13 The 'Hidden' Definition of Water Pollution in the UNECE Water Convention

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A unique situation characterized by McCaffrey as "unprecedented in the annals of international law"[1] has emerged, namely two multilateral treaties covering the same subject matter, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)[2] and the Convention on the Law of the Non-Navigational Uses of International Watercourses (Watercourses Convention)[3] entered into force.[4] Not surprisingly, scholars devoted considerable attention to the analysis of their provisions[5] in order to find out to what extent the two Conventions coincide.[6] The current essay seeks to contribute to these analyses by focusing on the provisions relating to water pollution, which can be deemed remarkable from two perspectives. On the one hand, these days, water pollution could not be a more topical issue, as degrading water quality of the world's waters is of growing concerns due to its interrelationship with several important factors, such as human health, security and development, just to name a few

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1 S.C. McCaffrey, 'The 1997 UN Convention: Compatibility and Complementarity', in Tanzi et al. (Eds.), *The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: its contribution to international water cooperation*, Brill Nijhoff, Leiden, Boston, 2015, p. 51.

2 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, adopted on 17 March 1992 in Helsinki and entered into force on 6 October 1996.

3 Convention on the Law of the Non-Navigational Uses of International Watercourses, adopted on 21 May 1997 in New York and entered into force on 17 August 2014.

4 See A. Tanzi, *The Economic Commission for Europe Water Convention and the United Nations Watercourses Convention An analysis of their harmonized contribution to international water law*, Water Series No. 6, United Nations, New York, Geneva, 2015, p. 3.

5 See A. Tanzi, *The Relationship between the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses*, Report of the UN/ECE Task Force on Legal and Administrative Aspects, Geneva, 2000; A. Tanzi, 'Comparing the 1992 UNECE Helsinki Water Convention with the 1997 UN New York Convention on international watercourse: harmonization over conflict', *Questions of International Law*, Vol. 8, 2014, pp. 19-33; A. Rieu-Clarke, 'A cure or a curse? Entry into force of the UN Watercourses Convention and the Global Opening of the UNECE Water Convention', *Questions of International Law*, Vol. 8, 2014, pp. 3-17.

6 See Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission, A/CN.4/L.682, 2006, para. 37.

examples.[7] On the other hand, the fact that only the Watercourses Convention provides a definition of water pollution, although both Conventions refer to this term, provides an opportunity to examine the relationship between the two documents. The analysis shall proceed as follows: firstly, I will describe the adoption of the Conventions. Secondly, I shall elaborate on the relationship between them, followed by an examination of Article 21 (Prevention, reduction and control of pollution) of the Watercourses Convention as well as the provisions of the Water Convention relating to water pollution. Finally, I shall formulate some conclusions.

13.1 The Adoption of the Watercourses Convention and the Water Convention

In the vein of the analytical scheme of the present essay, when presenting the adoption of the two Conventions, I will embark upon the enquiry of the Watercourses Convention. This is justified, on the one hand, by the fact that, contrary to the case of the Water Convention, the International Law Commission (ILC) provides us with a rich source of preparatory documents covering a wide range of sources,[8] not to mention the Draft articles on the law of the non-navigational uses of international watercourses (Commentary) adopted in 1994,[9] which function as a commentary to the Watercourses Convention. On the other hand, the definition of water pollution, a core element of this analysis, can only be found in the Watercourses Convention; therefore, it is reasonable to take this document as a starting point.

13.1.1 The Adoption of the Watercourses Convention

The ILC started its work on the Watercourses Convention after the General Assembly (GA) adopted its Resolution on Progressive development and codification of the rules of international law relating to international watercourses in 1970, in which the ILC was

7 M. Palaniappan et al., Water Quality, in P.H. Gleick (Ed.), *The World's Water Volume 7 The Biennial Report of Freshwater Resources*, Island Press, Washington, Covelo, London, 2012, pp. 45-72; L. Boisson de Chazournes, *Fresh Water in International Law*, Oxford University Press, Oxford, 2013, pp. 109-111.

8 E.g. national law, bilateral and multilateral agreements; declarations and resolutions of international organisations, such as the Institute of International Law, the Inter-American Bar Association and International Law Association, and decisions of international tribunals. A/CN.4/274, *Yearbook of the International Law Commission*, 1974, Vol. I(2); A/5409, *Yearbook of the International Law Commission*, 1974, Vol. II, Part 2.

9 Draft articles on the law of the non-navigational uses of international watercourses and commentaries thereto and resolution on transboundary confined groundwater, adopted by the International Law Commission at its forty-sixth session in 1994, *Yearbook of the International Law Commission*, 1994, Vol. II, Part 2, pp. 89-135.

called upon "to take up the study of the law of the non-navigational uses of international watercourses with a view to its progressive development and codification",[10] however, subsequently in the Commentary the ILC did not indicate whether certain provisions formed the 'codification' or the 'progressive development' of international law. The Watercourses Convention was negotiated in the Sixth (Legal) Committee of the GA, based on the draft articles of the ILC. The negotiations were open to all member states of the United Nations (UN). The ILC's work was highly influenced by the different approaches represented by its five special rapporteurs and was therefore not 'linear'.[11] Firstly, it developed on the basis of the annual interaction between the ILC and the GA.[12] Secondly, at various stages of the ILC's work, states also had the opportunity to reflect on the drafts and share their viewpoint.[13] On 21 May 1997, the Watercourses Convention was eventually adopted by an overwhelming majority of the states, as 103 states voted in favour, 26 abstained, and only three states (Burundi, China and Turkey) voted against it.[14] Contrary to this remarkable support, ratification progressed rather slowly, although the Watercourses Convention required merely 35 instruments of ratification or accession to enter into force,[15] which is slightly less than one third of the states that voted in favour of the final draft. It finally entered into force on 17 August 2014.[16] To date, there are 36 contracting states to the Watercourses Convention.[17]

As far as the Convention's structure is concerned, it is divided into seven parts and contains 37 articles. It encompasses both substantive and procedural provisions; the most significant articles are located in Part II on General Principles, Part III on Planned Measures, Part IV on Protection, Preservation and Management and Part V on Harmful Conditions and Emergency Situations.

10 GA Res. 2669 (XXV), 8 December 1970.

11 S.C. McCaffrey, 'The 1997 U.N. Watercourses Convention: Retrospects and Prospects', *Global Business & Development Law Journal*, Vol. 21, 2008, p. 165.

12 Ibid.

13 A. Rieu-Clarke & K. Hayward, 'Entry into force of the 1997 UN Watercourses Convention: barriers, benefits and prospects', *Water 21*, Vol. 9, No. 6, 2007, p. 12.

14 GA Fifty-first Session 99th plenary meeting Wednesday, 21 May 1997, 10 a.m., New York.

15 Art. 36 of the Watercourses Convention.

16 https://treaties.un.org/Pages/ViewDetails.aspx?src=UNTSONLINE&tabid=2&mtdsg_no=XXVII-12&chapter=27&lang=en#Participants.

17 Such as, Benin, Burkina Faso, Chad, Côte d'Ivoire, Denmark, Finland, France, Germany, Greece, Guinea-Bissau, Hungary, Iraq, Ireland, Italy, Jordan, Lebanon, Libya, Luxembourg, Montenegro, Morocco, Namibia, The Netherlands, Niger, Nigeria, Norway, Portugal, Qatar, South Africa, Spain, State of Palestine, Sweden, Syrian Arab Republic, Tunisia, United Kingdom of Great Britain and Northern Ireland, Uzbekistan, Vietnam. https://treaties.un.org/Pages/ViewDetails.aspx?src=UNTSONLINE&tabid=2&mtdsg_no=XXVII-12&chapter=27&lang=en#EndDec.

13.1.2 The Establishment of the UNECE and the Adoption of the Water Convention

Before describing the adoption of the Water Convention, the establishment of the United Nations Economic Commission for Europe (UNECE) will be briefly discussed to highlight its main goals as well as its relationship to the UN. In discussing the adoption of the Water Convention, contrary to the Watercourses Convention, besides the adoption process itself, special attention will be paid to the provisions on water quality, since in lack of a definition of water pollution these provisions may contribute to a better understanding of pollution in the meaning of the Water Convention.

Embarking upon the establishment of the UNECE, it was set up on 28 March 1947 by the United Nations Economic and Social Council (ECOSOC)[18] and constitutes one of the five regional commissions of the UN.[19] At the outset, it focused, first and foremost, on the 'economic reconstruction' of post-war Europe, on the improvement of the 'economic activity' as well as on maintaining and strengthening the economic relationships both among the European countries, as well as these countries and the rest of the world.[20] However, following the Cold War its focus shifted, on the one hand, to transition from a centrally planned economy system to market economy and, on the other hand, to the integration of 'countries in transition' into the global economy.[21] Nowadays, UNECE contributes to the enhancement of the UN's effectiveness through the regional implementation of the outcomes of global UN Conferences and Summits,[22] among others the Sustainable Development Goals.[23] To date, UNECE has 56 member States from both inside and outside of Europe,[24] as all countries that participated in the reconstruction of post-war Europe were included in the UNECE.[25]

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18 36 (IV). Economic Commission for Europe, Resolution of 28 March 1947 (document E/402). On the Terms of Reference and Rules of Procedure of the Economic Commission for Europe see; E/ECE/778/Rev.5.

19 www.unece.org/mission.html. Other regional commissions are the Economic Commission for Africa (ECA), the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic Commission for Latin America and the Caribbean (ECLAC) and the Economic and Social Commission for Western Asia (ESCWA).

20 36 (IV). Economic Commission for Europe, Resolution of 28 March 1947 (Doc. E/402) A. 1. a).

21 www.unece.org/oes/history/history.html.

22 www.unece.org/oes/nutshell/mandate_role.html.

23 www.unece.org/info/about-unece/mission/unece-and-the-global-goals.html.

24 See; Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America and Uzbekistan. www.unece.org/oes/member_countries/member_countries.html.

25 www.unece.org/oes/nutshell/region.html.

After introducing the establishment of the UNECE, we will turn our attention to the adoption of the Water Convention. During a conference in 1956, the UNECE started concentrating on water pollution from urban and industrial sources, resulting in the establishment of the UNECE Committee on Water Problems by the 1960s.[26] In the next decades a series of UNECE recommendations, declarations and decisions were adopted relating to both water quantity[27] and quality;[28] these early efforts definitely paved the way for the later Water Convention.

The Conference on Security and Co-operation in Europe which took place in Sofia between 16 October and 3 November 1989, is undeniably a key element of the Water Convention, for it was during this conference that the participating States agreed on the necessity to "define the principles for sustainable use of transboundary waters and international lakes as well as to elaborate arrangements to protect them from pollution".[29] As a result, participating States recommended the UNECE to elaborate a framework convention on this issue, taking into account existing bilateral and multilateral agreements and ongoing activities, as well as the work of other organizations, such as the ECE Senior Advisers on Environmental and Water Problems and the ILC.[30] Furthermore, it was suggested that the convention should include, on the one hand, basic principles, such as the prevention and the reduction of pollution; while, on the other hand, "principles related to commissions and to other forms of co-operation" including among others, the identification of priority uses of waters as well as the exchange of information on significant discharges.[31]

Senior Advisers to ECE Governments on Environmental and Water Problems discussed the outcome of the Sofia meeting at their third session from 26 February to 2 March 1990 and emphasized the urgency of elaborating a framework convention, proposing that negotiations be initiated without delay.[32] As a result, five special sessions of the Working Party on Water Problems took place between May 1990 and October 1991,[33] attended by

26 A. Rieu-Clarke, 'Remark on the Drafting History of the Convention', *in* Tanzi et al. (Eds.), *The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: its contribution to international water cooperation*, Brill Nijhoff, Leiden, Boston, 2015, p. 4.

27 See, e.g.: Recommendations to ECE Governments on Rational Utilization of Water (December 1979); ECE Declaration of Policy on the Rational Use of Water (December 1984).

28 See, e.g.: UNECE Declaration of Policy on Water Pollution Control (29 April 1966); ECE Declaration of Policy on Prevention and Control of Water Pollution, including Transboundary Pollution (December 1980).

29 Report on Conclusion and Recommendations of the Meeting on the Protection of the Environment of the Conference on Security and Co-operation in Europe, Sofia 1989-Vienna, 1990, p. 6.

30 Ibid.

31 Ibid., p. 7.

32 Rieu-Clarke, 2015, pp. 6-7.

33 UNECE, 'Senior Advisers to ECE Governments on Environmental and Water Problems, Working Party on Water Problems – Report of the First Special Session' (17 May 1990) ECE/ENVWA/WP.3/7; UNECE, 'Senior Advisers to ECE Governments on Environmental and Water Problems, Working Party on Water Problems – Report of the Second Special Session' (15 November 1990) ECE/ENVWA/WP.3/10; UNECE, 'Senior Advisers to ECE Governments on Environmental and Water Problems, Working Party on Water

the representatives of 25 states as well as several international organizations,[34] with the aim to elaborate the draft Water Convention.[35] Finally, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes was adopted in Helsinki on 17 March 1992, around the time the Soviet Union was dissolved and "new frontiers cut through Europe".[36] In this context the Water Convention represented a "piece of international legislation" on the protection and management of transboundary waters, matters that were earlier under national control.[37] As such, it exerted a strong influence on existing national law[38] as well as on bilateral and multilateral treaties.[39]

The Water Convention entered into force roughly two years following its adoption on 6 October 1996. At the time of its adoption, it was solely open to member states of the UNECE and regional economic integration organizations formed by these states. However, in 2003 the Meeting of the Parties adopted a decision, which allowed all UN Member States to accede to the Water Convention.[40] Furthermore, in 2012, another decision was adopted, allowing for accession by non-UNECE countries,[41] consequently, the Water Convention became a universal instrument.

As far as the structure of the Convention is concerned, it is divided into three parts and consists of 28 articles as well as four annexes. Similarly to the Watercourses Convention, the Water Convention also encompasses both substantive and procedural provisions, and the most significant of these can be identified in Part I on Provisions Relating to All Parties, in Part II on Provisions Relating to Riparian Parties and Part III on Institutional and

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Problems – Report of the Third Special Session' (18 January 1991) ECE/ENVWA/WP.3/13; UNECE, 'Senior Advisers to ECE Governments on Environmental and Water Problems, Working Party on Water Problems – Report of the Fourth Special Session' (16 May 1991) ECE/ENVWA/WP.3/15; UNECE, 'Senior Advisers to ECE Governments on Environmental and Water Problems, Working Party on Water Problems – Report of the Fifth Special Session' (8 November 1991) ECE/ENVWA/WP.3/7.

34 Rieu-Clarke, 2015, p. 7.

35 UNECE Draft Convention on the Protection and Use of Transboundary Watercourses and International Lakes ECE/ENVWA/WP.3/R.17; UNECE Second Draft Convention on the Protection and Use of Transboundary Watercourses and International Lakes (21 May 1991) ECE/ENVWA/WP.3/R.19./Rev.1.1; Amendments to the Draft Convention on the Protection of the and Use of International Watercourses and Lakes ECE/ENVWA/WP.3/19.

36 United Nations Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *Guide to Implementing The Water Convention* (ECE/MP.WAT/39), United Nations, New York, Geneva, 2013, p. 1.

37 Ibid.

38 On the ratification and implementation of the Water Convention in Finland see; ECE/MP.WAT/39, p. 8.

39 See, e.g. the preamble of Convention on the Protection of the Rhine, signed on 22 January 1998 in Rotterdam; the preamble of the Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention), signed on 29 June 1994 in Sofia.

40 On 28 November 2003, the Meeting of the Parties to the Convention adopted Dec. III/1, amending Arts. 25 and 26 of the Convention to allow all United Nations Member States to accede to the Convention. These amendments entered into force on 6 February 2013.

41 On 30 November 2012, the Meeting of the Parties adopted Dec. VI/3 on accession by non-United Nations Economic Commission for Europe countries.

Financial Provisions. Following the adoption of the Water Convention, the UNECE sought to respond to new challenges relating to water, which lead to the adoption of two legally binding protocols, namely the Protocol on Water and Health[42] and the Protocol on Civil Liability.[43] Although the significance of these protocols is unquestionable, the major contribution of the UNECE to the protection of water can be attributed to the adoption of the numerous non-binding instruments, such as guidelines, recommendations and model provisions.[44]

To date, there are forty parties to the Water Convention,[45] moreover, several countries outside Europe have expressed their interest in it,[46] and Iraq has also confirmed its intention to accede to the Convention.[47]

13.2 The Relationship between the Watercourses Convention and the Water Convention

In examining the relationship between the two Conventions, first, their framework character will be introduced, followed by their geographic scope. Finally, the economic as well as the environmental approach of the Conventions will be discussed.

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42 Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary. Watercourses and International Lakes, done in London, on 17 June 1999. See further: F. Bernardini, 'A Modern Approach to Water Management: The Unece Protocol on Water and Health', *Law, Environment and Development Journal*, Vol. 3, No. 2, 2007, pp. 234-243; A. Tanzi, 'Reducing the Gap between International Water Law and Human Rights Law: The UNECE Protocol on Water and Health', *International Community Law Review*, Vol. 12, No. 3, 2010, pp. 267-286; S. Negri, 'Waterborne Disease Surveillance: The Case for a Closer Interaction between the UNECE Protocol on Water and Health and the International Health Regulations (2005)', *International Community Law Review*, Vol. 12, No. 3, 2010, pp. 287-302.

43 Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents, adopted on 21 May 2003, not yet in force. https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-16&chapter=27&lang=en.

44 ECE/MP.WAT/39, para. 57.

45 Such, as Albania, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, European Union, Finland, France, Germany, Greece, Hungary, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Montenegro, The Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Ukraine and Uzbekistan. https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&lang=en.

46 See, e.g.: Algeria, Chad, Côte d'Ivoire, the Democratic Republic of Congo, Iraq, Mongolia and Tunisia. www.unece.org/info/media/news/environment/2015/new-countries-from-outside-the-unece-region-express-interest-in-the-water-convention/new-countries-from-outside-the-unece-region-express-interest-in-the-water-convention.html.

47 www.unece.org/info/media/news/environment/2016/iraq-confirms-progress-towards-accession-to-the-unece-water-convention-in-2016/doc.html.

13.2.1 The Framework Character of the Conventions

A most general trait of the conventions is their framework character, in other words, they are both 'umbrella treaties'.[48] The framework convention as a regulatory technique can be considered to be a relatively recent phenomenon in international law, mainly to be found in the field of international environmental law,[49] such as global environmental agreements,[50] the United Nations Environment Programme (UNEP) regional seas conventions[51] and, last but not least, the majority of the UNECE conventions.[52] It is worth noting that framework conventions are also legally binding sources of international law, which do not differ from other conventions in their legal nature, thus, qualification as a framework convention does strip these legal instrument of their binding character under the law of the treaties.[53] As regards the function of framework conventions in the field of transboundary waters, the application of this instrument means that the two Conventions attempt no more than to address some basic procedural and substantive rules, leaving riparian states the possibility to forge detailed agreements tailored to the specific characteristics of the watercourse in question.[54] Nonetheless, the Water Convention is "more detailed than average umbrella agreements",[55] which is apparent from numerous articles (among others, the articles of Part II on Provisions Relating to Riparian Parties), the adoption of two binding protocols as well as several non-binding guidelines and recommendations.[56] It is worth mentioning that the framework character of the Watercourses Convention is obvious from both its preamble and the *travaux preparatoires*. At the same time, the Water Convention is a good example for the fact that labelling an agreement in the title or in its text a framework convention is not a 'constitutive element' of actually becoming a framework agreement, as its framework character was mentioned for the first time during the conference in Sofia in 1989[57] and was finally reaffirmed in the Guide to Implementing the Water Convention.[58]

48 ECE/MP.WAT/39, para. 54.
49 N. Matz-Lück, 'Framework Conventions as a Regulatory Tool', *Göttingen Journal of International Law*, Vol. 1, No. 3, 2009, p. 440.
50 See, e.g. United Nations Framework Convention on Climate Change (UNFCCC), New York, 1992.
51 See, e.g. Framework Convention for the Protection of the Marine Environment of the Caspian Sea; Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992 Helsinki Convention, Helsinki, 1992.
52 See, e.g. 1979 Convention on Long-range Transboundary Air Pollution.
53 Matz-Lück, 2009, p. 451.
54 S.M.A. Salman, 'The United Nations Watercourses Convention Ten Years Later: Why Has its Entry into Force Proven Difficult?', *Water International*, Vol. 32, No. 1, 2007, p. 4; see also: ECE/MP.WAT/39, para. 56.
55 ECE/MP.WAT/39, para. 55.
56 www.unece.org/env/water/publications/pub.html.
57 Report on Conclusion and Recommendations of the Meeting on the Protection of the Environment of the Conference on Security and Co-operation in Europe, Sofia 1989-Vienna, 1990, p. 6.
58 ECE/MP.WAT/39, paras. 54-59.

13.2.2 The Geographic Scope of the Conventions

Moving onto the question of geographic scope, the key issue is to clarify what kind of waters are covered by the Conventions. Starting with Article 2(a) of the Watercourses Convention, it defines 'international watercourse' as "a watercourse, parts of which are situated in different states". In addition, in Article 2(b) 'watercourse' is determined "as a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus". The determination of the 'international watercourse' is interesting from two perspectives. Firstly, contrary to the general presumption, it is not synonymous with 'international river'. Based on the foregoing definition of 'watercourse', it covers a broader category than rivers by encompassing both surface water (such as rivers, streams and lakes) and groundwater.[59] Nonetheless, groundwater is covered by the Watercourses Convention as far as it is connected to surface water, therefore, confined groundwaters, which are not related to any surface water, are excluded from under its scope.[60] In addition, this interrelationship between surface water and groundwater has relevance from the point of view of both water quantity and quality: for as water withdrawals mutually affect both surface and groundwater, the pollution in either source in turn also contaminates the other source.[61] Moreover, it is worth noting that based on the hydrological cycle, pollutants introduced or reaching rivers by flowing water will sooner or later reach the sea.[62] Consequently, the quality of rivers directly affects the marine environment, which also has important functions, such as fishery or recreation.[63] This connection is enshrined in Article 23 on the Protection and preservation of the marine environment.

Turning our attention to Article 1(1) of the Water Convention, it defines 'transboundary waters' as

59 S.C. McCaffrey, 'The contribution of the UN Convention on the law of the non-navigational uses of international watercourses', *International Journal* of *Global Environmental Issues*, Vol. 1, No. 3-4, 2001, pp. 251-252; Salman, 2007, p. 5.

60 On the regulation of confined groundwater see; Draft articles on the Law of Transboundary Aquifers, adopted by the International Law Commission at its sixtieth session, in 2008. See more: G.E. Eckstein, 'Commentary on the U.N. International Law Commission's Draft Articles on the Law of Transboundary Aquifers', *Colorado Journal of International Environmental Law and Policy*, Vol. 18, No. 3, 2007, pp. 537-610; A. Allan, F. Loures & M. Tignino, 'The Role and Relevance of the Draft Articles on the Law of Transboundary Aquifers in the European Context', *Journal for European Environmental & Planning Law*, Vol. 8, No. 3, 2011, pp. 231-251; K. Mechlem, 'Past, Present and Future of the International Law of Transboundary Aquifers', *International Community Law Review*, Vol. 13, No. 3, 2011, pp. 209-222.

61 S.C. McCaffrey, The UN Convention on the Law of the Non-Navigational Uses of International Watercourses: Prospects and Pitfalls, in S.M.A. Salman & L. Boisson de Chazournes (Eds.), *International Watercourses, Enhancing Cooperation and Managing Conflict*, *World Bank Technical Paper* No. 414, 1997, p. 18.

62 Boisson de Chazournes, 2013, p. 5.

63 *Protecting coastal and marine environments from land-based activities: A guide for national action*, UNEP, 2006, p. 2; D. Shelton & A. Kiss, *Judicial handbook on Environmental Law*, UNEP, Stevenage, 2005, p. 65.

> any surface or ground waters which mark, cross or are located on boundaries between two or more States; wherever transboundary waters flow directly into the sea, these transboundary waters end at a straight line across their respective mouths between points on the low-water line of their banks.

Consequently, "surface waters include waters collecting on the ground in a stream, river, channel, lake, reservoir or wetland;" while groundwaters, contrary to the Watercourses Convention, cover both "confined and unconfined aquifers".[64] Similarly to the Watercourses Convention, though sea waters are excluded from under the scope of the Water Convention, there are references to the protection of the marine environment, such as the preamble stipulates the obligation to "abate […] the pollution of the marine environment, in particular coastal areas, from-land based sources", furthermore, among the general provisions one can also find reference not only to the "protection of the environment of transboundary waters", but also to the "environment influenced by such waters, including the marine environment".[65] Yet it follows from the same paragraph that

> transboundary waters should not be limited to a water body […], but should cover the catchment area of the said water body (or in case of an aquifer, whether confined or unconfined, its entire recharge area). The entire catchment area of a surface water body or a recharge area of the aquifer should be understood as the area receiving the waters from rain or snow melt, which drain downhill […] into a surface water body or which infiltrate through the subsoil […] into the aquifer.[66]

Finally, the Water Convention covers transboundary waters which end in a desert sink or in an enclosed lake.[67]

13.2.3 The 'Economic Cast' versus the Environmental Approach

Last but not least, in comparing the two Conventions, it is common to refer to the 'economic cast' of the Watercourses Convention as opposed to the environmental approach of the Water Convention,[68] though "these qualities are not contradictory but rather complemen-

64 ECE/MP.WAT/39, para. 73.
65 ECE/MP.WAT/14, Art. 2.6.
66 ECE/MP.WAT/39, para. 74.
67 ECE/MP.WAT/39, para. 78.
68 Tanzi, 2015, p. 4.

tary in nature".[69] One may observe that this notion of interdependence between the economy and the environment forms the basis of the principle of sustainable development,[70] which is one of the guiding principles underlying both Conventions. Furthermore, as mentioned above in relation to the establishment of the UNECE; UNECE plays a key role in the regional implementation of the UN's goals, consequently, they share the same roots and principles which can be detected, among others, in the reference to the UN Conference on Environment and Development of 1992, the Rio Declaration and Agenda 21 in both Conventions. Finally, the aforementioned interrelationship can be backed up by several facts. On the one hand, numerous environmental provisions were enshrined in the Watercourses Conventions, especially in Part IV on Protection, Preservation and Management, though its title refers only to 'uses' without any reference to the protection of international watercourses. Furthermore, although the UNECE was established with economic goals, it has adopted several environmental conventions, among others, the Water Convention; in addition, the title of the Water Convention contains both the terms 'use' and 'protection', yet we may discern a dominance of the environmental provisions from the text. Consequently, both Conventions attest to the fact that the economic and the environmental interests are inseparable.

13.3 The Regulation of Water Pollution in the Watercourses Convention

After clarifying the similarities between the Conventions, we will concentrate on the analysis of water pollution in the Watercourses Convention. However, before doing so, the activity of three special rapporteurs, Stephen M. Schwebel,[71] Jens Evensen[72] and Stephen

69 The Relationship between the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 25 February 1991) and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 17 March 1992), p. 3. https://www.unece.org/fileadmin/DAM/env/eia/documents/links_between_conventions/linktranswatersandeiaconventions.pdf.

70 Report of the World Commission on Environment and Development: Our Common Future, 1987. www.un-documents.net/our-common-future.pdf; See also, G. Bartus & Á. Szalai, *Környezet, jog, gazdaságtan: környezetpolitikai eszközök, környezet-gazdaságtani modellek és joggazdaságtani magyarázatok* (Jogtudományi Monográfiák 6), PÁZMÁNY PRESS, Budapest, 2014, pp. 25-30; Perman, 2003, pp. 17-28. See, generally, A. Hildering, *International Law, Sustainable Development and Water Management*, Eburon Publishers, Delft, 2004; Perman, 2003, pp. 16-52.

71 A/CN.4/348 and Corr.1 Third report on the law of the non-navigational uses of international watercourses, by Mr. Stephen M. Schwebel, Special Rapporteur, *Yearbook of the International Law Commission*, 1982, Vol. II(1).

72 A/CN.4/367 and Corr.1 First report on the law of the non-navigational uses of international watercourses, by Mr. J. Evensen, Special Rapporteur, *Yearbook of the International Law Commission*, 1983, Vol. II(1); A/CN.4/381 and Corr.1 and Corr.2 Second report on the law of the non-navigational uses of international watercourses, by Mr. Jens Evensen, Special Rapporteur, *Yearbook of the International Law Commission*, 1984, Vol. II(1).

C. McCaffrey[73] must be stressed, since they all significantly contributed to the crystallization of the provisions relating to water pollution. While working on this topic, the significance and the challenge inherent in this policy field were best illustrated with the ILC's conclusion, namely that the "problem of pollution of international waterways was of both substantial urgency and complexity".[74] Indeed, the following part aims to provide several examples on how complicated the regulation of this field is. First, some general remarks on pollution shall be made, followed by a detailed analysis of Article 21 of the Convention.

13.3.1 The Challenges in Regulating Water Pollution

Before embarking upon the analysis of the definition of water pollution in the Watercourses Convention, it is worth making an excursion into Lammers' observations on the issue of defining water pollution.[75] He pointed out that many sources had not even attempted to define water pollution,[76] which may be due to two reasons. On the one hand, people generally have a 'fairly accurate idea' about water pollution; on the other hand, it is difficult to define it precisely, since the different approaches result in very divergent definitions "not only in details but sometimes in also fundamental respects".[77] Indeed, it proves challenging to define what clean water is for several reasons. For one, nature itself does not provide 'pure' water, at the same time, there are variable considerations in play when deciding whether or not water is clean enough for human use, furthermore, water serves multiple purposes requiring different water quality, therefore the term 'clean water' may imply different water quality depending on the water uses in question.[78] In addition, "even in the complete absence of pollution, the biological characteristics of different points within a river system vary widely according to the physical and chemical conditions prevailing at the different locations".[79] Since the relationship between the 'biological community' and its 'physical environment' are not well understood, it may be hard to distinguish between

73 A/CN.4/412 and Add. 1 & 2 Fourth report on the law of the non-navigational uses of international watercourses, by Mr. Stephen C. McCaffrey, Special Rapporteur, *Yearbook of the International Law Commission*: 1988, Vol. II(1).

74 A/CN.4/270, *Yearbook of the International Law Commission*, 1973, Vol. II, p. 96.

75 J.G. Lammers, *Pollution of International Watercourses: search for substantive rules and principles of law*, Martinus Nijhoff, The Hague, 1984, p. 7.

76 See, e.g.: Convention on the Protection of the Rhine, signed on 22 January 1998 in Rotterdam; Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention), signed on 29 June 1994 in Sofia.

77 Lammers, 1984, p. 7.

78 C.B. Bourne, 'International Law and Pollution of International Rivers and Lakes', *University of Toronto Law Journal*, Vol. 21, 1971, p. 194.

79 P.D. Abel, *Water Pollution Biology*, Taylor & Francis, 2nd edition, London, 1996, p. 8.

natural and anthropogenic water pollution.[80] This differentiation, however, is crucial from a legal point of view, as only the latter case has legal relevance.

Following this short introduction, the next part seeks to analyse the provisions of Article 21 on Prevention, reduction and control of pollution, located among the environmental provisions in Part IV on Protection, Preservation and Management, encompassing three paragraphs. Before commencing with the analysis, the following remarks must be made. While the aim of the present essay is to give a detailed analysis of the aforementioned article, I shall focus, on the one hand, on the definition of water pollution; on the other hand, on the obligation "to prevent, reduce and control pollution", since the two Conventions will be the compared based on these provisions.

13.3.2 Article 21(1) on Pollution of International Watercourse

Article 21(1) on the 'pollution of international watercourse' stipulates that

> pollution of an international watercourse means any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct.

As indicated in the Commentary, this definition is far too general,[81] albeit consistent with the definition of pollution in the International Law Association's (ILA) Helsinki Rules[82] as well as with the ILA's Berlin Rules.[83] The ILA opted for this broad definition for several reasons, among others, due to the fact that the "nature and effect of pollutants are likely to change over time".[84] In what follows, the elements of this definition will be analysed in detail, followed by further observations on this paragraph.

13.3.2.1 The Detrimental Alteration

It is worth highlighting that the term 'any detrimental alteration' does not specify the threshold which would make it possible to draw a line between legal and illegal pollution. Consequently, Paragraph 1 declares the general prohibition of water pollution *per se*, as it

80 Ibid.

81 Commentary of the Watercourses Convention, 1994, p. 121.

82 A. Rieu-Clarke, R. Moynihan & B.-O. Magsig, *UN Watercourses Convention User's Guide*, IHP-HELP Centre for Water Law, Policy and Science, Dundee, 2012, p. 173. See: ILA Helsinki Rules (1966) Art. IX defines 'water pollution' as "any detrimental change resulting from human conduct in the natural composition, content, or quality of the waters of an international drainage basin."

83 See Art. 3 of International Law Association Berlin Conference (2004) Water Resources Law, which defines 'pollution' as "any detrimental change in the composition or quality of waters that results directly or indirectly from human conduct".

84 Rieu-Clarke, Moynihan & Magsig, 2012, p. 176.

encompasses all forms of negative alterations regardless of their effects.[85] Secondly, the question emerges what the precise meaning of 'detrimental effect' actually is.[86] It should be mentioned that a similar term, namely 'detrimental change' can be identified in the Helsinki Rules, which is undeniably the most significant document preceding the Watercourses Convention.[87] The Helsinki Rules Commentary provides some insight into the meaning of this phrase, which may be interesting for two reasons. On the one hand, the term 'detrimental' determines the direction of alterations in the meaning of the article, which is negative in comparison with the previous state of the water; on the other hand, it leaves open the question of the degree of alteration, which means, at least in theory, that every negative change may come under the scope of these rules.[88] However, this would stand in sharp contrast with the concept of environmental economics, which holds that a certain degree of pollution is unavoidable.[89] Furthermore, even the ILC confirms that

> 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.[90]

Moving onto the second part of the phrase, namely the 'alteration', one can identify this term in several preceding universal documents, such as the Madrid Declaration, which refers to "all alteration injurious to water"[91] as well as the Athens Resolution, which refers to "physical, chemical or biological alteration".[92] From the point of view of the current analysis, the wording of the Athens Resolutions in particular can be instructive, as it completely coincides with the terminology employed in the previous drafts of the Watercourses Convention.[93] Based on the above, these three types of alterations do not form a cumulative list; consequently, an alteration in merely one of them is sufficient to trigger pollution. As explained in the Commentary, ILC excluded the 'biological alteration' from under the scope of Article 21 and devoted a separate article, namely Article 22, to it. This is because even though the 'introduction of alien or new species' may have harmful effects

85 Commentary of the Watercourses Convention, 1994, p. 121.
86 Ibid.
87 See Art. IX of the Helsinki Rules.
88 Commentary of the Helsinki Rules on the Uses of the Waters of the International Rivers (1966).
89 Perman et al., *Natural resources and environmental economics*, 3rd edn., Prentice Hall, New York, 2003, pp. 170-171.
90 A/CN.4/412 and Add. 1 & 2, p. 238.
91 Art. II.2. of International Regulations Regarding the Use of International Watercourses for Purposes Other than Navigation (1911).
92 Art. I.1 of The Pollution of Rivers and Lakes and International Law (1979).
93 See Art. 22 of A/CN.4/367 and Corr. 1; Art. 22. of A/CN.4/381 and Corr. 1 and Corr. 2; Art. 16 [17] of A/CN.4/412 and Add. 1 & 2.

upon water quality, it is not generally regarded as pollution *per se*, since its detrimental effects on the environment are not generally regarded as pollution.[94] However, this current approach of the Convention begs the question what is the legal position with regard to those 'biological alterations', which are outside of the scope of Article 22, such as the introduction of native species[95] or any other forms of 'biological alterations'. It can be argued, on the one hand, that Article 21 applies to 'any detrimental alteration' covering physical, chemical and biological alterations, yet on the other hand, Article 22 regulates merely special kinds of biological alterations, consequently, all kinds biological alterations outside the scope of Article 22 may be covered by Article 21. Moreover, as illustrated below, the significance of 'biological alterations' in identifying any change in water quality cannot be overemphasized. First of all, it has to be confirmed that those pollutants which are "chemical or physical in nature can be measured more or less accurately in water" and the results of these measurements are easily comparable with each other and the permitted level. Contrary to these easily determinable parameters, "organisms and biological communities can be defined with much less precision". However, biological examinations are also important for several reasons. First and foremost, these are important not only from the point of view of Article 21(1), but also from that of Article 21(2), since the latter article explicitly refers to 'harm to the environment', including 'living resources'. As a result, 'living resources' have to be quantified somehow, and the results of these measurements can serve as an early warning of 'potential harm'.[96] Secondly, both "animal and plant communities respond to intermittent pollution", consequently, biological examinations can challenge the shortcomings of chemical and physical surveys, which provide information on water quality at a particular moment in time, but not between the sampling occasions. In addition, as pollutions kill the most vulnerable species of the aquatic environment, they can act as indicators of pollution.[97] Thirdly, "biological communities may respond to unsuspected or new pollutants in the environment", while during chemical and physical surveys merely a couple of preset determinants are tested.[98] Finally, "chemicals are accumulated in the bodies of certain organisms, concentrations within them reflecting environmental pollution levels over time". Consequently, while the concentration of the pollutants can be too low to detect with the other methods, they can be accumulated in some species.[99]

94 Commentary of the Watercourses Convention, 1994, p. 122. Moreover, Art. 25. of the Berlin Rules cover only alien species.

95 See Advice to the Minister for Sustainability, Environment, Water, Population and Communities from the Threatened Species Scientific Committee (the Committee) on an Amendment to the List of Key Threatening Processes under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) www.irrigators.org.au/assets/uploads/news/feb-2012-8.pdf.

96 C.F. Mason, 'Water Pollution Biology', in R.M. Harrison (Ed.), *Pollution: Causes, Effects and Control*, 4th edn., Royal Society of Chemistry, Cambridge, 2001, p. 82.

97 Ibid.

98 Ibid.

99 Ibid., p. 83.

Last but not least, a final remark on 'detrimental alteration' relates to the term 'detrimental change' enshrined in the Helsinki Rules. Although the meaning of these phrases seems to be a slightly different they can be recognized as synonyms, especially since the Berlin Rules opted for exactly the same terminology as the Helsinki Rules instead of the terminology employed by the Watercourses Convention. The use of this common terminology cannot be explained by the fact that the same organisation, namely the ILA, adopted both of them, as there were nearly four decades of significant developments in the field of international water law between their adoption. Among others, the adoption of the Watercourses Convention definitely belongs to these milestones and on top of it all it was referred in the Commentary of the Berlin Rules. Consequently, should the ILA have wished to recognize any differences between them, it must have taken the opportunity to point out such deviation through a different phrasing in the Berlin Rules, especially since the Berlin Rules are generally regarded as representing an even higher level of environmental protection than all the aforementioned documents.

13.3.2.2 The Composition or Quality of Waters

'Detrimental alteration' occurs in the "composition or quality of the waters of an international watercourse". In the following, I shall confine my analysis to the terms 'composition' and 'quality', since the meanings of both 'water' and 'international watercourse' have been discussed while comparing the two Conventions. Starting with the term 'composition', it refers to "all substances contained in the water, including solutes, as well as suspended particulate matter and other insoluble substances." One can easily discern that this list is not exhaustive; furthermore, some characteristics of substances are defined in terms of their solubility (both soluble and insoluble substances are covered by this definition) while others in terms of their position in the water (such as "suspended particulate matter"). However, this definition begs further questions relating to the location of the 'substances' as well as to the interpretation of this term. Starting with 'substances', it may be advisable to interpret the term broadly covering solid objects as well.[100] This approach can be justified by the fact that besides substances or compositions of substances,[101] objects suspended in or floating on the water surface may also have negative impacts, as they affect the amenity function of waters.[102] Secondly, moving onto the question of the location of these substances,

100 See: Art. 2(1) of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which defines 'wastes' as "substances and objects".

101 See, e.g. Sandoz chemical spill accident in 1986, when chemicals washed into the Rhine "formed a red toxic trail 70 kilometers long". A. Boos-Hersberger, 'Transboundary Water Pollution and State Responsibility: The Sandoz Spill', *Annual Survey of International & Comparative Law*, Vol. 4, No. 1, 1997, p. 106. See also: A. Schwabach, 'The Sandoz Spill: The Failure of International Law to Protect the Rhine from Pollution', *Ecology Law Quarterly*, Vol. 16, No. 2, 1989, pp. 443-480.

102 See, e.g. Drina river's floating problem. https://www.icpdr.org/main/publications/drina-rivers-floating-problem.

it follows from the definition of 'composition' as well as from the previous argument that besides substances located in the water, floating substances may be also covered. Furthermore, substances deposited in the soil of the water body should not be overlooked either, as the term 'international watercourse' covers both the channel itself and the water in it.[103] To illustrate the relevance of the soil, among others, the Baia Borsa pollution on 10 March 2000 may be recalled, when 20,000 tonnes of tailings sludge containing heavy metals, overflowed and burst the dam.[104] Although after the accident the majority of the heavy metals remained in the vicinity of the polluter mining company, it was expected to migrate downstream with the floods, and finally it would become dispersed in the water.[105] Based on the scientists' prediction approximately 15 years are necessary for the traces of this accident and its heavy metal (among others, copper, zinc and lead) pollution to disappear.[106]

Moving onto the term 'quality', it can be noted that it is "commonly used in relation to pollution, especially in such expression as 'air quality' and 'water quality' and 'it refers generally to the essential nature and degree of purity of water"[107] or in other words, "to the physical, chemical and biological characteristics of water". In summary, it can be concluded that polluted water has more 'negative qualities' than positive ones.[108]

13.3.2.3 Results Directly or Indirectly from Human Conduct

Before analysing the phrase "directly or indirectly from human conduct", first the term 'result' will be examined. As it was demonstrated above, Article 21(1) does not determine the exact means by which water pollution can be triggered, such as 'introduction'[109] or 'discharge'.[110] Consequently, among others, the reduction of the water quantity affecting water quality[111] as well as the change in water velocity may also be covered by this definition.

Second, the term 'human conduct' will be discussed, which intends to differentiate between natural and anthropogenic pollution, since only the latter can be the subject of the legal regulation.[112] At the same time, it is understood to cover both acts and omissions,

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103 Commentary of the Watercourses Convention, 1994, p. 89.

104 Report of the International Task Force for Assessing the Baia Mare Accident, December 2000, p. 7.

105 Ibid., p. 15.

106 A. Szakats, 'Cross Border Pollution – Private International Law Problems in Claiming Compensation', *Victoria University of Wellington Law Review*, Vol. 32, 2001, p. 611.

107 Commentary of the Watercourses Convention, 1994, pp. 121-122.

108 S.K. Agarwal, *Water Pollution*, A.P.H. Publishing Corp., New Delhi, 2005, p. 37.

109 See, e.g. Art. 22 of A/CN.4/367 and Corr. 1; Art. 22. of A/CN.4/381 and Corr. 1 and Corr. 2; Art. 2 (33) of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

110 See, e.g. Art. 1(2)d Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.

111 A. Tanzi & M. Arcari, *The United Nations Convention on the Law of International Watercourse: a framework for sharing*, Kluwer Law International, London, Boston, 2001, p. 250.

112 X. Hanqin, *Transboundary Damage in International Law*, Cambridge University Press, Cambridge, 2003, p. 6.

which is preferred to other terms, such as 'human activities'.[113] This approach of the ILC can be justified with several events in the past when pollution occurred as a result of human omission, such as the cases of the Baia Mare cyanide pollution or the Baia Borsa heavy metal pollution in 2000.[114]

Third, the interpretation of the terms 'directly or indirectly' will be discussed. In analysing the exact meaning of these words, the question how to differentiate between cases when pollution results 'directly' and 'indirectly' from 'human conduct' will be addressed, however, as will be shown, determining the margins of the term 'indirectly' can definitely be challenging. As far as incidents when pollution 'directly' results 'from human conduct' are concerned, several accidental pollutions can be mentioned in which human action or more commonly omission played a role, such as the aforementioned cyanide and heavy metal pollution of the River Tisza in 2000. To illustrate those cases when water pollution 'indirectly' results 'from human conduct', among others, sediments in the water as a result of deforestation can be mentioned or cases when pollutants reach the watercourses via the atmosphere. Turning our attention to the scope of the term 'indirectly', it remains an open question, *inter alia*, whether "pollution caused or aggravated by climate change (e.g. changes in water temperature) could be considered as resulting indirectly from human conduct".[115]

Last but not least, it must be emphasized that the lack of threshold in this paragraph does not mean that it cannot be evaluated independently, without the subsequent paragraphs in Article 21. This viewpoint can be supported by the fact that any change in the conditions of the watercourses already increases the likelihood of a significant adverse impact on the environment.[116] At the same time, "detrimental effects which do not rise to the level of appreciable harm should be the subject of "reasonable measures" of abatement". Consequently, 'detrimental' pollutions falling below the threshold of 'significant harm', should not be considered to be without any legal consequence,[117] since dealing with such pollutions cannot be underestimated, as they can trigger later 'significant harm' as a result of their 'cumulative effect'.[118]

113 Commentary of the Watercourses Convention, 1994, p. 122.

114 Report of the International Task Force for Assessing the Baia Mare Accident, December 2000, p. 10.

115 F.R. Loures, C. Behrmann & A. Swain, 'Convention on Climate Change', in: F.R. Loures & A. Rieu-Clarke (Eds.), *The UN Watercourses Convention in force: strengthening international law for transboundary water management*, Routledge, Abingdon, Oxon, 2013, p. 215.

116 The Relationship between the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 25 February 1991) and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 17 March 1992) p. 13.

117 A. Tanzi & M. Arcari, *The United Nations Convention on the Law of International Watercourse: a framework for sharing*, Kluwer Law International, London, Boston, 2001, p. 251.

118 Ibid., p. 252.

13.3.3 Article 21(2) on Prevent, Reduce and Control the Pollution

Turning our attention to Article 21(2), the first part of this paragraph stipulates that

> Watercourse States shall, individually and, where appropriate, jointly, prevent, reduce and control the pollution of international watercourses that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse.

One can easily recognize the similarity of the Article's wording with Article 194 of United Nations Convention on the Law of the Sea (UNLOS),[119] as this paragraph of the Watercourses Convention establishes the fundamental obligations to "prevent, reduce and control the pollution of international watercourses". As explained in the Commentary, these obligations, just like in case of marine pollution, refer to the varying water quality of the international watercourses. While the obligation to 'prevent' relates to 'new pollution' of international watercourses, the other obligations, such as the obligation to 'reduce and control' relate to 'existing' pollution. Moreover, the obligation to 'reduce and control' pollution also reflects the state practice followed by those countries where polluted rivers are situated, namely there is "a general willingness to tolerate even significant pollution harm provided the watercourse State of origin is making its best efforts to reduce the pollution to a mutually acceptable level". This practice can be justified by the fact that the abatement of existing pollution can, in some cases, cause 'undue hardship' to the polluter State, whereas the detriment to the affected State is 'grossly disproportionate' to the benefit gained by the affected watercourse State.[120]

Additionally, it is worth noting that these obligations are not absolute ones, but States have to exercise 'due diligence',[121] which is described by Dupoy as a "diligence to be expected from a good government". Although the 'degree of vigilance or care' required from the States "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". Nonetheless, as Dupoy further emphasises, the "minimum rules concerning the attributes of good government […] cannot be the subject of any compromise".[122] Furthermore, it is crucial to note, on the one hand,

119 Art. 194 of UNCLOS on Measures to prevent, reduce and control pollution of the marine environment.
120 Commentary of the Watercourses Convention, 1994, p. 122.
121 On due diligence see also ILA Study Group on Due Diligence in International Law, First Report, 7 March 2014.
122 A/CN.4/L.493 and Add.1 [and Add. 1/Corr. 1] and 2, *Yearbook of the International Law Commission*, 1994, Vol. II(2), p. 239. See also Rieu-Clarke, Moynihan & Magsig, 2012, p. 176.

> the higher the risk of a major impact […] the greater the care due […], while, on the other hand, the higher the degree of scientific, technological, economic and administrative development, and capacity of the State Party, the higher the standards of care expected and required by it.[123]

Consequently, "[toxic] pollutants requires more alertness, precaution and effort than in respect of other less harmful pollutants", therefore, States are obliged

> 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.[124]

In addition, States are obliged to 'take all appropriate measures' to prevent pollution, and if it occurs "despite all appropriate measures having being taken", they "have to comply with the ancillary obligation to take all appropriate measures […] to control and reduce" such pollution.[125] Last but not least, it is worth noting that we can find several changes in the text of the Watercourses Convention compared to the Commentary adopted in 1994. One of these differences can be identified in Article 7 on Obligation not to cause significant harm, namely the phrase 'due diligence' was deleted and replaced by 'to take all appropriate measures'. McCaffrey argues however that "it is merely saying the same thing in different words".[126]

After clarifying the meaning of 'due diligence', we should focus on the elements of this paragraph. First, the reference to the precautionary principle should be mentioned, which is located in the phrase 'may cause'. Based on the Commentary, it refers first and foremost to 'dangerous substances';[127] nonetheless, it may also cover unpredictable negative consequences occurring as a result of the cumulative effects of different kinds of substances,[128] as well as accidental pollutions.[129]

In addition, this paragraph provides a non-exhaustive list of 'significant harm', namely "harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse". Starting with the term 'significant harm', it must

123 ECE/MP.WAT/39, p. 11.
124 A/CN.4/412 and Add. 1 & 2, p. 240. Moreover, on hazardous substances see: ILA Montreal Rules on Pollution (1982) and Supplemental Rules on Pollution (1996), Art. 26 on Hazardous Substances of the Berlin Rules.
125 ECE/MP.WAT/39, p. 11.
126 S.C. McCaffrey, 'The UN Convention on the Law of the Non-Navigational Uses of International Watercourses: Prospects and Pitfalls', in: S.M.A. Salman & L. Boisson de Chazournes (Eds.), *International Watercourses, Enhancing Cooperation and Managing Conflict*, World Bank Technical Paper No. 414, 1997, p. 21.
127 Commentary of the Watercourses Convention, 1994, p. 122.
128 Tanzi & Arcari, 2001, p. 252.
129 Mason, 2001, p. 84.

be noted that the Commentary referred to 'appreciable' harm, which was described as "harm that is significant – i.e. not trivial or inconsequential – but is less than 'substantial'", furthermore, the precondition of 'harm' is the "actual impairment of use, injury to health or property, or a detrimental effect upon the ecology of the watercourse".[130]

The second part of Article 21(2) obliges States to "take steps to harmonize their policies in this connection". Not surprisingly, the Commentary identifies this paragraph as a 'specific application' of the two general principles, namely equitable and reasonable utilization and the obligation not to cause significant harm.[131]

13.3.4 Article 21(3) on the Obligation to Consult

Moving onto Paragraph 3, it establishes the obligation to "consult with a view to arriving at mutually agreeable measures and methods" in order to, as in the case of Paragraph 2, "prevent, reduce and control the pollution of an international watercourse". Three groups of 'measures and methods' are specified, such as joint water quality objectives, the establishment of techniques and practices against pollution from point and non-point sources and finally, the establishment of lists on substances, the introduction of which into the international watercourse is "prohibited, limited, investigated or monitored". These provisions require some explanation. First, in harmony with its framework character, there is no reference to the required level of water quality, which should be reached through these obligations, or to the 'measures and methods', which can be explained with varying water quality and economic development; however, as mentioned above, special attention has to be paid to the release of hazardous substances. Furthermore, the significant pollution harm is tolerable only in case the "State of origin is making its best efforts to reduce the pollution to a mutually acceptable level".[132] Secondly, the establishment of the list of substances mirrors a shift from the earlier differentiation between 'existing' and 'new' pollution to the contemporary classification of substances in a 'black'("for the most threatening or toxic contaminants") and 'grey'(for the less threatening or toxic contaminants "meriting monitoring and control") list, which is 'appropriate' from the perspective of a framework convention.[133]

130 A/CN.4/412 and Add. 1 & 2, p. 238.
131 Commentary of the Watercourses Convention, 1994, p. 122.
132 Ibid.
133 A/CN.4/412 and Add. 1 & 2, p. 240.

13.4 The Water Convention

After the detailed analysis of water pollution in the meaning of the Watercourses Convention, we now turn our attention to the Water Convention. As mentioned before, contrary to the Watercourses Convention, the Water Convention provides no definition for water pollution, although it uses this term. Therefore, its precise meaning will be revealed, firstly, by identifying where the term 'pollution' can be detected in the text and how it can be interpreted in light of the Watercourses Convention's pollution definition. Secondly, it will be analysed based on the relevant provisions of other UNECE environmental agreements. However, before starting this examination, some remarks about the term 'transboundary impact' of the Water Convention must be made.

13.4.1 The 'Transboundary Impact', as the Basic Concept of the Water Convention

In analysing the basic concept of the Water Convention, it is worth noting that the term 'transboundary impact' was adopted during the second special session of the Working Party on Water Problems and remained unchanged.[134] Article 1(2) of the Water Convention defines it as

> any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of a Party, within an area under the jurisdiction of another Party. Such effects on the environment include effects on human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; they also include effects on the cultural heritage or socio-economic conditions resulting from alterations to those factors;[135]

Focusing on the most relevant elements from the point of view of the current research, first and foremost, it has to be mentioned that this concept is much broader than the term 'pollution', since it covers all forms of 'transboundary impact' causing 'significant adverse effect', therefore, water pollution is only one such possible impact, albeit, judging by the text of the Water Convention definitely the most important one. Secondly, Article 2(1) of the Water Convention stipulates the obligations to "prevent, reduce and control any

134 Rieu-Clarke, 2015, p. 13.
135 Art. 1.2. of the Water Convention.

transboundary impact", similarly to Article 194 of UNCLOS and Article 21(2) of the Watercourses Convention. Thirdly, the term 'significant adverse effect' serves as a threshold, similarly to 'significant harm' in the Watercourses Convention, however, the Water Convention provides a more detailed, even if non-exhaustive list of these effects. Moreover, the term 'human conduct' was adopted in order to differentiate between natural and anthropogenic effects; however, contrary to the Watercourses Convention it does not cover omissions. Finally, it can be concluded that despite the more comprehensive approach of the Water Convention adopting the concept of 'transboundary impact', several similarities can be recognized with Article 21 of the Watercourses Convention.

13.4.2 The Term 'Pollution' in the Water Convention

After skimming through the Water Convention, it is clear that the term 'pollution' is repeated several times, among others, in the Preamble, in Article 2 and Article 3, as well as in other parts of the Water Convention.

13.4.2.1 The Preamble of the Water Convention

As for the term 'pollution' enshrined in the Preamble, it is referred to both explicitly (such as, 'pollution of the marine environment' and "to prevent, reduce and control of transboundary water pollution") and implicitly (for example 'threats of adverse effects', to "prevent, control and reduce the release of the hazardous substances into the aquatic environment" or 'sustainable water management').

13.4.2.2 Article 2 on General Provisions

Article 2(1) on General Provisions stipulates that "The Parties shall take all appropriate measures to prevent, control and reduce any transboundary impact." Not only does this definition reiterate the obligations relating to water pollution in Article 21(2) of the Watercourses Convention; it also repeats the same obligations relating to water pollution in the Preamble of the Water Convention.[136]

The following paragraph, namely Article 2(2) prescribes that Parties "take all appropriate measures", included but not limited to, first and foremost "to prevent, control and reduce pollution of waters causing or likely to cause transboundary impact". Starting with the phrase "take all appropriate measures", similarly to the Watercourses Convention, one can promptly recall that it refers to the 'due diligence' nature of these obligations, which is also confirmed in the Guide to Implementing The Water Convention.[137] Moving onto

136 See also Provision 1 of the United Nations Economic Commission for Europe, *Model Provisions on Transboundary Groundwaters*, United Nations, New York, Geneva, 2014, p. 5.

137 ECE/MP.WAT/39, pp. 10-12.

the expression 'likely to cause', it can be paralleled by the phrase 'may cause' in Article 21(2) of the Watercourses Convention, as both of them contain the precautionary principle – referred to in Part I as a 'guiding principle', while taking the measures of Article 2(1) and (2) of the Water Convention.[138] In addition, other obligations stipulated in this paragraph referring to water uses also include water quality, such as "ecologically sound and rational water management" as well as the 'reasonable and equitable' use of transboundary waters. Moreover, the obligation to "ensure conservation […] and restoration of ecosystem" is also inseparable from satisfactory water quality. Finally, it is worth mentioning the "measures for the prevention, control and reduction of water pollution shall be taken, where possible, at source".[139]

Moving onto Article 2(5) of the Water Convention, which contains the principles relating to measures set forth in Article 2(1) and in Article 2(2), we may determine that all of them are strongly connected to water quality. Firstly, the precautionary principle is mentioned, with special regard to the hazardous substances,[140] similar to the case of the Watercourses Convention.[141] It is worth noting, that in the text of the Watercourses Convention hazardous substances are only mentioned implicitly, while explicit references are found in the commentaries of its previous drafts. However, the Water Convention not only explicitly refers to them, but it also provides a definition, namely 'hazardous substances' are "toxic, carcinogenic, mutagenic, teratogenic or bio-accumulative, especially when they are persistent".[142] Secondly, the polluter-pays principle should be mentioned, which can be connected, first and foremost, to the polluter and, this way, to the pollution.[143] Thirdly, the concept of sustainability can be identified in connection with the management of water resources,[144] which definitely covers both the quantitative and the qualitative aspects of water.

13.4.2.3 Article 3 on Prevention, Control and Reduction

Turning our attention to Article 3 on Prevention, Control and Reduction, as is apparent, it covers a non-exhaustive list of "legal, administrative, economic, financial and technical measures". Taking a look at these measures, one can find some general considerations relating to water pollution. Firstly, similarly to the Watercourses Convention,[145] this article

138 Art. 2.5(a) of the Water Convention.

139 Ibid., Art. 2.3.

140 Ibid., Art. 5.a) of the Water Convention. On the precautionary principle in the Hungarian Law, see L. Fodor, *Környezetjog*, Debrecen University Press, Debrecen, 2014, pp. 86-88.

141 Commentary of the Watercourses Convention, 1994, p. 122.

142 Art. 1(6) of the Water Convention.

143 See Recommendation of the Council on Guiding Principles concerning International Economic Aspects of Environmental Policies, C(72)128, OECD, 1972; The Polluter-Pays Principle, OECD Analyses and Recommendations, OCDE/GD(92)81, Organisation for Economic Co-operation and Development, Paris, 1992.

144 Art. 2(5)c) of the Water Convention.

145 Art. 21(3)b) of the Watercourses Convention.

differentiates between point and diffuse sources of pollution,[146] moreover, the main sources of pollution are identified, namely industrial, municipal as well as agricultural pollution.[147] Furthermore, special attention is paid to hazardous substances[148] as well as accidental pollution.[149] Secondly, it is clear that several provisions constitute the special application of the aforementioned principles guiding these measures, and shared by the Watercourses Convention, such as the precautionary principle and sustainable development. These principles can be identified in the obligation to prevent at source by using low-and non-waste technology,[150] in the application of the best available technology for discharges of hazardous substances,[151] in the reference to environmental impact assessment[152] as well as in the application of "stricter requirements […] when the quality of the receiving water or ecosystem so requires,"[153] not to mention the minimization of accidental pollution.[154] Additionally, special problems such as challenges imposed by nutrients are also addressed.[155]

13.4.2.4 Other Provisions Referring to Water Pollution

Besides Articles 2 and 3 of the Water Convention, numerous other articles include provisions relating to water quality, among others Article 5 on Research and Development, Article 9 on Bilateral and Multilateral Cooperation and Article 11 on Joint Monitoring and Assessment. Finally, the significance of the Annexes cannot be overemphasized. First and foremost, Annex III on Guidelines for Developing Water-quality Objectives and Criteria must be stressed, which gives a detailed description of the requirements relating water quality criteria, at the same time, it can also serve as a guideline while 'setting joint water quality objectives and criteria' under Article 21(3)c) of the Watercourses Convention. Secondly, Annex I on Best Available Technology and Annex II on Best Environmental Practices are inseparable from Article 21(3)b), as their applications are the most typical way to address point and non-point pollution. Consequently, we can state that Article 3 of the Water Convention can fill out the lacunae of Article 21(3) of the Watercourses Convention.

146 Art. 3.1(b) and Art. 3.1g) of the Water Convention.
147 Ibid., Art. 3.1e), f) and g).
148 Ibid., Art. 3.1c).
149 Ibid., Art. 3.1l).
150 Ibid., Art. 3.1a).
151 Ibid., Art. 3.1c).
152 Ibid., Art. 3.1h).
153 Ibid., Art. 3.1d).
154 Ibid., Art. 3.1l).
155 Ibid., Art. 3.1f) and g).

13.4.3 *The Relationship between the Water Convention and the Other UNECE Environmental Conventions*

Besides the provisions of the Water Convention, as mentioned above, it is worth taking a look at the other environmental conventions adopted under the auspices of the UNECE, as "Water Convention is an integral part of a wider legal framework in the UNECE region constituted by five environmental conventions".[156] The Convention is "both complemented by and contributes to the implementation of the other UNECE conventions. The Water Convention benefits from the work carried out under these instruments, since there is significant synergy in terms of their substantive scopes, obligations and commitments".[157] After a careful analysis of the UNECE environmental conventions, two of them deserve some remarks on water pollution, namely the 1979 Convention on Long-range Transboundary Air Pollution[158] and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).[159] While in the former case the definition of air pollution deserves attention, in the latter convention the term 'transboundary impact' is of particular interest.

13.4.3.1 The Convention on Long-Range Transboundary Air Pollution

Starting with the 1979 Convention on Long-range Transboundary Air Pollution, it defines 'air pollution' as

> introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment, and "air pollutants" shall be construed accordingly.[160]

One can easily compare this definition without a detailed analysis with the Watercourses Convention and recognize that the main elements of this definition either explicitly or implicitly coincide with the definition laid down in Article 21(1) of the Watercourses Convention. Even though the current definition defines the exact means (such as 'introduction') and sources (such as 'substances or energy'), as indicated in the commentary to

156 ECE/MP.WAT/39, para. 5.

157 Ibid.

158 1979 Convention on Long-range Transboundary Air Pollution, signed in Geneva on 13 November 1979 and entered into force 16 March 1983. https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-1&chapter=27&lang=en.

159 Convention on Environmental Impact Assessment in a Transboundary Context, adopted in Espoo on 25 February 1991 and entered into force 10 September 1997.

160 Art. 1(a) of the 1979 Convention on Long-range Transboundary Air Pollution.

an earlier draft of the Watercourses Convention, this is merely a question of approach.[161] Moreover, the term 'deleterious effect' can be accepted as a synonym of 'detrimental effect' referring to the threshold. Finally, one can observe that the definition on pollution in the Convention on Long-range Transboundary Air Pollution, similarly to the Water Convention, overlaps with the Watercourses Convention, but covers a wider range of effects.

13.4.3.2 Espoo Convention on Environmental Impact Assessment

Moving onto the Espoo Convention, Article 1 defines 'transboundary impact' as

> any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.[162]

After comparing the definition of 'transboundary impact' in the Water Convention with the definition in the Espoo Convention, two remarks must be made. On the one hand, one can observe that the definition of the Espoo Convention is as broad as the definition enshrined in the Water Convention; however, contrary to the Espoo Convention, the Water Convention does not explicitly exclude impacts of 'global nature', such as the impact on the marine environment.[163] On the other hand, compared to the Espoo Convention, the wording of the Water Convention is more 'restrictive', as only "adverse significant effect on the environment" is covered by the latter.[164] In addition, Appendix I of the Espoo Convention lists several activities, which are likely to cause a significant adverse transboundary impact also on water quality, such as, among others, waste disposal installations, groundwater abstraction as well as pulp and paper manufacturing.

13.5 Conclusions

Following an analysis of Article 21 of the Watercourses Convention as well as the Water Convention, it can be confirmed that the provisions of the two Conventions on water pollution not only coincide, but further contribute to the clarification and unification of the term water pollution in the aforementioned Conventions. This situation can be explained, firstly, by the fact that the Watercourses Convention provides a definition on

161 A/CN.4/412 and Add.1 & 2, p. 237.

162 Art. 1. (viii.) of the Convention on Environmental Impact Assessment in a Transboundary Context.

163 The Relationship between the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 25 February 1991) and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki, 17 March 1992) p. 8.

164 Ibid.

pollution, which is very similar to the definition on pollution in the Convention on Long-range Transboundary Air Pollution, adopted under the auspices of the UNECE, just like the Water Convention, i.e. there is a synergy between them. Secondly, based on the analysis of the Water Convention, one can conclude that despite the fact that it lacks a precise definition it contains numerous provisions on water quality, which definitely results in a clear idea on water pollution, especially in light of the interpretation of the Watercourses Convention relevant provisions. Finally, it is worth noting that the Water Convention can also contribute to the clarification of the Watercourses Convention thanks to its numerous provisions on water quality as well as to the non-binding instruments relating to the Water Convention.