernmental and international non-governmental organizations

(a) *Intergovernmental organizations*

60. In the early 1970s, the Committee on Water Problems of ECE made several recommendations to the Governments of ECE member States concerning the protection of international watercourses. Most pertinent for present purposes is the recommendation concerning the protection of ground and surface waters against pollution by oil and oil products, approved by the Committee in 1970.[136] In paragraph 3 of that document, the Committee recommends, *inter alia*, that ECE Governments "designate 'protection zones' in areas needing to be preserved from pollution in view of their utilization"; issue regulations concerning the storage, transport and disposal of oil, oil products and effluents from oil industries, in order to avoid water pollution; and require "the immediate reporting to the nearest appropriate public authority of all spillages of oil and oil products likely to contaminate either ground or surface waters".

61. The Legal Office of FAO, as part of its technical assistance to the Lake Chad Basin Commission, prepared a draft agreement on water utilization and conservation in the Lake Chad Basin.[137] Of present interest is article IV of the draft agreement, which provides:

> *Article IV*
>
> Each member State shall, with regard to schemes or projects for water utilization in its territory, take every reasonable measure to ensure the conservation of the water resources of the basin; to maintain their natural flow and quality; to prevent their misuse, waste or pollution; and to plan and implement such schemes or projects in a manner conducive to the integrated development of the basin, in conformity with the present Agreement and with the Fort Lamy Convention and Statute.

62. In the context of the work of OECD on transfrontier pollution, a number of studies and reports have been prepared which are of general relevance to the present survey and should therefore at least be mentioned. One such report, relating to the "Application of information and consultation practices for preventing transfrontier pollution", discusses, *inter alia*, the implementation of the principle of non-discrimination (see para. 58 above) through the use of consultation and the provision of information. Another report consists of an analytical survey of "International and intrafederal commissions dealing with transfrontier pollution in hydrographic basins".[138]

63. The work of the Council of Europe bearing on the control of fresh water pollution, some of which resulted in what technically qualifies as "reports" or "studies", has been discussed in the previous section (paras. 52-54).

64. One of the most serious pollution problems currently confronting the international community is that of the contamination of estuaries and the sea by pollution carried via watercourses.[139] The many treaty provisions dealing with this phenomenon[140] testify to the importance States attach to it. In 1970, the Economic and Social Council established the Committee on Natural Resources. Two reports submitted to the Committee by the Secretary-General are of interest in connection with the problem of the pollution of the sea via international watercourses. In the first report,[141] summarizing the water-related issues before the Committee, the following statement was made:

> 19. The recent and growing concern over marine pollution and the fact that the bulk of such pollution is a result of river discharge . . . highlights the fact that existing international river concepts and agreements impose no restriction on the downstream country, which is free to pollute the river. A new relationship, therefore, should be considered, namely, the relationship of the activities of one country on a river in relation to the world oceans, or, broadly speaking, the relationship of the river to the ocean and not only the relationship of the activities of one country to the other concerning one river.

Of course, the 1982 United Nations Convention on the Law of the Sea (pertinent articles of which have been set forth in para. 47 above), as well as other applicable treaties, have a bearing upon the question whether river pollution causing such effects is permissible under international law, even if in fact "existing international river concepts and agreements" themselves do not. In the second report, on river discharge and marine pollution,[142] the Secretary-General stated:

> 2. Though rivers in the past have been the arteries of human settlement and development, we do not yet possess full information on them all. . . . Of the many rivers in the world, most of the big ones are international and so the bulk of river discharge comes from international rivers.
>
> . . .
>
> *River discharge and marine pollution*
>
> 21. . . . polluted river waters discharged into the ocean have to be considered as a principal contributor to ocean pollution. As industrialization in river basins, and in particular in the estuary regions of rivers has progressed, the polluting consequences of river discharge on the ocean has assumed large-scale proportions. . .

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[136] E/ECE/WATER/7, annex I, reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 332, document A/CN.4/274, para. 345. The Committee also adopted, in 1971, recommendations concerning river basin management (E/ECE/WATER/9, annex II), *ibid.*, p. 333, para. 346; and in 1972, recommendations to the Governments of Southern European countries concerning selected water problems (ST/ECE/WATER/6/Add.1), *ibid.*, para. 347.

[137] FAO/UNDP, *Survey of the water resources of the Chad Basin for development purposes—Surface water resources in the Lake Chad Basin*, technical report 1 (AGL:DP/RAF/66/579), appendix I, pp. 125 *et seq.* For the text of the draft agreement, *ibid.*, pp. 335-337, para. 358.

[138] These reports may be found in OECD, *Transfrontier pollution and the role of States* (Paris, 1981), pp. 8 and 133 respectively.

[139] See the third report of Mr. Schwebel, document A/CN.4/348 (footnote 4 (*c*) above), paras. 302-311 ("The special issue of the maritime interface").

[140] See para. 47 and footnote 107 above.

[141] E/C.7/2/Add.6, the major part of which is reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 328, document A/CN.4/274, para. 334.

[142] E/C.7/2/Add.8/Rev. 1, *ibid.*, p. 329, para. 335.

22. The growing quantities of wastes being carried by rivers to the oceans will make it necessary to view river basins as part of a larger interdependent system. Consequently the interests of all coastal countries with regard to the use of rivers as major waste disposal agents will require broader international consideration, keeping in mind the related interests in ocean waters and ocean life.

23. In view of the increasing use of rivers as waste disposal agents, a practice which results in marine pollution, it seems increasingly necessary that water quality standards for water users in the downstream regions of rivers be established, taking due account of the quality requirements of the ocean waters into which rivers discharge.

. . .

65. Attention may also be drawn to the study prepared by FAO on the control of marine pollution and the protection of living resources of the sea.[143] The study, in addressing the "present state of customary international law", states as follows:

. . . So far as inland water pollution is concerned, most legal writers now adopt a compromise position between these two extremes [to wit, absolute territorial sovereignty and absolute territorial integrity], which requires that a State should act in such a way as to avoid causing appreciable and unreasonable harm on the territory of a neighbouring State. Most also argue that this obligation extends to harm caused in the territorial waters of another State, or at least a neighbouring State. . . .

(b) *International non-governmental organizations*

66. As early as 1910, internationally recognized legal expert groups were studying the question of the legal norms governing the pollution of international watercourses. In that year, the Institute of International Law decided to study the subject of "the rules of international law relating to international rivers from the point of view of the utilization of their energy".[144] This study resulted in a resolution on "International regulations regarding the use of international watercourses",[145] which the Institute adopted at its Madrid session in 1911. The pertinent provisions are as follows:

Regulations

I. When a stream forms the frontier of two States, neither of these States may, without the consent of the other, and without special and valid legal title, make or allow individuals, corporations, etc., to make alterations therein detrimental to the bank of the other State. On the other hand, neither State may, on its own territory, utilize or allow the utilization of the water in such a way as seriously to interfere with its utilization by the other State or by individuals, corporations, etc., thereof.

The foregoing provisions are likewise applicable to a lake lying between the territories of more than two States.

II. When a stream traverses successively the territories of two or more States:

. . .

(2) All alterations injurious to the water, the emptying therein of injurious matter (from factories, etc.) is forbidden;

. . .

67. At its Salzburg session, in 1961, the Institute adopted a resolution entitled "Utilization of non-maritime international waters (except for navigation)".[146] The resolution contains no provisions dealing specifically with pollution, but the principles expressed in the following articles are generally applicable:

. . .

Article 2

Every State has the right to utilize waters which traverse or border its territory, subject to the limits imposed by international law and, in particular, those resulting from the provisions which follow.

This right is limited by the right of utilization of other States interested in the same watercourse or hydrographic basin.

Article 3

If the States are in disagreement over the scope of their rights of utilization, settlement will take place on the basis of equity, taking particular account of their respective needs, as well as of other pertinent circumstances.

Article 4

No State can undertake works or utilizations of the waters of a watercourse or hydrographic basin which seriously affect the possibility of utilization of the same waters by other States except on condition of assuring them the enjoyment of the advantages to which they are entitled under article 3, as well as adequate compensation for any loss or damage.

. . .

68. The Institute later turned its attention specifically to pollution of international watercourses, and at its Athens session, in 1979, adopted a resolution entitled "The pollution of rivers and lakes and international law",[147] selected provisions of which are cited below:

Article I

1. For the purpose of this resolution, "pollution" means any physical, chemical or biological alteration in the composition or quality of waters which results directly or indirectly from human action and affects the legitimate uses of such waters, thereby causing injury.

2. In specific cases, the existence of pollution and the characteristics thereof shall, to the extent possible, be determined by referring to environmental norms established through agreements or by the competent international organizations and commissions.

Article II

In the exercise of their sovereign right to exploit their own resources pursuant to their own environmental policies, and without prejudice to their contractual obligations, States shall be under a duty to ensure that their activities or those conducted within their jurisdiction or under their control cause no pollution in the waters of international rivers and lakes beyond their boundaries.

Article III

1. For the purpose of fulfilling their obligation under article II, States shall take, and adapt to the circumstances, all measures required to:

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[143] FIR: MP/70/R-15, presented in 1970 at the FAO Technical Conference on Marine Pollution and its Effects on Living Resources and Fishing; excerpts are reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 335, document A/CN.4/274, paras. 356 *et seq.*

[144] *Annuaire de l'Institut de droit international, 1910*, vol. 23, pp. 498-499.

[145] *Annuaire de l'Institut de droit international, 1911*, vol. 24, pp. 365-367 (text reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 200, document A/5409, para. 1072).

[146] *Annuaire de l'Institut de droit international, 1961*, vol. 49 - II, pp. 381-384 (*ibid.*, p. 202, para. 1076).

[147] See footnote 44 above; text reproduced in the third report of Mr. Schwebel, document A/CN.4/348 (see footnote 4 (*c*) above), para. 259.

(*a*) prevent any new form of pollution or any increase in the existing degree of pollution; and

(*b*) abate existing pollution within the best possible time limits.

2. Such measures shall be particularly strict in the case of ultra-hazardous activities or activities which pose a danger to highly exposed areas or environments.

Article IV

In order to comply with the obligations set forth in articles II and III, States shall in particular use the following means:

(*a*) at national level, enactment of all necessary laws and regulations and adoption of efficient and adequate administrative measures and judicial procedures for the enforcement of such laws and regulations;

(*b*) at international level, co-operation in good faith with the other States concerned.

Article V

States shall incur international liability under international law for any breach of their international obligations with respect to pollution of rivers and lakes.

Several features of these articles are of particular interest. First, article II contains an unqualified obligation not to "cause . . . pollution in the waters of international rivers and lakes beyond their boundaries". There is no requirement that the pollution cause harm, appreciable or otherwise, to other watercourse States or to the environment. The obligation set forth in article II is however qualified to a limited extent by article III, paragraph 1 (*b*) of which provides that States are required only to "abate *existing** pollution within the best possible time limits". This qualification does not, however, nullify the obligation of article II; it merely allows a reasonable transition period for its implementation. A second feature of the articles that deserves special attention is the requirement in article III, paragraph 2, that the measures taken against pollution "shall be particularly strict in the case of ultra-hazardous activities or activities which pose a danger to highly exposed areas or environments". This provision suggests that, even in the case of existing pollution, States must take special measures to protect sensitive areas or environments from pollution, and to assure that dangerous activities are subject to adequate pollution control and safety standards.

69. One of the best-known instruments in respect of the law of international watercourses is the Helsinki Rules on the Uses of the Waters of International Rivers, adopted by the International Law Association at its fifty-second Conference, held at Helsinki in 1966.[148] Chapter 3 of the Rules, entitled "Pollution", contains the following three articles:

Article IX

As used in this chapter, the term "water pollution" refers to any detrimental change resulting from human conduct in the natural composition, content, or quality of the waters of an international drainage basin.

Article X

1. Consistent with the principle of equitable utilization of the waters of an international drainage basin, a State

(*a*) must prevent any new form of water pollution or any increase in the degree of existing water pollution in an international drainage basin which would cause substantial injury in the territory of a co-basin State, and

(*b*) should take all reasonable measures to abate existing water pollution in an international drainage basin to such an extent that no substantial damage is caused in the territory of a co-basin State.

2. The rule stated in paragraph 1 of this article applies to water pollution originating:

(*a*) within a territory of the State, or

(*b*) outside the territory of the State, if it is caused by the State's conduct.

Article XI

1. In the case of a violation of the rule stated in paragraph 1 (*a*) of article X of this chapter, the State responsible shall be required to cease the wrongful conduct and compensate the injured co-basin State for the injury that has been caused to it.

2. In a case falling under the rule stated in paragraph 1 (*b*) of article X, if a State fails to take reasonable measures, it shall be required promptly to enter into negotiations with the injured State with a view toward reaching a settlement equitable under the circumstances.

70. At its Sixtieth Conference, held in Montreal in 1982, ILA adopted "Rules of International Law Applicable to Transfrontier Pollution",[149] and "Rules on Water Pollution in an International Drainage Basin".[150] Both sets of rules are pertinent to the present survey, although the second set is obviously of more specific relevance. Article 2 of the rules on transfrontier pollution contains the following definition of the term "pollution":

Article 2. Definition

1. "Pollution" means any introduction by man, directly or indirectly, of substance or energy into the environment resulting in deleterious effects of such a nature as to endanger human health, harm living resources, ecosystems and material property and impair amenities or interfere with other legitimate uses of the environment.

2. "Transfrontier pollution" means pollution of which the physical origin is wholly or in part situated within the territory of one State and which has deleterious effects in the territory of another State.

Article 3 of the same set of rules sets forth the general rule concerning the obligations of States with regard to such pollution:

Article 3. Prevention and abatement

1. Without prejudice to the operation of the rules relating to the reasonable and equitable utilization of shared natural resources, States are in their legitimate activities under an obligation to prevent, abate and control transfrontier pollution to such an extent that no substantial injury is caused in the territory of another State.

2. Furthermore, States shall limit new and increased transfrontier pollution to the lowest level that may be reached by measures practicable and reasonable under the circumstances.

3. States should endeavour to reduce existing transfrontier pollution, below the requirements of paragraph 1 of this article, to the

[148] See footnote 30 (*a*) (ii) above.

[149] ILA, *Report of the Sixtieth Conference, Montreal, 1982* (London, 1983), p. 1, resolution No. 2/1982.

[150] *Ibid.*, p. 13, resolution No. 12/1982.

lowest level that may be reached by measures practicable and reasonable under the circumstances.

It should be noted that the rule stated in paragraph 1 of article 3 is subordinated to the UNEP "rules relating to the reasonable and equitable utilization of shared natural resources". The effect of this subordination would seem to be that an activity that causes substantial transfrontier pollution injury may none the less be "reasonable and equitable" and thus lawful. That point will be reverted to in connection with the ILA rules on water pollution and on international ground-waters, which reflect the same position.

71. Another article of the rules on transfrontier pollution of particular relevance to this survey is the following:

Article 7. Emergency situations

When as a result of an emergency situation or of other circumstances activities already carried out in the territory of a State cause or might cause a sudden increase in the existing level of transfrontier pollution, the State of origin is under a duty:

(*a*) to promptly warn the affected or potentially affected States;

(*b*) to provide them with such pertinent information as will enable them to minimize the transfrontier pollution damage;

(*c*) to inform them of the steps taken to abate the cause of the increased transfrontier pollution level.

72. The Montreal Rules of Water Pollution in an International Drainage Basin[151] "are intended to elaborate the Helsinki Rules dealing with water pollution (see para. 69 above), taking into account developments in theory and practice since 1966". The general rules are stated in article 1:

Article 1

Consistent with the Helsinki Rules on the equitable utilization of the waters of an international drainage basin, States shall ensure that activities conducted within their territory or under their control conform with the principles set forth in these articles concerning water pollution in an international drainage basin. In particular, States shall:

(*a*) prevent new or increased water pollution that would cause substantial injury in the territory of another State;

(*b*) take all reasonable measures to abate existing water pollution to such an extent that no substantial injury is caused in the territory of another State; and

(*c*) attempt to further reduce any such water pollution to the lowest level that is practicable and reasonable under the circumstances.

These rules contain no separate definition of the term "water pollution". Instead, the comments to article 1 make a cross-reference to the definition contained in article IX of the Helsinki Rules (*ibid.*). They note that the following factors are common to most definitions of "water pollution": "physical alteration in the natural quality or content of the water; this alteration to be caused by human conduct; and the effect of the alteration to be detrimental". It is observed that some definitions, such as that of article 1, paragraph (4), of the 1982 United Nations Convention on the Law of the Sea, go further, including conduct that is "likely to result" in deleterious effects.

73. Article 1 of the Montreal Rules on water pollution is somewhat less clear than article 3 of the Rules on transfrontier pollution (see para. 70 above) with regard to the relationship between the principles of equitable utilization and of "no substantial injury". However, the commentary to article 1[152] sheds some light on the issue. It first notes that "the principle of equitable utilization . . . is the foundation on which the Helsinki Rules are built". It then recalls that article X of the Helsinki Rules begins with the words: "Consistent with the principle of equitable utilization of the waters of an international drainage basin, . . ." Pertinent passages of the commentary to article X, explaining the justification for the formula, are then quoted, including the following sentence: "Uses of the waters by a basin State that cause pollution resulting in injury in a co-basin State must be considered from the overall perspective of what constitutes an equitable utilization."[153] The reason given for this position in the commentary to article X is that the principle of equitable utilization is designed to promote an accommodation of "the multiple and diverse uses of the co-basin States." Such an accommodation is the "optimum goal of international drainage basin development".[154] The commentary to article 1 of the Montreal Rules then states as follows:

4. The principle of equitable utilization remains dominant in the law governing water resources shared by two or more States . . . It recognizes that the activity that produces water pollution is itself a utilization of the water resource, and that this utilization may be reasonable and equitable in the particular circumstances. . . .

5. Questions of liability and compensation for injury caused by pollution of water, therefore, must be approached in the light of the overriding principle of equitable utilization. . . .

The commentary points out, however, that the members of the ILA Committee that drafted the Montreal Rules on water pollution were not unanimously of this view:

6. In the discussion of the Committee, some reservation was expressed about the adoption of the principle of equitable utilization as the basis of these rules on pollution. A view was expressed that an activity that resulted in "pollution" was illegal and must be stopped even though the cessation of this activity would deprive the State concerned of its reasonable and equitable share of the benefits of the utilization of the waters. Pollution, then, would be regarded solely from the aspect of tortious activity and not from that of sharing the benefits of utilization of waters in a reasonable and equitable manner. . . .

This position was however rejected by the Committee as a whole. As he will indicate in his comments to draft article 16 [17] (see para. 89 below), the Special Rapporteur believes that there are weighty reasons for not making the principle of equitable utilization the basis of the Commission's articles on pollution, especially in the light of the adverse effects this could have on development and on preservation of the environment for future generations.

74. The most recent effort by ILA in the matter of international watercourses has been the elaboration of Rules on international groundwaters and Complementary Rules applicable to international water resources, which it adopted

[151] For the text of these articles and the commentaries thereto, *ibid.*, pp. 535 *et seq.*

[152] See preceding footnote.

[153] ILA, *op. cit.* (footnote 30 (*a*) (ii) above), p. 499.

[154] *Ibid.*

at its sixty-second Conference, held at Seoul in 1986.[155] The Seoul Rules on International Groundwaters include the following provision:

Article 3. Protection of groundwater

1. Basin States shall prevent or abate the pollution of international groundwaters in accordance with international law applicable to existing, new, increased and highly dangerous pollution. Special consideration shall be given to the long-term effects of the pollution of groundwater.

2. Basin States shall consult and exchange relevant available information and data at the request of any one of them

(*a*) for the purpose of preserving the groundwaters of the basin from degradation and protecting from impairment the geologic structure of the aquifers, including recharge areas;

(*b*) for the purpose of considering joint or parallel quality standards and environmental protection measures applicable to international groundwaters and their aquifers.

3. Basin States shall co-operate, at the request of any one of them, for the purpose of collecting and analysing additional needed information and data pertinent to the international groundwaters or their aquifers.

As for the Complementary Rules applicable to International Water Resources,[156] they are intended, according to the report of the Committee on International Water Resources Law which prepared them, as "guidelines for the application of the 1966 Helsinki Rules . . . They are intended neither to change nor to supersede the provisions of the Rules, but are, however, complementary to them, answering some questions the Rules have left more or less open". One of the "open questions" concerns the concept of "substantial injury", since the Helsinki Rules contain "no specific provision concerning injurious activities".[157] ILA therefore approved article I of the Complementary Rules, entitled "Substantial injury", which provides as follows:

Article I. Substantial injury

A basin State shall refrain from and prevent acts or omissions within its territory that will cause substantial injury to any co-basin State, provided that the application of the principle of equitable utilization as set forth in article IV of the Helsinki Rules does not justify an exception in a particular case. Such an exception shall be determined in accordance with article V of the Helsinki Rules.

As is evident from the text of this article, ILA has maintained its view that the general principle of the "harmless use of territory" is subject to the rule of equitable utilization. None the less, the manner in which this article is phrased suggests that the duty to cause "no substantial injury" is regarded as the general rule, from which a deviation can be justified in a particular case only on the basis of the principle of equitable utilization. This seems to represent a slight difference in emphasis from the approach taken by the Montreal Rules which deal with the specific case of transboundary water pollution (see paras. 72 and 73 above). As already noted, and to be discussed further below, the Special Rapporteur believes that, if any difference in approach is called for as between the general rule of "no appreciable harm" and the specific rule of "no appreciable *pollution* harm", it is the former and not the latter that should be made subject to the rule of equitable utilization.

75. In 1986, the Experts Group on Environmental Law[158] of the World Commission on Environment and Development (the Brundtland Commission) produced a report on "Environmental protection and sustainable development: Legal principles and recommendations".[159] In preparing this study, the Experts Group gave "special attention to *legal principles and rules which ought to be in place now or before the year 2000* to support environmental protection and sustainable development within and among all States".[160] The report of the Experts Group contains two sets of legal principles: "General principles concerning natural resources and environmental interferences", and "Principles specifically concerning transboundary natural resources and environmental interferences".[161] While the latter set of legal principles is most directly relevant to the articles under consideration on pollution of international watercourses, pertinent aspects of the former set must also be borne in mind in determining the approach to be taken in the articles, in particular the following:

Article 3. Ecosystems, related ecological processes, biological diversity and sustainability

States shall:

(*a*) maintain ecosystems and related ecological processes essential for the functioning of the biosphere in all its diversity, in particular those important for food production, health and other aspects of human survival and sustainable development;

(*b*) maintain maximum biological diversity by ensuring the survival and promoting the conservation in their natural habitat of all species of fauna and flora, in particular those which are rare, endemic or endangered;

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[155] The Association adopted the two sets of rules in its resolution 3/1986, ILA, *op. cit.* (footnote 30 (*a*) (iii) above), p. 21.

[156] *Ibid.*, pp. 275 *et seq.*

[157] The other open questions concern "the installation of works and the use of water resources within the territory of a co-basin State", and "the notification procedure and its legal consequences".

[158] The appellation "Brundtland Commission" derives from the name of its Chairman, Mrs. Gro Harlem Brundtland. The Experts Group was chaired by Mr. Robert D. Munro, Special Adviser, World Commission (Nairobi, Kenya). Its Rapporteur was Mr. Johan G. Lammers, Office of the Legal Adviser, Netherlands Ministry of Foreign Affairs. The other members were: Mr. Andronico O. Adede, then Director, Legal Division, IAEA (Vienna, Austria); Mrs. Francoise Burhenne, Head, Environmental Law Centre, International Union for the Conservation of Nature and Natural Resources (Bonn, Federal Republic of Germany); Mr. Alexandre-Charles Kiss, President, European Council on Environmental Law, and Secretary-General, International Institute of Human Rights (Strasbourg, France); Mr. Stephen C. McCaffrey, Professor, McGeorge School of Law, University of the Pacific (California, United States of America); Mr. Akio Morishima, Professor, Faculty of Law, Nagoya University (Japan); Mr. Zaki Mustafa, Secretary-General, Saudi-Sudanese Commission for the Development of Red Sea Resources (Jeddah, Saudi Arabia); Mr. Henri Smets, Environment Directorate, OECD (Paris, France); Mr. Robert Stein, President, Environmental Mediation International (Washington, D.C., United States of America); Mr. Alberto Szekely, Chief Legal Adviser, Ministry of Foreign Relations of Mexico; Mr. Alexandre Timoshenko, Institute of State and Law, Academy of Sciences of the USSR; Mr. Amado Tolentino, National Environmental Protection Council (Quezon City, Philippines).

[159] See footnote 24 above.

[160] Introduction of the Chairman of the Experts Group, *op. cit.*, (footnote 24 above), p. 1.

[161] *Ibid.*, pp. 25-33.

(*c*) observe, in the exploitation of living natural resources and ecosystems, the principle of optimum sustainable yield.

Article 4. Environmental standards and monitoring

States shall:

(*a*) establish specific environmental standards, in particular environmental quality standards, emission standards, technological standards and product standards, aimed at preventing or abating interferences with natural resources or the environment;

(*b*) establish systems for the collection and dissemination of data and regular observation of natural resources and the environment in order to permit adequate planning of the use of natural resources and the environment, to permit early detection of interferences with natural resources or the environment and ensure timely intervention, and to facilitate the evaluation of conservation policies and methods.

Article 8. General obligation to co-operate

States shall co-operate in good faith with other States or through competent international organizations in the implementation of the provisions of the preceding articles.

The following articles are contained in the Experts Group's "Principles specifically concerning transboundary natural resources and environmental interferences":

Article 9. Reasonable and equitable use of transboundary natural resources

States shall use transboundary natural resources in a reasonable and equitable manner.

Article 10. Prevention and abatement of a transboundary environmental interference

States shall, without prejudice to the principles laid down in articles 11 and 12, prevent or abate any transboundary environmental interference or a significant risk thereof which causes substantial harm—i.e. harm which is not minor or insignificant.

Article 12. Transboundary environmental interferences involving substantial harm far less than cost of prevention

1. If a State is planning to carry out or permit an activity which will entail a transboundary environmental interference causing harm which is substantial but far less than the overall technical and socio-economic cost or loss of benefits involved in preventing or reducing such interference, such State shall enter into negotiations with the affected State on the equitable conditions, both technical and financial, under which the activity could be carried out.

2. In the event of a failure to reach a solution on the basis of equitable principles within a period of 18 months after the beginning of the negotiations or within any other period of time agreed upon by the States concerned, the dispute shall at the request of any of the States concerned, and under the conditions set forth in paragraphs 3 and 4 of article 22, be submitted to conciliation or thereafter to arbitration or judicial settlement in order to reach a solution on the basis of equitable principles.

Article 14. General obligation to co-operate on transboundary environmental problems

1. States shall co-operate in good faith with the other States concerned in maintaining or attaining for each of them a reasonable and equitable use of a transboundary natural resource or in preventing or abating a transboundary environmental interference or significant risk thereof.

2. The co-operation shall, as much as possible, be aimed at arriving at an optimal use of the transboundary natural resource or at maximizing the effectiveness of measures to prevent or abate a transboundary environmental interference.

Article 19. Emergency situations

1. In the case of an emergency situation or other change of circumstances suddenly giving rise to a transboundary interference or a significant risk thereof with the reasonable and equitable use of a transboundary natural resource or to a transboundary environmental interference or a significant risk thereof, causing substantial harm in an area under national jurisdiction of another State or in an area beyond the limits of national jurisdiction, the State in whose area under national jurisdiction or under whose jurisdiction the interference originates shall promptly warn the other States concerned, provide them with such pertinent information as will enable them to minimize the transboundary environmental interference, inform them of steps taken to abate the cause of the transboundary environmental interference, and co-operate with those States in order to prevent or minimize the harmful effects of such an emergency situation or other change of circumstances.

2. States shall develop contingency plans in order to prevent or minimize the harmful effects of an emergency situation or other change of circumstances referred to in paragraph 1.

STATE RESPONSIBILITY

Article 21

1. A State is responsible under international law for a breach of an international obligation relating to the use of a natural resource or the prevention or abatement of an environmental interference.

2. In particular, it shall:

(*a*) cease the internationally wrongful act;

(*b*) as far as possible, re-establish the situation which would have existed if the internationally wrongful act had not taken place;

(*c*) provide compensation for the harm which results from the internationally wrongful act;

(*d*) where appropriate, give satisfaction for the internationally wrongful act.

Among the many interesting features of these articles, two may be singled out for attention: the first is that the "no substantial environmental harm" principle of article 10 takes precedence over the "reasonable and equitable use" principle in article 9; the second is that in cases where an activity would cause transfrontier harm that is substantial, but far less than the cost or loss of benefits that would result from abating or reducing the harm, article 12 calls for the States involved to agree upon a régime involving compensation, technical adjustments or both, "under which the activity could [continue to] be carried out".[162]

76. A final instrument that should not escape mention is the Goa Guidelines on Intergenerational Equity contained in a statement prepared by an Experts Group[163] formed by the United Nations University in the context of its project on international law, common patrimony and intergenerational equity. The Guidelines, adopted by the

[162] Such a régime was devised by the tribunal in the *Trail Smelter* arbitration (see footnote 182 below), under circumstances that were at least similar to those described in article 12.

[163] The membership of the Experts Group is as follows: Mr. Antonio Augusto Cancado Trindade, Legal Adviser, Ministry of External Relations of Brazil; Mr. Alexandre-Charles Kiss, Secretary-General, International Institute of Human Rights, and President, European Council on Environmental Law; Mr. Lai Pengcheng, Professor of international law, Fudan University, People's Republic of China; Mr. Raghunandan Swarup Pathak, Chief Justice of India; Mr. Edward W. Ploman, Programme Director, United Nations University; Mrs. Edith Brown Weiss, Professor, Georgetown University Law Center, Washington, D.C., United States of America.

Experts Group at Goa, India, on 15 February 1988, attempt to "introduce for the first time in a systematic and comprehensive manner, a long-term temporal dimension into international law as a complement to the traditional spatial dimension".[164] According to the Guidelines, "this temporal dimension is articulated through the formation of the theory of 'intergenerational equity'". That theory is explained as follows:

All members of each generation of human beings, as a species, inherit a natural and cultural patrimony from past generations, both as beneficiaries and as custodians under the duty to pass on this heritage to future generations. As a central point of this theory, the right of each generation to benefit from and develop this natural and cultural heritage is inseparably coupled with the obligation to use this heritage in such a manner that it can be passed on to future generations in no worse conditions than it was received from past generations. This requires conservation and, as appropriate, enhancement of the quality and of the diversity of this heritage. The conservation of cultural diversity is as important as the conservation of environmental diversity to ensure options for future generations.

Specifically, the principle of intergenerational equity requires conserving the diversity and the quality of biological resources, of renewable resources such as forests, water and soils which form an integrated system, as well as of our knowledge of natural and cultural systems. The principle requires that we avoid actions with harmful and irreversible consequences for our natural and cultural heritage and that we dispose of nuclear and other wastes without unduly shifting the costs to coming generations.

77. The Experts Group proposes various strategies for the implementation of the "intergenerational rights and obligations" it describes, including the taking of "measures to ensure use of renewable resources and ecological systems on a sustainable basis". It concludes with the following words:

National institutions and decision-makers and international organizations concerned with the conservation and development of natural resources and cultural systems should be encouraged to integrate as a matter of course the intergenerational perspective in their activities and in the elaboration of international principles and agreements respecting our common heritage.

78. The Goa Guidelines are significant because they demonstrate once again mankind's present (though somewhat belated) awareness of the fragility of nature, and of the consequent need to think not only in terms of protecting against present and immediate future harm but also—and what is perhaps more important—in terms of "good husbandry" of our planet in order to forestall long-term environmental harm that may threaten sustainable development, and even life as we know it.[165] Many existing agreements between States are in effect aimed at this objective, in that they specifically call upon the parties to protect "the environment" of a watercourse or of the sea.[166]

79. The conclusions reflected in the reports and studies surveyed in the present section are generally echoed in the recent works of legal experts writing on international watercourses. For the sake of completeness, brief mention of those works will be made in the following section.

4. Studies by individual experts

80. There is a vast body of literature, much of which is of recent vintage, bearing on the present subject.[167] Since

[164] The idea of respect for the environmental interests of future generations was set forth in principle 1 of the 1972 Stockholm Declaration on the Human Environment, which speaks of man's "solemn responsibility to protect and improve the environment for present and future generations". The same idea is reflected in principle 2 (see footnote 249 below).

[165] To similar effect, see e.g. principles 1 and 2 of the Stockholm Declaration (footnote 249 below), as well as principle 21 (para. 55 above).

[166] Some of these agreements, excerpted above (sect. B), are referred to in the comments to articles 16 (para. 2) and 17 (sect. C below).

[167] In addition to the works cited in Mr. Schwebel's third report (see footnote 168 below), the following studies relate specifically to pollution of international watercourses, e.g.: C. B. Bourne, "International law and pollution of international rivers and lakes", *University of Toronto Law Journal*, vol. 21, 1971, p. 193; H. Brownell and S. D. Eaton, "The Colorado River salinity problem with Mexico", *American Journal of International Law* (Washington, D.C.), vol. 69, 1975, p. 255; C. Caflisch, *La Suisse et la protection des eaux douces dans le cadre du droit international* (Bern, H. Lang, 1976) (thesis); C.-A. Colliard, "Legal aspects of transfrontier pollution of fresh water", OECD, *Legal Aspects of Transfrontier Pollution* (Paris, 1977), p. 263; H. L. Dickstein, "International lake and river pollution control: Questions of method", *Columbia Journal of Transnational Law* (New York), vol. 12, 1973, p. 487; G. Gaja, "River pollution in international law", *The Protection of the Environment and International Law*, Colloquium 1973 of the Hague Academy of International Law (Leyden, Sijthoff, 1975), p. 353; G. Handl, "Balancing of interests and international liability for the pollution of international watercourses: Customary principles of law revisited", *Canadian Yearbook of International Law, 1975* (Vancouver), vol. 13, p. 156; A.-Ch. Kiss and C. Lambrechts, "La lutte contre la pollution de l'eau en Europe occidentale", *Annuaire français de droit international, 1969* (Paris), vol. 15, p. 718; J. G. Lammers, "International co-operation for the protection of the waters of the Rhine basin against pollution", *Netherlands Yearbook of International Law, 1974* (Leyden), vol. 5, p. 59; and *Pollution of International Watercourses* (The Hague, Martinus Nijhoff, 1984); A. Lester, "Pollution", *The Law of International Drainage Basins*, A. H. Garretson, R. D. Hayton and C. J. Olmstead, eds. (Dobbs Ferry, N.Y., Oceana Publications, 1967), p. 89, chap. 3; E. J. Manner, "Water pollution in international law: The rights and obligations of States concerning pollution of inland waters and enclosed seas", United Nations, *Conference on Water Pollution Problems in Europe*, Geneva, 22 February-3 March 1961 (Sales No. 61.II.E.mim.24), vol. II, *Documents submitted to the Conference*, p. 446; G. Sauser-Hall, "L'utilisation industrielle des fleuves internationaux", *Recueil des cours . . ., 1953-II* (Leyden, Sijthoff, 1955), vol. 83, p. 471; J. Sette-Camara, "Pollution of international rivers", *Recueil des cours . . ., 1984-III* (Leyden, Martinus Nijhoff, 1985), vol. 186, p. 117; P. Stainov, "Les aspects juridiques de la lutte internationale contre la pollution du Danube", *Revue générale de droit international public*, Paris, vol. 72, 1968, p. 97; A. E. Utton, "International water quality law", *Natural Resources Journal* (Albuquerque, N.M.), vol. 2, 1973, p. 282; M. Wolfrom, "La pollution des eaux du Rhin", *Annuaire français de droit international, 1964*, vol. 10, p. 737; WHO, *Water Pollution Control in Developing Countries* (Geneva, 1968), Technical Report Series, No. 404. See also J. Brierly, *The Law of Nations*, 6th ed., rev. by H. Waldock (Oxford, Clarendon Press, 1963), pp. 231-233.

See also the following studies relating in part to pollution of international watercourses or concerning transfrontier pollution in general: C. B. Bramsen, "Transnational pollution and international law", OECD, *Problems in Transfrontier Pollution* (Paris, 1974), p. 257; C.-A. Colliard, Evolution et aspects actuels du régime juridique des fleuves internationaux", *Recueil des cours . . ., 1968-III* (Leyden, Sijthoff, 1970), vol. 125, p. 337; A. Droz and H. Smets, "Transfrontier pollution in international water basins", OECD, *Transfrontier Pollution and the Role of States* (Paris, 1981), p. 126; G. Handl, "The principle of 'equitable use' as applied to international shared natural resources: its role in resolving potential international disputes over transfrontier pollution", *ibid.*, p. 98; P. Dupuy, "International liability of States for damage caused by transfrontier pollution", OECD, *Legal Aspects of Transfrontier Pollution* (Paris, 1977), p. 345; E. du Pontavice, "Compensation for transfrontier pollution damage", *ibid.*, p. 409; Dupuy, *La responsabilité internationale des Etats pour les dommages d'origine technologique et industrielle* (Paris, Pedone, 1977); Handl, "Territorial sovereignty and the problem of transnational pollution", *American*

(Continued on next page.)

these studies have been surveyed in the third report submitted by Mr. Schwebel,[168] as well as in other publications,[169] it will perhaps suffice for present purposes to observe that recent works by individual experts at minimum confirm the existence of an international legal obligation so to use the waters of an international watercourse as not to cause appreciable (or substantial) harm to other watercourse States. A number of commentators go further, finding an obligation not to harm the environment of other States. This obligation is generally derived from the ultimate effects of such harm upon people (including future generations), property, and the potential for maintaining minimum living standards and for sustaining development.

81. The authors of works in this field often take as a starting point several important and well-known decisions of international courts and tribunals which bear upon the subject under consideration. These decisions will be recalled briefly in the following section, which will also review several relevant instances of State practice.

5. Decisions of international courts and tribunals and other instances of State practice[170]

82. Most of the relevant decisions of international courts and tribunals and other instances of State practice were examined in the second report of the Special Rapporteur.[171] Therefore the function of the present section is, by and large, merely to recall these authorities very briefly in order to assist the Commission in its search for the principles to be applied in the context of the subject under examination.

(a) *Judicial decisions*

83. The two well-known judicial decisions relating to international watercourses are those rendered by the Permanent Court of International Justice in the *River Oder* case[172] and in the case of the *Diversion of water from the Meuse*[173] in the first half of the century. However, these decisions provide little or no assistance with regard to the present subject. In fact, the judicial decision most frequently cited as bearing upon problems of transfrontier pollution and environmental harm did not involve fresh water at all. That decision was rendered in 1949 by the International Court of Justice in the *Corfu Channel* case.[174] The Court there held that Albania's knowledge that mines had been laid in its territorial waters gave rise to an obligation to notify ships operating in the area of the mines and to warn the ships of the resulting imminent danger. Such duties, according to the Court, are based, *inter alia*, on "every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States".[175] This language, which may be regarded as an expression of the maxim *sic utere tuo ut alienum non laedas*, has been relied upon frequently by commentators and tribunals dealing with problems of transfrontier pollution.

(b) *Arbitral awards*

84. A decision which dealt expressly with problems of the non-navigational uses of international watercourses was the award of the tribunal in the *Lake Lanoux* case.[176] This case, which did not involve pollution, was discussed in some detail in the second report of the Special Rapporteur.[177] The arbitral tribunal, in dealing with the question whether the works proposed by France would violate the Treaty of Bayonne and the Additional Act of 1866, called attention to what Spain could have claimed, but did not:

> It could have been argued that the works would bring about an ultimate pollution of the waters of the Carol or that the returned waters would have a chemical composition or a temperature or some other characteristic which could injure Spanish interests. Spain could then have claimed that her rights had been impaired in violation of the Additional Act. . . .[178]

The Tribunal later addressed the kind of situation that would result from pollution of an international watercourse:

> . . . Thus, if it is admitted that there is a principle which prohibits the upstream State from altering the waters of a river in such a fashion as seriously to prejudice the downstream State, such a principle would have no application in the present case, because it has been admitted by the tribunal . . . that the French scheme will not alter the waters of the Carol. . . .[179]

While this statement cannot, strictly speaking, be characterized as a "holding" of the case, since it was not necessary to the decision, it is none the less significant that the tribunal did not appear to doubt the existence of the "rule"

(Footnote 167 continued)

Journal of International Law, vol. 69, 1975, p. 50; A. Rest, *Internationaler Umweltschutz und Haftung/International Protection of the Environment and Liability* (Berlin, E. Schmidt, 1978).

[168] Document A/CN.4/348 (see footnote 4 (*c*) above), paras. 259-262 ("Doctrinal developments"), in particular paras. 281-283 and footnote 490.

[169] See the exhaustive bibliography given by Lammers, *op. cit.* (footnote 78 above), pp. 663 *et seq.*, as well as his discussion of "academic views", pp. 531 *et seq.*

[170] On the value of decisions as sources of international law, see the second report of the Special Rapporteur, document A/CN.4/399 and Add.1 and 2 (footnote 1 (*b*) above), para. 100.

[171] *Ibid.*, paras. 102-133 (Judicial decisions) and paras. 78-99 (Positions taken by States). See also the third report of Mr. Schwebel, document A/CN.4/348 (footnote 4 (*c*) above), paras. 243-336, *passim*.

[172] *Territorial jurisdiction of the International Commission of the River Oder*, judgment of 10 September 1929, *P.C.I.J., Series A, No. 23* (discussed in the second report of the Special Rapporteur, document A/CN.4/399 and Add.1 and 2, paras. 102-105).

[173] Judgment of 28 June 1937, *P.C.I.J. Series A/B, No. 70*, p. 4 (*idem*, paras. 106-107).

[174] United Kingdom *v.* Albania, judgment of 9 April 1949, *I.C.J. Reports 1949*, p. 4 (*idem*, paras. 108-110).

[175] *I.C.J. Reports* 1949, p. 20.

[176] Original French text of the arbitral award in: *Revue générale de droit international public* (Paris), vol. 62 (1958), pp. 79 *et seq.*; and United Nations, *Reports of International Arbitral Awards*, vol. XII (Sales No. 63. V.3), pp. 281 *et seq.*; partial translations in *Yearbook . . . 1974*, vol. II (Part Two), pp. 194 *et seq.*, document A/5409, paras. 1055-1068; *The American Journal of International Law* (Washington, D.C.), vol. 53 (1959), pp. 156 *et seq.*; and *International Law Reports, 1957* (London), vol. 24 (1961), pp. 101 *et seq.*

[177] Document A/CN.4/399 and Add.1 and 2, paras. 111-124.

[178] Para. 6 (third subparagraph) of the award (United Nations, *Reports of International Arbitral Awards*, vol. XII, p. 303). This passage is relied upon, *inter alia*, in the commentary (para. (*a*)) to article X of the Helsinki Rules (ILA, *op. cit.* (footnote 30 (*a*) (ii) above), p. 497).

[179] Para. 13 (first subparagraph) of the award (United Nations, *Reports . . .*, p. 308).

it contains. In any event, the tribunal went on to declare, in language that *was* necessary to its decision, that

> France may use its rights; it may not disregard Spanish interests.
>
> Spain may demand respect for its rights and consideration of its interests.[180]

85. An arbitral tribunal established by Canada and the United States of America pursuant to a 1935 Agreement[181] rendered what is undoubtedly the foremost international decision involving transfrontier pollution in the *Trail Smelter* case.[182] The case was one of transfrontier air pollution, in which sulphur dioxide fumes emitted by a privately owned zinc and lead smelter located in Trail, British Columbia, Canada, seven miles from the United States border were carried by the prevailing winds into the State of Washington, in the United States, where they caused damage to crops and timber, also privately owned. The Agreement entered into by Canada and the United States provided, *inter alia*, in article IV, that the tribunal:

> shall apply the law and practice followed in dealing with cognate questions in the United States of America as well as international law and practice. . . .

In its second award, rendered on 11 March 1941, the tribunal stated the principle for which the arbitration is most often cited:

> . . . under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.[183]

The tribunal went on to hold that:

> The Dominion of Canada is responsible in international law for the conduct of the Trail Smelter. Apart from the undertakings in the Agreement, it is therefore the duty of the Government of the Dominion of Canada to see to it that this conduct should be in conformity with the obligation of the Dominion under international law as herein determined.[184]

This statement, which may be regarded as an application of the *sic utere tuo* principle, and as one of the bases of principle 21 of the Stockholm Declaration (see para. 55 above) is applicable by analogy to pollution of international watercourses: in both cases, a "current" (of air or of water) transports pollutants from one State to another. It will be noted that the rule stated by the tribunal, by its terms, admits of no exception for harm that might be caused through "equitable utilization" of shared air resources. While the tribunal sought to strike a balance between the interests of the industry and the agricultural community, it took pains to reach a solution which would allow the continuance of the operation of the Trail Smelter but under such restrictions and limitations as would, as far as foreseeable, *prevent damage in the United States*,* and as would enable indemnity to be obtained if, in spite of such restrictions and limitations, damage should occur in the future in the United States.[185]

The tribunal specifically found that the smelter should be required to refrain from causing damage in the State of Washington, using a threshold of proscribed damage such as would be legally compensable in suits between private individuals in United States courts.[186] Thus the solution reached by the tribunal emphasized the prevention of harm but provided for compensation to be made for any material damage suffered as a result of the operation of the smelter.

86. A final arbitration that should be mentioned again involved Canada and the United States. In 1965, the two countries entered into an Agreement concerning the establishment of an international arbitral tribunal to dispose of United States claims relating to the *Gut Dam*.[187] The Lake Ontario Claims Tribunal, established pursuant to the Agreement, "received 230 claims on behalf of United States citizens for flooding and erosion damage to property in the United States allegedly caused by a Canadian dam [the Gut Dam] built across the international boundary in the international section of the St. Lawrence River".[188] The case was ultimately settled by the two Governments after negotiations entered into at the suggestion of the tribunal.[189] As pollution of the international watercourse in question was not involved, the case is not directly relevant to the present study. It is none the less significant in that the Government of Canada "recognize[d] in principle its obligation to pay compensation for damages to United States citizens provided that they are attributable to the construction or operation of Gut Dam".[190] The case may therefore be taken as an instance of State practice in which the "State of origin" (here, Canada) recognized an obligation to provide compensation for transfrontier harm resulting from its utilization of an international watercourse.

87. The decisions reviewed above concern a wide variety of cases. They are significant for present purposes because they demonstrate an acceptance by international courts and arbitral tribunals, as well as by States, of the principle of the harmless use of territory. It may generally be said that a similar acceptance is reflected in diplo-

[180] Para. 23 (fifth and sixth subparagraphs) of the award (*ibid.*, p. 316).

[181] Agreement of 15 April 1935 for the final settlement of the difficulties arising through complaints of damage done in the State of Washington by fumes discharged from the smelter of the Consolidated Mining and Smelting Company, Trail, British Columbia (League of Nations, *Treaty Series*, vol. CLXII, p. 73).

[182] United Nations, *Reports of International Arbitral Awards*, vol. III (Sales No. 1949.V.2), pp. 1905 *et seq.*; excerpted in *Yearbook . . . 1974*, vol. II (Part Two), pp. 192 *et seq.*, document A/5409, paras. 1049-1054. See also the discussion of this arbitration in the second report of the Special Rapporteur, document A/CN.4/399 and Add.1 and 2, paras. 125-128.

[183] United Nations, *Reports of International Arbitral Awards*, vol. III, p. 1965.

[184] *Ibid.*, pp. 1965-1966.

[185] *Ibid.*, p. 1939.

[186] *Ibid.*, p. 1966.

[187] *United States Treaties and Other International Agreements, 1966*, vol. 17-2, p. 1566, No. 6114. The instruments of ratification were exchanged in Washington on 11 October 1966. The report of the agent of the United States of America before the Lake Ontario Claims Tribunal is reproduced in *International Legal Materials* (Washington, D.C.), vol. 8, 1969, p. 118. See the discussion of this case by Handl "State liability for accidental transnational environmental damage by private persons", *American Journal of International Law*, Washington, D.C., vol. 74, 1980, p. 527, and by J. Schneider, *World Public Order of the Environment: Towards an International Ecological Law and Organization* (University of Toronto Press, 1979), pp. 165-166.

[188] *International Legal Materials*, vol. 8, 1969, p. 118.

[189] *Ibid.*, p. 140. The agreement called for Canada to pay to the United States $350,000 in full and final settlement of all claims (*ibid.*).

[190] Excerpt from a letter dated 10 November 1952 addressed to the United States Secretary of State by the Canadian Embassy at Washington (*ibid.*, p. 139).

matic exchanges in concrete situations involving differences with regard to the utilization of international watercourses. This is true, for example, of the cases reviewed in the second report of the Special Rapporteur involving the Indus, Karnafuli and Ganges rivers,[191] as well as international watercourses between Austria and Bavaria,[192] the United States and Canada,[193] and the United States and Mexico.[194] Other surveys are to the same overall effect.[195] A recent case that has a direct bearing on the present study is the projected construction, in Canada, of a generating station on the Poplar, upstream from the United States (*Poplar River Project*).[196] Because of concern that the plant might cause significant transfrontier water pollution, the two Governments referred the matter to the International Joint Commission established under the 1909 boundary waters Treaty.[197] In 1977, the Commission established the International Poplar River Water Quality Board, which submitted its report to the Commission in 1979.[198] The "major conclusion" of that report "was that operation of the plant and its associated cooling reservoir could increase the levels of boron and of total dissolved solids (TDS) in the river system below the plant, and in the absence of mitigating measures might decrease crop yields in areas of the East Poplar River basin irrigated by these waters".[199] Canada indicated in a subsequent meeting that measures would be adopted which would meet the anticipated problems of boron and TDS. It reaffirmed assurances that United States concerns would be taken fully into account and that all stages of the project would be carried out in full accordance with Canada's international obligations.[200] In its response, the United States expressed satisfaction that the mitigation measures that had been developed appeared substantially to address the concerns raised in the report of the Water Quality Board with respect to boron and TDS and other water quality questions.[201]

The results obtained from an exchange of views between the parties were summarized in a Department of State press release as follows:

> . . . In view of the fact that foreseeable international water quality concerns [had] now been covered in project and mitigation design, both sides stressed the need to put into place a complete and effective monitoring system for air, ground and surface water quality before the proposed start-up of operation of the first unit. The Canadian side . . . assured the United States side that a comprehensive monitoring system could and would be in place in advance of all operations . . .
>
> Both Governments discussed the possible adverse effects of the Poplar River project on the biological habitat in the East Poplar . . . They agreed to actively consider alternative measures for the protection of fish and wildlife resources.[202]

This resolution of the problem reveals a determination on the part of both Governments to reach a solution that would result in the avoidance of appreciable pollution harm to the lower riparian State.

6. Conclusion

88. The foregoing survey of State practice demonstrates a long-standing concern of States with the problem of pollution of international watercourses. As water pollution has become more serious, both qualitatively and quantitatively, the efforts of States to deal with it have increased commensurately. The modern realization of the intimate relationship between nature and humanity has made States more conscious of the need—which is becoming increasingly pressing—to safeguard the natural environment from the deleterious effects of civilization. The Special Rapporteur has attempted to take these considerations into account in the draft articles he submits for the Commission's consideration in the following section.

C. The proposed articles

89. In this final section of his fourth report, the Special Rapporteur will submit for the Commission's consideration the following three draft articles[203] on the subject of environmental protection, pollution and related matters: article 16 [17] (Pollution of international watercourse[s] [systems]); article 17 [18] (Protection of the environment of international watercourse[s] [systems]); and article 18 [19] (Pollution or environmental emergencies). After defining the term "pollution", article 16 sets forth the basic obligation of watercourse States in respect of pollution of international watercourse[s] [systems]. In keeping with the modern approaches indicated in the preceding section, article 16 requires the watercourse States concerned to consult, upon the request of any one of them, on the preparation of lists of items to be subject to special regulation. Article 17 imposes an affirmative obligation upon watercourse States to protect the environment of international watercourse[s] [systems] and requires that the necessary measures be taken to protect the marine environment from pollution damage. Finally, article 18 requires that watercourse States warn each other expeditiously of emergencies relating to international watercourse[s] [systems], and that immediate action be taken to abate the emergency and to mitigate damage resulting therefrom. It is proposed that these provisions on pollution and environmental protection be contained in a separate chapter or part of the draft articles, as follows:

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[191] Document A/CN.4/399 and Add.1 and 2 (see footnote 1 (*b*) above), paras. 88-89.

[192] *Ibid.*, para. 90.

[193] *Ibid.*, footnote 114.

[194] *Ibid.*, paras. 79-87.

[195] See the many instances of State practice, arranged according to geographic region, surveyed by Lammers, *op. cit.* (footnote 78 above), pp. 166 *et seq.*

[196] *Digest of United States Practice in International Law, 1978* (Washington, D.C., U.S. Government Printing Office, 1980), pp. 1116-1121; *Digest . . . 1979* (1983), pp. 1103-1111. See also Lammers, *op. cit.*, p. 266.

[197] On the Commission and its practice, see generally L. M. Bloomfield and G. F. Fitzgerald, *Boundary Waters Problems of Canada and the United States (the International Joint Commission 1912-1958)* (Toronto, Carswell, 1958).

[198] *Digest . . . 1979*, pp. 1104; contains large extracts of the report (pp. 1108 *et seq.*).

[199] *Ibid.*, p. 1104.

[200] *Ibid.*, pp. 1104-1105.

[201] *Ibid.*, p. 1105.

[202] *Ibid.*, Department of State, Press Release No. 191 of 8 August 1979.

[203] On the numbering of the draft articles, see footnote 10 above.

PART V

ENVIRONMENTAL PROTECTION, POLLUTION AND RELATED MATTERS

Article 16 [17]. Pollution of international watercourse[s] [systems]

1. As used in these articles, "pollution" means any physical, chemical or biological alteration in the composition or quality of the waters of an international watercourse [system] which results directly or indirectly from human conduct and which produces effects detrimental to human health or safety, to the use of the waters for any beneficial purpose or to the conservation or protection of the environment.

2. Watercourse States shall not cause or permit the pollution of an international watercourse [system] in such a manner or to such an extent as to cause appreciable harm to other watercourse States or to the ecology of the international watercourse [system].

3. At the request of any watercourse State, the watercourse States concerned shall consult with a view to preparing and approving lists of substances or species the introduction of which into the waters of the international watercourse [system] is to be prohibited, limited, investigated or monitored, as appropriate.

Comments

(1) *Paragraph 1* defines the term "pollution". A definition of this term was offered in article 22 as proposed by Mr. Evensen in his first report[204] and in paragraph 1 of article 10 proposed by Mr. Schwebel in his third report.[205] Other examples of the numerous attempts to define the term may be found in paragraph 1 of article I of the Athens resolution, adopted in 1979 by the Institute of International Law (see para. 68 above); article IX of the Helsinki Rules (see para. 69 above); the third paragraph of title A of the OECD principles on transfrontier pollution;[206] paragraph 4 of article 1 of the 1982 United Nations Convention on the Law of the Sea; article I of the 1979 Convention on Long-range Transboundary Air Pollution; paragraph (*c*) of article I of the 1969 draft European convention on the protection of fresh water against pollution; and paragraph (*d*) of article I of the 1974 draft European convention for the protection of international watercourses against pollution (see para. 54 above).

(2) It should be noted that the definition proposed in paragraph 1 does not specify what it is that produces the alteration in the composition or quality of the waters. Other approaches are of course possible. For example, Mr. Schwebel's definition refers to "any introduction by man, directly or indirectly, of substances, species or energy". On the other hand, it does not include mention of the types of "alterations" of the water contemplated. In the view of the Special Rapporteur, the indication of the types of alterations contemplated covers the manner in which the pollution is produced. However, the means by which pollution is produced could easily be covered in the definition if the Commission so desired.[207] It should in any event be noted that thermal pollution would be included in the proposed definition. Indeed, heat is an important by-product of many industrial and energy-producing processes, such as steel mills and nuclear power plants. Finally, the increasingly serious problem of pollution of watercourses by "acid rain", or atmospheric deposition of toxics,[208] would also be included within the proposed definition.

(3) *Paragraph 2* sets forth the basic obligation of watercourse States not to cause appreciable pollution harm to other watercourse States or to the ecology of the international watercourse [system]. The counterpart of this provision proposed by Mr. Schwebel (article 10, paragraph 3) adds the following proviso:

> . . . a system State is under no duty to abate pollution emanating from another system State in order to avoid causing appreciable harm to a third system State as a result of such pollution, except in concert on an equitable basis with other system States.

The wording of paragraph 2, it is submitted, makes such a proviso unnecessary, since pollution that is not "caused" or "permitted" by a watercourse State does not come within its terms. Thus, under this paragraph, a watercourse State would not be responsible for the harmful effects of pollution that could be shown to have originated in another watercourse State. Of course, the paragraph would not bar concerted action by watercourse States to prevent or abate such pollution; indeed, this may be the most effective means of eliminating the harmful effects in many cases. Such concerted action could be regarded as falling within

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[204] Document A/CN.4/367 (see footnote 3 (*a*) above), para. 166.

[205] Document A/CN.4/348 (see footnote 4 (*c*) above), para. 312; see the discussion of the meaning of the term "pollution", paras. 313-322.

[206] See footnote 43 above.

[207] For example, a formulation which would include reference to the means by which pollution was caused is the following:

> "As used in these articles, 'pollution' means any physical, chemical or biological alteration in the composition or quality of the waters of an international watercourse [system] resulting from the introduction, directly or indirectly, by means of human action, of substances, species or energy and producing effects detrimental to human health or safety, to the use of the waters for any beneficial purpose or to the conservation or protection of the environment."

[208] See the thorough discussion of acid rain as a source of water pollution by Sette-Camara, *loc. cit.* (footnote 76 above), pp. 181-187. See also the rather alarming discovery of toxics (polychlorinated biphenyls (PCBs)) in fish samples taken from a lake on Isle Royale, a protected site with no automobiles or factories, located on the United States side of Lake Superior, just south of Canadian waters, in Cobb, "The Great Lakes' troubled waters", *National Geographic* (Washington, D.C.) July 1987, pp. 2, 24-25. Scientists had concluded that the toxics had "arrived in the atmosphere and washed down in precipitation" (*ibid.*, p. 24). The United States of America and Canada have recently agreed to amend the Agreement of 22 November 1978 on Great Lakes water quality to include airborne toxic substances within its scope; see the Agreement of 16 October 1983 on reduction of the phosphorus load, as amended by the Protocol of 18 November 1987, the two texts having been consolidated in January 1988 by the International Joint Commission, United States and Canada. See also *International Environment Reporter*, Washington, D.C., 9 December 1987, pp. 647-648.

See also article 212 of the 1982 United Nations Convention on the Law of the Sea, entitled "Pollution from or through the atmosphere", and article 222, entitled "Enforcement with respect to pollution from or through the atmosphere".

the obligation of equitable participation provided for in paragraph 2 of article 6.

(4) The rule embodied in paragraph 2 does not proscribe all pollution of an international watercourse [system], no matter how insignificant in amount or effect. In fact, it is doubtful that pollution, *per se*, of an international watercourse can be said to be proscribed by contemporary international law.[209] Rather, it is when such pollution causes appreciable harm to another watercourse State that it becomes internationally wrongful.[210] Thus, paragraph 2 enjoins watercourse States not to cause "appreciable harm to other watercourse States or to the ecology of the international watercourse [system]" through pollution thereof. The expression "appreciable harm" is used in the same sense as in article 8 [9], currently before the Drafting Committee. It has been the subject of extensive discussion in previous reports[211] and will therefore not be dwelt upon here. Suffice it for present purposes to say that the expression is intended to embody a factual standard, compliance with which is capable of objective determination. Thus, as used in these draft articles, "appreciable" harm is harm that is significant—i.e. not trivial or inconsequential—but is less than "substantial".[212] The term "harm" is used in its factual sense: there must be an actual impairment of use, injury to health or property, or a detrimental effect upon the ecology of the watercourse.

(5) In the particular case of pollution, the harm to be avoided may take the form of e.g. adverse effects on health resulting from the use of water, interference with equitable and reasonable uses of the international watercourse by other watercourse States,[213] other adverse effects not related to utilization of the international watercourse or degradation of the ecology of the international watercourse [system]. The obligation thus encompasses not only harm that is related to the use of the watercourse by other watercourse States but also harm that is not related thereto. In discussing the concept of "substantial injury" employed in article X of the Helsinki Rules, para. (*c*) of the commentary to that article offers the following explanation, which is pertinent here:

> . . . to be "substantial", an injury in the territory of a State need not be connected with that State's use of the water. For example, the pollution of water could result in "substantial injury" in the territory of another State by the transmission, through the evaporative process, of organisms that cause disease.[214]

(6) The manner in which paragraph 2 is formulated might lead one to conclude that a State in which pollution originated would be strictly liable for any appreciable harm caused by that pollution. That is not the Special Rapporteur's intention, however. On the contrary, the obligation set forth in paragraph 2 is proposed as one of due diligence to see that appreciable harm is not caused to other watercourse States or to the ecology of the interna-

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[209] See e.g. Sette-Camara, *loc. cit.* (footnote 76 above), pp. 160 and 163, and the commentary (para. (*c*)) to article X of the Helsinki Rules, pointing out that "pollution may be a by-product of an otherwise beneficial use of the waters of an international drainage basin" (ILA, *op. cit.* (footnote 30 (*a*) (ii) above), p. 500). See also the authorities mentioned in the following footnote.

[210] There is a wealth of authority supporting the idea that, in order to become internationally wrongful, pollution of an international watercourse must cause adverse effects in or to another watercourse State that are not merely trivial or inconsequential. It has already been seen that the approach of States in international agreements has evolved from outright banning to regulation on the basis of types of pollutants and uses. Some commentators base the "harm" requirement upon the maxim *sic utere tuo ut alienum non laedas*, e.g. Sette-Camara, *loc. cit.*, pp. 131 and 173. It has also been based on principles of good-neighbourliness; see e.g. E. Jiménez de Arechaga, "International legal rules governing use of waters from international watercourses", *Inter-American Law Review* (New Orleans, La.), vol. 2, 1960, p. 332 ("one of the conditions of the good neighbour principle is the duty to overlook small, insignificant inconveniences"); and the contention of Spain in the *Lake Lanoux* case (below). More generally, see Lester, *loc. cit.* (footnote 167 above), p. 112, and Sette-Camara, *loc. cit.*, pp. 153-154.

The arbitral award in the *Lake Lanoux* case supports a requirement of at least some tangible harm to the claimant State. There is a dictum in the award suggesting that an appreciable adverse effect upon another watercourse State is required to engage liability. For example, the tribunal recognized that, while it had no application to the case before it, "there is a rule prohibiting the upper riparian State from altering the waters of a river in circumstances calculated to do serious injury to the lower riparian State" (*Yearbook . . . 1974*, vol. II (Part Two), p. 197, document A/5409, para. 1066 (para. 13 of the award)). See also the following contention of Spain, referred to approvingly by the tribunal:

> "A State has the right to use unilaterally the part of a river which traverses it to the extent that this use is likely to cause on the territory of another State a limited harm only, a minimal inconvenience, which comes within the bounds of those that derive from good-neighbourliness." (*Ibid.*, p. 196, para. 1064 (para. 7 of the award).)

[211] See especially the third report of Mr. Schwebel, document A/CN.4/348 (see footnote 4 (*c*) above), paras. 130-141. See also the definition of the term "appreciable" in the commentary to paragraph 2 of article 4 provisionally adopted by the Commission in 1987 (footnote 5 above).

[212] The term "substantial" is here used as meaning "of considerable size or amount" (*Webster's New Twentieth Century Dictionary of the English Language, Unabridged*, 2nd ed., 1979, p. 1817). It is recognized that the word "substantial" has a variety of meanings and is used by some authorities in the same, or a very similar, sense as the term "appreciable" is used here. For example, Lammers uses "substantial" "in the sense of not minor or not insignificant" (*op. cit.* (footnote 78 above), p. 381). But it is precisely this variety of meanings that makes the term "substantial" ambiguous, and thus undesirable.

Another example of the use of the term "substantial" may be found in article X of the Helsinki Rules, which employs the standard of "substantial injury". According to the commentary (para. (*c*)) to that article:

> "Not every injury is substantial. Generally, an injury is considered 'substantial' if it materially interferes with or prevents a reasonable use of the water. . . ." (ILA, *op. cit.* (footnote 30 (*a*) (ii) above), p. 500).

The "substantial injury" standard is also used in art. 1 of the Montreal Rules on Water Pollution in an International Drainage Basin (see para. 72 above).

[213] Some authorities seem to take the position that this is the only kind of effect that would engage liability. See e.g. the commentary to article X of the Helsinki Rules, quoted in the preceding footnote, and the opinion of Sette-Camara:

> ". . . there is no doubt that a certain pattern of pollution which causes prejudice to the equitable utilization of water is indispensable if the polluting State is to be open to a claim of reparation." (*Loc. cit.* (footnote 76 above), p. 154.)

The relationship between the obligation contained in paragraph 2 of article 16 and the rule of equitable utilization reflected in article 6 is explored below.

[214] ILA, *op. cit.* (footnote 30 (*a*) (ii) above), p. 500.

tional watercourse [system].[215] As explained by Pierre Dupuy, "Due diligence . . . is the diligence to be expected from a 'good government', i.e. from a government mindful of its international obligations . . . It is both the counterpart to the exclusive exercise of territorial jurisdiction and the limiting factor to international liability flowing from failure to act in accordance with it."[216] Lammers has applied this obligation to pollution of international watercourses in the following way:

> It is in the nature of a due care or due diligence obligation that the State can only be deemed to have violated its obligation to counteract transfrontier water pollution if the public organs of the State knew or should have known that certain conduct on their part or on the part of private persons or entities would give rise to inadmissible transfrontier water pollution . . .[217]

(7) Several elements of the obligation to exercise due diligence should be noted. In the first place, as mentioned above, the standard that has been used in determining whether a State has fulfilled its obligation to exercise due diligence is the degree of care that could be expected of a "good government" or a "civilized State".[218] Such a government or State is said to be one that possesses, "on a permanent basis, a legal system and material resources sufficient to ensure the fulfilment of [its] international obligations under normal conditions".[219] In particular, the State must have established, and maintain, an administrative apparatus that is minimally sufficient to permit it to fulfil those obligations.[220]

(8) Assuming that the minimum legal and administrative infrastructure exists, "it is also necessary for States to use such infrastructure with a degree of vigilance adapted to the circumstances".[221] The degree of vigilance or care required depends both upon the circumstances in which pollution damage is or may be caused and the extent to which the State has the means to exercise effective control over its territory. Moreover, as Dupuy points out, "the behaviour required from a State whose economic resources supply it with the means to increase the extent of its control cannot be the same as that required from a State whose administration is sparse and relatively ineffective for want of material resources".[222] While the standard of vigilance may vary according to a State's degree of development, Dupuy emphasizes that the "minimum rules" concerning the attributes of "good government", outlined above, "cannot be the subject of any compromise. They constitute the minimum standard below which the survival of a State would be incompatible with its co-existence within the international community".[223]

(9) The degree of vigilance required also depends upon circumstances relating to the pollution in question. Thus, the conduct giving rise to the transfrontier pollution damage, as well as the damage itself, must have been foreseeable. That is, it must be shown that the watercourse State in question knew or should have known that certain conduct (either its own or that of persons or entities over whom it had authority) would result in pollution that would cause appreciable harm to another watercourse State.[224] Furthermore, as Lammers points out, "States have recog-

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[215] The concept of "due diligence" was defined in the *Alabama* case (J. B. Moore, ed., *History and Digest of the International Arbitrations to which the United States has been a Party* (Washington, D.C., 1898), vol. I, pp. 572-573, 610-611, 612-613, 654-655). See generally P. Dupuy, "Due diligence in the international law of liability", OECD, *Legal Aspects of Transfrontier Pollution* (Paris, 1977), p. 369. On the application of the obligation in the specific context of pollution of international watercourses, see e.g. Sette-Camara, *loc. cit.* (footnote 76 above), p. 154; Lammers, *op. cit.* (footnote 78 above), pp. 348-356; and Lester, *loc. cit.* (footnote 167 above), p. 114. Among treaty provisions, the obligation of due diligence is embodied e.g. in paragraph 2 of article 139 of the 1982 United Nations Convention on the Law of the Sea; under that paragraph, a State is not liable for damage caused by a person it has sponsored where it has "taken all necessary and appropriate measures to secure effective compliance" under other provisions of the Convention. More generally, see article 10 of the Harvard draft convention on "responsibility of States for damage done in their territory to the person or property of foreigners" (*Supplement to the American Journal of International Law* (Washington, D.C.), vol. 23, 1929, p. 187). See also article IV of the Athens resolution (para. 68 above), and article 3 of the Montreal Rules on Water Pollution in an International Drainage Basin (footnote 220 below).

It has sometimes been proposed that States be held strictly liable for harmful transfrontier water pollution, as at the Conference on Water Pollution Problems in Europe, held under the auspices of ECE in 1961:

> "57. Some experts felt that many of the problems under discussion might be solved if States would recognize, in regard to damage caused by water pollution, a principle of absolute or objective liability imposed by international law, particularly as the principle of absolute or objective liability in regard to damage from pollution has already been incorporated in the national legislation of several States." (United Nations, *Conference on Water Pollution Problems in Europe*, Geneva, 22 February to 3 March 1961 (Sales No. 61.II.mim.24), vol. III, *Documents submitted to the Conference*); cited in *Yearbook . . . 1974*, vol. II (Part Two), p. 218, document A/5409, annex II.D.

[216] *Loc. cit.* (footnote 215 above), pp. 369-370.

[217] *Op. cit.* (footnote 78 above), p. 349. There is of course no question of attribution of the conduct of private persons to the State, or of "indirect" or "vicarious" responsibility. See the fourth report of Mr. Ago on State Responsibility (*Yearbook . . . 1972*, vol. II, pp. 95 *et seq.*, document A/CN.4/264 and Add.1, paras. 61-146, especially para. 72); and article 11 (Conduct of persons not acting on behalf of the State) and para. (11) of the commentary thereto provisionally adopted by the Commission at its twenty-seventh session (*Yearbook . . . 1975*), vol. II, pp. 70 and 73, document A/10010/Rev. 1). Rather, what is involved is the direct responsibility of the State for breach of its international obligation to exercise due diligence in preventing or abating acts causing damage to another State.

[218] Dupuy, *loc. cit.*, pp. 369-371, citing the report of Mr. Ago, document A/CN.4/264 and Add.1 (see footnote 217 above), para. 96.

[219] *Ibid.*, p. 373. See also the award rendered by Max Huber in the *British claims in the Spanish zone of Morocco* case (United Nations, *Reports of International Arbitral Awards*, vol. II (Sales No. 1949.V.1), p. 636); cited by Dupuy, *loc. cit.*, p. 374.

[220] This principle is well expressed in the Montreal Rules on Water Pollution in an International Drainage Basin:

> *"Article 3*
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> "In order to give effect to [the substantive pollution control obligations set out in] articles 1 and 2 above, States shall enact all necessary laws and regulations and adopt efficient and adequate administrative measures and judicial procedures for the enforcement of these laws and regulations."

[221] Dupuy, *loc. cit.*, p. 374. Article 3 of the Montreal Rules, referred to in the preceding footnote, requires States, *inter alia*, to "adopt *efficient** and *adequate** administrative measures and judicial procedures for the enforcement of" the laws and regulations they are to enact to implement their obligations concerning the pollution of international watercourses.

[222] *Loc. cit.*, p. 376, citing the opinion of the Albanian judge *ad hoc* in the *Corfu Channel* case (*I.C.J. Reports 1949*, p. 89). Lester (*loc. cit.* (footnote 167 above)), p. 113, uses a "reasonableness" standard to determine whether a State has exercised adequate control over the use of its watercourses.

[223] Dupuy, *loc. cit.*, p. 376.

[224] On this point see Lammers, *op. cit.* (footnote 78 above), p. 349.

nized that the proper *implementation* of the due diligence obligation to counteract inadmissible transfrontier water pollution concerning [toxic] pollutants requires more alertness, precaution and effort than in respect of other less harmful pollutants", requiring States to prevent even small quantities of such pollutants from crossing their borders because of the harm they would be certain to cause in the future due to their persistence and their capacity to accumulate in the food chain.[225] In the view of Dupuy, the mere use of dangerous technologies or industries "imposes on States new responsibilities to exercise vigilance, irrespective of the extent of their general development".[226] Again, a State allowing such activities to be conducted would be duty bound to exercise a greater degree of vigilance than would normally be the case, due to the risk—slight though it might be—that the activity would cause catastrophic pollution damage to other watercourse States.[227]

(10) The obligation of due diligence also bears upon the problem of existing pollution—or, more accurately, of existing activities giving rise to pollution—of an international watercourse that causes appreciable transfrontier harm. The distinction drawn in some instruments between existing and new pollution[228] has been the subject of criticism[229]—for sound reasons, it is submitted—and is therefore not proposed in the present article. The modern trend in treaty practice seems to be to distinguish between different types of pollutants on the basis of their harmfulness and to regulate their discharge accordingly.[230] Thus Mr. Schwebel observes that "the division into two lists has become common: 'black' for the most threatening or toxic contaminants; 'grey' for those less so but meriting monitoring and control" and that, in view of this modern method of approaching water pollution control, "the attempt to consider some pollution as new and other pollution as existing is ephemeral, if not missing the point and confounding those charged with the development or application of pollution control measures. The technical view is that it is far more important to distinguish between grades or gravities of threat . . ."[231]

(11) The "list" approach is not, however, appropriate in a framework instrument of a general nature such as the present draft articles. Furthermore, despite the conceptual difficulties involved in treating "new" and "existing" pollution differently, it must be recognized that States have shown what is perhaps an understandable tendency[232] to allow each other a reasonable period of time in which to bring themselves into compliance with their obligations in relation to pollution of international watercourses. Lammers concludes, on the basis of a study of State practice,[233] that:

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[225] *Ibid.*, p. 351.

[226] Dupuy, *loc. cit.*, p. 376.

[227] To the same effect, see article III, paragraph 2, of the Athens resolution (para. 68 above) and article 2 of the Montreal Rules on Water Pollution in an International Drainage Basin (footnote 237 below). See generally Handl, "An international legal perspective on the conduct of abnormally dangerous activities in frontier areas; The case of nuclear power plant siting", *Ecology Law Quarterly* (Berkley, Calif.), vol. 7, 1978, p. 1. The question of the liability of the State of origin for damage caused by such dangerous substances or technology, where the State had complied with its obligation of due diligence, is being examined by the Commission in the context of the topic of international liability for injurious consequences arising out of acts not prohibited by international law.

[228] See e.g. the 1958 Agreement between Czechoslovakia and Poland concerning the use of water resources in frontier waters, *art. 3*; the 1976 Convention on the Protection of the Rhine against Pollution by Chlorides, *arts. 2, 3 and 7*; the Helsinki Rules, *art. X, para. 1* (para. 69 above); the Montreal Rules on Water Pollution in an International Drainage Basin, *art. 1* (para. 72 above); the Athens resolution, *art. III, para. 1* (para. 68 above).

[229] For example, Sette-Camara, *loc. cit.* (footnote 76 above), pp. 154-156, who observes:

> ". . . It is irrelevant to distinguish between old forms of pollution and new ones for the purpose of establishing responsibility. . . . An injured State may ask at any time for abatement of the pollution to tolerable levels, whether it constitutes a new fact or an old one." (p. 154.)

A watercourse State would therefore not be obligated to tolerate levels of "existing" pollution that caused it appreciable harm in the absence of an agreement to do so, or a circumstance precluding wrongfulness or other applicable defence. Similarly, Mr. Evensen states in his first report:

> ". . . such a distinction between old and new sources of pollution is not acceptable. Injurious pollution of an international watercourse system must not be permitted, whether the source of pollution has caused pollution over some time or is new. . . ." (Document A/CN.4/367 (see footnote 3 (*a*) above), para. 171.)

Moreover, Mr. Schwebel points out in his third report that, where pre-existing rules of international law are involved, "as a practical matter, drawing the time line between existing and new pollution seems workable only in the case of agreement between the system States on an 'effective date' . . . [and,] by the time the harm or hazard is identified, it may be argued that it is already an 'existing' pollution", to which less stringent obligations apply (document A/CN.4/348 (see footnote 4 (*c*) above), para. 267; see also para. 270). Cf. the intervention of Mr. N. Ushakov at the Athens session of the Institute of International Law, excerpted below (footnote 231).

[230] Mr. Schwebel concludes in his third report that "the majority of relevant treaties do not deal with pollution in terms of existing/new, or past/future" (document A/CN.4/348, para. 268). Instead, a number of modern watercourse agreements dealing with a variety of pollutants establish "lists" of contaminants which are subject to regulation of varying degrees of stringency.

See e.g. the 1974 draft European convention on the protection of international watercourses against pollution (footnote 122 above); the 1976 Convention on the Protection of the Rhine against Chemical Pollution; and the 1978 Agreement on Great Lakes water quality, annex I of which sets forth water quality objectives with regard to specified pollutants.

[231] Third report, document A/CN.4/348, para. 270. This view was also subscribed to in substance by Mr. Ushakov in a statement made at the Athens session of the Institute of International Law in 1979. After regretting "the impreciseness of article 2" proposed by the Rapporteur, J. J. A. Salmon, he stated (in summary):

> ". . . In particular, it was not clear what the expression 'new sources of pollution' covered. It was also very vague to speak of 'the increase in the existing level of pollution' or to specify an obligation to 'reduce as soon as possible existing pollution'. . . ." (*Annuaire de l'Institut de droit international, 1979*, vol. II, p. 122, summary record of the 5th plenary meeting, held on 6 September 1979.)

[232] The tendency of States harmed by transfrontier water pollution to allow a "certain period of adaptation" is to be explained, according to Lammers, in terms of the fact that "many of those States are not exclusively victim States" (*op. cit.* (footnote 78 above), p. 349). Furthermore, "it is much more difficult to reduce existing than to prevent new pollution. It takes time to overtake the considerable arrears in the building of water purification plants which have developed during many decades." (*Ibid.*, p. 192.)

[233] Lammers refers in particular to efforts to abate pollution of the Rhine; to the flexible approach to water pollution control taken by ECE in its 1980 Declaration of Policy on Prevention and Control of Water Pollution, including Transboundary Pollution; and to the similar approach taken by the United Nations Water Conference, held at Mar del Plata in 1977 (*op. cit.*, pp. 192, 257, 258 and 329).

. . . as long as States of origin take the necessary measures to abate existing instances of transfrontier water pollution which cause substantial harm, victim States do not appear to be much inclined to hold those States internationally responsible, demanding either the *immediate* effective termination of the causing of substantial harm or compensation for the harm caused or both. . . .[234]

The same tolerance would presumably not be accorded where the pollution damage was of serious proportions or where the State of origin was not taking "the necessary measures", i.e. was not exercising due diligence to bring itself into compliance with its obligations, for example where it showed no indication that it intended to use its best efforts to remedy the situation.

(12) Another important issue that must be faced by the Commission with regard to paragraph 2 of the proposed article is the relationship of the obligation it embodies to the rule of equitable utilization reflected in article 6. The relationship between the general principle of "no appreciable harm" (also referred to as the principle of the "harmless use of territory") and the rule of equitable utilization was explored in the second report of the Special Rapporteur[235] in connection with the discussion of draft article 9, which lays down the former principle and is currently before the Drafting Committee. Despite the fact that the Commission has not yet decided whether to make the general principle of "no appreciable harm" of article 9 subject to the obligation of equitable utilization of article 6, the Special Rapporteur believes that several points must be noted here concerning the relationship between article 6 and the present article.

(13) First, while the obligation contained in paragraph 2 may be regarded as a specific application of the principle of no appreciable harm of draft article 9, there are strong arguments for treating the effects of pollution differently from other kinds of harm. It has already been seen that there is widespread recognition of the need to protect the environment in order to permit sustainable development and to preserve the Earth for future generations.[236] Seen in this light, water uses that cause appreciable pollution harm to other watercourse States and the environment could well be regarded as being *per se* inequitable and unreasonable. This is especially true of harm caused by toxic and persistent pollutants, in view of the grave and long-lasting effects of such substances. It has been seen that two of the recent studies prepared by leading international non-governmental organizations have taken the latter position.[237] The resolution adopted by the Institute of International Law at its Athens session in 1979 goes farther, providing for no "equitable use" exception to the obligation not to cause or permit any kind of water pollution (see para. 68 above). In the view of the Special Rapporteur, the Commission should likewise demonstrate its recognition of the importance of pollution prevention and environmental protection by adopting a rule of "no appreciable *pollution* harm" that is not qualified by the principle of equitable and reasonable utilization. This position is without prejudice to any decision the Commission may take with regard to whether there should be an equitable-use exception to the general rule of "no appreciable harm" contained in draft article 9. It is the Special Rapporteur's view that there would be no difficulty in principle if the Commission were to decide to make an equitable-use exception to the "no appreciable harm" rule of draft article 9, while making no such exception to the "no appreciable *pollution* harm" rule contained in paragraph 2 of article 16.

(14) Secondly, it has been seen that, at least in relation to the pollution of international watercourses,[238] the rule of "no appreciable harm" is mitigated to some extent by the manner in which States have applied the principle of "due diligence".[239] In so far as this phenomenon introduces considerations of "equity" into the application of the rule of "no appreciable harm", the outcome could be the same as if that rule were made subject to the doctrine of equitable utilization. To the extent that this were the case as a practical matter, there might be no need for a formal reconciliation of article 6 and article 16.

(15) Thirdly, in practice, the obligations contained in article 6 and paragraph 2 of the present article will often, and perhaps usually, be compatible. Most authorities agree,[240] and the Special Rapporteur has attempted to show in his second report,[241] that the basic principle governing

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[234] *Ibid.*, p. 349.

[235] Document A/CN.4/399 and Add.1 and 2 (see footnote 1 (*b*) above), paras. 179 to 184.

[236] See e.g. the excerpts from the report of the World Commission on Environment and Development and from the UNEP study on the environmental perspective to the year 2000 and beyond (para. 29 above and *passim*). See also principles 1 and 2 of the Stockholm Declaration and the other authorities cited (footnote 249 below), as well as the excerpts from the Goa Guidelines cited in para. 76 above.

[237] See article II and especially article III, paragraph 2, of the Athens resolution, as well as the discussion thereof by the Special Rapporteur (para. 68 above); and the Montreal Rules on Water Pollution in an International Drainage Basin, article 2 of which reads:

"*Article 2*

"Notwithstanding the provision of article 1, States shall not discharge or permit the discharge of substances generally considered to be highly dangerous into the waters of an international drainage basin."

The same conclusion has been arrived at by publicists. With regard to air pollution, see G. Handl, "National uses of transboundary air resources: The international entitlement issue reconsidered", *Natural Resources Journal* (Albuquerque, N.M.), vol. 26 (1986), p. 405.

[238] The considerations set out in this paragraph may apply equally to the general principle "no appreciable harm" embodied in draft article 9, but the Special Rapporteur considers it inappropriate to address that question in the present report.

[239] See para. (11) of these comments. The approach taken in article III, para. 1 (*b*), of the Athens resolution (see para. 68 above), and in article X, para. 1 (*b*), of the Helsinki Rules (see para. 69 above) is the same. Cf. Lammers' discussion of a somewhat different approach, the "mitigated no substantial harm . . . principle", which is a municipal law doctrine applicable to disputes between States of federal unions or neighbouring landowners (*op. cit.* (footnote 78 above), pp. 496-497). This principle "tempers the operation of the no substantial harm principle by taking into account to some extent, and in various ways, the interests of the upstream riparian owner" (*ibid.*, p. 497). Apart from the fact that it is a principle of municipal law, this approach would appear to be best suited to a situation in which the watercourse States had agreed to the management of the watercourse by a joint commission, or where there was an agreed mechanism for the settlement of disputes.

[240] Indeed, Lammers observes that:

". . . the no substantial harm principle or the principle of prior use have received considerably less support in the statements of States—support which, depending on the case to which it applies, need not necessarily have been incompatible with the principle of equitable utilization . . ." (*op. cit.*, p. 371.)

[241] A/CN.4/399 and Add.1 and 2 (see footnote 1 (*b*) above), paras. 75-178.

the rights and duties of States in relation to the non-navigational uses of international watercourses is that of equitable utilization. Yet while the "no appreciable harm" principle could theoretically, in certain circumstances, conflict with that of equitable utilization,[242] Lammers, in his exhaustive study of pollution of international watercourses, has concluded that there is "hardly any evidence of State conduct which would be in line with the no substantial harm principle or the principle of prior use but *not* with the principle of equitable utilization".[243] This can no doubt be explained partly by the fact that a watercourse State's equitable utilization of an international watercourse would usually entail the avoidance of appreciable *pollution* harm to other watercourse States.[244] In practice, avoidance of harm has often been accomplished through the construction of works which increase the available quantity of water or preserve its quality. In this way, a watercourse State may realize or preserve its equitable share without causing appreciable harm to other watercourse States.[245]

(16) Finally, it should be noted that there would be no possibility of conflict between article 6 and paragraph 2 of the proposed article in those cases where pollution of an international watercourse caused appreciable harm that did not relate to the use of water by the injured State.[246]

(17) Paragraph 2 provides that watercourse States shall not "cause or permit" the pollution of an international watercourse in such a way as to produce the effects identified therein. This phrase is intended to indicate that the State is obligated not only to refrain from causing the specified harm itself but also to prevent its agencies or instrumentalities, as well as private parties within its territory or under its control, from causing such harm.[247] In the case of private parties, the duty is one of due diligence, as explained above.

(18) Pollution can have severe and irremediable effects not only upon the health of the populations relying on the watercourse but also upon the ecology of the watercourse itself. (This is another way of saying that effects upon people and States can be both short-term and long-term.) Recent events have reminded us only too dramatically of this sobering fact.[248] Paragraph 2 of the proposed article therefore contains an obligation not to cause appreciable harm "to the ecology of the international watercourse [system]". The need for such a provision is borne out by the interrelationship—well recognized in today's world—between environmental protection and sustainable development.[249] The obligation set forth in paragraph 2 is couched in negative terms, in that the focus is upon the prevention of harm. More affirmative duties of environmental *protection* are imposed upon watercourse States in article 17. While there is authority supporting such an obligation not to cause environmental harm,[250] the Special Rapporteur believes that there is particular need for the progressive development of international law in this area.

(19) *Paragraph 3* requires the watercourse States concerned to consult, at the request of any one of them, with regard to the preparation of lists of items to be subject to special regulation. This provision is modelled upon para-

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[242] *Ibid.*, especially at paras. 180 *et seq.*

[243] *Op. cit.* (footnote 78 above), p. 371.

[244] To this effect, see Lammers, *op. cit.*, p. 369.

[245] *Ibid.*, footnote 2, citing State practice in relation to the Colorado and the Rio Grande (United States of America and Mexico), the Nile (Egypt and the Sudan) and the Indus (India and Pakistan).

[246] See para. (5) of the present comments.

[247] To this effect, see e.g. the fourth report of Mr. Ago on State responsibility, document A/CN.4/264 and Add.1 (footnote 217 above), para. 21; the commentary to article X of the Helsinki Rules (ILA, *op. cit.* (footnote 30 (*a*) (ii) above), pp. 497 *et seq.*); Dupuy, *loc. cit.* (footnote 215 above), p. 371; and Lammers, *op. cit.*, pp. 348-349.

[248] The Rhine chemical accident of 1 November 1986, in which an estimated 30 tons of chemicals were washed into the river by water from fire hoses, tragically illustrates how a single yet massive accident involving toxic chemicals can choke out much of the aquatic life of one of the major international watercourses of the world. The inspector of fisheries at Basel, Switzerland, the site of the accident, stated: "It will be 10 years before this river recovers its ecological balance . . . We are going to let loose a total of 34 different species of fish several years from now, but it's going to be a decade before we know how they can handle the quality of the water; the toxic wastes on the river bed are the biggest problem." (*International Environment Reporter* (Washington, D.C.), 10 December 1986, p. 433); see also e.g. Tuohy, "Rhine suffers ecological catastrophe", *Los Angeles Times*, 13 November 1986, p. 1; Marsh, "Sandoz and the Rhine, Quantifiable damages, unquantifiable damage", *Financial Times*, 15 November 1986, p. 8; Lewis, "Chemical spill in Rhine affects four countries: 'dead' river is feared as poisons flow to sea", *New York Times*, 11 November 1986, p. 1; and "Rhine spills force rethinking of potential for chemical pollution", *Chemical and Engineering News* (Washington, D.C.), vol. 65, 7 February 1987, p. 7.

[249] See e.g. in the report of the World Commission on Environment and Development, *Our Common Future:*

> "National and international law has traditionally lagged behind events. Today, legal régimes are being rapidly outdistanced by the accelerating pace and expanding scale of impacts on the environmental base of development. Human laws must be reformulated to keep human activities in harmony with the unchanging and universal laws of nature. . . .
>
> ". . .
>
> "Recognition by States of their responsibility to ensure an adequate environment for present as well as future generations is an important step towards sustainable development. . . ." (*op. cit.* (footnote 74 above), p. 330).

These ideas are developed in the form of legal principles in the report of the World Commission's Experts Group on Environmental Law (*op. cit.* (footnote 24 above)). Especially pertinent here are the "General principles concerning natural resources and environmental interferences" contained in that report, notably arts. 1-3 (see para. 75 above).

See also the Stockholm Declaration on the Human Environment (footnote 154 above), *inter alia*, principles 1 and 2:

> *"Principle 1*
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> "Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations . . .
>
> *"Principle 2*
>
> "The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate."

[250] See e.g. principle 22 of the Stockholm Declaration enjoining States to "co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage . . .". See also the Goa Guidelines on intergenerational equity (para. 76 above), which require "conserving the diversity and the quality of biological resources, of renewable resources such as forests, water and soils which form an integrated system". See also the authorities cited in connection with the comments to paragraph 1 of article 17 (footnotes 259 and 260 below).

graph 5 of article 10 as proposed by Mr. Schwebel in his third report.[251]

(20) As already noted in the comments (paras. (9) and (13)) to paragraph 2,[252] modern agreements and studies by learned societies have recognized the necessity of singling out toxic pollutants for special treatment, in view of their particularly deleterious and persistent qualities.[253] In fact, the Commission may wish to consider whether paragraph 3 should *prohibit* the discharge of such substances into international watercourses, including any of the components thereof. The elimination of toxic pollutants is the clear objective of recent agreements dealing with the subject;[254] drafts prepared by some expert groups go further, banning the discharge of such pollutants entirely.[255]

Article 17 [18]. Protection of the environment of international watercourse[s] [systems]

1. Watercourse States shall, individually and in co-operation, take all reasonable measures to protect the environment of an international watercourse [system], including the ecology of the watercourse and of surrounding areas, from impairment, degradation or destruction, or serious danger thereof, due to activities within their territories.

2. Watercourse States shall, individually or jointly and on an equitable basis, take all measures necessary, including preventive, corrective and control measures, to protect the marine environment, including estuarine areas and marine life, from any impairment, degradation or destruction, or serious danger thereof, occasioned through an international watercourse [system].

Comments

(1) *Paragraph 1* is derived principally from article 20, paragraph 1, as proposed by Mr. Evensen in his first report.[256] The subject is also dealt with in article 10, paragraph 7, as proposed by Mr. Schwebel in his third report.[257]

(2) In the introduction to his discussion of the subject of environmental pollution and protection, Mr. Schwebel made the following statement which is pertinent to paragraph 1 of the present article:

> . . . it is believed that there has emerged, over and above the rights and obligations which two or more States may confirm and assume vis-à-vis one another, a normative principle making protection of the environment a universal duty even in the absence of agreement, a principle born of sharpened awareness of the vast ramifications consequent upon man's tampering with the intricate relationships among the elements and agents of nature.[258]

It has already been shown that there is a substantial body of authority supporting such a normative prescription.[259] The American Law Institute has attempted to codify the obligations of States with regard to the environment as follows:

> 601. State obligations with respect to the environment of other States and the common environment:
>
> 1. A State is obligated to take such measures as may be necessary, to the extent practicable under the circumstances, to ensure that activities within its jurisdiction or control
>
> (*a*) conform to generally accepted international rules and standards for the prevention, reduction and control of injury to the environment of another State or of areas beyond the limits of national jurisdiction; and
>
> (*b*) are conducted so as not to cause significant injury to the environment of another State or of areas beyond the limits of national jurisdiction.
>
> 2. A State is responsible to all other States
>
> (*a*) for any violation of its obligations under subsection 1 (*a*); and

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[251] See footnote 205 above.

[252] See footnotes 224 to 227 and 237 above.

[253] See e.g. the 1974 draft European convention for the protection of international watercourses against pollution (footnote 122 above); the 1976 Convention on the Protection of the Rhine against Chemical Pollution; the 1978 Agreement on Great Lakes water quality; the Athens resolution, *art. III, para. 2* (para. 68 above); and the Montreal Rules on Water Pollution in an International Drainage Basin, *art. 2* (footnote 237 above).

It should be noted, in that connection, that UNEP has prepared a report containing a "List of selected environmentally harmful chemical substances, processes and phenomena of global significance" (UNEP/GC.14/19, 24 February 1987). The report was referred to Governments, relevant international organizations, industry and non-governmental organizations for further study and action as appropriate; see decision 14/32 of 18 June 1987 of the UNEP Governing Council (*Official Records of the General Assembly, Forty-second Session, Supplement No. 25* (A/42/25), annex I).

[254] See e.g. the agreements cited in the preceding footnote.

[255] See e.g. art. 2 of the Montreal Rules on Water Pollution in an International Drainage Basin (footnote 237 above).

[256] Document A/CN.4/367 (see footnote 3 (*a*) above), para. 155.

[257] Document A/CN.4/348 (see footnote 4 (*c*) above), para. 312. The Special Rapporteur does not believe that a definition of "environmental protection" is, strictly speaking, necessary. If the Commission wish to consider including such a definition in the draft, the following is one possibility:

> "As used in these articles, 'environmental protection' means safeguarding the fauna, flora and other natural resources of the Earth from destruction, impairment or degradation and the preservation of the quality of life and of its amenities."

[258] Document A/CN.4/348, para. 246, citing the following source: Inter-American Bar Association, Committee XV (Natural Resources and Environmental Protection), resolution 30 (*Resolutions, Recommendations and Declarations approved by the XXII Conference*, Quito, 14-20 March 1981, p. 7). See also the sources cited in the following footnote.

[259] See e.g. the authorities cited in footnotes 249 and 250 above; the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, and the corresponding conventions on protection of the marine environment, in particular the 1973 International Convention for the Prevention of Pollution from Ships, and its 1978 Protocol (MARPOL 73/78), mandatory annexes I and II on pollution by oil and noxious liquid substances carried in bulk, and optional annexes III, IV and V, on pollution from packaged harmful substances, sewage and garbage; the 1974 Convention on the Prevention of Marine Pollution from Land-based sources; the 1976 Convention for the Protection of the Mediterranean Sea against Pollution; the 1978 Kuwait Regional Convention for Co-operation in the Protection of the Marine Environment from Pollution; the 1981 Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African region; and the 1982 United Nations Convention on the Law of the Sea, *arts. 192, 194 and 207.*

(*b*) for any significant injury, resulting from such violation, to the environment of areas beyond the limits of national jurisdiction.

3. A State is responsible for any significant injury, resulting from a violation of its obligations under subsection 1, to the environment of another State or to its property, or to persons or property within that State's territory or under its jurisdiction or control.[260]

(3) The protection of the environment of an international watercourse is most effectively achieved through individual and joint régimes specifically designed for that purpose. Articles proposed by Mr. Evensen (art. 20, para. 2) and Mr. Schwebel (art. 10, para. 7) would require watercourse States to adopt such measures and régimes, individually or jointly. The Commission may wish to consider whether such a provision should be added to the present article.

(4) *Paragraph 2* addresses the important problem of pollution that is carried to the marine environment via international watercourses. Comparable provisions may be found in article 20, paragraph 3, as proposed by Mr. Evensen; and in article 10, paragraph 8, as proposed by Mr. Schwebel. The obligation not to cause pollution damage to the marine environment from land-based sources is recognized both in the 1982 United Nations Convention on the Law of the Sea (articles 194 and 207)[261] and in various regional conventions.[262] Paragraph 2 would complement those instruments by making it clear that all watercourse States, whether coastal or not, share this obligation.

(5) The following comments by Mr. Schwebel, relating to paragraph 8 of his draft article 10, apply equally to paragraph 2 of the proposed article:

> A system State is not held responsible *per se* for the damage caused to the marine environment by pollution originating in another system State; however, the littoral States of the affected sea, and the international community as a whole, have a right to look to the system States of an international watercourse collectively for the precautionary and the corrective measures necessary to achieve compliance with the duty to protect the marine environment, as found in the applicable treaties and in general international law . . . It is, as intended by this paragraph, incumbent upon the system States as a whole to work out adequate arrangements among themselves and see to their enforcement. . . .[263]

(6) It is also important to note that the obligation set forth in paragraph 2 is separate from and additional to other obligations concerning pollution of international watercourses and protection of the environment thereof. For example, a watercourse State could conceivably endanger an estuarine area through pollution of an international watercourse without breaching its obligations not to cause appreciable pollution harm to other watercourse States or to the environment or ecology of the watercourse.

[260] The American Law Institute, *Restatement of the Law, Foreign Relations Law of the United States* (St. Paul, Minn., 1987), vol. 2 (14 May 1986), title 601.

[261] Pertinent portions of these articles are cited above (para. 47). For example, article 194, paragraph 1, requires States to "take . . . all measures . . . that are necessary to prevent, reduce and control pollution of the marine environment from any source", and in article 1, paragraph 1 (4), "pollution of the marine environment" is defined as including pollution of estuaries.

[262] See the conventions cited in footnote 259 above. See also the 1974 draft European convention for the protection of international watercourses against pollution (footnote 122 above), article 1 of which concerns estuaries.

[263] Document A/CN.4/348 (see footnote 4 (*c*) above), para. 330.

Article 18 [19]. Pollution or environmental emergencies

1. As used in this article, "pollution or environmental emergency" means any situation affecting an international watercourse [system] which poses a serious and immediate threat to health, life, property or water resources.

2. If a condition or incident affecting an international watercourse [system] results in a pollution or an environmental emergency, the watercourse State within whose territory the condition or incident has occurred shall forthwith notify all potentially affected watercourse States, as well as any competent international organization, of the emergency and provide them with all available data and information relevant to the emergency.

3. The watercourse State within whose territory the condition or incident has occurred shall take immediate action to prevent, neutralize or mitigate the danger or damage to other watercourse States resulting therefrom.

Comments

(1) Article 18 deals with emergency situations, which were treated in article 25 proposed by Mr. Evensen and in paragraph 9 of article 10 proposed by Mr. Schwebel. It addresses the kind of emergency situation which results from such serious incidents as a toxic chemical spill or the sudden spread or escape of a water-borne disease or its vector. States have recognized the need for such a provision in numerous bilateral and multilateral agreements.[264] An obligation to warn of dangerous situations could also be derived from the *Corfu Channel* case, discussed above.[265]

(2) *Paragraph 1* defines the expression "pollution or environmental emergency". Danger to "water resources" is included, since some of the most serious long-term threats are those posed by damage to the biology of a watercourse.[266] Moreover, an incident such as a massive oil spill could require immediate action to minimize its nega-

[264] See e.g. the 1976 Convention on the Protection of the Rhine against Chemical Pollution, *art. 11*; the 1977 Agreement concerning accidental pollution control of Lake Léman, and the 1978 Agreement on Great Lakes water quality. More generally, see the 1982 United Nations Convention on the Law of the Sea, *art. 198*, and the 1986 Convention on Early Notification of a Nuclear Accident.

On 26 February 1988, IAEA and WMO announced the development of an early notification system which would alert States of the possibility of pollution resulting from a nuclear power plant accident (see *International Environment Reporter* (Washington, D.C.), 3 March 1988, p. 161).

See generally E. Brown Weiss, "Environmental disasters in international law", *Anuario Jurídico Interamericano 1986* (Washington, D.C.), p. 141, especially annex A, containing *inter alia* lists of emergency agreements relating to the sea, radiation, forest fires, natural disasters and the transport of dangerous substances.

[265] See para. 83 above.

[266] See footnote 248 above, concerning the biological damage resulting from the Rhine chemical accident of 1 November 1986 in Basel.

tive impacts yet not pose an "*immediate* threat to health, life, [or] property".

(3) *Paragraph 2* requires the watercourse State or States within whose territory a condition or incident has occurred to notify other "potentially affected" watercourse States of the resulting emergency as expeditiously as possible. The expression "potentially affected", as used in this article, means "may possibly be affected". An analogous provision is contained in the 1982 United Nations Convention on the Law of the Sea, reading as follows:

Article 198. Notification of imminent or actual damage

When a State becomes aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution, it shall immediately notify other States it deems likely to be affected by such damage, as well as the competent international organizations.

Similarly, the 1986 Convention on Early Notification of a Nuclear Accident provides as follows:

Article 2. Notification and information

In the event of an accident specified in article 1 (hereinafter referred to as a "nuclear accident"), the State Party referred to in that article shall:

(*a*) forthwith notify, directly or through the International Atomic Energy Agency . . ., those States which are or may be physically affected as specified in article 1 and the Agency of the nuclear accident, its nature, the time of its occurrence and its exact location where appropriate; and

(*b*) promptly provide the States referred to in subparagraph (a), directly or through the Agency, and the Agency with such available information relevant to minimizing the radiological consequences in those States, as specified in article 5.

(4) Both of these instruments require that notification be given not only to other States but also to a competent international organization. Agreements on pollution of international watercourses also take this approach. For example, the 1976 Convention on the Protection of the Rhine against Chemical Pollution provides as follows:

Article 11

When a Government Party to this agreement discovers in the waters of the Rhine a sudden and large increase of [certain identified] substances, or becomes aware of an accident which may result in a serious threat to the quality of those waters, it shall immediately inform the International Commission [for the Protection of the Rhine against Chemical Pollution] and those Contracting Parties which may be affected, using a procedure to be established by the International Commission.

In the light of the fact that the watercourse States concerned will often have established a joint commission or other competent international organization, provision for notification of any such organization is made in paragraph 2 of the proposed article.

(5) Finally, the Commission may wish to consider adding to draft article 18 provisions concerning two subjects that are not at present covered. The first relates to joint preparation and implementation of contingency plans. In this connection, the Commission may wish to consider adding to article 18 a provision along the lines of article 199 of the United Nations Convention on the Law of the Sea, according to which "States shall jointly develop and promote contingency plans for responding to pollution incidents in the marine environment". The second subject relates to the extent to which third States should be required to take remedial action. The present draft article could provide (as did those proposed by the previous special rapporteurs)[267] for appropriate action to be taken by third States, in a spirit of co-operation and solidarity, with a view to minimizing the adverse consequences of the incident. It is doubtful that either of these kinds of collective action is required by general international law, but both would be extremely useful in dealing with actual emergency situations.

D. Concluding remarks concerning further draft articles on environmental protection, pollution and related matters

90. The articles introduced above address what the Special Rapporteur regards as the most fundamental issues relating to the subject of environmental protection and pollution. Indeed, they represent a coverage of the subject that has been reduced to a bare minimum.[268] But the compactness of the treatment of the subject in the proposed articles in no way reflects a judgment that it lacks importance; on the contrary, it could well be the single most important component of the entire draft for both present and future generations. Instead, the streamlined nature of the coverage of the subject represents an effort by the Special Rapporteur to concentrate on those areas that are most firmly rooted in State practice or for which there is especially compelling authority.

91. There are other subjects, however, whose coverage in the draft articles would be highly desirable. These include exchange of data and information relating specifically to pollution and the environment; development, through concerted action, of pollution control and environmental protection régimes; preparation and exchange of environmental impact assessments; and the establishment of protected sites or areas. Because provisions on many of these subjects would facilitate compliance with the obligations set forth in the articles proposed above, the Special Rapporteur intends to give serious consideration to making concrete proposals with regard thereto in future reports. As always, the views of the Commission on this matter would be of great assistance to the Special Rapporteur.

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[267] Paragraph 9 of article 10 proposed by Mr. Schwebel requires that the State of origin take certain action "individually or jointly with other system States". In article 25 proposed by Mr. Evensen in his first report, the entire second sentence of paragraph 2 is devoted to action to be taken by other States, but the provision is not couched in terms of obligation:

"Other system States should to a reasonable extent assist in preventing, neutralizing or mitigating the dangers and effects caused by the emergency and should be refunded the reasonable costs for such measures by the State or States where the emergency arose." (A/CN.4/367 (footnote 3 (*a*) above), para. 176.)

[268] Article 10, which Mr. Schwebel devoted to the subject, contains 14 paragraphs, while Mr. Evensen covered it in six articles (or seven, if article 30, on protected national or regional sites, is included).

ANNEX

Treaties cited in the report

ABBREVIATIONS

BFSP	*British and Foreign State Papers.*
ILM	*International Legal Materials* (Washington, D.C.).
Rios y Lagos	OAS, *Rios y Lagos Internacionales (Utilización para fines agrícolas e industriales)*, 4th ed., rev. (OEA/SER.I/VI, CIJ-75 Rev.2).
Legislative Texts	United Nations, Legislative Series, *Legislative Texts and Treaty Provisions concerning the Utilization of International Rivers for Other Purposes than Navigation* (Sales No. 63.V.4).
A/5409	"Legal problems relating to the utilization and use of international rivers", report by the Secretary-General, reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 33.
A/CN.4/274	"Legal problems relating to the non-navigational uses of international watercourses", supplementary report by the Secretary-General, reproduced in *Yearbook . . . 1974*, vol. II (Part Two), p. 265.

NOTE. The instruments are arranged in chronological order; for purposes of concision, the titles of some of them have been shortened.

AFRICA

Multilateral treaties

	Source
Cameroon, Ivory Coast, Dahomey, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad: Act regarding Navigation and Economic Co-operation between the States of the Niger Basin (Niamey, Niger, 26 October 1963)	United Nations, *Treaty Series*, vol. 587, p. 9; summarized in A/CN.4/274, paras. 40-44.
Cameroon, Ivory Coast, Dahomey, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad: Agreement concerning the Niger River Commission and the Navigation and Transport on the River Niger (Niamey, Niger, 25 November 1964), superseded by the 1980 Convention creating the Niger Basin Authority	United Nations, *Treaty Series*, vol. 587, p. 19; summarized in A/CN.4/274, paras. 57-59.
Cameroon, Niger, Nigeria and Chad: Convention and Statute relating to the development of the Chad Basin (Fort Lamy, Chad, 22 May 1964)	*Journal officiel de la République fédérale du Cameroun* (Yaoundé), vol. 4, No. 18, 15 September 1964, p. 1003; summarized in A/CN.4/274, paras. 51-56.
Mali, Mauritania and Senegal: Convention relating to the status of the Senegal River, *and* Convention establishing the Organization for the Development of the Senegal River (Nouakchott, Mauritania, 11 March 1972)	United Nations, *Treaties concerning the Utilization of International Watercourses for Other Purposes than Navigation: Africa*, Natural Resources/Water Series No. 13 (Sales No. E/F.84.II.A.7), pp. 16 and 21 respectively; summarized in A/CN.4/274, paras. 45-50.
Burundi, Rwanda and United Republic of Tanzania: Agreement for the establishment of the Organisation for the Management and Development of the Kagera River Basin (Rusumo, Rwanda, 24 August 1977)	United Nations, *Treaty Series*, vol. 1089, p. 165.
Gambia, Guinea and Senegal: Convention relating to the status of the Gambia River, *and* Convention relating to the creation of the Gambia River Basin Development Organization (Kaolack, Senegal, 30 June 1978)	United Nations, *Treaties concerning the Utilization of International Watercourses for Other Purposes than Navigation: Africa . . .*, Natural Resources/Water Series No. 13 (Sales No. E/F.84.II.A.7), pp. 39 and 42 respectively.

	Source
Benin, Cameroon, Ivory Coast, Guinea, Upper Volta, Mali, Niger, Nigeria and Chad: Convention creating the Niger Basin Authority (Faranah, Guinea, 21 November 1980)	*Ibid.*, p. 56.
Cameroon, Guinea, Ivory Coast, Nigeria, Senegal and Togo: Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African region (Abidjan, Ivory Coast, 23 March 1981)	Document UNEP/IG.22/7 (31 March 1981); *ILM*, vol. 20, 1981, p. 746.
Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System (Harare, Zimbabwe, 28 May 1987)	UNEP, 1987.

AMERICA

Multilateral treaties

	Source
Argentina, Bolivia, Brazil, Paraguay and Uruguay: Act of Santa Cruz de la Sierra, adopted by the Ministers of Foreign Affairs of the River Plate Basin States (Santa Cruz de la Sierra, Bolivia, 20 May 1968)	OAS, *Rios y Lagos*, p. 151.
Argentina, Bolivia, Brazil, Paraguay and Uruguay: Act of Asunción, adopted by the Ministers for Foreign Affairs of the River Plate Basin States (Asunción, Paraguay, 3 June 1971)	*Ibid.*, p. 183; summarized in A/CN.4/274, paras. 322-326.
Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela: Treaty for Amazonian Co-operation (Brasilia, Brazil, 3 July 1978)	United Nations, *Treaty Series*, vol. 1202, p. 51.

Bilateral treaties

Great Britain-United States of America: Treaty relating to boundary waters and questions concerning the boundary between Canada and the United States (Washington, D.C., 11 January 1909)	*BFSP, 1908-1909*, vol. 102, p. 137; *Legislative Texts*, p. 260, No. 79; summarized in A/5409, paras. 154-167.
United States of America-Mexico: Treaty relating to the utilization of the waters of the Colorado and Tijuana Rivers, and of the Rio Grande (Rio Bravo) from Fort Quitman, Texas, to the Gulf of Mexico (Washington, D.C., 3 February 1944), *and* Supplementary Protocol (14 November 1944); came into force on 8 November 1945.	United Nations, *Treaty Series*, vol. 3, p. 313; summarized in A/5409, paras. 211-216.
Argentina-Chile: Act of Santiago concerning hydrographic basins (Santiago, Chile, 26 June 1971)	OAS, *Rios y Lagos*, p. 495; summarized in A/CN.4/274, para. 327.
Uruguay-Argentina: Status of the Uruguay River (Salto, Uruguay, 26 February 1975)	Uruguay, Ministry for External Relations, *Actos Internacionales Uruguay-Argentina 1830-1980*, Montevideo, 1981, p. 593.
Canada-United States of America: Agreement relating to the exchange of information on weather modification activities (Washington, D.C., 26 March 1975)	United Nations, *Treaty Series*, vol. 977, p. 385.
United States of America-Canada: 1978 Agreement on Great Lakes water quality (Ottawa, 22 November 1978)	*United States Treaties and Other International Agreements, 1978-79*, vol. 30, part 2, p. 1383.
United States of America-Mexico: Agreement on co-operation for the protection and improvement of the environment in the border area (La Paz, Mexico, 14 August 1983)	*ILM*, vol. 22, 1983, p. 1025.

ASIA

Multilateral treaty

	Source
Kuwait Regional Convention for Co-operation in the Protection of the Marine Environment from Pollution (Kuwait, 24 April 1978)	United Nations, *Treaty Series*, vol. 1140, p. 133.

Bilateral treaties

Iraq-Turkey: Treaty of friendship and neighbourly relations (Ankara, 29 March 1946)	United Nations, *Treaty Series*, vol. 37, p. 227; summarized in A/5409, paras. 341-346.
USSR-People's Republic of China: Agreement on joint research operations to determine the natural resources of the Amur River Basin and the prospects for development of its productive potentialities and on planning and survey operations to prepare a scheme for the multi-purpose exploitation of the Argun River and the Upper Amur River (Beijing, 18 August 1956)	*Legislative Texts*, p. 280, No. 87; summarized in A/5409, paras. 318-320.
USSR-Afghanistan: Treaty concerning the régime of the Soviet-Afghan State frontier (Moscow, 18 January 1958)	United Nations, *Treaty Series*, vol. 321, p. 77; summarized in A/5409, paras. 386-398.
India-Pakistan-IBRD: 1960 Indus Waters Treaty (Karachi, 19 September 1960)	United Nations, *Treaty Series*, vol. 419, p. 125; summarized in A/5409, paras. 356-361.
Bangladesh-India: Agreement on sharing of the Ganges waters at Farakka and on augmenting its flows (Dacca, 5 November 1977)	United Nations, *Treaty Series*, vol. 1066, p. 3.

EUROPE

Multilateral treaties

	Source
Switzerland, Grand Duchy of Baden and Alsace-Lorraine: Convention laying down uniform provisions on fishing in the Rhine and its tributaries, including Lake Constance (Lucerne, 18 May 1887)	*Legislative Texts*, p. 397, No. 113; summarized in A/5409, paras. 458-463.
Federal Republic of Germany, France and Grand Duchy of Luxembourg: Convention on the canalization of the Moselle (Luxembourg, 27 October 1956)	*Legislative Texts*, p. 424, No. 123; summarized in A/5409, paras. 474-480.
Convention on the Protection of the Waters of Lake Constance against Pollution (Steckborn, Switzerland, 27 October 1960)	Switzerland, *Recueil officiel des lois et des ordonnances, 1961*, vol. 2, p. 923, No. 43; *Legislative Texts*, p. 438, No. 127; summarized in A/5409, paras. 435-438.
Agreement on the International Commission for the Protection of the Rhine against Pollution (Bern, 29 April 1963)	United Nations, *Treaty Series*, vol. 994, p. 3.
Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki, 22 March 1974)	UNEP, *Selected Multilateral Treaties in the field of the Environment*, Reference Series 3, Nairobi, 1983, p. 405.
Convention for the Prevention of Marine Pollution from Land-based Sources (Paris, 4 June 1974)	*Ibid.*, p. 430.
Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona, 16 February 1976)	*Ibid.*, p. 448.
Agreement for the Protection of the Rhine against Chemical Pollution (Bonn, 3 December 1976)	United Nations, *Treaty Series*, vol. 1124, p. 375.
Convention on the Protection of the Rhine against Pollution by Chlorides (Bonn, 3 December 1976)	*ILM*, vol. XVI, No. 1, March 1977, p. 265.

Bilateral treaties

	Source
France-Spain: Treaty of delimitation between Spain and France (Bayonne, 26 May 1866)	*BFSP, 1865-1866*, vol. 56, p. 212; *Legislative Texts*, p. 671, No. 184.
France-Spain: Final Act of delimitation of the international frontier of the Pyrenees between France and Spain (Bayonne, 11 July 1868)	*BFSP, 1868-1869*, vol. 59, p. 430; *Legislative Texts*, p. 674, No. 186; summarized in A/5409, paras. 979-984.
Grand Duchy of Baden-Switzerland: Convention concerning fishing in the Rhine between Constance and Basel (Bern, 9 December 1869)	G. F. de Martens, ed., *Nouveau Recueil général de Traités*, vol. XX, p. 166.
Grand Duchy of Baden-Switzerland: Convention concerning fishing in the Rhine and its tributaries, as well as in Lake Constance (Basel, 25 March 1875)	*Ibid.*, 2nd series, vol. II, p. 60.
France-Switzerland: Convention regulating fishing in boundary waters (Paris, 9 March 1904)	*Legislative Texts*, p. 701, No. 196.
Switzerland-Italy: Convention laying down uniform provisions on fishing in boundary waters (Lugano, 13 June 1906)	*Ibid.*, p. 839, No. 230.
France-Switzerland: Convention for the development of the water power of the Rhône between the projected plant at La Plaine and a point to be determined upstream from Pougny-Chancy (Bern, 4 October 1913)	*Ibid.*, p. 708, No. 197; summarized in A/5409, paras. 842-845.
USSR-Hungary: Treaty concerning the régime of the Soviet-Hungarian State frontier (Moscow, 24 February 1950)	*Legislative Texts*, p. 823, No. 226; summarized in A/5409, paras. 597-606.
Yugoslavia-Greece: Minutes of the Meeting of the delegations of Yugoslavia and Greece, held at Stari Dojran from 26 August to 1 September 1957, to elaborate the mode and plan of collaboration concerning hydro-economic studies on the Lake Dojran drainage basin (Stari Dojran, Yugoslavia, 1 September 1957)	*Legislative Texts*, p. 813, No. 223; summarized in A/5409, paras. 658-667.
Czechoslovakia-Poland: Agreement concerning the use of water resources in frontier waters (Prague, 21 March 1958)	United Nations, *Treaty Series*, vol. 538, p. 89; summarized in A/CN.4/274, paras. 157-163.
Yugoslavia-Greece: Agreement concerning hydro-economic questions (Athens, 18 June 1959)	United Nations, *Treaty Series*, vol. 363, p. 133; summarized in A/5409, paras. 530-535.
Netherlands-Federal Republic of Germany: Treaty concerning the course of the common frontier, the boundary waters, real property situated near the frontier, traffic crossing the frontier on land and via inland waters, and other frontier questions (Frontier Treaty) (The Hague, 8 April 1960)	United Nations, *Treaty Series*, vol. 508, p. 15; summarized in A/5409, paras. 915-927.
Finland-USSR: Agreement concerning the régime of the Finnish-Soviet State frontier. (Helsinki, 23 June 1960)	United Nations, *Treaty Series*, vol. 379, p. 277.
Finland-USSR: Agreement concerning frontier watercourses (Helsinki, 24 April 1964)	*Ibid.*, vol. 537, p. 231; summarized in A/CN.4/274, paras. 257-264.
Poland-USSR: Agreement concerning the use of water resources in frontier waters (Warsaw, 17 July 1964)	United Nations, *Treaty Series*, vol. 552, p. 175; summarized in A/CN.4/274, paras. 273-278.
Bulgaria-Turkey: Agreement concerning co-operation in the use of waters of rivers flowing through the territories of both countries (Istanbul, 23 October 1968)	United Nations, *Treaty Series*, vol. 807, p. 117.
Finland-Sweden: Agreement concerning frontier rivers (Stockholm, 16 September 1971)	*Ibid.*, vol. 825, p. 191; summarized in A/CN.4/274, paras. 307-321.

	Source
France-Switzerland: Agreement on intervention by the agencies responsible for combating accidental pollution of the waters by hydrocarbons or other substances capable of altering the waters, and recognized as such under the Franco-Swiss Convention concerning the protection of the waters of Lake Léman against pollution (Bern, 5 May 1977)	Switzerland, *Recueil des lois fédérales, 1977*, p. 2204.

General conventions

International Convention for the Prevention of Pollution from Ships, 1973, as amended by the 1978 Protocol relating thereto (MARPOL 73/78) (London, 2 November 1973 and 12 February 1978)	United Nations, *Juridical Yearbook 1973* (Sales No. E.75.V.1), p. 81; and IMO publication, Sales No. 78.09.E.
Convention on Long-range Transboundary Air Pollution (Geneva, 13 November 1979)	E/ECE/100.
1982 United Nations Convention on the Law of the Sea (Montego Bay, Jamaica, 10 December 1982)	*Official Records of the Third United Nations Conference on the Law of the Sea*, vol. XVII (United Nations publication, Sales No. E.84.V.3), p. 151, document A/CONF.62/122.
Vienna Convention for the Protection of the Ozone Layer (Vienna, 22 March 1985), *and* Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal, 16 September 1987)	UNEP, Nairobi, 1985 and 1987.
Convention on Early Notification of a Nuclear Accident (Vienna, 26 September 1986)	IAEA, Legal Series No. 14, Vienna, 1987.