

## **Chapter 21: The Interplay between the UN Watercourses Convention and the Law on Transboundary Aquifers (Article 2)**

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### **A. Contextual Introduction**

Transboundary aquifers play a substantial role in global water security. Groundwater is estimated to represent 97% of the available freshwater on the planet<sup>2</sup> and has significant importance in terms of human and ecosystem water supply. An estimated 2.5 billion people depend solely on groundwater resources to satisfy their basic needs. Further, groundwater provides drinking water to more than half of the global population and supplies 43% of the water used for irrigation<sup>3</sup>. Groundwater can be found in an aquifer, which is “a permeable water-bearing geological formation underlain by a less permeable layer”.<sup>4</sup> Aquifers are

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<sup>2</sup> World Water Assessment Programme, *Water, A Shared Responsibility. The United Nations world Water Development Report 2006* (Paris: UNESCO, 2006), at 121.

<sup>3</sup> World Water Assessment Programme, *The UN World Water Development Report 2015, Water for a Sustainable World* (Paris: UNESCO, 2015), at 13.

<sup>4</sup> ILC, Draft Articles on the Law of Transboundary Aquifers 2008, UN Doc. A/63/10, Draft Article 2. a).

considered transboundary when parts of them are situated in different states<sup>5</sup>, and almost 600 transboundary aquifers and groundwater bodies have been identified so far<sup>6</sup>.

For the purposes of this chapter, the ‘law of transboundary aquifers’ refers to the sparsely populated set of international legal instruments governing transboundary aquifers. We will focus primarily on the 2008 Draft Articles on the Law of Transboundary Aquifers (Draft Articles), which, together with the UN Watercourses Convention (UNWC), comprises the guidance issued by the International Law Commission (ILC) with respect to transboundary water resources. The law of transboundary aquifers also includes the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention), the UNECE Model Provisions on Transboundary Groundwater, a handful of bilateral and multilateral agreements addressing specific transboundary aquifers,<sup>7</sup> and several non-governmental efforts in the field of transboundary aquifers<sup>8</sup>.

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<sup>5</sup> Ibid, Draft Article 2. c).

<sup>6</sup> International Groundwater Resources Assessment Centre (IGRAC), Transboundary Aquifers of the World - The Special Edition for the 7<sup>th</sup> World Water Forum 2015, available at [https://www.un-igrac.org/sites/default/files/resources/files/TBAmap\\_2015.pdf](https://www.un-igrac.org/sites/default/files/resources/files/TBAmap_2015.pdf) (accessed 1 July 2017).

<sup>7</sup> See L. Movilla Pateiro, ‘Ad hoc legal mechanisms governing transboundary aquifers: current status and future prospects’, 41(6) (2016) *Water International* 851. The agreements are the following: Convention Relative a la Protection, a l’Utilisation, a la Realimentation et au Suivi de la Nappe Souterraine Franco-Suisse du Genevois (Geneva, 18 December 2007; in force 1 January 2008), (‘Genevese Agreement’); Guarani Aquifer Agreement (signed 2 August 2010) (‘Guarani Agreement’); Agreement between the Government of the Hashemite Kingdom of Jordan and the Government of the Kingdom of Saudi Arabia for the Management and Utilization of the Ground Waters in the Al-Sag/Al-Disi Layer (signed 30 April 2015), unofficial English translation by Dr Sami Shubber, available at: <[http://www.internationalwaterlaw.org/documents/regionaldocs/Disi\\_Aquifer\\_Agreement-English2015.pdf](http://www.internationalwaterlaw.org/documents/regionaldocs/Disi_Aquifer_Agreement-English2015.pdf)> (accessed 1 July 2017) (‘Disi Aquifer Agreement’); Establishment of a Consultation Mechanism for the Northwestern Sahara Aquifer System (SASS) (Rome, 19-20 December; endorsed 6 January 2003 (Algeria), 15 February 2003 (Tunisia), 23 February 2003 (Libya)), available at: <<http://www.fao.org/docrep/008/y5739e/y5739e05.htm#bm05.2.1>> (accessed 1 July 2017) (‘NWSAS Agreement’); Programme for the Development of a Regional Strategy for the Utilisation of the Nubian Sandstone Aquifer System (NSAS) – Terms of Reference for the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System (Tripoli, 5 October 2000), available at: <<http://www.fao.org/docrep/008/y5739e/y5739e05.htm>> (accessed 1 July

Against this background, in this chapter we will examine how groundwater has been tackled in the works leading to the UNWC and in the UNWC itself. Then we will study the Draft Articles and their relation to the UNWC. Finally, we will explore a normative package approach to the UNWC and the law of transboundary aquifers.

## **B Groundwater and the UN Watercourses Convention**

I. Groundwater in the work leading to the UN Watercourses Convention: The debates before the International Law Commission

During the ILC work on the UNWC, groundwater was not addressed until 1991 when Special Rapporteur Stephen McCaffrey presented a detailed study on this topic.<sup>9</sup> In this study McCaffrey emphasized the aspects of groundwater that justified the need to be included in the concept of ‘watercourse’ and, therefore, in the scope of the Convention: its quantity, use, mobile nature and interrelationship with surface water. McCaffrey highlighted that

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2017) (‘NSAS Agreement’); Memorandum of Understanding for the Establishment of a Consultation Mechanism for the Integrated Management of the Water Resources of the Iullemeden, Taoudeni/Tanezrouft Aquifer Systems (ITAS) (Algeria, Benin, Burkina Faso, Mali, Mauritania, Niger, Nigeria), (2<sup>nd</sup> Council of Ministers of Gicresait Project, Abuja, Nigeria, 28 March, 2014), available at: [http://www.internationalwaterlaw.org/documents/regionaldocs/Iullemeden\\_MOU-2014.pdf](http://www.internationalwaterlaw.org/documents/regionaldocs/Iullemeden_MOU-2014.pdf) (accessed 1 July 2017) (‘Iullemeden Agreement’).

<sup>8</sup> See the 1966 Helsinki Rules on the uses of the waters of international rivers (ILA, Report of the Committee on the Uses of the Waters of International Rivers (London: ILA, 1967), the 1986 Seoul Rules on International Groundwaters (ILA, Report of the Sixty-Second Conference Held at Seoul, August 24<sup>th</sup> to August 30<sup>th</sup>, 1986 (London: ILA, 1987)), and the 2004 Berlin Rules on Water Resources (ILA, Report of the 71<sup>st</sup> Conference, Berlin, 17 August 2004 71 ILA 337, 385 (2004)) (2004 Berlin Rules), or the 1989 Bellagio Draft Treaty (R. Hayton and A. Utton, ‘Transboundary Groundwaters: The Bellagio Draft Treaty’, 29 (1989) *Natural Resources Journal* 668.

<sup>9</sup> ILA, ‘Seventh Report on the Law of the Non-Navigational Uses of International Watercourses, by Mr. Stephen C. McCaffrey, Special Rapporteur’ II(1) *YBILC* (1991), at 50-60.

groundwater constitutes approximately 97 percent of the available fresh water on the planet, excluding polar ice caps and glaciers<sup>10</sup>, and is heavily utilized to satisfy basic human needs.<sup>11</sup> Furthermore, although the flow of an aquifer is slower than that of surface water, it is constantly in motion, and groundwater is often hydrologically connected to rivers and lakes<sup>12</sup>.

The ILC debated McCaffrey's proposal and finally adopted a set of Draft Articles on the Law of Non-navigational Uses of International Watercourses on first reading that defined a 'watercourse' as 'a system of surface and underground waters constituting by virtue of their physical relationship a unitary whole and flowing into a common terminus'.<sup>13</sup>

The following Special Rapporteur, Mr. Rosenstock, raised the question of groundwater again in his first report in 1993. He proposed to broaden the scope of the Convention by including transboundary groundwaters that are not related to surface water and that do not flow to a common terminus – so called 'unrelated confined groundwater' – and he annexed a study on this option to his second report in 1994.<sup>14</sup> Rosenstock believed that including unrelated

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<sup>10</sup> *Ibid*, at para. 17.

<sup>11</sup> *Ibid*, at para 18.

<sup>12</sup> *Ibid*, at paras. 22-24

<sup>13</sup> Art. 2. b) of the UN Watercourses Convention (UNWC). See *ibid*, at 50-60.

<sup>14</sup> ILC, Second Report on the Law of the Non-navigational Uses of International Watercourses, by Mr. Robert Rosenstock, Special Rapporteur', II(1) *YBILC* (1994). According to the annex to this report, the so-called 'unconfined transboundary groundwaters':

are completely enclosed and the only outlets for water are through capillary action and evaporation, and they may for all practical purposes be independent of any identifiable inland surface water system. They may periodically recharge from water filtering through floods along dry gulches and into dry pans in the deserts. These confined groundwaters are said to have occurred through clogging of the overlying terrain, or the geologic movement on the earth may have resulted in the original surface recharge zones being cut off from the aquifer formation. Additionally, climatic changes a long time ago may have caused rivers and lakes which once fed the aquifers to disappear. The recharge of these aquifers takes place in many cases from precipitation or melting of ice or snow, in cases where these are present. Thus, from all points of view, such aquifers are "independent" reservoirs and do not interact significantly with existing surface water' (at para 3).

confined groundwater would be in line with an integrated approach to water resources management, and those principles and norms applicable to surface water and related groundwater were also applicable to unrelated confined groundwater. The ILC debated this proposal in 1993 and 1994. Even though some members agreed to include unrelated confined groundwater in the scope of the UNWC, most had reservations on its inclusion as part of a “system constituting and unitary whole”. Ultimately, the ILC decided not to include unrelated confined groundwaters in the Draft Articles of the UNWC, and made only minor changes to Draft Article 2, by adding ‘normally’ to the definition of a watercourse as a system of surface waters and groundwater flowing into a common terminus.

In conclusion, what is clear is that there has been an expansion of the scope of international water law, which now also includes groundwater; especially when connected to surface water. However, according to Article 2 of the UNWC, ‘watercourse’ is defined 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’. Further, an ‘international watercourse’ is ‘a watercourse, parts of which are situated in different states’. Hence, a close analysis of these definitions shows a strong bias in the UNWC toward surface waters and an exclusion of many of the aquifers of the planet.<sup>15</sup> It is, hence, not surprising that most

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However, as we will examine in the next section B.I.b, the use of the term “confined” as equivalent to “unrelated” in the context of the works of the UNWC is not scientifically accurate.

<sup>15</sup> G. Eckstein, ‘A Hydrogeological Perspective of the Status of Ground Water Resources Under the UN Watercourse Convention’, 30 (2005) *Columbia Journal of Environmental Law* 525, at 526. A study published in 2003 by Gabriel and Yoram Eckstein, in which the authors proposed six science-based aquifer models with transboundary implications that represent the majority of transboundary aquifers presently known in nature, is very helpful to identify the types of aquifers included and excluded within the scope of the UNWC; G. Eckstein and Y. Eckstein, ‘A Hydrogeological Approach to Transboundary Ground Water Resources and International Law’, 19 (2003) *American University International Law Review* 201. Taking into account the definition of an international watercourse provided by the UNWC, the following three models suggested by Eckstein and Eckstein and would be covered by it: an unconfined aquifer that is linked hydraulically with a river, both of which flow along an international border (Model A); an unconfined aquifer intersected by an international border and linked hydraulically with a river that is also intersected by the same international border (Model B); and an unconfined aquifer that is completely within the territory of one state but that is linked hydraulically to a river flowing across an international border (Model D). Conversely, the following models would not be included in the scope of the Convention: a confined

members of the ILC agreed on the need for a separate study on groundwater due to its great importance in some parts of the planet and its limited regulation.

## II. The International Law Commission Resolution on Confined Groundwater

Aware of the limitations of the scope of the text of the draft UNWC articles concerning groundwater, the ILC adopted a Resolution on Confined Groundwater at the same time it adopted the draft UNWC articles.<sup>16</sup> This brief resolution recognized that groundwater not related to an international watercourse is also a natural resource of vital importance for sustaining life, health and the integrity of ecosystems, and also recognized the need for continuing efforts to elaborate rules pertaining to that groundwater. Thus, the resolution 1)

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aquifer, unconnected hydraulically with any surface body of water, with a zone of recharge (i.e., in an unconfined portion of the aquifer) that traverses an international boundary or that is located completely in another state (Model E); and a transboundary aquifer unrelated to any surface body of water and devoid of any recharge (Model F). There is one remaining model identified by these two authors: an unconfined aquifer that flows across an international border and that is hydraulically linked to a river that flows completely within the territory of one state Model C). Gabriel Eckstein does not consider it included in the scope of the UNWC following the idea supported by McCaffrey that the transboundary character of an aquifer-river system must be found in the river for the Convention to apply; S. McCaffrey, 'International Ground Water Law: Evolution and Context', in S.M.A. Salman (ed.), *Ground Water: Legal and Policy Perspectives: Proceedings of a World Bank Seminar* (Washington, D.C.: World Bank, 1999), at 139-159. However, Eckstein also considers that the key point "should not be whether the transboundary characteristic is found in the river or in the interrelated aquifer, but: 1) whether the aquifer-river system is a dynamic part of the hydrologic cycle; and 2) whether the aquifer-river system could have transboundary consequences"; **PLEASE CHECK THIS IS WHERE QUOTE ENDS CHECKED** see Eckstein, 'A Hydrogeological Perspective', supra note 15, at 555. In any case, Model C aquifers may arguably be considered as falling within the scope of the convention following the literal wording of the definition of an international watercourse of the UNWC. It only requires that "parts of [the international watercourse] are situated in different States" and groundwater may be considered one of those 'parts' of the watercourse that are transboundary, even if the surface water is not.

<sup>16</sup> Resolution on Confined Transboundary Groundwater, Adopted by the Commission at its forty-sixth session, in 1994, II(2) *YBILC* (1994), at 135.

commends states to be guided by the principles contained in the draft UNWC articles, where appropriate, in regulating transboundary groundwater; 2) recommends states to consider entering into agreements with the other states in which confined transboundary groundwater is located, and 3) suggests that states consider resolving any dispute involving such groundwater by utilizing the provisions of Article 33 of the UNWC, or to resolve disputes in such other manner as they may agree.

The Resolution on Confined Groundwater was submitted to the General Assembly as part of the Commission's report covering the work of that session on the topic of the Law of the Non-navigational Uses of International Watercourses, but the General Assembly did not take any further action on the resolution. In any case, the resolution reflected the awareness of the particular hydrogeological characteristics and unique regulatory challenges that transboundary groundwater poses<sup>17</sup> and helped to pave the way to the Draft Articles.

It should be noted that the language of the Resolution on Confined Groundwater is not scientifically accurate<sup>18</sup>. The preamble of the resolution defines 'confined groundwater' as "groundwater not related to an international watercourse". However, a 'confined aquifer' is an aquifer overlain and underlain by an impermeable or almost impermeable formation<sup>19</sup> and in a hydraulic state where waters are stored under pressure. Scientifically, the lack of a connection to a body of surface waters is irrelevant.<sup>20</sup> Subsequently, the Special Rapporteur of the future Draft Articles, Chusei Yamada, also used the expression 'confined transboundary groundwater' at the beginning of the ILC work on the topic.<sup>21</sup> However, upon

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<sup>17</sup> O. McIntyre, 'International Water Resources Law and the International Law Commission Draft Articles on Transboundary Aquifers: A Missed Opportunity for Cross-Fertilisation', 13(3) (2011) *International Community Law Review* 237, at 241-242.

<sup>18</sup> See also ILC, Second Report on the Law of the Non-navigational Uses of International Watercourses, by Mr. Robert Rosenstock, Special Rapporteur', supra note 14.

<sup>19</sup> WMO and UNESCO: *International Glossary of Hydrology*, WMO-No. 385 (World Meteorological Organization and United Nations Educational, Scientific and Cultural Organization, 2012), at 62.

<sup>20</sup> ILC, 'Second Report on Shared Natural Resources: Transboundary Groundwaters, by Mr. Chusei Yamada, Special Rapporteur', 9 March and 12 April 2004, UN Doc. A/CN.4/539, at para. 13

<sup>21</sup> ILC, 'First Report on Shared Natural Resources: Outlines, by Mr. Chusei Yamada, Special Rapporteur', 30 April 2003, UN Doc. A/CN.4/533 and Add.1

reflection and consultation with hydrogeologists<sup>22</sup>, Yamada proposed to use the term ‘transboundary aquifer system’ in the Draft Articles<sup>23</sup> and the term ‘confined groundwater’ was deleted from the later works of the UNILC on the law of transboundary aquifers.

### **C. The International Law Commission Draft Articles on the Law of Transboundary Aquifers and the UN Watercourses Convention: Points of departure and Alignment**

#### **I. The work of the International Law Commission on shared natural resources**

Despite the presence of groundwater in the definition of international watercourse within Article 2 of the UNWC,<sup>24</sup> and the inclusion of non-rechargeable transboundary aquifers in the ILC Resolution on Confined Groundwater,<sup>25</sup> the international community felt that transboundary aquifers deserved more attention. Hence, after having included the topic ‘shared natural resources’ in 2000 in its long-term agenda, the ILC decided to incorporate shared natural resources in its programme of work in 2002.<sup>26</sup> At the time, the topic included not only transboundary groundwater, but also transboundary oil and gas. As stated earlier, Ambassador Chusei Yamada was appointed Special Rapporteur for the study on shared natural resources.<sup>27</sup> One of the first decisions of the Special Rapporteur was to limit the scope

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<sup>22</sup> See, on the establishment of an inter-disciplinary team of hydrogeologists and lawyers led by UNESCO-IHP in the context of the works on the Draft Articles on the law of transboundary aquifers, *infra* section C. I.

<sup>23</sup> ILC, ‘Second Report on Shared Natural Resources: Transboundary Groundwaters, by Mr. Chusei Yamada, Special Rapporteur’, *supra* note 20, at para. 13.

<sup>24</sup> See *supra* section B. I.

<sup>25</sup> See *supra* section B. II..

<sup>26</sup> ILC, Report of the International Law Commission on its Fifty-fourth Session, II(2) *YBILC* (2002) , at paras. 518-519.

<sup>27</sup> *Ibid*, at para. 519.

of the ILC's work to transboundary groundwater in order to better understand that resource.<sup>28</sup> For this purpose an inter-disciplinary team was established with leading hydrogeologists and lawyers led by UNESCO-IHP.<sup>29</sup> As a result of this cooperation Yamada took an important decision, which was to change the name of the topic the ILC was working on from transboundary groundwater to transboundary aquifers,<sup>30</sup> hence acknowledging the twofold nature of the natural resource at stake – the groundwater and the geological formation.

Compared to previous UNILC efforts,<sup>31</sup> the work led by Yamada on transboundary aquifers proceeded very quickly.<sup>32</sup> By 2008 a set of nineteen draft articles had been adopted at a second reading and annexed to a resolution of the United Nations General Assembly by consensus.<sup>33</sup> The latter encouraged countries to “take into account” the Draft Articles when developing bilateral and regional agreements over transboundary aquifers.<sup>34</sup> It also mandated

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<sup>28</sup> ILC, ‘First Report on Shared Natural Resources: Outlines, by Mr. Chusei Yamada, Special Rapporteur’, supra note 21, at para. 4. It is also interesting to note that, once the ILC completed its work on the law of transboundary aquifers, it decided not to proceed further with transboundary oil and gas. See ILC, ‘Shared Natural Resources: Feasibility of Future Work on Oil and Gas’ 9 March 2010, UN Doc A/CN.4/621.

<sup>29</sup> On the multidisciplinary team led by UNESCO-IHP and established in support of the ILC see R..M. Stephan, ‘The Draft Articles on the Law of Transboundary Aquifers: The Process at the UN ILC’, 13(3) (2011) *International Community Law Review* 223.

<sup>30</sup> ILC, ‘Second Report on Shared Natural Resources: Transboundary Groundwaters, by Mr. Chusei Yamada, Special Rapporteur’, supra note 20, at para. 12.

<sup>31</sup> For example, the law of the non-navigational uses of international watercourses was discussed by the ILC for more than twenty years (1971 to 1994). The law of treaties was covered from 1949 to 1966 and the law of state responsibility took almost a staggering half a century to be completed by the ILC (1954-2001).

<sup>32</sup> Part of the reason is that much of the content of the ILC Draft Articles on the Law of Transboundary Aquifers mirrors the United Nations Watercourses Convention. .

<sup>33</sup> General Assembly Resolution 63/124 of 11 December 2008, UN Doc. A/RES/63/124. G. Eckstein , ‘Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers’, 18(3) (2007) *Col. Journal of Int. Env. Law and Policy* 537, at 543.

<sup>34</sup> Point 5 of the Resolution of the United Nations General Assembly 63/124: ‘encourages the States concerned to make appropriate bilateral or regional arrangements for the proper management of their transboundary aquifers, taking into account the provisions of these Draft Articles’.

states to discuss the format that the Draft Articles should have in the future.<sup>35</sup> Since their adoption in 2008, the Draft Articles have been discussed by the Sixth Committee of the United Nations General Assembly three times (2011, 2013 and 2016). While discussions on whether the Draft Articles should become a convention or take another format have not produced any concrete decisions, in 2013 the General Assembly recommended that States use the Draft Articles as ‘guidance’, and do not merely take them into account.<sup>36</sup> This suggests that the normative content of the Draft Articles is slowly being further recognised, although within a soft law, non-legally binding context.<sup>37</sup>

Before looking at the scope and the content of the Draft Articles and how they compare to the UNWC, it would be instructive to review whether the work of the ILC on transboundary aquifers constitutes codification and/or progressive development of international law. It is difficult to say that the Draft Articles represent an attempt to codify the law of transboundary aquifers. For this to be the case, the ILC would have needed to have a considerable amount of state practice to analyse and to comment on. As we have seen before,<sup>38</sup> very few legal arrangements on transboundary aquifers had been completed when the ILC began its work on

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<sup>35</sup> Point 6 of General Assembly Resolution 63/124, *supra* note 41: “decides to include in the provisional agenda of its sixty-sixth session an item entitled ‘The law of transboundary aquifers’ with a view to examining, inter alia, the question of the form that might be given to the Draft Articles”.

<sup>36</sup> Point 1 of the General Assembly Resolution [68/118](#) 16 December 2013, UN Doc. A/RES/68/118: “commends to the attention of Governments the draft articles on the law of transboundary aquifers annexed to the present resolution as guidance for bilateral or regional agreements and arrangements for the proper management of transboundary aquifers”. More recently, Draft Resolution A/C.6/71/L.22, 4 November 2016, reproduces the same terms. On the change in wording present in the 2013 Resolution of the United Nations General Assembly see G. Eckstein and F. Sindico, ‘The Law of Transboundary Aquifers: Many Ways of Going Forward, but Only One Way of Standing Still’, 23(1) (2014), *RECIEL* 32, at 34-35.

<sup>37</sup> Soft law in the context of international law and international environmental law has been dealt with widely in the literature. See, amongst others, F. Sindico, ‘Soft Law and the Elusive Quest for Sustainable Global Governance’ 19(3) (2006) *Leiden Journal of International Law* 829; L. Blutman, ‘In the trap of a legal metaphor: International Soft Law’, 59 (2010) *International and Comparative Law Quarterly* 605; and P. M. Dupuy, ‘Soft Law and the International Law of the Environment’ 12(2) (1991) *Michigan Journal of International Law* 420.

<sup>38</sup> See *supra* note 7.

the law of transboundary groundwater in 2002. However, one of the reasons why the ILC needed only 6 years to complete the Draft Articles is partly due to the fact that much of its work was based on the already existing UNWC. Before comparing the Draft Articles with the UNWC to determine the similarities and differences, this chapter will first explore and explain the scope of the Draft Articles.

## II. The International Law Commission Draft Articles on the Law of Transboundary Aquifers and the UN Watercourses Convention: Scope

We have seen that the UNWC does cover some transboundary aquifers, namely those that are hydraulically connected with transboundary surface water. Furthermore, the non-binding Resolution on Confined Groundwater (despite its erroneous name) would allow the UNWC to apply also to non-recharging transboundary aquifers. However non-recharging fossil aquifers still needed a more specific provision. The Draft Articles thus provide the following comprehensive definition of an aquifer:

a permeable water-bearing geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation.

This all-encompassing definition appears to be capable of capturing both recharging and non-recharging transboundary aquifers. Consequently, two international legal instruments could apply simultaneously to recharging transboundary aquifers: the UNWC and the Draft Articles. Both *lex posterior* and *lex specialis* rules point in the direction of the Draft Articles as the appropriate legal instrument to cover recharging transboundary aquifers,<sup>39</sup> but this interpretation has not stopped some authors from voicing their concern over the unnecessary duplication and confusion stemming from having more than one international legal instrument applicable to the same natural resource.<sup>40</sup> In a previous iteration of the Draft

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<sup>39</sup> As provided in treaty law according to the Vienna Convention on the Law of Treaties, 23 May 1969, 1155 UNTS 331, Arts. 30(2) and 59.

<sup>40</sup> Arguably, there could be a substantive overlap also for non-recharging aquifers if one considers that the ILC Resolution on Confined Groundwater enables the UNWC to operate also to fossil aquifers; see *supra* section B. I. (b).

Articles, a provision was included that would have addressed the relationship between the Draft Articles and other existing international agreements by giving priority to the Draft Articles,<sup>41</sup> but this provision was not included in the final 2008 version of the Draft Articles.

McIntyre makes an interesting point that, if the ILC decided (as it did) to include references to both the geological formation (the container) and to the groundwater (the liquid natural resources contained therein) in its definition of aquifer, it should have then developed a more sophisticated set of rights and obligations based on which element of the aquifer was being considered.<sup>42</sup> He also comments that the UNWC does not mention the bed of the river (which is not liquid and can be to some extent considered the container of the river) in its definition of watercourse.<sup>43</sup>

In conclusion, the definitions of an international watercourse and of an aquifer in the UNWC and in the Draft Articles do create an overlap in scope. The same transboundary aquifers could be regulated by both legal instruments, especially in the case of recharging aquifers. Some authors may see this as a problem,<sup>44</sup> or a challenge, as having two sets of applicable guidance could undermine legal certainty and predictability. Another interpretation, one to which we ascribe in this chapter,<sup>45</sup> is that having two legal instruments (and in some cases even more) provides a richness of normative frameworks that, if interpreted in a mutually supportive way as a coherent normative package, can enhance the governance of transboundary aquifers.

Before moving on to compare the content of the UNWC and the Draft Articles, let us briefly sketch the structure of the latter. The Draft Articles are divided into four parts with the first part providing the necessary definitions and delineating the scope.<sup>46</sup> Part two addresses the general principles applicable to transboundary aquifers, such as the sovereignty of aquifer states, equitable and reasonable utilisation, the obligation not to cause significant harm, the

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<sup>41</sup> See *infra* section C. III, h.

<sup>42</sup> See McIntyre, 'International Water Resources Law and the International Law Commission Draft Articles on Transboundary Aquifers: A Missed Opportunity for Cross-Fertilisation', *supra* note 17, at 243- 244.

<sup>43</sup> *Ibid.*, at 249.

<sup>44</sup> *Ibid.*

<sup>45</sup> See *infra* section D.

<sup>46</sup> Draft Articles 1 and 2.

general obligation to cooperate, the regular exchange of data and information and bilateral and regional agreements and arrangements.<sup>47</sup> Part three deals with protection, preservation and management of transboundary aquifers with a particular focus on protection and preservation of ecosystems; recharge and discharge zones; prevention, reduction and control of pollution; monitoring; management, and planned activities.<sup>48</sup> Part four concludes with a series of miscellaneous provisions.<sup>49</sup> The extent to which these provisions align themselves or depart from the UNWC will be discussed in the following sections.

### III. The International Law Commission Draft Articles on the Law of Transboundary Aquifers and the UN Watercourses Convention: Alignment and Points of Departure

Overall, both the UNWC and the Draft Articles can be considered as framework legal instruments that provide Parties with normative guidelines on the governance of transboundary waters, be they surface waters or groundwater. Most of the provisions lead to a similar pattern whereby the use of the transboundary natural resource is allowed, but only in an equitable and reasonable manner and in a way that does not lead to significant harm to a neighbour.

However, when one looks more closely at the two instruments, several points of departure can be highlighted. Firstly, the presence of the sovereignty of aquifer states as one of the principles provided for in the Draft Articles appears to be at odds with the UNWC. Hence, the debate over sovereignty will be the first one that will be discussed below in the context of a critical appraisal of the Draft Articles and of the UNWC. We will then follow with an analysis of how planned measures and procedural obligations seem to be less prominent in the Draft Articles than in the UNWC. There are also several differences in relation to the scope of activities covered by the Draft Articles and the reference in the Draft Articles to vital human needs. If these differences can be considered as the main points of departure, there is a strong alignment between many of the other provisions in the two legal instruments. In particular, we can look to the principle of equitable and reasonable utilisation and the general

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<sup>47</sup> Ibid, Arts. 3 to 9.

<sup>48</sup> Ibid, Arts. 10 to 15.

<sup>49</sup> Ibid, Arts. 16 to 19.

obligation to cooperate, as well as the provisions on protection, preservation and management, although these provisions are necessarily tailored to the different hydrogeological nature of transboundary aquifers. Finally, we will examine the miscellaneous provisions of the Draft Articles and highlight the two provisions that are indeed missing in the Draft Articles and are instead present in the UNWC: the provisions on dispute settlement and on the relationship with other existing legal instruments.

(a) Sovereignty

Sovereignty has been without any doubt the most heated debate surrounding the Draft Articles. It turns around the text of Draft Article 3, which reads as follows:

Each aquifer State has sovereignty over the portion of a transboundary aquifer or aquifer system located within its territory. It shall exercise its sovereignty in accordance with international law and the present draft articles.

It has been argued that this provision constitutes a regression in international water law, as it would take us back to the times in which the Harmon Doctrine allegedly allowed states to disregard the rights of neighbouring countries<sup>50</sup> and exercise absolute sovereignty over national water resources regardless of the transboundary impacts.<sup>51</sup> In a much cited article, McCaffrey argues that the first sentence of Draft Article 3 lets the Harmon Doctrine genie out of its bottle, with the second sentence unable to put the genie back in.<sup>52</sup> The question, hence, is to understand why national sovereignty has been reinstated in the first place and whether indeed the second part of the sentence is not capable of reinstalling the genie to its rightful domain.

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<sup>50</sup> *Attorney General's Opinion* 274 (1895). S.C. McCaffrey, "The Law of International Watercourses (2<sup>nd</sup> edn, Oxford University Press, 2007), at 112-128.

<sup>51</sup> *Ibid*, at 128-171.

<sup>52</sup> S.C. McCaffrey, 'The International Law Commission Adopts Draft Articles on Transboundary Aquifers' 103 (2009) *American Journal of International Law*, 272.

(i) Why has sovereignty been reinstated in the Draft Articles?

There are two elements of this debate that are not controversial. On the one hand, the UNWC rubberstamps a progressive development in international law whereby countries are required to limit their sovereignty when dealing with a transboundary natural resource. This has been recognised as a welcome characteristic that has been further confirmed by several other regional and bilateral transboundary water agreements that followed the UNWC.<sup>53</sup> On the other hand, it is beyond doubt that countries retain their sovereignty over geological structures within their boundaries.<sup>54</sup> That being the case, why has the ILC included sovereignty of aquifer states as *one* of the principles governing the law of transboundary aquifers? Two reasons can be suggested here.

First, had the definition of aquifer only focused on the liquid element, the groundwater, having a provision guaranteeing the sovereignty of aquifer states as a principle to govern such a natural resource could have been a source of concern.<sup>55</sup> However, the definition of aquifer in the Draft Articles correctly includes the geological element (the rock). The inclusion of sovereignty can be explained as a way to clarify beyond any doubt that countries still had sovereignty over the geological structure of a transboundary aquifer.<sup>56</sup> Other authors have argued that sovereignty has crept in as a result of not distinguishing between the two

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<sup>53</sup> See, for example, the Revised Protocol on Shared Watercourses in the Southern African Development Community, 7 August 2000, available at [http://www.sadc.int/files/3413/6698/6218/Revised\\_Protocol\\_on\\_Shared\\_Watercourses\\_-\\_2000\\_-\\_English.pdf](http://www.sadc.int/files/3413/6698/6218/Revised_Protocol_on_Shared_Watercourses_-_2000_-_English.pdf) (accessed 1 July 2017).

<sup>54</sup> J.A. Barberis, 'Los recursos minerales compartidos entre Estados y el Derecho Internacional', 18 (1975) *Derecho de la Integración* 45; R. Lagoni, 'Oil and Gas Deposits across National Frontiers', 73(2) (1979) *American Journal of International Law* 215; S. Vinogradov, 'Transboundary "Liquid" Mineral Resources. Legal Issues: A Commentary', in S. Marchisio, F. Bassionuni, M. C. Zucca (eds.), *Groundwater Law and Administration for Sustainable Development*, (Milan: Giuffrè Editore, 2002).

<sup>55</sup> The Guarani Aquifer Agreement does, however, follow such a troubling path defining the aquifer only as 'transboundary water resource' and including sovereignty as one of the principles in its Articles 1, 2 and 3.

<sup>56</sup> As we have mentioned before in section C. II supra, the definition of a watercourse in the UNWC does not refer to the bed of the river; hence, one could argue, it was not necessary to include a reference to national sovereignty.

factors that make up an aquifer – the geological formation and the water.<sup>57</sup> In this respect, McIntyre comments that the definition provided in the Draft Articles required a sophisticated parallel legal setting for the geological element and for the groundwater contained therein.<sup>58</sup> We will assess whether a combined reading of the first and second sentence of Draft Article 3 does, indeed, provide such a parallel legal path.<sup>59</sup>

But, before moving to this analysis, let us suggest a second reason why the ILC included sovereignty of aquifer states as *one* of the principles governing the law of transboundary aquifers. While the first reason concerned the material scope of what is regulated and is of a legal nature, the second reason is political. For many countries it is still very difficult to limit their sovereignty.<sup>60</sup> Not all regions of the world have agreed to supranational institutions like the European Union, and even there some countries wish to regain their full national sovereignty. In regions like Latin America, sovereignty, especially when it comes to international water-related issues, matters a great deal.<sup>61</sup> It is not surprising that no Latin American country has yet ratified the UNWC.<sup>62</sup>

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<sup>57</sup> K. Mechlem, ‘Past, Present and Future of the International Law of Transboundary Aquifers’’, 13(3) (2011) *International Community Law Review* 209, at 220: “Most likely the indiscriminate focus on aquifers without distinguishing rock and water together with the invisible nature of groundwater, whose transboundary and often very slow flow remains hidden to the eye, has been conducive to the unfortunate resurrection of claims of sovereignty”.

<sup>58</sup> See McIntyre, ‘International Water Resources Law and the International Law Commission Draft Articles on Transboundary Aquifers: A Missed Opportunity for Cross-Fertilisation’, supra note 17, at 248

<sup>59</sup> See supra section C.III. (a).

<sup>60</sup> This comes out very clearly from the Commentary to the Draft Articles, Art. 3.1, where the ILC states that one of the reasons to retain sovereignty was that “aquifer States ... are of the opinion that water resources *belong* to the States in which they are located and are subject to the *exclusive* sovereignty of those States”. It is not surprising that a purely legal interpretation of such a passage, combined with the following sentence in which groundwater is considered akin to oil and gas, could lead to considering this provision of the Draft Articles as regressive.

<sup>61</sup> See the discussion about sovereignty in Latin America over water related matters in F. Sindico, ‘The Guarani Aquifer System and the International Law of Transboundary Aquifers’, 13(3) (2011) *International Community Law Review* 255. On sovereignty in the context of Latin America, see also L. del-Castillo-Laborde, ‘The Guaraní Aquifer Framework Agreement (2010)’, in L. Boisson-de-

McIntyre argues that, just one year after their adoption, the negative consequences of reigniting sovereignty claims could be felt by the inclusion of sovereignty as a principle in the Guaraní Aquifer Agreement,<sup>63</sup> especially considering that the Guaraní Aquifer System had been defined as a transboundary water resource.<sup>64</sup> However, again this *legal* reference needs to be seen in the *political* context in which it operates: Latin America and its rejection towards external water policies coming from donors and multinational companies.<sup>65</sup> Del Castillo Laborde also explains,<sup>66</sup> and we share this point,<sup>67</sup> that the reference to national sovereignty in the Guaraní Aquifer Agreement is *ab exterior* and not *ab interior*. National

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Chazournes, C. Leb and M. Tignino (eds.), *International Law And Freshwater: The Multiple Challenges* (Cheltenham: Edward Elgar, 2012).

<sup>62</sup> It is likely that a compromise had emerged within the ILC whereby, only by retaining sovereignty as *one* of the principles, were countries amenable to finally adopt the Draft Articles. Countries who were against the inclusion of sovereignty and that may have been concerned about the possible negative consequences such an inclusion might have on following state practice could have still rejected the Draft Articles when they were presented before the United Nations General Assembly, but the latter adopted them by consensus, hence showing a large degree of acceptance of the Draft Articles in their current format. It then becomes a question of interpretation how one wishes to analyse the reference to sovereignty in the Draft Articles.

<sup>63</sup> See McIntyre, *supra* note 16, at 251. McCaffrey also makes this point in S.C. McCaffrey, ‘Sustainability and Sovereignty in the 21<sup>st</sup> Century’, 41(4) (2013) *Denver Journal of International Law and Policy* 507, at 514.

<sup>64</sup> And this, considering the Guaraní Aquifer System solely as a transboundary water resource, leaving aside the geological element of the aquifer, was a mistake.

<sup>65</sup> See the discussion about regional movements against donor water policies and multinationals in Sindico, ‘The Guarani Aquifer’, *supra* note 69.

<sup>66</sup> L. del Castillo-Laborde, ‘The Law of Transboundary Aquifers and the Berlin Rules on Water Resources (ILA): Interpretative Complementarity’, in *ISARM 2010 International Conference Transboundary Aquifers: Challenges and New Directions, Pre-Proceedings, 6-8 December 2010* (Paris: UNESCO, 2010), at 3, clarifies that “[t]he Draft Articles provision [on sovereignty] was not drafted as a legal barrier to co-aquifer States, but as a reassurance towards the international community as a whole.’ *Ibid*, at 4, the author clarifies further that “[t]o claim sovereignty that is not challenged could be redundant, but it is not harmful. However, it has to be highlighted that such sovereignty should be exercised ‘in accordance with international law and the present articles.’

<sup>67</sup> Sindico, ‘The Guarani Aquifer’, *supra* note 69, at 261-262, and L. Movilla Pateiro, *El derecho internacional del agua: los acuíferos transfronterizos* (Barcelona: Bosch Editor, 2014), at 330.

sovereignty in the Guaraní Aquifer Agreement sends a powerful political message to countries outside the Guaraní Aquifer System that the waters of the Guaraní are not for sale, so to speak. But it also sends the same strong political message to the people of the four Guaraní countries in order to reassure them that the governments will keep a close eye on the precious natural resource at stake. What it does not mean is that any of the four countries sharing the Guaraní Aquifer System can use the water or the aquifer as they wish with no consideration to their transboundary aquifer neighbours.

In other words, including sovereignty of aquifer states both in the Draft Articles and in the Guaraní Aquifer Agreement was a response to political imperatives. A specific reading of sovereignty, leading to a reassertion of the Harmon doctrine, cannot be justified on political grounds. However, to consider that the work of the ILC, or the effectiveness of treaties, is isolated from politics does not fully appreciate the highly *political* nature of international law<sup>68</sup>. At this point we believe that the discussion over sovereignty becomes a question of interpretation both in the Draft Articles themselves and, even more importantly, in any future agreement or arrangement that may be adopted and guided by the provisions of the Draft Articles, as recommended by the United Nations General Assembly.

(ii) Can the genie be brought back in the bottle?

As just mentioned, countries are encouraged by the Resolution of the United Nations General Assembly that annexes the Draft Articles to use the latter as *guidelines* when negotiating ad-hoc agreements and/or arrangements on specific transboundary aquifers.<sup>69</sup> In light of this, the debate on sovereignty ends up having a highly practical relevance and it is even more important to discuss whether, so to speak and returning to the metaphor used by McCaffrey,<sup>70</sup> the second sentence of Draft Article 3 is in any way capable of taming the Harmon Doctrine genie and putting it back in the bottle.<sup>71</sup> So what does the second sentence say?

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<sup>68</sup> M. Koskenniemi, *The Politics of International Law* (Oxford: Hart, 2011).

<sup>69</sup> *Supra* section C.I.

<sup>70</sup> See McCaffrey, 'The International Law Commission Adopts Draft Articles on Transboundary Aquifers', *supra* note 60.

<sup>71</sup> In another article McCaffrey uses a different metaphor saying that the Draft Articles resembles the effort of trying to put the horse (sovereignty) back in the barn once the gate (the first sentence) is

It [Each aquifer State] shall exercise its sovereignty in accordance with international law and the present draft articles.

The second sentence of Draft Article 3 provides a twofold recommendation. On the one hand, aquifer states must exercise their sovereignty in accordance with international law. On the other hand, aquifer states must also exercise their sovereignty in accordance with the Draft Articles themselves. It is also an oxymoron that Draft Article 3 is made of the two sentences and that it needs to be read and interpreted by combining the two sentences. Hence, in order to determine whether the genie of sovereignty can be brought back where it belongs, and whether a parallel legal path can be applied for the geological structure of the transboundary aquifer and for the groundwater therein, we need to analyse how sovereignty is to be *exercised* within international law, more generally, and within the Draft Articles, more specifically.

General international law in the field of environmental protection provides for a balanced approach to national sovereignty over natural resources. It is now considered to be part of customary international law that the right to enjoy a country's natural resources is not absolute, but needs to be *exercised* in such a way that it does not cause significant harm to neighbouring countries. This principle, present in both the Stockholm and the Rio Declarations,<sup>72</sup> actually finds its roots in the Trail Smelter case,<sup>73</sup> and has been reaffirmed in numerous other cases.<sup>74</sup> The International Court of Justice itself has confirmed the customary

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opened; see McCaffrey, ‘‘Sustainability and Sovereignty in the 21<sup>st</sup> Century’’, supra note 71, at 513-514.

<sup>72</sup> Principle 21 of the Declaration of the United Nations Conference on the Human Environment (1972), Report of the United Nations Conference on the Human Environment, Stockholm, 5 – 16 June 1972 UN Doc. A/CONF.48/14/Rev.1, and Principle 2 of the Rio Declaration on Environment and Development (1992), 12 August 1992, UN Doc. A/CONF.151/26 (vol. I).

<sup>73</sup> *Trail Smelter Arbitration (United States v. Canada)*, 3 United Nations, Report of the International Arbitral Awards, 1911 (1941).

<sup>74</sup> Amongst others: ICJ, *Corfu Channel (U.K. v. Albania)*, Judgment on Preliminary Objection, 25 March 1948; and *Lake Lanoux Arbitration (France v. Spain)*, Award, 12 R.I.A.A. 281, 16 November 1957.

legal nature of a more balanced approach to the exercise of national sovereignty in the field of the environment in the famous dicta of the *Nuclear Weapons* advisory opinion.<sup>75</sup> Arguably, over the years, other procedural obligations that effectively enable national sovereignty to be limited in practice have emerged, which, in some cases, reflect customary international law. This is the case of the obligation to undertake an environmental impact assessment,<sup>76</sup> or to consult a neighbouring state when planning to undertake an activity that may lead to significant harm.<sup>77</sup> It can safely be said that if aquifer states are to exercise sovereignty over their portion of the transboundary aquifer in accordance with international law, returning to the Harmon Doctrine is not an option.

Furthermore, aquifer states are required by the second sentence of Draft Article 3 to exercise their sovereignty in accordance with the Draft Articles. When read fully, the Draft Articles, despite the reference to sovereignty, point to a more balanced approach. In fact, Draft Article 6 creates a due diligence obligation upon aquifer states not to cause significant harm, which recalls the obligation under general international law. Numerous other provisions in the Draft Articles would be at odds with an absolute approach to sovereignty. In fact, the Draft Articles call for aquifer states to cooperate and to regularly exchange data and information.<sup>78</sup> Another provision lays out the general obligations to be carried out when a planned activity may lead to significant harm to another aquifer state.<sup>79</sup> Albeit not as precisely as in the UNWC,<sup>80</sup> the Draft Articles do provide for timely notification of the planned activity accompanied by an

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<sup>75</sup> ICJ, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996.

<sup>76</sup> ICJ, *Case Concerning Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, 10 April 2010.

<sup>77</sup> However, consultation per se may not amount (yet) to customary international law, but some others argue that consultation is a necessary pre-requisite to an effective environmental impact assessment, hence linking its legal nature to the emerging one of the provision requiring countries to undertake an EIA; see in this sense A. Boyle, 'Pulp Mills Case: A Commentary', available at [http://www.biicl.org/files/5167\\_pulp\\_mills\\_case.pdf](http://www.biicl.org/files/5167_pulp_mills_case.pdf) and C. Wood, *Environmental Impact Assessment: A Comparative Review* (Harlow: Prentice Hall, 2<sup>nd</sup> ed, 2002).

<sup>78</sup> Draft Articles 7 and 8 respectively. The general obligation to cooperate is further enhanced by Draft Article 9 where aquifer states are *encouraged* to enter into bilateral and regional agreements and arrangements.

<sup>79</sup> Draft Article 15.

<sup>80</sup> Article 12 of the UNWC. See chapter 9 of this book: 'Information and notification concerning planned measures (Arts. 11-16)'

environmental impact assessment. Finally, the Draft Articles build on one of the tenets of transboundary water resources law: the obligation to use transboundary waters in an equitable and reasonable manner. With some differences to what is present in the UNWC, some justified by the hydrogeological nature of a transboundary aquifer and others by developments in international water law, the Draft Articles clearly provide that aquifer states cannot use transboundary aquifers as they deem fit, but that they “shall utilize transboundary aquifers according to the principle of equitable and reasonable utilisation”.<sup>81</sup> In sum, with references to the obligation not to cause significant harm, the obligation to cooperate, the obligation to undertake an environmental impact assessment for planned activities, and the principle of equitable and reasonable use, it is difficult to see how the Draft Articles, considered as a whole, can be seen as a dangerous return to the Harmon Doctrine.

Having said that, the reality is that the Draft Articles are far from perfect,<sup>82</sup> and do not provide the sophisticated parallel legal path that McIntyre was advocating for.<sup>83</sup> However, we also believe that they do not signal a regression in international water law.<sup>84</sup> In any case, the Draft Articles can be considered a key part of today’s international law of transboundary aquifers. They can and should be used to raise awareness of what is still in many countries a natural resource neglected by legal regulation: groundwater. The international community has agreed that the Draft Articles are to be used as *guidance*, which does not mean that they need to be a blueprint for future transboundary aquifers agreements and arrangements. In fact, the Draft Articles can be useful inasmuch as they can provide the normative context that countries will then adapt and contextualise to their own needs and characteristics. It is in this work of adaptation and contextualisation that any flaws the Draft Articles may have can be worked upon and improved in the ad-hoc transboundary aquifers agreement and/or arrangement. At the same time, agreements and arrangements can and should build on the

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<sup>81</sup> Draft Article 4.

<sup>82</sup> See, supra note 68, on ILC commentary to Draft Article 3.

<sup>83</sup> See McIntyre, ‘International Water Resources Law and the International Law Commission Draft Articles on Transboundary Aquifers: A Missed Opportunity for Cross-Fertilisation’, supra note 17.

<sup>84</sup> We are not alone in this assertion. See Stephan, ‘The Draft Articles on the Law of Transboundary Aquifers: The Process at the UN ILC’, supra note 37, at 229, maintains that “Article 3 is quite clear as it states that an aquifer state ‘shall exercise its sovereignty in accordance with international law and the present articles’, which means that aquifer States can only exercise its sovereignty in a limited way”.

strengths that the Draft Articles may present. Finally, it is also in this more practical context of countries deciding to negotiate an ad-hoc agreement that the interplay between the UNWC and the law of transboundary aquifers, of which the Draft Articles are a key, but not a sole, component, really comes into play. This is an area of international law that has yet to develop, considering that just one transboundary aquifer agreement has been signed since the entry into force of the UNWC.<sup>85</sup> It is, hence, too soon to lay out some exhaustive comments or reflections, but further sections in this chapter will explore the above-mentioned interplay in the framework of the complete normative package.<sup>86</sup>

In conclusion, whether the genie can return in the bottle or not will depend mainly on the political will of those negotiating future agreements on transboundary aquifers. However, our reading of the Draft Articles shows that it is not only the second sentence of Draft Article 3, but general international law and all the other provisions within the Draft Articles working together, that should be able to capture the genie and put it back where it belongs.

#### (b) Planned activities

Procedural obligations related to planned activities are less prominent in the Draft Articles than in the UNWC.<sup>87</sup> The only provision dealing with these activities - Draft Article 15, located within the part devoted to 'Protection, preservation and management'- contains a much more limited approach. It simply establishes the obligations of assessment of the possibly significant adverse effect of those activities, timely notification and of entering into consultations, negotiations or even the utilization of an independent fact-finding body in case of disagreements. This brevity is justified in the commentary to the Draft Articles by the

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<sup>85</sup> Agreement between the Government of the Hashemite Kingdom of Jordan and the Government of the Kingdom of Saudi Arabia for the Management and Utilization of the Ground Waters in the Al-Sag/Al-Disi Layer', Riyadh, 30 April 2015 (Unofficial English translation available at [http://www.internationalwaterlaw.org/documents/regionaldocs/Disi\\_Aquifer\\_Agreement-English2015.pdf](http://www.internationalwaterlaw.org/documents/regionaldocs/Disi_Aquifer_Agreement-English2015.pdf) (accessed 1 July 2017)).

<sup>86</sup> See *infra* section D

<sup>87</sup> Part III of the UNWC (Articles 11 to 19) contains detailed provision on procedural obligations related to planned activities, including information, notification, period for reply to notification, obligations of the notifying state during the period for reply, reply, absence of reply, consultations and negotiations and urgent implementation.

scarcity of state practice on transboundary aquifers.<sup>88</sup> However, that lack of state practice would arguably make it even more necessary to have guidance in this regard from the Draft Articles.<sup>89</sup>

(c) Scope: activities governed by the Draft Articles

Given the unique nature and fragility of aquifers, the scope of activities covered by the Draft Articles, as described in Draft Article 1, is wider than the scope of activities embraced by the UNWC. Like the UNWC, the Draft Articles apply to measures for the protection, preservation and management of transboundary aquifers (paragraph c). However, Draft Article 1 also includes two main novelties.

Firstly, paragraph a) refers to the ‘utilization’ of transboundary aquifers. The UNWC refers to ‘use’. This departure is justified because the mode of uses needed to be covered as well.<sup>90</sup> As illustrated by Eckstein, the water from an aquifer may be used, for instance, for the purposes of drinking water. However, the utilization of that water would also include the way in which

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<sup>88</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, II(2) *YBILC* (2008), at 38.

<sup>89</sup> In the same vein, McCaffrey points out that “since states look to the ILC for guidance, and since its mandate includes not only codification, but also progressive development of international law, this explanation is not entirely convincing- especially when one recalls that much of the world's groundwater is hydrologically connected with surface water. State practice in relation to surface water is therefore largely applicable to groundwater, as concluded by the International Law Association in its Seoul Rules on International Groundwaters”, See McCaffrey, ‘The International Law Commission Adopts Draft Articles on Transboundary Aquifers’, *supra* note 60, at 279-280. Moreover, according to Tanzi, “the more stringent character of the Draft Articles on transboundary aquifers with respect to the 1997 New York Convention on the point at issue accounts for the lower attention to the procedural rules on cooperation, particularly concerning notification and consultation”. A. Tanzi, 'Furthering International Water Law or Making a New Body of Law on Transboundary Aquifers? An Introduction', 13(3) (2011) *International Community Law Review* 193, at 204-205.

<sup>90</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, *supra* note 96, at 24.

it was extracted and delivered from the aquifer.<sup>91</sup> Also, according to Draft Article 2, the term ‘utilization’ includes extraction of water, heat and minerals, and storage and disposal of any substance.

Secondly, and most relevantly, if paragraph a) deals with the utilization of this resource that has the most direct impact on aquifers, paragraph b) also includes “other activities that have or are likely to have an impact upon such aquifers or aquifer systems”. The commentaries to the Draft Articles provide two useful examples of these activities: the careless use of chemical fertilizer or pesticides in farming on the ground above an aquifer that may pollute waters in the aquifer, and the construction of a subway without appropriate surveys that may destroy the geological formation of an aquifer process. At the same time, the impact upon aquifers would include deterioration of water quality, reduction of water quantity and an adverse change in their functioning. The determination of the threshold of the broad concept of ‘impact’ is left to later substantive Draft Articles.<sup>92</sup>

#### (d) Vital Human Needs

Vital human needs appear to be given greater importance in the Draft Articles than in the UNWC. On the one hand, population dependency is first on the list of factors relevant to equitable and reasonable utilization of aquifers (Draft Article 6.1.a).<sup>93</sup> On the other hand, and more importantly, the UNWC states in Article 10 that no use of an international watercourse enjoys inherent priority over other uses but, in the event of a conflict between uses, it shall be resolved with reference to Articles 5 to 7 - equitable and reasonable utilization and participation and the obligation not to cause significant harm - with special regard being given to the requirements of vital human needs. In turn, the Draft Articles contain a similar provision on vital human needs already in Draft Article 5, dealing with the factors relevant to equitable and reasonable utilization. Specifically, Draft Article 5.2 states that “in weighing

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<sup>91</sup> See Eckstein, 'Commentary on the U.N. International Law Commission's Draft Articles on the Law of Transboundary Aquifers', *supra* note 41, at 37.

<sup>92</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, *supra* note 96, at 66-67.

<sup>93</sup> However, we understand that the factors that determine equitable and reasonable utilisation are not listed in any specific order of importance.

different kinds of utilization of a transboundary aquifer or aquifer system, special regard shall be given to vital human needs”. That is to say, there is no need to wait for a conflict of uses to happen to give that special regard to vital human needs. Furthermore, Draft Article 17.3 – that does not have an equivalent at the UNWC – establishes that, where an emergency poses a threat to vital human needs, aquifer states, notwithstanding Draft Articles 4 and 6 (equitable and reasonable utilization and obligation not to cause significant harm), may take measures that are strictly necessary to meet such needs.

This enhanced consideration of vital human needs in the Draft Articles may be explained by the significant importance of groundwater – it is estimated that half of the world’s population drinking needs comes from groundwater<sup>94</sup> - as well as by the progressive development of a human right to water and sanitation in the international arena in the last few years, and in transboundary contexts.<sup>95</sup>

#### (e) General principles

Except for the already examined principle of the sovereignty of aquifer states, the Draft Articles broadly include the same substantive and procedural general principles that are present in the UNWC – equitable and reasonable utilization, the obligation not to cause significant harm, the general obligation to cooperate and regular exchange of data and information - although the principles are adapted to the particular features of transboundary aquifers.<sup>96</sup>

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<sup>94</sup> IGRAC, *Transboundary Aquifers of the World*, supra note 6.

<sup>95</sup> See, among others, K. Bourquain, *Freshwater Access from a Human Rights Perspective* (Leiden: Martinus Nijhoff, 2008); C. Leb, 'The Right to Water in a Transboundary Context: Emergence of Seminal Trends', 37(6) (2012) *Water International* 640; or A. Tanzi, 'Reducing the Gap between International Water Law and Human Rights Law: The UNECE Protocol on Water and Health', 12 (2010) *International Community Law Review* 267.

<sup>96</sup> Curiously, the Draft Articles also include a provision – Draft Article 9 – encouraging aquifer states to enter into bilateral and regional agreements and arrangements on particular transboundary aquifers in the part of the Draft Articles devoted to general principles.

Equitable and reasonable utilization in the Draft Articles differs in three main ways compared to the UNWC. First, Draft Article 4<sup>97</sup> does not expressly mention equitable and reasonable *participation*, which includes both the right to utilize the watercourses and the duty to cooperate in its protection and development. In turn, and according to the commentary to this Draft Article, equitable and reasonable participation would serve as an underlying guideline for those Draft Articles addressing international cooperation.<sup>98</sup> Second, sustainability is not mentioned in the provision, although it is referenced in the preamble and later in Draft Article 7 on the general obligation to cooperate. According to the commentary, the reason for this omission here was the debatable idea that groundwater, whether in recharging or non-recharging aquifers, is “more or less non-renewable, unless they are in artificially recharging aquifers”<sup>99</sup>. Accordingly, the aim must be to “maximize the long-term benefits derived from the use of water contained therein” (paragraph b).<sup>100</sup> Third, factors pertaining to the equitable and reasonable utilization in Draft Article 5<sup>101</sup> contain some minor adaptations to reflect the

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<sup>97</sup> Draft Article 4, on equitable and reasonable utilization, reads 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.

<sup>98</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, *supra* note 96, at 42-43.

<sup>99</sup> *Ibid.*, at 42.

<sup>100</sup> *Ibid.*

<sup>101</sup> Draft Article 5.1, devoted to the factors relevant to equitable and reasonable utilization, reads as follows:

1. Utilization of a transboundary aquifer or aquifer system in an equitable and reasonable manner within the meaning of Draft Article 4 requires taking into account all relevant factors, including:

natural features of transboundary aquifers,<sup>102</sup> include two new factors that are absent in the UNWC<sup>103</sup>, and appear in a different order than in the UNWC.<sup>104</sup>

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- (a) the population dependent on the aquifer or aquifer system in each aquifer State;
  - (b) the social, economic and other needs, present and future, of the aquifer States concerned;
  - (c) the natural characteristics of the aquifer or aquifer system;
  - (d) the contribution to the formation and recharge of the aquifer or aquifer system;
  - (e) the existing and potential utilization of the aquifer or aquifer system;
  - (f) the actual and potential effects of the utilization of the aquifer or aquifer system in one aquifer State on other aquifer States concerned;
  - (g) the availability of alternatives to a particular existing and planned utilization of the aquifer or aquifer system.

<sup>102</sup> The minor adaptations include the change of the term ‘use’ for the more comprehensive term ‘utilization’, for the same reasons mentioned in relation to the scope of the Draft Articles, see *supra* section C. III. (c). A second adaptation is the addition of a broad category of ‘other needs’ and the characteristic of ‘present and future’ to the factor dealing with the needs. Third, the Draft Articles refer to ‘natural characteristics’ of the aquifer instead of a specific enumeration of those characteristics as in Article 6.1 of the UNWC that refers to ‘geographic, hydrographic, hydrological, climatic, ecological and other natural factors’. This departure can be explained because it was considered that ‘factors of a natural character should be taken into account, not one by one, but as characteristics relevant to aquifers’. See [Report... A/63/10, supra note 96, at 44](#). The commentary to Draft Article 5 explains thereafter that

natural characteristics refer to the physical characteristics that define and distinguish a particular aquifer. If a system approach is followed, one can separate the natural characteristics into three categories: input variables, output variables and system variables. Input variables are related to groundwater recharge from precipitation, rivers and lakes. Output variables are related to groundwater discharge to springs and rivers. System variables relate to aquifer conductivity (permeability) and storability, which describe the state of the system. They are groundwater- level distribution and water characteristics such as temperature, hardness, pH (acidity and alkalinity), electro- conductivity and total dissolved solids. Together, the three categories of variables describe aquifer characteristics in terms of quantity, quality and dynamics.

For its part, Draft Article 5.2, the equivalent to Article 10 of the UNWC, states that the weight to be given to each factor is to be determined by its importance with regard to a specific transboundary aquifer in comparison with that of other relevant factors and all of them shall be considered together. However, special regard shall be given to vital human needs, which, as we have seen, appear to enjoy greater consideration than in the UNWC.<sup>105</sup>

The remaining general principles of the Draft Articles – the obligation not to cause significant harm, the general obligation to cooperate, and the obligation of a regular exchange of data and information – are rather similar to the equivalent provisions in the UNWC.

Thus, Draft Article 6, dealing with the obligation not to cause significant harm, is a provision similar to Article 7 of the UNWC, but with three significant differences: the significant harm may be caused not only by utilizing the transboundary aquifer, but also by undertaking activities other than its utilization; the significant harm may be caused not only to other aquifer states, but also to other states in whose territory a discharge zone is located, and no reference is made to a possible compensation. The ILC considered that the issue of compensation did not require special recognition in the Draft Articles since it is sufficiently covered by other rules of international law, such as the laws relating to state responsibility or to international liability for acts not prohibited by international law.<sup>106</sup>

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. Finally, when referring to the effects of the utilization of an aquifer, the Draft Articles specify that it refers both to the actual and potential ones (paragraph f).

<sup>103</sup> The two factors present in the Draft Articles and absent from the UNWC especially take into account the specific hydrogeological features of aquifers. On the one hand, the contribution to the formation and recharge of the aquifer (paragraph d), which ‘means the comparative size of the aquifer in each aquifer state and the comparative importance of the recharge process in each state where the recharge zone is located’, *ibid*, at 45. On the other hand, the role of the aquifer in the related ecosystem (paragraph i), which ‘signifies the variety of purposive functions that an aquifer has in a related ecosystem’ and may be particularly important in arid regions, *ibid*, at 45.

<sup>104</sup> For example, ‘population dependent on the aquifer’ is listed first in the Draft Articles.

<sup>105</sup> See *supra* section C.III. (d).

<sup>106</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, *supra* note 96, at 47. Those international legal instruments are the 2001 UNILC Draft Articles on responsibility of states for internationally wrongful acts (General Assembly Resolution 56/82 of 12 December 2001, A/RES/56/83); the 2001 ILC Draft Articles on Prevention of Transboundary Harm from Hazardous Activities (General Assembly Resolution 56/82 of 12

The general obligation to cooperate that is enshrined in Draft Article 7 has almost the same wording as Article 8 of the UNWC, including the recommendation of establishing joint mechanisms of cooperation. The Draft Articles simply add sustainable development to the criteria that must be considered in order to attain equitable and reasonable utilization and appropriate protection of the transboundary aquifers; other criteria include sovereign equality, territorial integrity, mutual benefit and good faith.

Finally, Draft Article 8 also has similar content to Article 9 of the UNWC when it obliges states to exchange readily available data and information on the condition of their transboundary aquifers, but it adds an emphasis on the geological information in paragraph 1. The provision requires States to employ their best efforts to comply with requests from another aquifer state for data and information that are not readily available (paragraph 3) and to employ their best efforts to collect and process data and information in a manner that facilitates their utilization by the other aquifer states (paragraph 4). Furthermore, Draft Article 8 adds a new paragraph (paragraph 2) that acknowledges the still insufficient data and information available on transboundary aquifers. In this case, “aquifer states concerned shall employ their best efforts to collect and generate more complete data and information relating to such aquifer or aquifer system, taking into account current practices and standards. They shall take such action individually or jointly and, where appropriate, together with or through international organizations”.<sup>107</sup>

(f) Protection, preservation and management

Part III of the Draft Articles contains similar provisions to Part IV of the UNWC, both dealing with protection, preservation and management. The Draft Articles adapt them to the special characteristics of transboundary aquifers, including a provision – not present in the UNWC – on the protection of recharge and discharge zones.<sup>108</sup>

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December 2001, A/RES/56/82) and the 2006 ILC Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities (General Assembly Resolution 61/36 of 4 December 2006, A/RES/61/36).

<sup>107</sup> Draft Article 8.2.

<sup>108</sup> Draft Article 11.

Draft Article 10 deals with the protection and preservation of ecosystems in a similar way to Article 20 of the UNWC. Additionally, it emphasizes the due diligence character of this obligation, its application to both the ecosystems located within or dependent on the transboundary aquifers, and the extension of the obligation “to measures to ensure that the quality and quantity of water retained in an aquifer or aquifer system, as well as that released through its discharge zones, are sufficient to protect and preserve such ecosystems”.<sup>109</sup> At the same time, the protection and preservation of the ecosystems in the recharge and discharge zones by non-aquifer states is addressed in Draft Article 11, paragraph 2.

In this regard, Draft Article 11 is devoted to recharge and discharge zones, and it establishes two different kinds of obligations depending on where those zones are located. If they are located in the territory of aquifer states<sup>110</sup>, the states are obligated to identify them and take appropriate measures to prevent and minimize detrimental impacts on those processes (paragraph 1). If the recharge and discharge areas are located in non-aquifer states, those states shall cooperate with the aquifer states to protect the aquifer and related ecosystems (paragraph 2). This last paragraph has been criticized because of the burden it imposes on non-aquifer states without recognizing any corresponding rights on the management of the aquifer.<sup>111</sup> Furthermore, as McCaffrey has pointed out “whether non-aquifer states would be parties to any instrument based on the Draft Articles is uncertain”.<sup>112</sup>

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<sup>109</sup> Draft Article 10.

<sup>110</sup> According to Draft Article 2.d), ‘aquifer State’ means “a State in whose territory any part of a transboundary aquifer or aquifer system is situated”. At the same time and according to Draft Article 2.a), an ‘aquifer’ means “a permeable water-bearing geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation”. Recharge and discharge zones are not included in that definition on an aquifer and, therefore, are not relevant in terms of the distinction between aquifer and non-aquifer states.

<sup>111</sup> See Study Group on the International Law Commission’s Draft Articles on the Law of Transboundary Aquifers, Final Study Group Report, 2008. According to this report, ‘this rule could impose significant burdens on a State without recognizing any corresponding rights in the burdened State. The burdened State would not even be entitled to a say in management decisions regarding the aquifer or aquifer system—decisions that will shape the duties on a State containing only a recharge or discharge zone. This seems untenable’. *Ibid*, at 4.

<sup>112</sup> See McCaffrey, ‘The International Law Commission Adopts Draft Articles on Transboundary Aquifers’, *supra* note 60, at 278.

Draft Article 12, on prevention, reduction and control of pollution is less detailed than Article 21 of the UNWC, which defines ‘pollution’ and encourages states to harmonize their policies in this matter and to arrive at mutually agreeable measures and methods to prevent, reduce and control pollution of an international watercourse. Draft Article 12 introduces a reference to the precautionary approach, which was also present in the 2004 ILA Berlin Rules on water resources.<sup>113</sup> In this respect, the precautionary principle plays an important role in transboundary water resources management due to the uncertainty surrounding this resource.<sup>114</sup>

Monitoring, a very important activity that needs to be carried out in relation to transboundary aquifers due to the lack of data and information on most aquifers of the world, is addressed in Draft Article 13. This provision does not have an equivalent in the UNWC and places a special emphasis on joint monitoring.<sup>115</sup> Furthermore, Draft Article 14 establishes two obligations. On the one hand, aquifer States shall establish and implement plans for the proper management of transboundary aquifers (paragraph 1). On the other hand, they shall, at the request of any of them, enter into consultations concerning the management of a transboundary aquifer and establish, when appropriate, a joint management mechanism. As we have examined, this is not the only provision emphasizing joint management. Draft Article 7 also encourages states to establish joint mechanisms of cooperation in the context of the general obligation to cooperate, and Draft Article 9 requires states to enter into bilateral or

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<sup>113</sup> Articles 23 and 38 of the 2004 ILA Berlin Rules on water resources.

<sup>114</sup> Movilla Pateiro, ‘Ad hoc legal mechanisms governing transboundary aquifers: current status and future prospects’, *supra* note 7, at 861.

<sup>115</sup> Draft Article 13, on monitoring, reads as follows:

1. Aquifer States shall monitor their transboundary aquifers or aquifer systems. They shall, wherever possible, carry out these monitoring activities jointly with other aquifer States concerned and, where appropriate, in collaboration with competent international organizations. Where monitoring activities cannot be carried out jointly, the aquifer States shall exchange the monitored data among themselves.
2. Aquifer States shall use agreed or harmonized standards and methodology for monitoring their transboundary aquifers or aquifer systems. They should identify key parameters that they will monitor based on an agreed conceptual model of the aquifers or aquifer systems. These parameters should include parameters on the condition of the aquifer or aquifer system as listed in draft article 8, paragraph 1, and also on the utilization of the aquifers or aquifer systems.

regional agreements or arrangements for the purpose of managing a particular transboundary aquifer.

Conversely, the Draft Articles do not contain provisions that are present in the UNWC relating to the introduction of alien or new species, protection and preservation of the marine environment, regulation of the flow, or installations.<sup>116</sup> This lack is mainly explained by the close connection of those provisions with the specific characteristics of surface water.

#### (g) Miscellaneous Provisions

Draft Article 16 imposes on states the obligation to promote scientific, educational, legal and other cooperation with developing states for the protection and management of transboundary aquifers.<sup>117</sup> An equivalent provision was absent in the UNWC. Its inclusion in the Draft Articles is justified by the fact that “new and rapidly developing scientific knowledge on this field is mainly owned by developed States and is not yet fully shared by many developing States”.<sup>118</sup>

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<sup>116</sup> Articles 22, 23 25 and 26 of the UNWC.

<sup>117</sup> Including, inter alia:

- (a) strengthening their capacity-building in scientific, technical and legal fields;
- (b) facilitating their participation in relevant international programmes;
- (c) supplying them with necessary equipment and facilities;
- (d) enhancing their capacity to manufacture such equipment;
- (e) providing advice on and developing facilities for research, monitoring, educational and other programmes;
- (f) providing advice on and developing facilities for minimizing the detrimental effects of major activities affecting their transboundary aquifer or aquifer system;
- (g) providing advice in the preparation of environmental impact assessments;
- (h) supporting the exchange of technical knowledge and experience among developing States with a view to strengthening cooperation among them in managing the transboundary aquifer or aquifer system.

<sup>118</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, *supra* note 96, at 69.

Similar to Article 28 of the UNWC, Draft Article 17 deals with emergency situations caused both by natural and human causes. The commentary to this Draft Article recognizes that emergencies related to aquifers might not be as frequent and destructive as in the case of watercourses. However, a provision in this regard was considered necessary in light of events such as the tsunami along the coast of the Indian Ocean in 2004 and the risk that a tsunami or cyclone could flood seawater into aquifers or that an earthquake could destroy an aquifer.<sup>119</sup> This provision contains, as the UNWC also does, a similar definition of emergency and the obligation to the states within whose territory the emergency originates of notifying it and of taking all practicable measures to prevent, mitigate and eliminate its harmful effects (paragraphs 1 and 2). However, it does not include a paragraph obliging states to jointly develop contingency plans for responding to emergencies, when necessary, as Article 24.4 of the UNWC provides. It includes a paragraph obliging states to provide scientific, technical, logistical and other cooperation to other states experiencing an emergency (paragraph 4).

Reflecting Article 29 of the UNWC, Draft Article 18 states that transboundary aquifers and related installations “shall enjoy the protection accorded by the principles and rules of international law applicable to international and non-international armed conflicts and shall not be used in violation of those principles and rules”. Draft Article 19 also includes a similar provision to Article 31 of the UNWC, which recalls that states are not obliged to provide data and information vital to its national defence of security. In any case, states shall cooperate in good faith.

(h) Missing provisions: dispute settlement and relationship with other existing legal instruments

There are two provisions present in the UNWC and absent from the Draft Articles: one on dispute settlement and another one on the relationship of the Draft Articles with other existing legal instruments. With regard to the settlement of disputes, the Republic of Korea suggested including a provision in this regard if the text were to take the form of a Convention.<sup>120</sup> However, the Special Rapporteur suggested leaving this matter to a

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<sup>119</sup> Ibid, at 73.

<sup>120</sup> Republic of Korea, written comment, 26 March 2008, UN Doc. A/CN.4/595 and Add.1 (see supra note 6), sect.W.5, at para. 1.

hypothetical negotiating conference together with the preamble and final clauses. It was also suggested that the dispute settlement provision could be a rather brief statement of principles, because “the disputes which are likely to arise in real life would mainly relate to the interpretation and application of the provisions of a bilateral or regional agreement concerning a specific aquifer”.<sup>121</sup>

The second provision that is missing is the one that deals with the relationship of the Draft Articles with other existing legal instruments. A Draft Article 20 on “the relation to other conventions and international agreements” was initially proposed by the Special Rapporteur in the case the Draft Articles became a convention.<sup>122</sup> The drafting committee decided to omit that provision in the text adopted in second reading. The provision was considered premature taking into account the two-step approach that was taken<sup>123</sup>, as it was concerned with questions of the final form of the Draft Articles, and raised a wide range of policy considerations that were best left to future negotiating parties to resolve.<sup>124</sup> What the Draft Articles do include is Article 9, which encourages aquifer states to develop an agreement or arrangement on the aquifers they share. General Assembly resolution 63/124, which annexes the Draft Articles, encouraged the states “to make appropriate bilateral or regional

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<sup>121</sup> ILC, ‘Fifth Report on Shared Natural Resources: Transboundary Aquifers, by Mr. Chusei Yamada, Special Rapporteur’, 21 February 2008, UN Doc. A/CN.4/591, at para. 41.

<sup>122</sup> It reads as follows:

Article 20

Relation to other conventions and international agreements

1. The present draft articles shall not alter the rights and obligations of the States parties which arise from other conventions and international agreements compatible with the present draft articles and which do not affect the enjoyment by other States parties of their rights or the performance of their obligations under the present draft articles.

2. Notwithstanding the provisions of paragraph 1, when the States parties to the present draft articles are parties also to the Convention on the Law of the Non-navigational Uses of International Watercourses, the provisions of the latter concerning transboundary aquifers or aquifer systems apply only to the extent that they are compatible with those of the present draft articles.

<sup>123</sup> The two-step approach refers to the decision to adopt first a set of draft articles and postpone the decision on a possible convention.

<sup>124</sup> Report of the International Law Commission on the work of its sixtieth session, 5 May-6 June and 7 July-8 August 2008, supra note 96,, at para. 39-45.

arrangements for the proper management of their transboundary aquifers, taking into account the provisions of these Draft Articles".<sup>125</sup> This call was repeated in 2011,<sup>126</sup> 2013<sup>127</sup> and 2016,<sup>128</sup> but in the last two resolutions the United Nations General Assembly encouraged countries not only to take into account the Draft Articles, but to consider them as 'guidance', hence giving the Draft Articles higher normative status.<sup>129</sup> Despite the wording of the various resolutions of the United Nations General Assembly, so far very few agreements and arrangements on specific transboundary aquifers have been developed from 2008 to 2016.<sup>130</sup>

Having seen how the Draft Articles and the UNWC align or depart from each other, we now move on to discuss whether, and if so how, they can be read and used together when it comes to managing a transboundary aquifer.

#### **D. The UN Watercourses Convention and the Law of Transboundary Aquifers: A Normative Package?**

This chapter so far has clarified that the UNWC and the Draft Articles can potentially cover the same transboundary natural resource: recharging transboundary aquifers.<sup>131</sup> Hence, there is the possibility that two different international legal instruments may provide what may seem conflicting rules on the same topic. We have already argued that this is not properly the case when analysing the relationship between the UNWC and the Draft Articles, despite the contested issue of sovereignty. But the fact remains that states with a transboundary aquifer

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<sup>125</sup> General Assembly Resolution 63/124 of 11 December 2008, para 5, UN Doc. A/RES/63/124.

<sup>126</sup> General Assembly Resolution 66/104 of 13 January 2012, UN Doc. A/RES/66/104.

<sup>127</sup> General Assembly Resolution 68/118 of 16 December 2013, UN Doc. A/RES/68/118.

<sup>128</sup> Draft Resolution on the Law of Transboundary Aquifers, 4 November 2016, UN Doc. A/C.6/71/L.22.

<sup>129</sup> See Eckstein and Sindico, 'The Law of Transboundary Aquifers: Many Ways of Going Forward, but Only One Way of Standing Still', supra note 44.

<sup>130</sup> See Movilla Pateiro, 'Ad hoc legal mechanisms governing transboundary aquifers: current status and future prospects', supra note 7.

<sup>131</sup> If one considers the 1994 ILC Resolution on Confined Groundwater, the UNWC's applicability could be extended to all transboundary aquifers; see supra section B.I.(b).

can be faced with two different international legal instruments. Is this a unique feature of the law of transboundary water resources or is it inherent to international law? And, if so, how can international law promote harmony and mutual supportiveness between two different legal instruments?

International law has evolved dramatically over the past decades. Rules now exist for almost any inter-state relationship, as well as increasingly for the relationships between states and non-state actors. It is not surprising that in some cases rules may diverge, especially when the objectives of the overarching regimes are different, such as environmental protection and promotion of foreign direct investment. The ILC has worked on this topic for several years and reached a conclusion in 2006:

It is a generally accepted principle that when several norms bear on a single issue they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations<sup>132</sup>.

Hence, *interpretation* becomes the key. In the case of the interplay between the UNWC and the Draft Articles, interpretation of their separate provisions will determine whether the two international legal instruments can co-exist. While we have seen that the Draft Articles do not have an ad hoc conflict clause that clarifies the relationship with other existing international agreements,<sup>133</sup> the overall framework of both instruments tend to point in the same direction.

Once the UNWC entered into force, Tanzi undertook an interesting study on the relationship between the UNWC itself and the UNECE Water Convention, providing a compelling argument that the two could and should be interpreted in a mutually supportive manner.<sup>134</sup> In his study Tanzi argued that, by applying the so called principle of harmonisation, the UNWC

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<sup>132</sup> ILC, 'Conclusions of the work of the Study Group on the Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law' II(2) *YBILC* (2006), at chap. XII, at para. 1.4.

<sup>133</sup> See supra section. C.III (h).

<sup>134</sup> 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*, UNECE Water Series No. 6, 2015, Doc. ECE/MP.WAT/42.

and the UNECE Water Convention created “a single set of compatible obligations”.<sup>135</sup> It is this technique of interpretation that we posit should also be used in the context of the interplay between the UNWC and the Draft Articles. When other techniques of treaty interpretation, such as reference to conflict clauses or the application of the *lex posterior* or *lex special* rules, fail or do not lead to optimal solutions, referring to the principle of harmonisation allows states with transboundary aquifers to consider provisions in the UNWC and the Draft Articles as whole. As Tanzi mentions in relation to the UNWC and the UNECE Water Convention, such harmonization arises “where one norm assists in the interpretation of another ... for example as an application, clarification, updating, or modification of the latter. In such situation, both norms are applied in conjunction”.<sup>136</sup>

The interplay of the UNWC and the Draft Articles leads to what can be called a *normative package*. The latter, rather than an element of confusion and legal uncertainty, should be perceived as a tool in the hands of states, strengthening the law of transboundary aquifers and enhancing transboundary water cooperation. A *package* approach is also used by Rieu-Clarke and Kinna when assessing the interaction between the UNWC and the UNECE Water Convention.<sup>137</sup> The authors argue in favour not only of a joint interpretation of the two legal instruments, along the lines Tanzi suggests, but they also consider their possible joint implementation by means of joint institutional mechanisms. While the institutional aspects of joint implementation of the UNWC and of the Draft Articles have not been dealt with in this chapter, we believe in the benefits of considering their relationship as a *normative package*.

The interplay between the two main legal instruments at stake (the UNWC and the Draft Articles) should be seen as an opportunity, rather than a challenge, for transboundary water cooperation. We argue that the Draft Articles and the UNWC constitute a cohesive, normative package available to states that share a transboundary aquifer. This normative package is not only limited to the UNWC and the Draft Articles, but also encompasses other

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<sup>135</sup> Ibid, at 11.

<sup>136</sup> Ibid.

<sup>137</sup> A. Rieu-Clarke and R. Kinna, ‘Can Two Global UN Water Conventions Effectively Co-exist? Making the Case for a ‘Package Approach’ to Support Institutional Coordination’, 23(1) (2014) *Review of European, Comparative & International Environmental Law* 15.

water and non-water related international legal instruments<sup>138</sup>, including and especially the UNECE Water Convention.

In conclusion, transboundary aquifers are a vital resource for humanity and the planet. However, its international legal status is still in a nascent stage and state practice remains limited. Both the UNWC and the Draft Articles are part of this imperfect and undeveloped international legal regime.

Albeit after some time, groundwater was present during the debates towards the UNWC at the ILC. Ultimately, groundwater that constitutes a unitary whole together with surface water and normally flows into a common terminus was incorporated into the definition of an international watercourse. However, aware of the limitations of the scope of the UNWC regarding groundwater, a resolution on ‘confined groundwater’ was also adopted in 1994. This resolution recommended states, among other actors, to be guided by the principles

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<sup>138</sup> The UNECE Water Convention became a global instrument when it was amended in 2003 to allow accession by countries outside the UNECE region (Decision III/1, *Amendment to the Water Convention*, ECOSOC, EC/MP.WAT/12, January 2004). The amendment entered into force on 6 February 2013. See UNECE, *The Global Opening of the 1992 Water Convention* (New York and Geneva: United Nations, 2013). The UNECE Water Convention applies both to transboundary surface and ground water (art. 1.1). Moreover, in 2009, the Meeting of the Parties (MoP) to the convention mandated its Legal Board and the Working Group on Integrated Water Resources Management to prepare a preliminary study on the application of the principles of the Convention to transboundary groundwaters. A Core Group on Groundwater was then established to develop a set of model provisions on transboundary groundwaters on the basis of a draft prepared by the Chair and the Vice-Chair of the Legal Board. Finally, the MoP, at its sixth session, held in Rome, Italy, in 2012, adopted the Model Provisions on Transboundary Groundwaters and their commentary and invited Parties to the Convention and other States to use them when entering into or reviewing bilateral or multilateral agreements or arrangements on transboundary groundwaters. See UNECE, *Model Provisions on Transboundary Groundwaters* (New York and Geneva: United Nations, 2014) and A. Tanzi and A. Kolliopoulos, ‘The International Water Law Process and Transboundary Groundwater: Supplementing the Water Convention with the 2012 UNECE Model Provisions’, in A. Tanzi, O. McIntyre, A. Kolliopoulos, A. Rieu-Clarke and R. Kinna (eds.), *The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes: Its Contribution to International Water Cooperation* (Leiden: Brill/Nijhoff, 2015).

contained in UNWC when regulating transboundary groundwater. Still, the international community realized that transboundary aquifers needed more attention and in only six years and on the basis of the UNWC, the ILC in 2008 adopted a set of Draft Articles on the law of transboundary aquifers. Although this text is far from perfect, it contains an all-encompassing definition of a transboundary aquifer that appears to be able to capture both recharging and non-recharging transboundary aquifers. Therefore, both the UNWC and the Draft Articles could apply in the case of recharging transboundary aquifers.

Most of the provisions of the UNWC and the Draft Articles follow a similar pattern whereby the use of the transboundary natural resource is allowed, but only in an equitable and reasonable manner and in a way that does not lead to significant harm. Dispositions on general cooperation, regular exchange of data and information or protection, preservation and management are also included in both texts, although those included in the Draft Articles are necessarily tailored to the specific hydrogeological nature of transboundary aquifers. Nevertheless, relevant points of departure can also be found between both international legal instruments. Differences relate mainly to the inclusion of the sovereignty of the aquifer states as a general principle in the Draft Articles, less detailed procedural obligations when it comes to planned measures compared to the UNWC, its broader scope regarding activities covered, or the greater significance given to vital human needs. Further, two provisions are missing in the Draft Articles in comparison with the UNWC: one dealing dispute settlement and another dealing with the relationship to other existing legal instruments.

Hence, there is the possibility that these two different international legal instruments may provide apparently conflicting rules on the same topic. However, if interpreted in a mutually supportive way as a coherent normative package, the Draft Articles and the UNWC can, in our opinion, enhance and enrich the governance of transboundary aquifers.

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