

A Critical Analysis of the 2008 Draft Articles on the Law of Transboundary Aquifers in the European Context

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ABSTRACT

In 2008, the *International Law Commission* adopted a set of 19 articles that aim to contribute to the codification and development of the law governing transboundary aquifers. In 2009, the UN General Assembly a) took note of the draft articles; b) commended them to the attention of governments without prejudice to the question of their future adoption or other appropriate action; c) encouraged the states concerned to make appropriate bilateral or regional management arrangements, taking into account the draft articles; and d) decided provisionally to examine the question of the form that might be given to those articles at its 66th Session. The ILC Draft Articles offer an important and valuable basis for the progressive development of international groundwater law, including through the negotiation of future agreements applying and adjusting draft articles' provisions to specific regions or transboundary aquifers. In this sense, both the ILC Draft Articles and the above UNGA resolution address the complementary relationship between universal and regional (or aquifer-specific) legal instruments. In this context, the paper will conduct a comparative analysis and evaluate the relationship between the ILC Draft Articles and relevant laws applicable to the UNECE region, with special focus on EU legal instruments. The analysis will show that these global and regional developments are mutually supportive, but some important differences exist in the extent and content of the obligations under each of them. The paper will consider such differences, in particular, in the context of requirements pertaining to the monitoring and sustainable use of recharging aquifers.

Key words: Groundwater; Draft articles; WFD; sustainable use; monitoring

1. INTRODUCTION

In the past ten years or so, there have been significant developments with respect to improving the legal framework for managing international groundwaters. Most notable among these is the work of the International Law Commission's (ILC) Draft articles on the Law of Transboundary Aquifers ("Draft articles"), set forth in 2008. In some ways, the draft articles attempt to fill a gap left by the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses ("1997 Convention") as the latter deals only with groundwater insofar as it is connected to shared surface waters. At the regional level, improvements in the water management in the European Union have been driven by the 2000 Water Framework Directive ("WFD") and, to a lesser extent, more recently, by the associated Groundwater Directive ("GWD"). The WFD and the GWD represent specific cases of supra-national law compared to the UNECE international legal framework on water.

2. OBJECTIVES

The aim of this paper is to examine the ILC Draft Articles and the WFD to elucidate two contrasting aspects of groundwater management, in particular: the extent to which each promotes and facilitates sustainable development, and the respective robustness of the monitoring frameworks established for the appropriate management of shared aquifers and for ensuring compliance.

The ILC Draft Articles offer a potentially critical approach to allow States to better manage the transboundary aquifers underlying their respective territories. States are obliged to use shared aquifers in accordance with the principle of equitable and reasonable utilization, the objective being to maximize "the long-term benefits from the use of the water contained therein" (art.4) as part of the broader global push for optimal and sustainable development of water resources (preamble). The WFD, on the other hand, is focused principally on the question of the quality of both surface and groundwaters, managed in an integrated way through river basin districts. Achievement of the directive's environmental objectives drives the programmes of measures to be prepared by Member States, in contrast to the draft articles' focus on the undefined "effective functioning" of recharging aquifers or maximization of the benefits to be derived from aquifers more broadly. While the WFD's basin districts may be intra-national, the reality in continental Europe is that the vast majority of the region is covered by international basin districts, either between Member States or between them and non-members. It is important, therefore, to compare the approaches advocated by the draft articles with those under the WFD system. The following analysis will examine the degree to which sustainable resource use is facilitated by the ILC Draft Articles and European statutes, especially in relation to recharging aquifers, before going on to assess the respective frameworks for monitoring and data exchange. Uncertainty over the extent of aquifers and the effect of use means that effective monitoring is crucial, particularly in transboundary contexts.

3. SUSTAINABILITY OF RECHARGING AQUIFERS

Art. 4 of the ILC Draft Articles incorporates the principle of reasonable and equitable utilization, stating as follows:

Aquifer States shall utilize transboundary aquifers or aquifer systems according to the principle of equitable and reasonable utilization, as follows:

- (a) They shall utilize transboundary aquifers or aquifer systems in a manner that is consistent with the equitable and reasonable accrual of benefits therefrom to the aquifer States concerned;
- (b) *They shall aim at maximizing the long-term benefits derived from the use of water contained therein;*
- (c) They shall establish individually or jointly a comprehensive utilization plan, taking into account present and future needs of, and alternative water sources for, the aquifer States; and
- (d) *They shall not utilize a recharging transboundary aquifer or aquifer system at a level that would prevent continuance of its effective functioning.* (emphasis added)

While this makes no direct reference to the idea of sustainability in the use of recharging aquifers, two further provisions in the instrument make explicit mention of the principle: the Preamble and draft Article 7(1), which establishes a general obligation to cooperate.

Notwithstanding the latter two provisions, from the commentaries that accompany the Draft articles, it is clear that the concept of yield maximization, rather than a strict rule of sustainable use, would govern the utilization of both recharging and non-recharging aquifers: "*it is not necessary to limit the level of utilization to the level of recharge*" (ILC, 2008). In this sense, Art. 4 does not include a limitation on extractions to either respect the level of recharge, "*even as an average over a period of years*" (ILC, 2008) or to consider the rates of the aquifer's discharge into connected bodies of water. The illuminating commentaries take this to the logical extreme by leaving aquifer states to determine the nature of the benefits to be protected, enjoyed and over what period (ILC, 2008). This approach leaves too much room for discretion and potential abuse by governments that, in making such decisions, might overlook the needs of vulnerable communities and fragile ecosystems dependent on the aquifer in question.

This decision to favor the approach of maximization of long-term benefits to the detriment of sustainable use was explained by Special Rapporteur Yamada. In his Third Report, he opined that States should not be limited by a strict rule of sustainable use, as this would "*in reality deny aquifer states the right to utilize the valuable water resource, accumulated over the years*" (Yamada, 2005, para.22). In language that is reflected in the final Art.4(d), he instead stated that aquifers "*should be kept in a condition to maintain*" their function. This complicates matters, instead of imposing a solid environmental standard, when requiring states not to utilize a recharging transboundary aquifer at a level that would prevent continuance of its effective functioning: "*rapidly falling water tables might not appear until some years after a serious overdraft begins, by which time it might be too late to do much about it*". (ILA, 2008).

In contrast, Art. 4(ii) of the WFD requires Member States to balance abstraction and recharge rates "*with the aim of achieving good groundwater status*". In addition, Member States have to take into account the amount of water that the aquifer discharges into connected surface waters. Annex V, Para.2.1.2. defines *good quantitative status* for groundwater as "*the level of groundwater in the groundwater body [being] such that the available groundwater resource is not exceeded by the long-term annual average rate of abstraction.*" The definition of "available groundwater resource" in Art. 2, however, also introduces ecological requirements: "*the long-term annual average rate of overall recharge of the body of groundwater less the long-term annual rate of flow required to achieve the ecological quality objectives for associated surface waters specified under Article 4*". The WFD thus goes further than simply balancing recharge and abstraction, but reduces the potential abstraction rate still further to accommodate ecological requirements in relation to linked surface waters. The WFD approach seems more sensible. Under the draft articles, aquifer states would be in a position to decide among themselves that a certain aquifer could be mined for irrigation purposes for a certain period, leading up to its exhaustion beyond that time. This could have serious impacts on dependent ecosystems, however. This is especially true since, while draft Art. 10 requires States to "*take all appropriate measures ... to ensure that the quality and quantity of water retained in an aquifer..., as well as that released through its discharge zones, are sufficient to protect and preserve*" the ecosystems contained in or dependent upon that aquifer, the accompanying commentaries point out that this obligation extends only to "relevant" ecosystems, allowing States flexibility for other justifiable uses (ILC, 2008).

During negotiations on the draft articles, numerous delegations, including from European nations, voiced their support for the principle of sustainable use to be a fundamental cornerstone of the draft articles. The ambiguity of the term "effective functioning" was also recognized (ILC, 2008, A/CN.4/595, p.11, 13, 25). The Netherlands pointed to a potential conflict between the draft articles and the 1997 Convention. As the draft articles stand and if they were to prevail over the convention, aquifers that are transboundary *per se* would be subject to a less strict standard – that of maximization of long-term benefits – than those domestic aquifers connected to international watercourses. The latter type of aquifer does not fall under the scope of the draft articles. Therefore, the principle of sustainable use, as codified in Art. 5 of the 1997 Convention, would apply in such cases. This state of affairs would go against the very motivations for initiating the development of the draft articles – a process intended to apply and adjust the convention to the special characteristics of groundwater systems, which are far more vulnerable to irreversible harm than surface waters.

The idea of maximizing the yield in the long-term is appropriate in the case of non-renewable resources, such as fossil aquifers. Transboundary recharging aquifers, however, should be subject to the principle of sustainable use. As the Preamble of the WFD highlights, "*surface waters and groundwaters are in principle renewable natural resources*". For recharging aquifers, abstractions that consider only the formation's storage capacity over the years, i.e., which do not reflect *current* recharge and discharge rates, disregard the aquifer's capacity for natural renewal, leading to its gradual exhaustion. Therefore, maintaining, to the extent possible, an overall balance between rates of

extraction and discharge, and actual rates of natural or artificial recharge is vital for ensuring the *conservation* of renewable groundwater resources. Hence, the authors favor the WFD's approach of applying the concept of sustainability, rather than that of mere maximization of long-term benefits, to *recharging* aquifers.

Yet, the question remains as to how international groundwater law will evolve. In the interest of the sustainability of recharging aquifers, allowing for abstractions (and discharges) to exceed the rate of recharge should not develop into a rule of customary law, but rather be seen as an exception. Such an exception would apply, e.g., to cases of prolonged drought and when sustainable and feasible alternatives for meeting vital human needs are absent. Moving beyond recharging aquifers, "*customary international law actually imposes a clear and rather strong duty to exploit all resources, including aquifers, sustainably*" (ILC, 2008, p.8). For example, Art. 5(1) of the 1997 Convention refers to "*optimum and sustainable utilization*" as the fundamental goal to be attained through the equitable and reasonable use and development of international watercourses and any related water bodies, including aquifers. In its turn, Art.40(1) of the Berlin Rules calls on states to "give effect to the principle of sustainability in managing aquifers, taking into account natural and artificial recharge." (ILA, 2004)

Existing international agreements, including among those governing specific European river basins, follow the same approach, including, e.g., the *Danube River Protection Convention* and the *Convention for the Cooperation for the Protection and Sustainable Use of the Waters of Portuguese-Spanish Hydrological Basins*. At the regional level, the UNECE Water Convention incorporates the principle of sustainable water management in Art.3(1)(i). Therefore, countries should only exceed actual recharge rates under exceptional circumstances, such as emergency situations. In such a case, there should be a requirement, once the crisis had passed, for the relevant users to compensate for periods of overexploitation by limiting their extractions. For instance, recharge during wet seasons or wet years, when groundwater requirements are commonly less significant, could make up for excessive extractions during a dry season or dry years, when recharge is at its lowest and water needs tend to be higher. (ILA, 2008) Under the WFD, for example, Art.4(7) creates an exception to the rule of sustainability, carefully establishing the conditions under which countries would be exempt from complying with that rule.

4. MONITORING AND ASSESSMENT

In contrast to the 1997 Convention, which only provides for the regular exchange of information and data among riparian States (Art.9), the ILC Draft Articles require aquifer States to establish monitoring activities on transboundary aquifers or aquifer systems (Art.13). Monitoring is, in fact, an essential requirement for the proper management and protection of water resources, especially groundwater. Monitoring may be carried out jointly or individually (Art.13(1)). When a joint mechanism does not exist, States are obligated to share certain information on the characteristics (Art.8(1)) and uses of the aquifer with the other aquifer States concerned (Art.13). Harmonized standards and methodology as well as an agreed conceptual model among aquifer States (Art.13(2)) help to assess the results of the monitoring.

Several instruments applicable to the European region highlight the importance of water resources monitoring. For example, Art.11 of the 1992 Water Convention requires parties to "*establish and implement joint programmes for monitoring the conditions of transboundary waters.*" In order to facilitate the implementation and the design of monitoring programmes by UNECE members, the *2000 Guidelines on Monitoring and Assessment of Transboundary Groundwaters* and the *2006 Strategies for Monitoring and Assessment of Transboundary Rivers, Lakes and Groundwaters* have been developed. In the EU context, monitoring is essential in order to meet the objective of the "good

groundwater status" by 2015 (Art.4(1)(b)(ii)). Member States must ensure the establishment of monitoring programmes covering both the quantity and chemical status of groundwater bodies within each river basin district (Art.8(1)). In this context, States are required to set up the groundwater level monitoring network, assessing the quantitative status; and the surveillance and operational monitoring systems, the aim of which is to provide a "coherent and comprehensive overview" of the chemical status of groundwaters (Sections 2.2 and 2.4, Annex V, WFD).

The WFD contains general provisions on the pollution of groundwaters, providing for the adoption of specific measures to prevent and control groundwater contamination (Art.17(1)), as further refined in the new Groundwater Directive (GWD). According to this directive, the monitoring programmes should be designed to identify "*significant and sustained upward trends in concentrations of the pollutants*" (Art.1, Annex IV, part A). Other than with respect to nitrates and pesticides, the directive does not impose uniform standards on the limitations of pollutants, leaving member States to establish threshold values for the particular polluting substances that are most locally problematic for them, in the context of particular rivers if necessary. If groundwater quality standards relating to pesticides and nitrates are not adequate for achieving the environmental objectives set out in WFD, Member States must establish more stringent values (Art.3, Annex I, GWD).

Although the WFD and the GWD establish a common approach on monitoring, they do not mandate joint monitoring activities on transboundary groundwater. Nevertheless, the GWD points out that in the case of groundwater bodies "*shared by two or more member States and for bodies of groundwater within which groundwater flows across a member State's boundary*", threshold values on pollutants must be developed "in coordination" between member States (Art.3(3)). Member States "*may, for this purpose, use existing structures stemming from international agreements*" (Art.3(4), WFD). When a groundwater body extends beyond the boundaries of the Community, threshold values have to be decided "*in coordination with the non-member State(s) concerned*" (Art.3(4), GWD). In order to facilitate the obligations on monitoring, a guidance document under the umbrella of the Common Implementation Strategy regroups the Member States of the EU, Norway, Switzerland and the countries applying for accession (Guidance Document n°15 on Groundwater Monitoring, 2007).

Member States should coordinate their monitoring programmes for international river basin districts including when they cover the territory of non-Member States. In this sense, the Danube basin monitoring programme under the 1994 Danube River Protection Convention (Accompanying document, Commission Report, 2009, p. 52) – the Transnational Monitoring Network, established in 1995, constitutes a joint monitoring programme for 14 basin countries. In 2004, the Network has been upgraded in order to meet the requirements of the WFD. In 2006, an international monitoring programme was established under the 1999 International Convention for the Protection of the Rhine. In addition, under the 2008 Arrangement on the protection, utilisation, recharge and monitoring of the Franco-Swiss genevois aquifer, between the Canton of Geneva and the French Department of Haute Savoie, Swiss and French authorities perform a joint monitoring programme within their respective territories (Art.10).

Monitoring therefore plays a critical role for the sustainable management of groundwater resources (McCaffrey, 2009, p. 279). Although joint monitoring provides the ideal situation to gain knowledge regarding the conditions of transboundary groundwaters, it still represents an exception in Europe. The ILC Draft Articles and the UNECE instruments, emphasizing the importance of having joint monitoring and harmonized standards to assess data and information resulting from monitoring, may be useful when developing mechanisms on transboundary groundwaters shared among EU member States and non-member States as well as beyond the European Union.

5. CONCLUSIONS

Sustainable use of transboundary groundwater is clearly dependent on the quality of the monitoring infrastructure and capacity in place. The ILC Draft articles recognize the value of having joint monitoring programmes in place, and this may be useful in the EU context, where such joint programmes may be unusual. However, the capacity of the draft articles to deliver sustainable groundwater use irrespective of the monitoring network may be much more limited because of flaws in the standards that it demands. The ecology-driven approach of the WFD is of greater utility here as it takes fully into account the potential vulnerability of transboundary aquifers to political myopia at the expense of sustainability. On the other hand, EU Law provides a framework to achieve comprehensive protection of groundwater resources. However, EU member States are only required "to coordinate" their actions in dealing with transboundary groundwaters shared between EU Member States or with non-members. Although the ILC Draft Articles could not be quite as comprehensive as the WFD system, it provides a model for the adoption of treaties on transboundary aquifers, which are almost inexistent in the European region. At the same time, both universal and regional developments on ground waters may be of utility to fill the gaps in existing water agreements covering surface and groundwaters in the European region. In such cases, it is of crucial importance to adopt measures taking into account the specific characteristics of groundwaters, which are more vulnerable to risks of contamination and overexploitation than surface waters.

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