Convention on Protection and Use of Transboundary Watercourses
and International Lakes

Legal Board

LB/2010/INF.2

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APPLICATION OF THE UNECE WATER CONVENTION TO GROUNDWATER AND POSSIBLE DEVELOPMENTS

Discussion Paper submitted by the Chairperson of the Legal Board*

I. BACKGROUND AND PROPOSED ACTION BY THE LEGAL BOARD

1. The Meeting of the Parties at its fifth session entrusted the Legal Board to prepare a preliminary study, jointly with the Working Group on Integrated Water Resources Management, on the application of the principles of the Convention to transboundary groundwater, to be submitted to the sixth session of the Meeting of the Parties for consideration as whether further action is needed.

2. This document is intended to provide background information in order to facilitate exchange of views and substantive discussion on the content of such a study and possible further action. The UNECE secretariat has also prepared a preliminary overview of *Groundwater in transboundary water cooperation agreements in Eastern Europe, Caucasus and Central Asia* (LB/2010/INF.3) to facilitate the discussion.

3. The Legal Board may wish to discuss further work on this topic, including cooperation with the Working Group on Integrated Water Resources Management.

II. INTRODUCTORY REMARKS

4. The present document purports to sketch the main lines of "the state of the art" of the recent debate and developments in the international water law process in order for the Legal Board to make a decision on how to pursue the mandate received on this topic from the Meeting of the Parties with a view to submitting to the latter, at its next meeting, a preliminary study on the application of the principles of the Convention to transboundary groundwater, which could possibly include an operative proposal on the matter. It also purports to provide a reasoned presentation of the existing international instruments relevant to the topic at issue for possible future discussion, the most important of which are available at the meeting's website[1].

5. Among the relevant international documents analyzed in the present paper, no reference has been made to the existing EU water related legislation. Depending on the preliminary orientation and decisions on the matter in hand that the Legal Board may wish to take at its seventh meeting,

* This discussion paper was developed by Prof. Attila Tanzi (Italy), elected as Chairperson of the Legal Board at the fifth meeting of the Legal Board (Geneva, 2-3 October 2008).

[1] See Seventh meeting of the Legal Board at http://www.unece.org/env/water/meetings/legal_board/legal_board.htm

consideration in due course of such legislation – with special regard to Directive 2006/118/EC on the protection of groundwater against pollution and deterioration – may prove useful, or even necessary.

6. It may be appropriate by way of introduction, to recall that, traditionally, international water law and diplomacy have primarily addressed the regulation of surface water, moving from navigation to non-navigational uses of transboundary watercourses. There is unanimous agreement to the effect that groundwater has long been neglected by international water law. Apart from the *Arrangement on the Protection, Utilization, and Recharge of the Franco-Swiss Genevese Aquifer*, between the Haute Savoie and the Swiss Canton of Geneva, one can hardly name an international agreement in the UNECE region that would address groundwater resources specifically and comprehensively. The case has been made that this situation is due to the fact that only few nations possess the technical information necessary to enter into such an agreement.

7. Against the above scenario, the increasing awareness of the prospects of water scarcity in relation to the growing demands for clean water worldwide has recently focused the attention of the scientific, diplomatic, social, economic and legal communities on groundwater, which constitutes 97 per cent of the available freshwater worldwide.

8. It may also be appropriate to recall that, while already a majority of the world's population is currently dependent upon groundwater, its importance is not related exclusively to considerations of quantity, but also to its specific quality factors with respect to surface water: namely, its purity and vulnerability, as well as the specific interactions with surface waters, all of them apparently calling for special regulatory attention.

III. SPECIFICITY OF GROUNDWATER

9. The characterisation of transboundary groundwater is highly specific with respect to surface waters. The details of such specificity have been studied in depth, amongst others, by the UNECE Task Force on Monitoring and Assessment in its preparatory work for the development of the "Guidelines on Monitoring and Assessment of Transboundary Groundwaters" endorsed by the second session of the Meeting of the Parties in 2000. For the purposes of the present discussion paper suffice to mention the main factors of such specificity most relevant to legal regulation.

10. The physical feature consisting of the "invisibility" of groundwater accounts for the relative neglect of groundwater and its interaction with other groundwater and surface water, until fairly recently. The extremely slow speed of its motion adds to the above neglect by law-makers, planners and lawyers.

11. Groundwater is usually characterized by more relative purity than surface water thanks to the capacity of many subsoil profiles in recharge areas to mitigate the impact of water pollutants. On the other hand, such specific quality may render groundwater more vulnerable with respect to overexploitation, hence, to depletion. At the same time, pollution may be more serious a problem with groundwater than with surface water, since contamination may reside in groundwater for longer.

12. The relation between surface water and groundwater is much more variable and less predictable than that between surface waters, i.e. up and downstream waters. The pollution of groundwater deriving from water releases into surface water, or the streamflow depletion caused by

exploitation of groundwater are less evident, but no less important than surface-to-suface water interactions.

IV. INTERNATIONAL WATER LAW PROCESS ON GROUNDWATER, AND THE DISTINCTION BETWEEN "RELATED" AND "UNRELATED" GROUNDWATER

IV. 1. The UNECE water law process

13. It is to be noted how the UNECE preparatory process which led to the 1992 UNECE Water Convention, from the very outset, made express reference to groundwater next to surface waters. One may recall the following documents:

> - The 1980 *Declaration of Policy on Prevention and Control of Water Pollution, Including Transboundary Pollution* whose first principle affirms that "The rational utilization of water resources, *both surface and underground*, as a basic element in the framework of long-term water management, should be viewed as an effective support to the policy of prevention and control of water pollution";
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> - The 1982 *Decision on International Cooperation on Shared Water Resources* which recognizes, in its first preambular paragraph, "the growing significance of economic, environmental and physical interrelationships between ECE countries, in particular where streams or lakes and related *ground water aquifers* cross or are located on international boundaries";
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> - The 1984 *Declaration of Policy on the Rational Use of Water* whose Principle 3 of the Principles of Rational Use of Water provides that "special emphasis should be given to [...] e) Coordinated utilization of both *surface water and ground water*, taking into account *their close interrelation*";
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> - The 1989 *Charter on Groundwater Management* (ECE/ENVWA/12) the gist of which is an invitation for States to integrated management of surface and groundwater "while taking into account the distinguishing features of ground water as compared to surface water which necessitate *special protective measures for aquifers*".

14. In line with the above process, the physical scope of the UNECE Water Convention expressly encompasses "ground waters" according to its Art. 1, para. 1. However, this statement may require further qualification, in case one were to subscribe to the view that groundwater should be distinguished between "related groundwater", i.e. groundwater hydrologically related to surface water (streams, lakes, reservoirs, wetlands, estuaries), on the one hand, and groundwater that is not related to surface water, neither directly, nor indirectly through groundwater interacting with surface water, on the other.

15. The category of "unrelated groundwater" might be rare and would involve more specificity than surface waters, or waters which are related to them. Nonetheless, the hydrological distinction between related and unrelated waters is not uncontroversial (see, contrary to the distinction in point, the *U.S. Geological Survey Circular 1139*, 1998, available on http://pubs.usg.gov/circ/circ/1139). Therefore, the issue in hand might deserve further study, to be supported by water experts, with a view to assessing the need for different instruments, or even different legal regimes, for each of the two allegedly different categories of groundwater.

16. Indeed, as much as from a purely hydrological and holistic point of view, the distinction in point may be debatable, from a regulatory point of view one could make the case that it may find its basis on the degree of "significance" of the interconnections between surface and ground waters. This would be a legal concept instrumental to regulatory distinctions, though strictly dependent upon hydrological assessment, e.g. on whether an aquifer receives, or not, "significant" recharge from surface waters, or whether it significantly discharges, or not, to surface waters or to other aquifers. If not, the aquifer, from the legal point of view, would be treated as "confined groundwater".

17. Against the background of the distinction in point taken as a matter of working assumption, it may be suggested that the UNECE Water Convention, according to Art. 1, para. 1, on the definition of "transboundary waters" falling within its scope of application, being silent with regard to any distinction between "related" and "unrelated" groundwater, addresses both groundwater interacting, directly or indirectly, with surface transboundary watercourses as well as "unrelated" groundwater. This would mean that the same principles and provisions of the Convention applicable to transboundary surface water apply to both "related" and unrelated" groundwater.

18. The UNECE *Guidelines on Monitoring and Assessment of Transboundary Groundwaters,*[2] prepared by the Task Force on Monitoring and Assessment of the Convention and endorsed by the second session of the Meeting of the Parties at the Hague in 2000, particularly in its explanatory notes, illustrate a wide range of variables affecting various characterizations of "transboundary aquifer systems", with no a hard and fast distinction between "related" and "unrelated" groundwater, while the only relevant sharp distinction seems apply to surface and ground waters.

19. The preliminary overview of *Groundwater in transboundary water cooperation agreements in Eastern Europe, Caucasus and Central Asia* (LB/2010/INF.3) provides additional support to the idea under discussion since many agreements in this region, which are based on or inspired by the provisions of the Convention, do not go beyond the distinction between surface and ground waters.

20. While water experts may help clarifying the matter further as suggested above under Para. 15, for the purposes of the present paper the distinction in point is taken into consideration as a working assumption, primarily in order to be able to follow and appropriately appreciate the differing approaches to the matter adopted by the relevant water law instruments. As we shall see in the following section, some of such instruments address transboundary groundwater, or aquifers, without specification, some others refer only to groundwater related to surface waters, or only to confined groundwater or aquifers.

IV.2 ILA and UN/ILC groundwater law processes

IV.2.1 The application to groundwater of the general legal regime for surface waters

21. The same approach taken by the UNECE Water Convention in the sense of addressing groundwater without distinguishing it from surface waters has been followed initially by the other two main international exercises of codification of international water law, respectively, under the auspices of the International Law Association (ILA) and of the UN International Law Commission (UN/ILC), with special reference to the 1966 *Helsinki Rules* adopted by the former and to the 1994 *Draft Articles on the Non-Navigational Uses of International Watercourses,* adopted by the latter

[2] See *Guidelines on Monitoring and Assessment of Transboundary Groundwaters*, UNECE (2000) available at http://www.unece.org/env/water/publications/documents/guidelinesgroundwater.pdf

and on the basis of which the UNGA negotiated and adopted the 1997 New York Convention bearing the same title.

22. The ILA 1966 *Helsinki Rules*[3] defined the term "drainage basin", which represented the physical scope of application of the Rules, as being "determined by the watershed limits of the system of waters, *including surface and underground waters*, flowing into a common terminus" (Art. II).

23. The 1997 *New York Convention on The Law of the Non-Navigational Uses of International Watercourses* follows an approach to the point at issue which is most similar to that of the ILA *Helsinki Rules* insofar as it defines "watercourse" 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" (Art. 2 (a)).

24. It appears that under both codificatory exercises under consideration, the need was felt to single out the special and separate importance of groundwater as part of the scope of application of the rules generally applicable to transboundary surface waters. However, under both exercises, this holds true only insofar as groundwater is related to surface water or, anyhow, flows into a common terminus.

IV.2.2 Specific instruments addressing groundwater

A. The ILA process

25. Further to the adoption of both instruments (1966 *Helsinki Rules* and the 1997 *New York Convention*), even though at different points in time, both the ILA and the UN/ILC, respectively, later felt the need to take new and separate regulatory action focusing on groundwater, with special regard to "unrelated" or "confined" groundwater.

26. As to the ILA, at its session in Seoul in 1986, it adopted its *Rules on International Groundwaters*. The main point of those Rules is that of widening the scope of application of the 1966 Helsinki Rules so as to encompass also those groundwaters that do not "form with surface waters part of a hydraulic system flowing into a common terminus" (Art. I of the *Seoul Rules*). Such a step supports the view that the international water law rules applicable to surface watercourses no longer apply only to "related groundwater", but also to confined one. Nonetheless, the very ILA *Seoul Rules* have also inaugurated an international law-making trend to the effect that groundwater deserves separate specification of general international water law rules.

27. This approach has been further confirmed in 1989 by the ILA Draft Agreement Concerning the Use of Transboundary Groundwaters.[4] It is a model-agreement, containing model rules that States sharing transboundary groundwaters may wish to adopt in their relations. It is noteworthy how this instrument – as much as it aimed at introducing a specific and, possibly advanced regulation of groundwater with respect to the general regime of international water law set out in

[3] See *Helsinki Rules on the Uses of the Waters of International Rivers*, International Law Association (1966) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_II_Helsinki_Rules_ILA.pdf

[4] See *Draft Agreement Concerning the Use of Transboundary Groundwaters*, International Law Association (1989) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_III_Draft_Agreement_Concerning_Use_Transboundary_Grounwaters_ILA.pdf

the *Helsinki Rules* – basically reflects in its most innovative model-provisions the key provisions of the UNECE Water Convention, though falling short of mandatory force. This is particularly so with regard to the establishment of joint commissions (Article III).

28. Later on, the ILA confirmed, in its *Rules on Water Resources*[5] adopted at its session in Berlin in 2004, the option of applying the principles regulating the use of surface watercourses to all kinds of groundwater (Article 36 of the Berlin Rules). Moreover, the *Rules* explicitly provide for the application to groundwater of the most progressive trends of international water law, such as the precautionary approach (Article 38) and the principle of sustainability (Article 40).

29. Such a consideration may militate in favour of the view that the general normative regime of the UNECE Water Convention - with special regard to compulsory cooperation through the conclusion of "agreements or other arrangements" and the establishment of joint bodies between Riparian Parties (Art. 9, paras. 1 and 2), as supported by its own institutional setting pivoting around the Meeting of the Parties and its subsidiary bodies - may be effective and advanced enough to address transboundary relations concerning the specificities of transboundary groundwater.

30. On that score, one may also recall how in the very UNECE water law process - both before and after the adoption of the Water Convention - groundwater has received specific regulatory attention addressing its distinguishing features, even though in a non-mandatory nature. Reference has already been made to the 1989 UNECE *Charter on Groundwater Management* (above, Para. 13) and to the 2000 UNECE *Guidelines on Monitoring and Assessment of Transboundary Groundwaters* (above, Para. 18).

B. The UN/ILC process

31. For its part, the UN/ILC, in conjunction with the adoption of the 1994 *Draft Articles on the Non-Navigational Uses of International Watercourses* - in which the principle was upheld that the general legal regime on surface transboundary waters would equally apply to transboundary "related ground waters", as it was later confirmed in the 1997 *New York Convention on The Non-Navigational Uses of International Watercourses* (Art. 2, (a)) – it also adopted, separately, a *Resolution on Confined Transboundary Groundwater*[6].

32. As it may be noted from the latter *Resolution*, while confirming the principle referred to above, that its Draft Articles on international watercourses apply to groundwater only insofar as it is interconnected with surface waters (Preambular Para. 2), it commends States to apply the Draft Articles to transboundary groundwater, as such, hence, including unrelated groundwater (Operative Para. 1), on the one hand, on the other expressing the "need for continuing efforts to elaborate rules pertaining to confined transboundary groundwater" (Preambular Para. 4).

33. Be that as it may, in 2002 the UN/ILC started anew its study of the topic under discussion and brought it to completion in 2008 with the adoption of a set on nineteen *Draft Articles on The*

[5] See *Berlin Rules on Water Resources*, International Law Association (2004) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_IV_Berlin_Rules_on_Water_Resources_ILA.pdf

[6] See *Resolution on Confined Transboundary Groundwater*, International Law Commission (1994) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_V_Resolution_on_Confined_Transboundary_Grounwater_ILC.pdf

Law of Transboundary Aquifers[7]. In 2009 the UN General Assembly, with Res. 63/124 [8] "took note" of the Draft Articles and decided that in 2011 it will consider whether such Articles should be further negotiated under a different format, i.e. a convention, or left as they are. While thorough consideration of this instrument may be appropriate, if not necessary, to be undertaken in due course, depending on the orientation that the Legal Board may take on this topic, suffice for the purposes of the present paper to outline few points with specific reference to the scope of application of the *Draft Articles*.

34. Differently from the Seoul's Rules on International Groundwaters, which addresses "the waters of international aquifers" (Art. 1), the *Draft Articles* address "transboundary aquifers or aquifer systems" (Art. 1). It is noteworthy that the ILC, despite its previous work on water law, did not refer to "groundwater" or to "confined groundwater". According to the definitional policy of the ILC, this choice is far from irrelevant.

35. Indeed, the term "aquifer" is defined as "a permeable water-bearing geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation" (Art. 2, lett. a). Such a geological, instead of an hydrological, approach to the topic may be considered controversial, for it reintroduced considerations on sovereignty, long overcome in the international water law process. The point may be further considered in due course, if necessary, according to the decisions the Legal Board may wish to take on how to fulfill its mandate on the topic in hand.

V. CONCLUDING REMARKS

36. Against the above background, in light of the mandate received by the Meeting of the Parties on this topic and taking into account that the Meeting of the Parties, under Art. 17, has, *inter alia*, to "[c]onsider [...] any additional action that may be required for the achievement of the purposes of [the] Convention" (Para. 2, lett. f), the Legal Board should consider studying further the subject with a view to taking a decision as to whether to propose to the Meeting of the Parties that additional action should be taken on this topic, or not.

37. The question to be considered would be whether there is a need for more specific regulatory guidance on groundwater.

38. In case the Legal Board were to decide on the above question in the affirmative, it might wish to discuss among others:

a) whether this exercise should address groundwater in general, or primarily, or exclusively, "related groundwater" or "unrelated groundwater";

b) whether this exercise should address exclusively transboundary groundwater or also address domestic groundwater.

[7] See *Draft articles on the Law of Transboundary Aquifers*, International Law Commission (2008) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_VI_Draft_Articles_Law_Transboundary_Aquifers_ILC.pdf

[8] See Resolution adopted by the General Assembly 63/124. *The law of transboundary aquifers* (2009) available at http://www.unece.org/env/water/meetings/legal_board/2010/annexes_groundwater_paper/Annex_VII_Resolution_by_General_Assembly.pdf

39. Again, in case the above question, under Para. 37, were to be decided in the affirmative, to the effect that specific regulatory guidance on groundwater is needed, the Legal Board may also want to decide, at this or at a later stage, which further action could be proposed to the Meeting of the Parties, and may wish to explore a set of options to this end.

40. The Legal Board may also wish to discuss whether additional effort may be required in order to find and present existing practice on regulation of groundwater and transboundary groundwater, as well as on bilateral and multilateral transboundary cooperation on groundwater, primarily by Parties to the Convention, with a view to enriching the understanding between them of the current practice and contributing to the exchange of information, best practice and experience in this field.