

# Water Rights in the West Bank and in Gaza

BIRGIT SCHLÜTTER\*

---

## Abstract

With the launch of the UN International Decade for Water on 22 March 2005, awareness is raised in the international community of the growing demand and scarcity of water for people throughout the world. Water is a particularly scarce resource in both Israel and the Palestinian Territories. The use of the water resources of the West Bank and Gaza has been part and parcel of the Israeli–Palestinian peace negotiations. With the beginning of new peace negotiations under Palestinian President Mahmud Abbas, the topic of water and its allocation to Palestinians and Israelis is back on the negotiation table. The present article will point to the water crisis in Israel and the Palestinian Territories and analyse core provisions of international law which govern the use of water resources. Finally, it will outline how an allocation of water rights according to principles of international law could take place.

## Key words

Israeli–Palestinian conflict; Oslo peace agreements; human right to water; international water law; international groundwater law

## I. INTRODUCTION

Fresh water and access to it play an important role in the Israeli–Palestinian conflict.<sup>1</sup> The Middle East region is arid and water resources are scarce. Groundwater is one of the main fresh water sources for both Israel and the Palestinian Territories.<sup>2</sup> Surface waters contribute only 30% to the total supply of fresh water consumed in the region.<sup>3</sup> There are two groundwater reservoirs, from which fresh water consumed by Israelis and Palestinians is withdrawn: the Mountain Aquifer is a groundwater reservoir which lies under parts of Israel and the West Bank;<sup>4</sup> the Coastal Aquifer lies under the Gaza Strip and parts of the Israeli coastline. Both resources are shared between Palestine and Israel and utilization of fresh water extracted from them is at the heart of the ongoing peace negotiations between the two peoples.

Yet, accessibility, availability and quality<sup>5</sup> of fresh water in Israel differ significantly from the standards in the Palestinian Territories.<sup>6</sup> Whereas generally an

---

\*. LL. M. (London), Ph.D. candidate (Humboldt-University Berlin).

1. See J. Dillman, 'Water Rights in the Occupied Territories', (1989) 19 *J. Pal. St.* 48 et seq.

2. FAO, *Report of the Food Security Assessment, West Bank and Gaza Strip*, 107; at <ftp://ftp.fao.org/docrep/fao/006/j1575e/j1575e04.pdf>.

3. 'Core Issues of the Palestinian–Israeli Water Dispute', at <http://www.nad-plo.org/hwater.php>, 2.

4. Israel withdraws one third of the water it consumes from the Mountain Aquifer.

5. Cf. Committee on Social, Economic and Cultural Rights (CESCR), *General Comment No. 15: The Human Right to Water*, UN Doc. E/C.12/2002/11 (26.1.2002), at 5, 6.

6. Cf. E. Hey and A. Nollkaemper, 'The Second International Water Tribunal', (1992) 22 *Environmental Policy and Law* 84.

advanced infrastructure allows Israel and its settlements to be supplied with good quality fresh water, Palestinians in the Territories face severe water problems. Most notable there have been drastic water shortages since the outbreak of the second Intifada in September 2000.<sup>7</sup>

Recent developments in the Israeli–Palestinian conflict give rise to concerns that the matter may not be solved very soon. No new regulations concerning the use of fresh water have been adopted since the outbreak of the second Intifada. Also vital projects on water and environmental matters for which agreements<sup>8</sup> had already been concluded by Palestinian and Israeli authorities could not progress. Moreover, as confirmed most recently by the International Court of Justice (ICJ) in its *Advisory Opinion on the Construction of a Wall in the Occupied Palestinian Territories*,<sup>9</sup> the Israeli construction of a security fence around the West Bank has on occasion cut off the access of Palestinian villages to wells and water reservoirs.<sup>10</sup> Although the supply of the population with fresh water is secured by tanker carriages, compared with tap water it is more expensive and imposes an additional economic burden on most of the Palestinians living in the affected areas.<sup>11</sup>

This article will concentrate on an assessment of the water crisis from a human rights and environmental law point of view. This choice has been made because international humanitarian law barely deals with the use of water resources shared between the conflict parties.<sup>12</sup> Furthermore, implications of international humanitarian law – also in relation to water rights – have most recently been assessed by the ICJ in the *Wall* case and have been the subject of discussion in literature.<sup>13</sup>

As groundwater is the main fresh water resource for both the West Bank and Gaza, this article will focus on the rights, duties and obligations arising out of the use and management of this resource shared with Israel. The introductory section will briefly outline the development of the Israeli–Palestinian peace process and the most virulent water problems which have arisen in this region. The main part of

- 
7. B'Tselem, *Disputed Waters* (1998), at <http://www.btselem.org>; B'Tselem, *Thirsty for a solution* (2000), 59; S. Elmusa, 'Dividing Common Resources According to International Water Law', (1995) 35 *Nat. Res. J.* 227–9; International Committee of the Red Cross (ICRC), 'Annual Report on Israel and the Occupied Territories', 4 at <http://www.icrc.org>.
  8. Israeli–Palestine Interim Agreement on the West Bank and the Gaza Strip (28.09.1995), (Oslo II), Annex III, Art. 40, at <http://www.mfa.gov.il/mfa/peace%20process/reference%20documents/>.
  9. ICJ, Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory, Advisory Opinion, 9 July 2004, at <http://www.icj-cij.org>, para. 133.
  10. ICRC, Press Release 18.02.04, 04/12 at <http://www.icrc.org>; CESCRC, 'Water in the Occupied Palestinian Territories', at <http://CESCR.org/PROGRAMS/waterpalestine.htm>; Mission to the Humanitarian and Emergency Policy Group (HEPG) of the Local Aid and Coordination Committee (LACC), 'Impact of Israel's Separation barrier', Annex III, 1050 et seq., in *Dossier, Materials compiled pursuant to Art. 65 Paragraph 2 of the Statute of ICJ*, (2004) at <http://www.icj-cij.org>; Commission on Human Rights, *The right to food, Report by Special Rapporteur Jan Ziegler, Addendum, Mission to the Occupied Palestinian Territories*, E/CN.4/2004/10/Add.2, 31 October 2003, paras. 14, 15, 51.
  11. Mission to the HEPG, *supra* note 10, at 1056 and 1057; Commission on Human Rights, *supra* note 10, para. 14. Cf. FAO, *supra* note 2, at 120.
  12. Articles 46, 52, 53, 55 of the 1907 Hague Convention IV Respecting the Customs of War on Land chiefly deal with the utilization of property, the same is true for the rules of the 1949 Fourth Geneva Convention (Arts. 53, 55, 56).
  13. Cf. A. Cassese, 'Powers and Duties of an Occupant in Relation to Land and Natural Resources', in E. Playfair (ed.), *International Law and the Administration of Occupied Territories* (1992), 419 et seq.; H. Dichter, 'Israel's Water Policies in the Occupied Territories', (1994) 35 *Harv. JIL* 565; Dillman, *supra* note 1, at 48.

the article will analyse the human right to water and consider the international law governing shared groundwater resources. Finally, the article will assess the implications international law provides for an allocation of water rights between Israelis and Palestinians and, to this extent, point to criteria which any forthcoming peace negotiations will have to take into account.

## 2. SETTING THE SCENE: PEACE PROCESS AND WATER ISSUES

Since 1991, peace negotiations between the Israeli government and the Palestinian leadership endeavoured to arrive at a final settlement on the conflict between the two. They have produced important peace agreements which contain provisions that attempt to regulate the water conflict between Israelis and Palestinians. These agreements will be discussed in the following section with a short overview of the Israeli–Palestinian peace process.

### 2.1. The Israel–Palestinian peace process

The peace process began with the 1991 Madrid Peace Conference which sought to establish a framework for peace negotiations in the Middle East. Following this conference Israel started negotiations with its Arab neighbours and the Palestinian leadership.<sup>14</sup>

An important milestone on the road towards peace was laid on 13 September 1993 in Oslo with the signing of the Declaration of Principles on Self-Government Arrangements (Oslo I) by Israel and the Palestinian Liberation Organization (PLO).<sup>15</sup> In further agreements, such as the Gaza–Jericho Agreement and the Israeli–Palestinian Interim Agreement on the West Bank and the Gaza Strip (Oslo II), Israel and the PLO agreed upon the territorial dimension of the peace accords and upon the step-by-step withdrawal of Israeli military forces from the Occupied Territories as from 1999.<sup>16</sup>

Despite the progress made under the Oslo negotiations, violence was perpetrated by both Palestinians and Israelis. This put a halt to the peace process until 1998 and 1999 when the Wye Agreements on the withdrawal of Israeli military forces from their bases in the Palestinian Territories and its implementation (Wye I and II) were concluded.<sup>17</sup> However, in Wye II the parties could only agree on issues such as the release of prisoners and to follow the obligations which had been laid down in Wye I. Therefore, Oslo II constitutes the main peace agreement between Israelis and Palestinians because other subsequent agreements merely built upon the obligations formulated therein.<sup>18</sup> In 2000 US President Bill Clinton initiated further multilateral

14. Cf. Peace treaty with Jordan, 26 October 1994, at <http://www.mfa.gov.il/mfa/peace%20process/reference%20documents/>.

15. (1993) 32 ILM 1525.

16. Gaza–Jericho Agreement (4 May 1994), Oslo II (28 September 1995). Additional agreements: 1994 Cairo Agreement on the Gaza Strip and the Jericho Area (4 May 1994), 1994 Washington Declaration (25 July 1994), Agreement on Preparatory Transfer of Powers and Responsibilities Between Israel and the PLO (29 August 1994), 1997 Protocol on Redeployment in Hebron (15 January 1997), all at <http://www.mfa.gov.il/mfa/peace%20process/reference%20documents/>.

17. Wye Memorandum (Wye I, 23 August 1998) and Sharm-el-Sheik-Memorandum (Wye II, 4 September 1999), all at <http://www.mfa.gov.il/mfa/peace%20process/reference%20documents/>.

18. Wye I, para. 1; Wye II, para. 4 (c).

negotiations in Camp David which should have led to a comprehensive agreement for a termination of the Israeli–Palestinian conflict. Yet this attempt did not succeed.

Frustrations about the lack of progress in the peace process as well as increasing repercussions imposed by Israel on the Palestinian population contributed to the outbreak of the second Intifada, which continues to the present day. From 2000 on various attempts have been made to continue the peace negotiations between the parties.<sup>19</sup> One major international effort to resolve the conflict was the ‘Road Map to Peace’ presented by the so called Middle East Quartet (the US, the EU, the Russian Federation and the UN) on 30 April 2003. This envisaged a three-year plan towards a two-state solution.<sup>20</sup> Yet this endeavour by the international community seems not to have been pursued any further.

Now, after his election as the new President of the Palestinian Authority (PA) on 9 January 2005, Mahmud Abbas has announced the resumption of peace negotiations.<sup>21</sup> However, the success of this attempt to advance peace negotiations still has to be awaited.

## 2.2. Water in the Palestinian Territories

### 2.2.1. Water resources in the Territories

Groundwater constitutes the principal fresh water resource for the Palestinian population in the Territories. In the West Bank, Palestinians do not have access to any form of surface water except to a few seasonal or perennial streams fed by springs.<sup>22</sup> Since Israel established a security zone along the river Jordan, after the conclusion of the peace treaty with Jordan, the river is no longer available as a water resource to the Palestinians in the West Bank.<sup>23</sup> Thus, the Mountain Aquifer provides virtually the entire source of fresh water for the Palestinian population living there.<sup>24</sup>

The Mountain Aquifer is a water resource shared between Palestinians and Israelis and extends from Mount Carmel in the north to the north-west tip of the Negev in the south and from the Jordan Valley in the east to Israel’s coastal strip in the west. It is divided into three sub-aquifers; the Western Aquifer, which is the largest and most utilized of the three, and the Northern and Eastern Aquifers.<sup>25</sup> The geology of the Mountain Aquifer is formed of a highly permeable area around the top of the mountain ridge. Further downstream the water of the aquifer is trapped below an impermeable upper layer.<sup>26</sup> In general, precipitation in the mountains is the

19. Cf. Report of Fact-Finding Committee, established after the Sharm-el-Sheik Summit, October 2000 (Mitchell Report), of 30 April 2001; Saudi-Initiative (28 March 2002); Nusseibeh-Ayalon (3 September 2003); Geneva Draft Accord (1 December 2003); all at <http://www.nad-plo.org>.

20. UN SC Res. 1515 of 19.11.03, UN Doc. S/RES/1515 (2003); S/2003/529, 07.05.2003.

21. ‘Peace talks will start after election’, CBC News, 6 January 2005, at <http://www.cbc.ca/story/world/national/2005/01/06/abbas-sharon050106.html>.

22. UNEP, *Environment in the Occupied Territories* (2003), 31, at <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=67&ArticleID=3273&l=en>.

23. MfA, *Statement on the River Jordan Valley* at <http://www.mfa.gov.il>.

24. E. Feitelson and M. Haddad, *Management of Joint Groundwater Resources*, World Bank Paper No. 415 (1998), 1.

25. Cf. Y Harpaz et al., ‘Overview of the Mountain Aquifer’, in E. Feitelson and M. Haddad, *Management of Shared Groundwater Resources* (2001), 43 et seq.

26. B’Telem, *Thirsty*, *supra* note 7, at 19; UNEP, *supra* note 22, at 32; Harpaz et al., *supra* note 25, at 48; Y. Kahane, ‘The Turonian-Cenomanian Aquifer’, in E. Feitelson and M. Haddad, *supra* note 25, at 28, 92.

primary source of the Mountain Aquifer's natural replenishment.<sup>27</sup> The mountain range constitutes the major recharge area of the aquifer, while the storage area lies in its confined parts. In the case of the Western Aquifer, these lie entirely within Israeli territory.

In the Gaza Strip a certain amount of fresh water is supplied by desalination plants, collected rainwater, and springs. However, groundwater extracted from the Coastal Aquifer is Gaza's predominant source of fresh water. The aquifer stretches along the Mediterranean coastal strip in Israel and in Gaza, from the foothills of Mount Carmel in the north to Rafah in the south. This also constitutes a shared resource between Israel and Palestine.<sup>28</sup> The recharge area lies in Israel but runs alongside the border of Gaza.<sup>29</sup> Nonetheless, the Coastal Aquifer distribution of recharge and consumption areas is not as clearly defined as that of the Mountain Aquifer.<sup>30</sup>

### 2.2.2. *The water problem in the Territories*

Multiple problems have arisen regarding accessibility, availability and quality of fresh water from the groundwater resources in the Palestinian Territories. Comparing Israeli and Palestinian water use, there is a huge gap in consumption. Statistics show that 26 cubic metres per person per year are being used for domestic and urban use in the Palestinian Territories. This is in comparison to the 103 cubic metres per person per year that is used in Israel and the settlements.<sup>31</sup> Moreover, when comparing the water consumption of the Palestinians with other people that have a similar living standard, there should be a greater demand for fresh water in the Territories.<sup>32</sup>

The water quality in the Territories has deteriorated and continues to do so due to insufficient sewage treatment, increasing salinization, and pollution. The sewage treatment system in the West Bank is insufficient.<sup>33</sup> In Gaza, there are scarcely any water treatment facilities.<sup>34</sup> Leakages due to a crumbling infrastructure cause water losses of around 25% in the West Bank and up to 40% in Gaza. Furthermore, the Coastal Aquifer especially has been recently overexploited. This has led to a lowering of the groundwater table and to an increased intrusion of sea and brackish water into the aquifer. The United Nations Environmental Programme (UNEP) estimates that the groundwater system in Gaza will not be fit for human consumption in 20 years' time if use and pollution of the aquifer continues at its current rate.<sup>35</sup>

Finally, Palestinians do not administer the water resources used in the Territories for domestic consumption. There are only limited responsibilities regarding water resources management that have been transferred to the Palestinian administration

27. Harpaz et al., *supra* note 25, at 44.

28. This seems, however, to be contested by the Israeli side, cf. N. Kliot, *Water resources and conflict in the Middle East* (1994), 245.

29. T. Homer-Dixon, 'Environmental Scarcity and Violent Conflict. The case of Gaza', part 1, 5 at <http://www.library.utoronto.ca/pcs/eps/gaza/gaza1.htm>.

30. W. Dellapena, 'Transnational Aquifers', in Feitelson and Haddad, *supra* note 25, at 253 with further references.

31. The figures vary, cf. Elmusa, *supra* note 7, at 228.

32. B'Tselem, *supra* note 7, at 39.

33. UNEP, *supra* note 22, at 52.

34. *Ibid.*, at 27, 44 et seq.

35. *Ibid.*, at 39; E. Feitelson and M. Haddad, 'The Management of Shared Aquifers', in Feitelson and Haddad, *supra* note 25, at 6.

in the Oslo Accords. This issue will be addressed in more detail in the section pertaining to the Oslo agreements.<sup>36</sup>

### 3. INTERNATIONAL REGULATION OF THE UTILIZATION OF WATER RESOURCES IN THE PALESTINIAN TERRITORIES

#### 3.1. Water issues in the peace negotiations

Water issues have been a major part of various Israeli–Palestinian peace agreements and have been dealt with to some extent in the Oslo I agreement and in even greater detail in Oslo II. Additionally, the 2003 Road Map addresses the water issue. It recommends that there be an international conference leading towards a ‘comprehensive Middle East Peace’ which includes multilateral engagement on issues ‘including regional water resources’.<sup>37</sup> The Oslo Accords will now be examined in more detail as they have been the key instruments regulating the water question in the conflict.

##### 3.1.1. *The Oslo agreements as binding agreements under international law*

Despite some dispute about the binding legal character of the Oslo agreements, the agreements can be held to confer binding obligations both upon the PLO and the PA and upon Israel under international law.

First, the PLO, as the internationally recognized representative of the Palestinian people,<sup>38</sup> had the capacity to negotiate and sign the Oslo agreements under international law. Secondly, the Oslo agreements transfer powers of self-government to the Palestinians, thereby recognizing the legal personality of the PA under international law.<sup>39</sup> Though the PA still possesses a limited legal capacity due to limited areas of self-government transferred upon it within the Oslo framework, it can be subject to obligations under international law. Thirdly, the Oslo agreements can be classified as an international agreement. They are, to begin with, drafted very much like a treaty under international law. They name particular obligations of the parties, which indicate that they intended to be bound by it.<sup>40</sup> In addition, the agreements determine a date upon which they shall ‘enter into force’<sup>41</sup>. Nonetheless, despite these indications, the Oslo accords cannot be regarded as a treaty in light of the Vienna Convention on the Law of Treaties of 1969 (VCT). The VCT defines treaties as binding international agreements between states.<sup>42</sup> The PLO, however, cannot be regarded as the government of a Palestinian state.

Nevertheless, the VCT acknowledges the conclusion of international documents other than treaties. Article 3 provides that the convention ‘... shall not affect ... the

36. *Infra*, at 3.1.2.

37. Road Map, UN Doc. S/2003/529 07.05.2003, 7.

38. A. Friedlander, ‘The PLO and the Rule of Law’, (1981) *Denv. JIL & P.* 232; F. L. van de Craen, ‘The Palestinian Liberation Organization’, in R. Bernhardt (ed.), *EPIL*, Vol. 4, 871. Cf. UNGA Res. 3236 (XXIX) of 22 November 1974; A. Kassim, ‘PLO claim to Status’, (1980), *Denv. JIL & P.* 1 et seq.

39. M. Tabory, ‘The Legal Personality of the Palestinian Autonomy’, in A. Shapira and M. Tabory, *New Political Entities in International Law* (1999), 139, 152.

40. Oslo II, Art. 40 (a).

41. Oslo I, Art. XVII (1) (‘one month after signing’), Oslo II, Art. XXXI (1) (‘on the date of signing’).

42. Art. 2 (a).

legal force of such agreements . . .'. Oslo II, for example, incorporates obligations of the parties under international law, such as the water issue<sup>43</sup> or the adherence of the parties to international human rights norms.<sup>44</sup> Furthermore, the peace agreements have been concluded between entities recognized under international law, here the PLO and the Israeli state. They thus have to be categorized as international agreements under VCT, Article 3,<sup>45</sup> imposing binding international legal obligations upon the PLO, Israel and the PA.<sup>46</sup>

### 3.1.2. *Material water regulations of the Oslo agreements*

The Oslo I agreement dealt with the water issue only very generally. Nevertheless, it affirmed some important principles of international water law which shall govern any solution of the question between Palestinians and Israelis. Oslo I stresses the principle of co-operation 'in the field of water' and refers to the principle of equitable utilization of joint water resources for implementation in and beyond the interim period.<sup>47</sup> Further, it called for an environment protection plan and the need for its joint or co-ordinated implementation.<sup>48</sup> Yet the agreement is unpleasantly vague and points neither at the water resources to which the stated principles shall apply nor at any concrete solution of the water question. Nevertheless, due to its general wording it is assumed that the agreement was intended to apply also to the aquifers shared by the two national communities.<sup>49</sup>

Oslo II provides for a detailed framework on the transfer of authority from the Israeli to the Palestinian administration and deals in depth with the water issue and with environmental matters, including pollution control, waste treatment<sup>50</sup> and the exploitation and treatment of natural resources.<sup>51</sup> Regarding the transfer of self-governing authority, the agreement established three territorial zones (A to C) in the West Bank. There the responsibilities of the PA increase and those of the Israelis diminish accordingly. In A-areas, Palestinian authorities enjoy responsibility for public order and internal security, whereas in B-areas, they have responsibility for public order only. In C-areas, Israeli authorities still maintain exclusive control.<sup>52</sup> Accordingly, the parties in Annex I to the agreement agreed to prevent harm to the water infrastructure while carrying out security responsibilities in their respective areas.<sup>53</sup>

Article 40 of Annex III then deals in great detail with water issues. It is a major achievement regarding the future treatment and utilization of the shared water resources. The parties could agree upon the application of major principles of international water law such as the principle of sustainable use, the duty to prevent harm

43. Annex III, Art. 40.

44. Gaza-Jericho Agreement, Art. XIV.

45. G. Watson, *The Oslo Accords* (2000), 72, 101; van de Craen, *supra* note 38, at 868.

46. Watson, *supra* note 38, at 72, 101; van de Craen, *supra* note 38, at 868.

47. Oslo I, Annex III, para. 1.

48. *Ibid.*, para. 10.

49. Dellapena, *supra* note 30, at 254; cf. also Watson, *supra* note 45, at 303.

50. Oslo II, Annex III, Art. 12 (b) (5).

51. *Ibid.*, Art. 12 (b) (3).

52. *Ibid.*, Annex III, Art. 12 (A).

53. *Ibid.*, Annex I, Art. II (3) (d).

to water resources and systems, and the duty to co-ordinate efforts of water management.<sup>54</sup> Israel also expressly respected Palestinian water rights in the West Bank and accepted an increase in the supply of fresh water to the Palestinians in the West Bank by 28.6%.<sup>55</sup> However, this was only agreed upon after recognizing the maintenance of the existing quantities of utilization from the West Bank aquifer.<sup>56</sup> It is highly questionable if this is compatible with a 'sustainable' use of the Mountain Aquifer's water yield. What is more, Article 40, paragraph 1 states that the final negotiation of Palestinian water rights in the West Bank will take place 'in the Permanent Status agreement relating to various water resources'. Therefore, with the halt of peace negotiations there is no further progress in securing respect of those rights.

Oslo II included the establishment of the Joint Water Committee (JWC) which will deal with virtually all water- and sewage-related issues in the West Bank and in Gaza.<sup>57</sup> However, parties also concluded that the JWC has no power to regulate or administer existing quantities of water as currently extracted by the Israeli Civil Administration and the settlements.<sup>58</sup> The water supply there shall continue to be administered by the Israeli Civil Administration and Merkorot. These exceptions show the limited powers of the JWC. It is unable to decide upon measures that affect both the Israeli and the Palestinian population in the Territories. Hence any holistic approach to a solution of the water problem in the Territories is prevented because it would require dealing with the water consumption of the population in its entirety. Another drawback of its establishment is that decisions must be reached by consensus.<sup>59</sup> This effectively impairs any quick, effective and democratic decision-making.<sup>60</sup> Consequently, although the JWC continued to meet even after the outbreak of the second Intifada, no new water projects have been approved by it.

Although Oslo II provides some detailed rules to regulate the water problem, it does so only on a short-term basis until the negotiation of a final status agreement. It does not provide any longer-term resolution on allocation, protection, or storage of water.<sup>61</sup>

### 3.2. Applicable international law: the human right to water

The question of a human right to water is increasingly addressed by international organizations,<sup>62</sup> human rights bodies<sup>63</sup> and scholars of international law.<sup>64</sup> However,

54. *Ibid.*, Annex III, Art. 40 (3) (c), (e).

55. *Ibid.*, Art. 40(1).

56. *Ibid.*, Art. 40(3) (a).

57. *Ibid.*, Art. 40(12); Annex III, Schedule 11(7). Cf. B'Tselem, *supra* note 7, at 35; T. Nassereddin, 'Legal and Administrative Responsibility of Domestic Water Supply to the Palestinians', in Feitelson and Haddad, *supra* note 25, at 106.

58. Oslo II, Schedule 8, 11(2)(3).

59. *Ibid.*, Art. 40(14).

60. Issue raised in B'Tselem, *supra* note 7, at 33.

61. Watson, *supra* note 45, at 306.

62. WHO, *Right to Water* (2003), at [http://www.who.int/water\\_sanitation\\_health/rightwater/en/](http://www.who.int/water_sanitation_health/rightwater/en/); ILA, Fourth Report of the Water Resources Committee, Berlin Conference 2004, Chap. IV, Art. 17, The right to access to water, at [http://www.ila-hq.org/html/layout\\_committee.htm](http://www.ila-hq.org/html/layout_committee.htm).

63. CESCR, *supra* note 5.

64. E. Brown Weiss held a course on fresh water at the 2003 Hague Academy of Public International Law; CESR, 'Right to water factsheet # 3: Water in International and Constitutional Law', at <http://www.cesr.org>.



the major human rights conventions deal with the issue rather implicitly while referring to the right to life, health and adequate living conditions, or to the right to food.<sup>65</sup> Accordingly, among human rights conventions, reference to a right to water can be found in the Universal Declaration of Human Rights (UDHR),<sup>66</sup> and in the International Covenants on Economic, Social and Cultural Rights (ICESCR)<sup>67</sup> and on Civil and Political Rights (ICCPR).<sup>68</sup> Among the conventions that explicitly refer to the right to water are the Convention on the Elimination of all forms of Discrimination against Women (CEDAW),<sup>69</sup> the Convention on the Rights of the Child,<sup>70</sup> the Additional Protocols I and II to the Geneva Conventions,<sup>71</sup> and the African Charter on the Rights and the Welfare of the Child.<sup>72</sup> Also the United Nations Convention on the Non-Navigational Uses of International Watercourses (Watercourse Convention) has been claimed to refer to a human right to water,<sup>73</sup> taking note of 'special regard for vital human needs'.<sup>74</sup> It recognizes that there is a need for 'sufficient water to sustain human life including both drinking water and water required for the production of food in order to prevent starvation'.<sup>75</sup> The convention was elaborated by the International Law Commission (ILC) and adopted by the UNGA in Resolution 51/229 on 21 May 1997. However, it has yet to enter into force.<sup>76</sup>

As the right to water is not explicitly dealt with by the major human rights covenants, the Committee on Economic, Social and Cultural Rights (CESCR) in General Comment No. 15 has recently tried to define the major entailments of the right within the framework of ICESCR Articles 11 and 12.<sup>77</sup> This is the first time that a UN body has commented on the human right to water. Thus the description of its normative scope by the comment merits closer scrutiny.<sup>78</sup>

According to the General Comment, the right comprises freedoms such as the right to maintain access to existing water supplies, the right to be free from interference and the right to be free from arbitrary disconnections or contamination of water supplies. It also provides for entitlements such as the right to a system of water supply and management that provides for equal opportunities to enjoy the right to water. Furthermore, the right must provide for adequate human dignity, life and health. The element of adequacy covers the following core factors: (1) availability, which encompasses the right to sufficient supply for personal and domestic uses;

65. WHO, *supra* note 62, at 18. For the right to food, see P. Alston, *The Right to Food* (1997).

66. Arts. 3, 25, para. 1.

67. Arts. 2, 11, 12.

68. Art. 6.

69. Art. 14, para. 2.

70. Art. 24, para. 1, para. 2(c).

71. Art. 54 and Art. 14.

72. Art. 14.

73. Cf. A. Tanzi and M. Arcari, *The United Nations Convention on the Law of International Watercourses* (2001), 81.

74. Art. 10(2).

75. Cf. ILC Report, UN Doc. A/49/10, 1994, at 257.

76. According to Art. 36, 35 states parties are needed, which have not yet ratified. For the status of ratification see <http://untreaty.un.org/>.

77. CESCR, *supra* note 5, at 4, 5.

78. Cf. S. McCaffrey, 'The Human Right to Water Revisited', in E. Brown Weiss, L. Boisson De Chazournes and Bernasconi-Osterwalder (eds.), *Water and international economic law* (2005), at [http://www.mcgeorge.edu/international/global/mccaffrey\\_paper.htm](http://www.mcgeorge.edu/international/global/mccaffrey_paper.htm).

(2) quality, which requires the water to be free from hazards threatening human health; and (3) accessibility, which covers, amongst others, the principle of non-discrimination.<sup>79</sup> The right also carries the general obligations of states pertaining to the guarantee of every human right to secure, fulfil and protect the specific right in question.<sup>80</sup> *In concreto*, these obligations entail the maintenance of existing access of individuals to water sources, the regulation of third-party interferences with existing water uses and the duty to facilitate, promote and provide for the enjoyment of the right.<sup>81</sup>

At a minimum, the right to water entails a state's provision for access to water, for physical security once access to water has been established and for the equitable distribution of the available water. It also requires the state to implement a national water strategy and the monitoring of these activities as stated above. States would also be obliged to provide for the protection of vulnerable groups and ensure that there are adequate measures to control diseases.<sup>82</sup>

Although the individual elements of the human right to water have been set out carefully by the CESCR, their general applicability under international law has to be considered cautiously. The interpretation of Articles 11 and 12 of the committee is not binding upon the states parties to the ICESCR and would have to be affirmed by state practice.<sup>83</sup> What is more, even the implicit protection of the right to water, for example through the ICCPR, is controversial.<sup>84</sup> The right to life, as protected by ICCPR Article 6 is frequently interpreted in a very narrow way, only addressing protection from arbitrary killings.<sup>85</sup> However, general comments adopted by the Human Rights Committee called for a broad interpretation of the right to life.<sup>86</sup> Therefore, the above-mentioned human rights covenants cannot be interpreted as an acknowledgement of the right to water as an independent human right. Rather, individual elements of this right are protected implicitly by the more general rights as set out in Articles 11 and 12 of the ICESCR and in further human rights conventions.

### 3.2.1. *Applicability of human rights provisions to the Israeli–Palestinian conflict*

The applicability of human rights provisions to the situation in the Palestinian Territories has been subject to major dispute. Before proceeding to the implications of the human right to water for the Israeli–Palestinian conflict, it has to be ascertained first whether the human rights provisions which entail the right can also be applied.

Israel became a party to the ICCPR and the ICESCR on 3 October 1991<sup>87</sup> and to the Convention on the Rights of the Child on 20 November 1989. Thus Israel

79. CESCR, *supra* note 5, at 5, 6.

80. WHO, *supra* note 62, at 7, 28.

81. *Ibid.*, at 30.

82. *Ibid.*, at 13.

83. McCaffrey, *supra* note 78; cf. A. Hilderling, *International Law, Sustainable Development and Water Management* (2004), 77, at [www.eburon.nl/hilderling.htm](http://www.eburon.nl/hilderling.htm).

84. McCaffrey, *ibid.*

85. See Y. Dinstein, 'The right to life', in L. Henkin (ed.) *The International Bill of Rights* (1981), 115; F. Przetacznik, 'The Right to Life as a Basic Human Right', (1976) 9 HRJ 585, 586, 603.

86. Human Rights Committee, *General Comments Adopted under Art. 40, Paragraph 4 of the ICCPR*, UN Doc. CCPR/C/21/Rev.1 (19 May 1989), at 51–2.

87. At <http://untreaty.un.org>.

is obliged to secure and protect the rights as stated in these treaties. Yet it claims that human rights provisions are not applicable in the Palestinian Territories. It argues that humanitarian law provides for the protection of individuals in a conflict situation, unlike human rights which protect the civilian population from their governments in times of peace.<sup>88</sup> However, in the *Advisory Opinion on the Legality of the Threat of Nuclear Weapons* and most recently in the *Wall* case, the ICJ has clearly rejected this contention and confirmed the widespread opinion that human rights law and international humanitarian law are both applicable in times of conflict.<sup>89</sup> Accordingly, it can be assumed that human rights provisions do apply in the Israeli–Palestinian conflict and that Israel, in exercising sovereign powers in the Palestinian Territories,<sup>90</sup> is bound by those obligations.

As the PLO and now the PA cannot be considered a sovereign government of an independent state, they are not the addressee of the international human rights treaties *in strictu sensu*. Nevertheless, they can be held responsible for human rights violations according to the various peace agreements concluded with Israel. Human rights have been an issue in the peace negotiations and became an integral part of the peace agreements concluded between the PLO and Israel. For example, Article XIV of the Gaza–Jericho agreement states that ‘Israel and the PA shall exercise their powers and responsibilities pursuant to this agreement with due regard to internationally accepted norms and principles of human rights and the rule of law’. A similarly worded provision can be found in the Annex to the agreement, obliging the security and public order personnel to respect internationally accepted human rights provisions, the rule of law and human dignity.<sup>91</sup> Furthermore, the parties’ duty to obey internationally accepted human rights standards has also been laid down in Annex I, Article XI(1), as well as in Annex IV (Article II(7)(h)) of the Israeli–Palestinian Interim Agreement. Thus the PA, as well as the Israeli State by means of the peace agreements is bound by the human rights provisions formulated therein.

However, for the parties to be obliged to adhere to the right to water, it must be part of the catalogue of ‘internationally accepted norms of human rights’, as stated in the agreements. Such ‘norms of human rights’ are usually norms which have the status of customary international law, as this implies that a significant number of states would have confirmed the existence of such a right with a general practice accepted as law.<sup>92</sup>

Even if the right to water as an individual human right has not yet found international acceptance and therefore cannot be regarded as ‘internationally accepted’ in the light of the Israeli–Palestinian peace agreements, the rights from which it derives may be. The right to life has been characterized as the supreme human right and has been deemed *jus cogens* under international law.<sup>93</sup> Therefore, it can be

88. Cf. UN Secretary General, *Report Pursuant to General Assembly Resolution ES-10/13*, Annex 1: Summary of the Position of the Government to Israel, at <http://www.icj-cij.org>.

89. ICJ, *supra* note 9, para. 105 et seq.; *Legality of the Threat of Nuclear Weapons*, advisory opinion, [1996] *ICJ Rep.* 240, para. 25; UNGA, Res. 2675, UN Doc. A/C.3/SR1785 (1970); T. Meron, ‘Role of Custom in the Formation of Humanitarian Law’, (1996) 90 *AJIL* 238.

90. Cf. ICJ, *supra* note 9, paras. 108, 109.

91. Gaza–Jericho Agreement, Annex I, Art. VIII, para. 1.

92. Art. 38 (b), ICJ Statute.

93. M. Nowak, *ICCPR Commentary* (1993), Art. 6, nn. 1 and 2.

regarded as an internationally accepted norm. The right to health and to an adequate living standard has been recognized in the UDHR, which is sometimes referred to as being part of *jus cogens* itself,<sup>94</sup> as well as in the ICESCR. It has also been argued that the universal acceptance and recognition in international law of both the UDHR and the ICESCR give them the status of customary international law and render the rights enshrined therein internationally accepted norms.<sup>95</sup> This is true for the right to an adequate living standard, as it has been recognized as the central economic right.<sup>96</sup> Thus the basic components of the right to water can be held to have a status of customary international law and have to be taken into account both by Israel and the PA.

### 3.2.2. *Violation of the right to water?*

When trying to assess Israeli or Palestinian responsibility to ensure the right to water of the Palestinians in the Territories, the distinction between a state's inability and its unwillingness to comply with its obligations to guarantee a right to water has to be borne in mind.<sup>97</sup>

Possible violations of the right to water have been identified by the CESCR in its General Comment.<sup>98</sup> Omissions amounting to a violation include the failure to ensure that the minimum essential level of the right which, amongst others, assures the physical access to water facilities<sup>99</sup> is enjoyed by everyone.<sup>100</sup> As a consequence of the construction of the separation barrier around the West Bank, access of at least some Palestinians to their wells and farming land is now prevented. Though the provision of fresh water is currently guaranteed by tanker carriages from the Israeli water company Merkorot,<sup>101</sup> the water delivered is often of an inferior quality and does not meet international health standards.<sup>102</sup> The UN Special Rapporteur on the Right to Food remarked that 'reports of water borne diseases continue to rise as result of increased dependence on poor quality water resources'.<sup>103</sup> Yet, the minimum standard established by the right to water entails an obligation to ensure access to an amount of water which is safe for personal and domestic uses.<sup>104</sup> If water-related diseases now break out amongst the Palestinian population of the Territories, this is a clear indication that such a minimum amount of safe water is

94. P. Sieghart, *The International Law of Human Rights* (1983), 53.

95. The ICESCR today has 142 states parties, at <http://untreaty.un.org/>; on the customary nature of the UDHR, see R. Lillich, 'Civil Rights', in T. Meron (ed.), *Human Rights in International Law* (1985).

96. R. Siegel, 'Socio-Economic Human Rights: Past and Future', (1985) 7 *HRJ* 255.

97. CESCR, *supra* note 5, para. 41; see also CESCR, *General Comment No. 14: The right to the highest attainable standard of health*, UN Doc. E/C.12/2000/4, para. 47.

98. CESCR, *supra* note 5, para. 39 et seq.

99. *Ibid.*, para. 37(b).

100. *Ibid.*, para. 44.

101. Cf. UNHCHR, Office for the Coordination of Humanitarian Affairs, 'Humanitarian Monitoring Report', November 2004, 3, at <http://www.humanitarianinfo.org/opt/docs/UN/OCHA/ochaHumMonRpt1104.pdf>

102. Commission on Human Rights, *supra* note 10, para. 14.

103. *Ibid.*, para. 14; citing Catherine Bertini, Personal Humanitarian Envoy of the Secretary-General, Mission Report, 11–19 August 2002 (no symbol), paras. 53, 54; cf. World Bank, *Palestinian Economic Crisis: An assessment* (2004), 46, at <http://siteresources.worldbank.org/INTWESTBANKGAZA/Resources/wbgaza-4yrassessment.pdf>; B. Toebes, *The Right to Health as a Human Right in International Law* (1999), 335–6; UN Commission on Human Rights, *supra* note 10, para. 14.

104. CESCR, *supra* note 5, para. 37.

not being provided. The guarantee of a safe access to water resources for Palestinians would also require Israeli forces to refrain from targeting water instalments needed for human consumption;<sup>105</sup> actions which have caused significant damage to the water supply system in the West Bank and Gaza.<sup>106</sup>

On the side of the PA, failures that could amount to a violation of the right to water include the failure to carry out urgently needed repairs of pipes and other means for the provision of fresh water, especially in Gaza. This omission could also have contributed to the increase of water-borne diseases amongst the Palestinian population since water treatment facilities both in the West Bank and in Gaza are extremely poor. The failure to provide clean fresh water to the population can also amount to the violation of the minimum standard established by the right to water because the standard entails 'measures to prevent, treat and control diseases linked to water'.<sup>107</sup>

To assess a violation of the right to water, the inability or unwillingness of either side to take the necessary steps to guarantee the right must also be taken into account. As General Comment No. 15 pointed out, the unwillingness of a state to use the maximum of its available resources for the realization of the right can constitute a violation of the ICESCR.<sup>108</sup> Considering the ongoing violence between the parties as well as the deteriorating economic situation in the Palestinian Territories,<sup>109</sup> it may well be that constraints caused by the conflict between both parties restrain their ability to comply fully with all implications of the right to water as articulated in the ICSECR, the ICCPR and the Convention on the Rights of the Child. This may be triggered by security considerations on the Israeli side and by the severe economic crisis the Palestinian side is facing today. However, as has been maintained elsewhere, ongoing security threats do not justify destruction of water resources without relation to its purposes as being carried out by Israel.<sup>110</sup> Therefore, at least to this respect, a violation of the right to water by Israeli authorities may be assumed.

On the Palestinian side, a violation is not as apparent. Regarding the capabilities of the Palestinian authorities to keep the water supply system in good maintenance, it has been illustrated that the economic situation in the Territories prevents development and further maintenance work.<sup>111</sup> Therefore, the Palestinian authorities can be held unable to guarantee the right to water to citizens in the West Bank and in Gaza. In any case, the implications of the right to water have to be taken into account also by Palestinian representatives.

### 3.3. International watercourse law

International watercourse law, which also forms part of the greater category of international environmental law, provides determinants for the utilization of water

105. UNEP, *supra* note 22, at 28.

106. FAO, *supra* note 2, at 36, 108, 120; Homer-Dixon, *supra* note 29, parts 1, 11; cf. Support Group, 'West Bank and Gaza damage assessment', at <http://www.support-group.org/Tools%20for%20Support%20Group.htm>.

107. CESCR, *supra* note 5, para. 37(i).

108. *Ibid.*, para. 41.

109. Cf. World Bank, *supra* note 103.

110. CESCR, *supra* note 5, para. 16.

111. Cf. World Bank, *supra* note 103.

resources which are shared between several states. In the present case, it can define permissive and prohibited modes of utilization and indicate factors according to which an allocation of water rights between the conflicting parties can take place.

### 3.3.1. *International water law and the conflict in the Palestinian Territories*

General international law gives little guidance to the applicability and validity of rules of environmental protection once a conflict has broken out.<sup>112</sup> However, it must first be asked whether the provisions of international water law can apply to the Israeli–Palestinian conflict. Otherwise, only the more limited set of rules as agreed upon in the Oslo accords would apply.

The applicability of environmental provisions side by side with principles of humanitarian law has been analysed by the ICJ in its *Advisory Opinion on the Legality of the Threat or use of Nuclear Weapons* of 8 July 1996<sup>113</sup> and in the merits judgment of the *Nuclear Tests Case* of 1995.<sup>114</sup> In the latter, the Court considered its conclusions to be understood ‘without prejudice to the obligations of states to respect and protect the natural environment’<sup>115</sup> and therefore did not generally exclude the applicability of environmental rules during an armed conflict.

In the *Nuclear Weapons* opinion, the Court found the issue not to be whether treaties of environmental protection were or were not applicable to an armed conflict, ‘but rather whether the obligations stemming from these treaties were intended to be obligations of total restraint during military conflict’.<sup>116</sup> It emphasized that environmental considerations have to be taken into account by states especially when determining the necessity and proportionality of military actions.<sup>117</sup> The Court further took note of provisions of international law which affirm the need for environmental protection even at times of armed conflict, such as Principle 24 of the Rio Declaration, Article 35, paragraph 3 and Article 55 of Additional Protocol I to the Geneva Conventions and the terms of General Assembly Resolution 47/37 of 25 November 1992. Resolution 47/37 held that the destruction of the environment could not be justified by military necessity and was contrary to existing international law.<sup>118</sup> The Court concluded that international environmental law has to be properly taken into account in the context of implementation of principles and rules of the law of armed conflict.<sup>119</sup>

The 1996 advisory opinion recognized for the first time customary norms of international environmental law and found that they apply during an armed conflict.<sup>120</sup> Accordingly, customary rules on the utilization of water resources would duly have to be taken into account by the parties to the Israeli–Palestinian conflict. These findings have already been acknowledged by Israelis and Palestinians in the Oslo II

112. P. Sands, *Principles of International Environmental Law* (2003), 308.

113. ICJ, *supra* note 9, para. 33.

114. *Nuclear Tests (New Zealand v France)*, Order of 22 September 1995, [1995] *ICJ Rep.* 306, para. 64.

115. *Ibid.*

116. *Ibid.*, para. 30.

117. *Ibid.*

118. *Ibid.*, paras. 27, 28

119. *Ibid.*, para. 33.

120. Sands, *supra* note 112, at 316.

agreement, where they agreed to comply with ‘internationally recognized standards’ concerning environmental matters.<sup>121</sup>

### 3.3.2. Customary international law applicable to shared groundwater resources

The international legal regime applying to shared groundwater resources depends on the kind of groundwater in question. Generally, three categories of transboundary groundwater have been identified:<sup>122</sup> first, groundwater resources which are connected to surface waters; secondly, groundwater resources which are rechargeable but not interconnected to surface waters; thirdly, groundwater resources which are not rechargeable or only rechargeable to an insignificant amount. In the first case, the international lawyer speaks of an ‘unconfined’ or ‘related’ groundwater resource. In the second, the common definition is ‘confined’ or ‘unrelated’ though the descriptions are not hydrologically correct.<sup>123</sup> The third case is often described as ‘fossil’ groundwater.<sup>124</sup>

However, international law and state practice on shared groundwater resources are not as developed and widespread as on shared surface waters.<sup>125</sup> Issues of joint management have only been subject to regulation in a few international agreements and conventions<sup>126</sup> and on the regional or bilateral level.<sup>127</sup> Further, groundwater as an ecosystem in itself is still being investigated.<sup>128</sup> For surface waters and for groundwater connected to surface waters the governing international legal principles are embodied in the 1997 Watercourse Convention, which was considered as customary international law by the ICJ in the *Gabčíkovo-Nagymaros* case.<sup>129</sup>

Previously, the ILC and the International Law Association (ILA)<sup>130</sup> have established through several resolutions that the international law applicable to ‘confined’ transboundary groundwater is derived from common principles concerning

121. Oslo II, Annex III, Art. 12, B. 5.

122. G. Loibl, ‘Groundwater Resources’, (2000) 5 ARIEL 86; J. Baberis, ‘The Development of International Law of Transboundary Groundwater’, (1991) 31 *Nat. Res. J.* 167, 168 point at four situations concerning groundwater.

123. ILC, Yamada, *Second Report on Shared Natural Resources*, UN Doc. A/CN.4/539, para. 13.

124. Y. Eckstein, ‘Fossil Aquifers’, at <http://www.fao.org/Legal/advserv/isarm1.pdf>; Loibl, *supra* note 122, 85.

125. X. Fuentes, ‘The Utilization of International Groundwater in General International Law’, in G. Goodwin-Gill and S. Talmon (eds.), *The reality of international law* (1999), 197; S. McCaffrey, *The Law of International Watercourses* (2003), 417; Dellapena, *supra* note 30, at 214; D. Caponera, *Principles of Water Law and Administration* (1992), 252–3.

126. Most recently, the Agenda 21 (in ch. 18), adopted in 1992, and the 2002 World Summit on Sustainable Development (WSSD) (Johannesburg Plan of Implementation, at [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POIToc.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm)) dealt with fresh water resources. For an analysis, see M. Fitzmaurice, ‘General Principles on Non-Navigational Uses of International Watercourses’, (2003) 14 *YIEL* 27, 28. For an examination of international treaties related to groundwater, see R. Hayton, ‘The Law of International Aquifers’, (1982) 22 *Nat. Res. J.* 76. D. Caponera and D. Alheritière, ‘Principles of International Groundwater Law’, (1978) 18 *Nat. Res. J.* 589.

127. Cf. Loibl, *supra* note 122, at 96–106.

128. Cf. ILC, Yamada, *First Report on Shared natural resources: transboundary groundwaters*, UN Doc. A/CN.4/533, para. 22; McCaffrey, *supra* note 125, at 415.

129. *Gabčíkovo-Nagymaros (Hungary v. Slovakia)*, [1997] *ICJ Rep.*, paras. 85, 141.

130. ILA, Report of the Committee on the Uses of the Waters of International Rivers, *The Helsinki Rules on the Uses of the Waters of International Rivers*; *id.*, *The Seoul Rules on International Groundwaters*, Rep. 62nd Conf. Seoul 1986, both at <http://www.internationalwaterlaw.org/IntlDocs/>; ILC, ‘Resolution on Confined Transboundary Groundwater’, *ILC Yearbook II* (1994), II, 135.

transboundary watercourses<sup>131</sup> and custom.<sup>132</sup> However, discussion on this matter<sup>133</sup> and on the question of whether the principles expressed in the Watercourse Convention can also apply to 'fossil' groundwater<sup>134</sup> has not ended yet. So far only the case of fossil groundwater may give rise to the application of a different international legal regime.<sup>135</sup> Since the individual characteristics of fossil groundwater resemble those of oil and gas, provisions similar to those governing fossil resources in international law may be applicable.<sup>136</sup> Yet in this field applicable rules are uncertain.<sup>137</sup>

To determine the groundwater law applicable to the situation in the Palestinian Territories, one must first establish which category of groundwater the Coastal and the Mountain Aquifers fall into. As neither aquifer is interconnected with surface waters they would constitute 'confined' or unrelated groundwater. Furthermore, they receive a certain amount of recharge from rainwater falling on the mountain area in the West Bank and in Gaza. Therefore it is appropriate to describe both aquifers as 'confined' but renewable groundwater resources.<sup>138</sup>

The following part of the article will now provide an overview of the three main principles of international water law which are: the principle of equitable and reasonable utilization, the no-harm principle and the principle of co-operation.<sup>139</sup> These have to be taken into account by both Israel and the PA. The PA enjoys, albeit restricted, legal personality in international law and it can be subject to international rights and obligations within the scope of its subjectivity.<sup>140</sup> Likewise, it has been delineated that the PLO (for the PA) and Israel agreed in the Oslo Accords on the applicability of the principle of equitable utilization, the duty to prevent harm, and aspects of sustainability, and on the principle of co-operation pertaining to the water issue.<sup>141</sup> Accordingly, the main principles of international water law can determine the allocation of water rights in the present case.

### 3.3.3. *Equitable utilization*

Of all the theories which have been developed on international watercourses in international law, the equitable utilization approach has gained overwhelming support from the international community.<sup>142</sup> It has been codified in the Watercourse Convention as the dominating concept for the utilization of international watercourses<sup>143</sup> and, most importantly, it has been mentioned in the Oslo I Accord as determinant for the allocation of water rights between the parties.<sup>144</sup>

131. Loibl, *supra* note 122, at 81, 87; Dellapena, *supra* note 30, at 225.

132. Loibl, *supra* note 122, at 120; ILA, *supra* note 62, at 2.

133. ILC, Yamada, First Report, *supra* note 128, para. 22; Loibl, *supra* note 122, at 115; ILA, *supra* note 62, Art. 36 et seq., 42.

134. ILC, Yamada, Second Report, *supra* note 123, paras. 21–3.

135. Cf. Loibl, *supra* note 122, at 116 et seq.

136. Loibl, *supra* note 122; Eckstein, *supra* note 124.

137. Loibl, *supra* note 122, at 119.

138. B'Tselem, *Thirsty*, *supra* note 7, at 19; UNEP, *supra* note 22, at 32; Harpaz et al., *supra* note 25, at 48; Kahane, *supra* note 26, at 28, 92.

139. Hilderling, *supra* note 83, at 44; Tanzi and Arcari, *supra* note 73; McCaffrey, *supra* note 125.

140. See *supra*, 3.1.1.

141. See *supra*, 3.1.2.

142. Cf. McCaffrey, *supra* note 125, ch. 5; Loibl, *supra* note 122, at 81, 87.

143. Art. 5.

144. See *supra*, 3.1.2.



The notion of equitable utilization gives states sharing an international watercourse with other states a legal right to use the water of this watercourse.<sup>145</sup> The criteria which have been used to define the concept are optimum, reasonable or beneficial use.<sup>146</sup> Most recently, distinguished scholars have discussed applying the principle in accordance with principles of international environmental law, such as the principle of integrated management, the precautionary principle, and the principle of sustainable development.<sup>147</sup> Nevertheless, the final determination of such uses must still be made on a case-by-case basis.

The principle is now part of the rules of customary international law, as it has been invoked in innumerable treaties regarding internationally shared waters<sup>148</sup> and affirmed in decisions of international courts and arbitral tribunals.<sup>149</sup> The Permanent Court of International Justice in the *Territorial jurisdiction of the international commission of the river Oder* case defined the principle as 'the perfect equality of all riparian states in the use of the whole course of the river and the exclusion of any preferential privileges of any riparian state in relation to others'.<sup>150</sup> Furthermore, the ICJ referred to the principle in the *Gabčíkovo-Nagymaros* case, stating Hungary's right to an equitable and reasonable share of the Danube's natural resources<sup>151</sup> and recommending that Hungary and Slovakia find a solution on the disputed issues according to that principle.<sup>152</sup>

Also renewable transboundary groundwater – related or unrelated to surface water – is subject to the rule of equitable utilization.<sup>153</sup> One major case supporting this assertion is the German *Donauversinkung* case ruled by the Reich State Tribunal (Reichsgericht).<sup>154</sup> The case dealt with a claim brought by the German state of Wurttemberg against the state of Baden involving the drying up of the Danube river in the downstream region of Wurttemberg. The Tribunal found that the international legal principles applying to waters on the ground must also apply to waters below the ground. It concluded that under international law, a state is not obliged to modify the conditions of its soil for the benefit of another state.<sup>155</sup> The court further stated that the interests of the states in question must be weighed up against one another in an equitable manner.<sup>156</sup> The principle entered into the so-called Bellagio

145. UN Convention on the Non-Navigational Use of International Watercourses, Art. 2 (c) 4.

146. Caponera and Alheritière, *supra* note 126, at 603.

147. Cf. W. Dellapena, 'Customary International Law of Transboundary Fresh Waters', (2001) 1 *Int'l. J. Global Env. Iss.* 288; ILA, *supra* note 62.

148. Dellapena, *supra* note 30, at 228 with further references. The principle has explicitly been referred to as being part of customary international law in the Hydraulic Power Convention (Art. 86, Art. 1) and in Art. 5 of the Mekong Basin Agreement.

149. P. Wouters, *The UN Watercourses Convention and Beyond*, at [http://www.thewaterpage.com/pat\\_wouters1.htm](http://www.thewaterpage.com/pat_wouters1.htm).

150. Territorial jurisdiction of the international commission of the river Oder (UK, Ireland, et al.), 1929 *PCIJ Ser. A*, No. 23, at 27.

151. ICJ, *supra* note 129, para. 56.

152. *Ibid.*, para. 78.

153. Baberis, *supra* note 122, at 167; E. Benevisti, 'Collective Action in the Utilization of Shared Fresh water', (1996) 90 *AJIL*, 398, 399; Caponera and Alheritière, *supra* note 126; Hayton, *supra* note 126, 71; L. Teclaff, 'Evolution of the River Jordan Basin Concept', (1996) 36 *Nat. Res. J.* 372–4; A. Utton, 'The Development of International Groundwater Law', (1982) 22 *Nat. Res. J.* 95.

154. 116 *RGZ*, 1 et seq. (1927).

155. *Ibid.*, at 32.

156. *Ibid.*, at 131.

Draft Treaty on Transboundary Groundwater Resources<sup>157</sup> which was formulated by a joint US/Mexican study group dealing with the problems of transboundary groundwater. Its application for confined, renewable groundwater is supported by the 2004 Berlin Rules of the ILA which previously had agreed to apply the principle to unconfined groundwater in the Helsinki Rules.<sup>158</sup> Later, the Seoul Rules extended its application to confined groundwater.<sup>159</sup> Finally, also ILC decided in 1994 that the rules of the UN Watercourse Convention shall apply to confined transboundary groundwater.<sup>160</sup>

The different factors which determine an equitable and reasonable use have been spelled out in Article 6 of the Watercourse Convention and most recently in Article 13 of the 2004 Berlin Rules on Water Resources of the ILA.<sup>161</sup> The article names, inter alia, hydrological, social and economic needs of the basin states, existing and potential uses as well as sustainability as factors which have to be taken into consideration when determining equitable use in a particular case. Sustainability,<sup>162</sup> as an acknowledged concept of international environmental law, entails the duty to exploit a natural resource in a 'sustainable', 'prudent', 'rational' or 'wise' manner (sustainable use).<sup>163</sup> It places limits on the rate of use and manner of exploitation of natural resources<sup>164</sup> as well as making a resource subject to human consumption for a substantial period of time. Regarding aquifers, a sustainable use is determined by the establishment of a maximum allowable drawdown, reflecting the aquifer's natural and artificial recharge. On average, sustainability requires that withdrawals not exceed recharge rates.<sup>165</sup>

#### 3.3.4. *Duty to prevent significant harm*

The duty not to cause harm to states sharing the same resource derives from transboundary pollution contexts in international environmental law and is generally viewed as an expression of the principle of good neighbourliness.<sup>166</sup> The case which perhaps most firmly establishes this principle is the *Trail Smelter Arbitration* between the US and Canada, where the award held that international law forbids engagement in transboundary activities that cause harm to the neighbouring state.<sup>167</sup> The Reichsgericht in the *Donauversinkung* case also referred to the duty to prevent harm and affirmed its application in the context of shared groundwater resources. The Principle was further acknowledged in the *Lac Lanoux Arbitration*, where the arbitral tribunal held that a state has an obligation not to exercise its rights to the extent of

157. Art. II, IV of the treaty, in R. Hayton and A. Utton, 'Transboundary Groundwaters: The Bellagio Draft Treaty', (1989) 29 *Nat. Res. J.* 665.

158. ILA, *supra* note 62.

159. *Ibid.*

160. ILC, Resolution on Confined Transboundary Groundwater; *ILC Yearbook II* (1994), II, 135.

161. ILA, *supra* note 62, Art. 13.

162. For the application of the concept of sustainability in International Water Law, see Hilderling, *supra* note 83, at 55.

163. Sands, *supra* note 112, at 252, 253.

164. *Ibid.*, at 261.

165. ILA, *supra* note 62, Art. 40.

166. Hilderling, *supra* note 83, at 161; cf. Tanzi and Arcari, *supra* note 73, at 148.

167. *United States v. Canada*, (1941) 3 *RIAA* 1907.

ignoring the rights of another.<sup>168</sup> In addition, it has been reiterated by Judge Castro in his dissent in the *Nuclear Tests* case<sup>169</sup> and recently in the *Gabčíkovo-Nagymaros* case.<sup>170</sup>

In absolute terms, the no-harm principle would entail the prohibition of any harm to watercourses of a neighbouring state; an implication which nowadays would probably not be feasible.<sup>171</sup> Therefore, especially in the context of utilization of shared water resources, the no-harm principle is qualified to the obligation not to cause 'significant' harm to the interests of other states relying on the water resource.<sup>172</sup> Previously, expressions such as 'appreciable', 'substantial' or 'serious' harm have been used.<sup>173</sup> The obligation not to cause 'significant' harm was adopted in Article II of the Bellagio Draft Treaty and Article 7(1) of the Watercourse Convention. Harm has been defined as significant where it results or threatens public health, economic productivity, or the environment of another state, or where it materially interferes with or prevents a reasonable use of the water by another state.<sup>174</sup>

Pertaining to the utilization of confined groundwater resources, the significance criterion had been subject to some debate in the ILC. Special Rapporteur Yamada expressed the concern that ground waters were more fragile than surface waters, and that once polluted took longer to purify.<sup>175</sup> Yet, in the end, the principle was considered sufficiently flexible to apply to the special characteristics of groundwater without further derogation.<sup>176</sup> As the ILA emphasized in its commentary, there is actually little controversy about the customary international law character of this principle.<sup>177</sup>

### 3.3.5. *Duty to co-operate*

The duty to co-operate has been described as the most basic principle underlying international water law<sup>178</sup> and can now be regarded as firmly established in customary international law. The Watercourse Convention recognizes the duty to co-operate in Article 8. This article was subject to discussions in earlier debates of the ILC with some members doubting whether it would provide a true legal obligation or merely be of a declaratory character.<sup>179</sup> However, the duty to co-operate has been invoked by the ICJ on several occasions. In the case concerning the *Kasikili/Sedudu Island*<sup>180</sup> the court emphasized the need to consider watercourses as spaces of co-operation. It pointed out that the boundary issue of the case had to be transcended and that

168. *France v. Spain*, (1957) 24 ILR 101.

169. *Australia v. France*, [1974] ICJ Rep. 253, at 389.

170. ICJ, *supra* note 129, paras. 78, 113.

171. Hilderling, *supra* note 83, at 162.

172. Cf. ILC; Yamada, *First Report*, *supra* note 18, para. 25.

173. Cf. Report of the ILC on the Work of its forty-sixth session, UN Doc. A/49/10 (1994), 236; McCaffrey, *supra* note 125, at 365.

174. Y. Eckstein and G. E. Eckstein, 'Groundwater resources and international law in the Middle East process', (2003) 28 *Water International* 160.

175. ILC, Yamada, *First Report*, *supra* note 128, para. 25.

176. *Ibid.*

177. ILA, *supra* note 62, Commentary Art. 16.

178. *Ibid.*, at 20.

179. McCaffrey, *supra* note 125, at 401.

180. Case concerning the Kasikili/Sedudu Island (*Botswana v. Namibia*), [1999] ICJ Rep. 1045, paras. 102, 103.

the parties needed to establish a common regime to create mutually satisfactory conditions for their nationals.<sup>181</sup> The same approach was taken by the court in the case concerning the *Land and Maritime Boundary between Cameroon and Nigeria*.<sup>182</sup> Furthermore, the UNGA reinforced the duty to co-operate in the context of shared resources in its Resolution 3129 (XXVII).<sup>183</sup> Likewise, the Bellagio Draft Treaty acknowledges the duty in Articles IV and XV. It was further affirmed as applicable to transboundary aquifers by the ILA in its 2004 Berlin Rules on Water Resources.<sup>184</sup>

Due to the general character of the duty, it cannot provide for specific obligations.<sup>185</sup> Still, as has been rightly observed by McCaffrey, '(t)he fact that it takes a variety of forms should not lead one to conclude that it is therefore not a genuine, independent obligation . . .'.<sup>186</sup> Accordingly, it has been described as an 'umbrella term' rather than a strictly legal duty.<sup>187</sup> It entails, for example, the obligation of states to negotiate in good faith<sup>188</sup> and the regular exchange of data and information between the states sharing an international watercourse.<sup>189</sup>

For states sharing a confined groundwater source, it has been suggested by Loibl that the duty to co-operate could take shape in the conclusion of a co-operation agreement. He finds that the conclusion of such an agreement would foster the establishment of shares and enable agreement upon the equitable utilization of the aquifer between the states involved.<sup>190</sup>

### 3.4. Allocation of groundwater from the Mountain Aquifer and the Coastal Aquifer according to international groundwater law

#### 3.4.1. Equitable utilization

Numerous suggestions have already been made regarding the allocation of the water resources of the Mountain and the Coastal Aquifers to Palestinians and Israelis. Propositions have included an allocation of water according to geographic criteria, according to the amount of rainfall which either falls on the Israeli or the Palestinian part of the feeding area of the Mountain Aquifer,<sup>191</sup> or according to the volume of the storage area of the Mountain Aquifer that pertains to each party's territory.<sup>192</sup> Also, a combination of the last two suggestions has been proposed.<sup>193</sup> Lastly, a more holistic approach was based upon the 'exploitable yield' of the aquifer. This has been

181. *Ibid.*, paras. 102–3.

182. Case concerning the Land and Maritime Boundary between Cameroon and Nigeria (*Cameroon v. Nigeria*), [2002] *ICJ Rep.* 144, paras. 315–17.

183. (1974) 13 *ILM* 232.

184. Art. 42 (3), (4), (5).

185. ILA, *supra* note 62, Art. 11, Comment.

186. McCaffrey, *supra* note 125, at 404.

187. *Ibid.* at 403.

188. ILA, *supra* note 62, at 20.

189. McCaffrey, *supra* note 126, at 412, 413.

190. Loibl, *supra* note 122, at 118.

191. Dellapena, *supra* note 30, at 253.

192. A. Dinar, 'Droughts, Crisis Management and water rights', in Feitelson and Haddad, *supra* note 25, at 287; further suggestions: E. Feitelson and M. Haddad et al., 'The Management of Shared Aquifers', in Feitelson and Haddad, *supra* note 25, at 18.

193. E. Benevisti and H. Gvirtzman, 'Harnessing international law to determine Israeli–Palestinian water rights', (1993) 33 *Nat. Res. J.* 543, 561.

defined as the quantity of water which can be utilized from an aquifer, taking into account the replenishment of the aquifer, as some flushing of it must be assured and some reserves and water kept for the relatively dry season.<sup>194</sup>

However, regarding the criteria which determine the equitable and reasonable use of an international groundwater resource, the ILA emphasized especially that 'hydrogeographic' factors had to be considered.<sup>195</sup> In the case of the West Bank and Gaza aquifers, such consideration would possibly entail taking into account the recharge and consumption areas of the two aquifers.

Moreover, the Oslo II agreement took note of the most urgent 'economic needs' of the Palestinians – a factor which also defines equitable use – in determining an increase of the amount of water provided to Palestinians. It further acknowledged that the eastern part of the Mountain Aquifer is currently underdeveloped and suggested that Palestinians shall endeavour to make available water from this sub-aquifer for their consumption.<sup>196</sup>

However, Oslo II cannot constitute a final allocation of water uses between Palestinians and Israelis. Because water resources both in the West Bank and in Gaza are currently being overexploited, the quantities of fresh water which both parties are allowed to withdraw from the aquifers would have to be reconsidered. Consequently, of the proposals mentioned above, the 'sustainable yield' approach would most closely satisfy the criteria of equity and sustainability. Nevertheless, before its implementation in the West Bank and in Gaza further research would have to be conducted; for example, the 'exploitable yields' and potentials of the three aquifers of the Mountain Aquifer have not yet been investigated.<sup>197</sup>

Also, on the question of sustainability, as previously mentioned, new water resources have to be explored to provide sufficient fresh water to Palestinians and Israelis, given the rapid growth of population especially in the Palestinian Territories.<sup>198</sup> On the one hand, this would entail further exploration of the resources of the Eastern Aquifer, a measure which has been explored before. On the other hand, solutions such as the so-called 'soft path' approach to water management would have to be considered as well.<sup>199</sup> This approach has been developed to provide an alternative to the aforementioned 'hard' path, which in a case of undersupply seeks to develop new water resources instead of improving the overall productivity of water use.<sup>200</sup> Following a 'soft path' to water use would entail the implementation of various methods which enhance efficiency, including combinations of regulations, economic incentives, technological changes, and public education.<sup>201</sup> Concrete measures within a soft path approach contain the reduction of the overall water consumption

194. Harpaz et al., *supra* note 25, at 53.

195. ILA, *supra* note 62, Commentary Art. 13.

196. Oslo II, Art. 40(7) (b) (6) and (3) (a).

197. Harpaz et al., *supra* note 25, at 53.

198. World Water Assessment Programme, *Water for People, Water for Life: The United Nations World Water Development Report* (2003), chap. 5.

199. Cf. G. Wolff and P. Gleick, 'The Soft path for water', in P. Gleick (ed.), *The World's Water 2002–2003, The Biennial Report on Freshwater Resources* (2002–3), 1 et seq.

200. *Ibid.*, at 1.

201. *Ibid.*, at 29.

and, as agriculture constitutes the most water intensive use,<sup>202</sup> also the implementation of less water-intensive agricultural techniques, such as drip irrigation, direct seeding or micro sprinklers.<sup>203</sup> In the Palestinian Territories, improvement in agricultural techniques has a huge potential to contribute to the conservation of water resources. Figures show that Palestinians currently use the main share of water (73%) for irrigation, and only 25% domestically and commercially.<sup>204</sup> A 'soft path' approach would further include techniques aiming at pollution prevention and the reuse of wastewater.<sup>205</sup> Finally, it has also been stressed that water resource planning in Israel and the Palestinian Territories should be interlinked with other national water plans, such as agriculture, forestry or industrial expansion.<sup>206</sup>

#### 3.4.2. *Common but differentiated responsibilities*

Another principle of international environmental law, which would take into consideration 'different economic needs'<sup>207</sup> of Israelis and Palestinians, would be the principle of common but differentiated responsibilities. It tries to solve the issue of how to allocate future responsibilities for environmental protection between states which are at different levels of economic development and thus constitutes a direct application of equity in international law.<sup>208</sup> The principle finds its roots in the UN Conference on Environment and Development and has been laid down, for example, in Principle 7(1) of the Rio Declaration and in Article 3(1) of the UN Framework Convention on Climate Change. State practice at the regional and global level underlines the acceptance of the principle in international law.<sup>209</sup>

Especially in the context of an equitable and reasonable use of the groundwater resources of the Palestinian Territories, it seems apt to take into consideration the different levels of development of the two political entities and to formulate different legal obligations regarding the utilization of their water resources, according to their individual capabilities. The implementation of the principle could also ensure provision of financial and technological assistance<sup>210</sup> to help the Palestinians implement their international obligations.

#### 3.4.3. *Prevention of further deterioration*

The general obligation of international groundwater law to prevent harm to the joint aquifer system predominantly addresses, according to its origins in international law, the prevention to the water system of harm which is recognizable in the neighbouring state. Only as far as harm is recognizable in Israel (and, if originating

202. *Ibid.*, at 19.

203. *Ibid.*

204. S. Arlosoroff, 'Water Resource Management in Israel', in Feitelson and Haddad, *supra* note 25, at 72; K. Assaf, 'The Need for Joint Management and Monitoring of the Water 'Usage' Cycle', in *ibid.*, at 78, 79.

205. R. Davis and R. Hirji, 'Water Resources and Environment, Waste Water Reuse', Technical Note E.3, at [http://www-wds.worldbank.org/servlet/WDS\\_IBank\\_Servlet?pcont=details&eid=000094946\\_03071804010223](http://www-wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000094946_03071804010223); UNEP, *supra* note 22, at 132; Kahane, *supra* note 26, at 98–104.

206. Assaf, *supra* note 204, at 80.

207. ILA, *supra* note 62, Art. 13 (2) (b).

208. Sands, *supra* note 112, at 285.

209. *Ibid.*, at 120, 286.

210. *Ibid.*

on the Israeli side, in Palestine) can the customary international law principle of no harm be invoked in the present case. Here, lowering of the groundwater table caused through overexploitation by both entities, at least in Gaza, has led to a contamination of the aquifer with sea water.<sup>211</sup> The no-harm principle could oblige the parties to reduce current withdrawal rates and implement a water management system which leads towards a more sustainable utilization of the two groundwater resources.

Additionally, major harm to the two aquifer systems has been caused by insufficient water treatment and poor management in the Palestinian Territories.<sup>212</sup> The alarming state of the Coastal Aquifer in particular would call for the immediate repair of the crumbling infrastructure and the sewage and wastewater treatment system in Gaza, as well as in the West Bank. The Oslo II accords obliged Palestinian as well as Israeli authorities to prevent uncontrolled discharge of effluents and wastewater into water bodies, to treat wastewater properly and to take precautions to prevent water and soil pollution.<sup>213</sup> Therefore, the peace accords provide for a concrete obligation to prevent pollution of joint water resources also on their own territory. However, its implementation would require not only the approval of the relevant projects in the JWC, i.e. the co-operation of the Israelis, but also the existence of economic means to carry out the necessary repairs and improvements.

#### 3.4.4. *Co-operation*

To achieve true co-operation between both political entities on their joint water resources the functioning of the JWC should be improved. The committee would need full responsibility over all questions regarding the management of the shared groundwater resources, i.e. also the freedom to administer and decide upon Israeli groundwater uses as well as an improved dispute settlement mechanism, which prevents deadlock in decision-making if consensus is not reached. The current operation of the committee hardly fulfils requirements of equitable utilization as envisaged by customary international law.

Moreover, parties should endeavour to co-operate in jointly formulating pumpage, storage, distribution, development and conservation programmes for the entire basin of the Mountain and Coastal Aquifers because only basin-wide programmes will enable them to make use of their optimal utilization.<sup>214</sup> The 1966 ILA Helsinki Rules already referred to an international drainage basin to define the geographical application of the rules. This approach was further pursued in the Seoul Rules, which speak of an international (groundwater) basin,<sup>215</sup> and in the 1997 Watercourse Convention, which defines an international watercourse as a ‘*system of surface waters and ground waters*’<sup>216</sup> (emphasis added). Finally, the 2004 Berlin Rules deem a basin-wide approach to be the regular approach to the management of a shared water resource, albeit states may also find other ‘appropriate’ ways of

211. *Supra*, 2.2.2.

212. *Supra*, 2.2.2.

213. *Supra*, 3.1.2.

214. Kahane, *supra* note 26, at 84.

215. Seoul Rules 1986, Art. 1(2): [http://www.internationalwaterlaw.org/IntlDocs/Seoul\\_Rules.htm](http://www.internationalwaterlaw.org/IntlDocs/Seoul_Rules.htm).

216. Art. 2(a).

management.<sup>217</sup> A basin-wide approach usually stands for a sustainable management of a shared water resource, as sustainability generally requires integrated and conjunctive management of the water resource in question.<sup>218</sup> As Palestinians and Israelis in Oslo II already agreed on the principle of sustainable use, a joint management would implement the agreed terms of the peace accord.

#### 4. CONCLUSIONS

This article has tried to appraise the water crisis in the Palestinian Territories from a human rights and environmental law perspective. As the human rights provisions tend to support obligations that arise from the principle of equitable utilization in international water law, both regimes have to be treated conjunctly.<sup>219</sup> Human rights can outline and specify major focal points which each equitable solution must encompass.

However, there are certainly other criteria, besides international law, which determine the utilization and protection of water resources, such as history, politics, engineering, hydrology, and economics.<sup>220</sup> International water law and human rights law is thus unable to provide for a ready-made solution of the water crisis in the Palestinian Territories. It can neither predetermine an allocation of water rights over the shared groundwater resources of the Mountain and Coastal Aquifers. International law can only provide guidelines, set boundaries and show restrictions, i.e. define violations and permissible as well as impermissible uses, which should be taken into account by the conflict parties.

Nevertheless, the present analysis has revealed that current regulations on the utilization of groundwater by Israelis and Palestinians are insufficient to address most of the current water problems as have arisen in the West Bank and in Gaza. In some aspects, Israel is already disregarding aspects of the human right to water and the fact that additional changes would have to be made to the existing institutional framework to administer the shared fresh water resources in the Palestinian Territories. Those violations have to be stopped and changes have to be made now and not just once negotiations between Israelis and Palestinians are reassumed.

---

217. ILA, *supra* note 62.

218. *Ibid.*, Art. 7, commentary.

219. Dellapena, *supra* note 30, at 255.

220. *Ibid.*, at 213, 214.