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NOTE, THE WEST BANK AQUIFER AND CONVENTIONS REGARDING LAWS OF BELLIGERENT OCCUPATION

*Jamal L. El-Hindi**

Although the recent unrest in Israel and the West Bank¹ periodically captures the world's attention, the underlying reasons for the conflict rarely receive enough attention. While there has been a renewed emphasis on understanding the history of the Arab-Israeli dispute, coverage of certain aspects is still lacking. One of these areas involves the question of Palestinian and Israeli natural resources, most of which are inextricably linked and which may serve either as obstacles or pathways to peace. Water is the most crucial of these resources and the West Bank aquifer has become the last and most important viable water source in the region. While settlement of the conflict will bring a day in which both parties realize that mutual respect and cooperation are the surest roots to stability, the issues surrounding Israel's present use of the West Bank aquifer must be addressed to prepare for that occasion. As a belligerent occupier of the region, Israel has certain concerns and rights regarding the exploitation of the aquifer. These rights and concerns, however, are limited by the presently accepted international rules of belligerent occupation.

This Note will provide an introductory analysis of the conventions on belligerent occupation as they apply to the West Bank aquifer. Part I provides a brief analysis of the current situation in the region. Part II provides an overview of the relevant conventions on belligerent occupation and then focuses on how these laws apply to underground water resources in the West Bank. Finally, Part III outlines potential developments for the maintenance of complicity with the developing law of belligerent occupation, taking into account developments in international water law.

I. THE CURRENT SITUATION

Israel and the West Bank lie within a semi-arid region bordering

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1. The topic of this note is the West Bank aquifer. By focusing on this region the author does not intend to imply that similar issues addressed here do not arise in other Israeli occupied territories, such as Gaza and the Golan Heights.

the Eastern Mediterranean Sea. The climate in the region ranges from semi-arid to arid. The greatest average rainfall of 750 to 500 millimeters per year (30-20 inches per year) falls on the coastal plains and western highlands while other regions receive considerably less precipitation.² By comparison, the record mean annual rainfalls for Los Angeles and Detroit are 14.91 inches and 31.49 inches respectively.³

Population growth due to immigration into Israel and a high rate of birth in the West Bank continues to place the region's scarce water resources under tremendous pressure. Israel already uses roughly 95 percent of its available annual renewable water sources.⁴ Through special domestic and agricultural conservation methods, the Israelis have efficiently maximized water utilization, but a major consequence of water scarcity in the region is the overuse of underground resources.⁵

Much of the water that Israel uses originates outside of its borders. A great portion of this extraterritorial water originates in the West Bank aquifer, a watershed straddling the border between Israel and the Occupied Territories. Israel and the West Bank constitute a single natural geological region for the exploitation of underground water.⁶ Most of the recharging of the aquifer occurs under the West Bank proper as rainwater and groundwater collected by the Judean and Samaritan highlands flows underground toward the Mediterranean coast.⁷ Israeli legal scholars recognize the importance of the joint aquifer to the quality of life in Israel and the corresponding need to protect and preserve its viability when discussing Israeli policies in the West Bank:

[T]he small number of subterranean catchment areas that exist are common to Israel and the Region [West Bank]. Any increase in the amount of water taken by one side reduces the amount available for the other, and can sometimes lead to permanent salination. To maintain the quan-

2. United Nations Natural Resources Council, *Groundwater in the Eastern Mediterranean and Western Asia*, 9 Natural Resources/Water Series at 73, U.N. Sales No. E.82.II.A.8 (1983) [hereinafter Resources Council Report]. The Resources Council Report provides substantial geographical data for Israel.

3. THE WEATHER ALMANAC 383, 527 (J. Ruffner & F. Bair eds. 1981).

4. T. NAFF & R. MATSON, *WATER IN THE MIDDLE EAST: CONFLICT OR COOPERATION?* 46 (1984); see also Report of the Secretary-General, *Permanent Sovereignty over national resources in the occupied Palestinian and other Arab territories*, at 7, U.N. Doc. No. A/39/326 (1984) [hereinafter Secretary-General Report 1984].

5. T. NAFF & R. MATSON, *supra* note 4, at 46.

6. Report of the Secretary-General, *Permanent sovereignty over national resources in the occupied Arab territories*, at 7, U.N. Doc. No. A/36/648 (1981) [hereinafter Secretary-General Report 1981].

7. Stauffer, *The Price of Peace: The Spoils of War*, AMERICAN-ARAB AFFAIRS, Summer 1982, at 43, 45.

tity and quality of water and avoid excessive use, restrictions have been placed on water-drilling, pumping and agricultural consumption in Israel, principally by imposing quotas. To balance the situation, a similar system of control was introduced in the Region.⁸

Various estimates place the contribution of the West Bank aquifer to annual Israeli consumption at between 25 and 40 percent of the State's needs.⁹

A. *Consequences of Israeli occupation and development policies*

Water development within Israel has benefitted from the occupation of the West Bank due to the Military Government's control over water development in the Territories. The ability to inhibit indigenous West Bank Palestinians from using the valuable water resources beneath them guarantees a steady flow of underground water into Israeli wells. Of the estimated 600 million cubic meters (mcm) available per year in the West Bank aquifer, 475 mcm flow westward toward the Israeli coast. Due to overpumping in Israel and restrictions on Palestinian pumping in the West Bank, Israel currently exploits 95.5 percent of the westward flow, while the West Bank inhabitants draw only 4.5 percent of the resource.¹⁰ The flow, as noted earlier, also provides crucial water pressure to prevent Israeli coastal wells from being destroyed by the encroaching subsurface sea waters.

The Israeli gains, however, have led to Palestinian losses. There is little doubt that absent Israeli occupation, the local population in the West Bank would currently be using the aquifer at a much higher rate. Though technologically lacking before the occupation began in 1967, it is likely that the region would have begun to tap and utilize water resources in the same manner that neighboring Jordan has. The United Nations Secretary-General notes that not only have the Palestinians been prevented from advancing their agricultural economy, but they have been forced to retrogress:

[A]s a result of Israeli actions already taken, the economic activity of a number of Arab inhabitants has already been reduced to a near subsistence level, as water which was available to them as of 1967 has been reallocated by the Israeli authorities for the use of new Jewish settlements or for Israel's own use.¹¹

8. ISRAEL NATIONAL SECTION OF THE INTERNATIONAL COMMISSION OF JURISTS, *THE RULE OF LAW IN THE AREAS ADMINISTERED BY ISRAEL* 59-60 (1981).

9. T. NAFF & R. MATSON, *supra* note 4, at 46-47 (roughly 40 percent); D. PERETZ, *THE WEST BANK: HISTORY, POLITICS, SOCIETY & ECONOMY* 65 (1986) (roughly one third); M. BENVENISTI, 1986 REPORT: DEMOGRAPHIC, ECONOMIC, LEGAL, SOCIAL AND POLITICAL DEVELOPMENT IN THE WEST BANK 20 (1986) (roughly one quarter).

10. M. BENVENISTI, *supra* note 9, at 21.

11. Secretary-General Report 1981, *supra* note 6, at 7.

To ensure that West Bank residents do not increase their use of groundwater, the Israeli military government has placed tight restrictions on the drilling of Arab wells.¹² The Israeli policy of requiring government permits to drill new wells has been extended to the West Bank to the disadvantage of the indigenous population. While under former Jordanian water legislation drilling permits were automatically issued to replace wells that had become insufficient for their licensed purpose, including irrigation, Israeli authorities have refused permission, for reasons of water security, for the drilling of new Arab irrigation wells.¹³ Despite the restrictions in the name of water security which the Israelis have imposed on Palestinians, Israel's direct use of the aquifer has increased due to pumping of water for Jewish settlements. Between 1967 and 1984, drilling of new wells was prohibited for Arab farmers (apart from two wells) while the Israeli water authority was permitted to drill at least 30 new wells.¹⁴ The capacity of each of these wells dwarfs that of Arab wells which are rarely permitted to be improved. Average Israeli wells with deep bores pump much more water than average Arab wells.¹⁵ One scholar has summarized the apparent inequities that Israel's water policies create in the Occupied Territories this way:

In effect, Israel is helping itself (or more precisely, its settlements) to the generous use of Arab groundwater in the eastern drainage area of the Jordan Valley, while imposing manifold restrictions on Palestinian water usage, especially from the western aquifers, on the grounds that it threatens salination of supplies to Israel proper. Irrigation wells have been metered and stiff fines imposed on Palestinians who exceed posted limits. Settlements by contrast, are not restricted.¹⁶

Israeli officials emphasizing the importance of continued Israeli control over the West Bank aquifer corroborate such a description. Former Minister of Agriculture Ariel Sharon has warned of the dangers

12. The restrictive Israeli legislation relating to water resources allocation has been enforced in the Occupied Territories under the auspices of Military Order No. 92 of 1967, concerning "Powers for water concerns," and Military Order No. 158 of 1967, amending the Jordanian Law on Water Supervision of 1953 as regards the West Bank. Secretary-General Report 1984, *supra* note 4, at 9. *But see Letter dated 19 March 1985 from the Chargé d'Affaires a.i. of the Permanent Mission of Israel to the United Nations addressed to the Secretary-General*, at 19-21, U.N. Doc. A/40/188 (1985) (arguing that restrictions are for the benefit of local inhabitants).

13. Secretary-General Report 1984, *supra* note 4, at 9; *see also* Stork, *Water and Israel's Occupation Strategy*, Merip Reports, July-August 1983 at 19, 21.

14. Secretary-General Report 1984, *supra* note 4, at 14.

15. Thirty percent of all water extracted from the West Bank aquifer is pumped by Israeli wells. Dillman, *Water Rights in the Occupied Territories*, J. PALESTINE STUD., Autumn 1989, at 46, 57. Stork states that Israeli wells in the West Bank drew "about 40 percent as much as the 33 million cubic meters produced by all 314 Palestinian wells." Stork, *supra* note 13, at 22.

16. Stork, *supra* note 13, at 22.

of relinquishing control of the aquifer,¹⁷ while Prime Minister Menachem Begin's administration insisted that full Israeli control of West Bank water resources must be a component of any proposal for Palestinian autonomy.¹⁸

The international legal status of the West Bank is currently the subject of much controversy but is not within the scope of this note. For the purpose of the present topic, it is important only to note that by occupying the West Bank at the end of the Six-Day War of 1967, Israel had gained control of the land above the West Bank aquifer and continues to have the status of a *de facto* occupier.

II. THE SITUATION IN LIGHT OF THE RULES ON BELLIGERENT OCCUPATION

The codified rules on belligerent occupation appear in two principal sources. The broad state acceptance of the Hague Regulations of 1907¹⁹ places them within the scope of customary international law. The Geneva Conventions, promulgated in 1949²⁰ and accepted as law by 165 states, were intended as a supplement to the Hague Regulations. The Hague Regulations primarily addressed issues surrounding the actual conduct of war, but also dealt with protection of the rights of individuals.²¹ The Geneva Conventions attempted to fill gaps in the humanitarian protections outlined in the Hague rules. Protocols to the Geneva Conventions have called for further restrictions on the powers of a belligerent occupier while at the same time including wars of national liberation within the scope of belligerent occupation law.²² Both the Hague Regulations and the Geneva Conventions and Protocols represent relatively recent trends in modern rules of warfare to limit the absolute powers of states in battle.²³ They were the culmination of liberal theories designed to prevent occupying powers from ex-

17. Skutel, *Water in the Arab-Israel Conflict*, INTERNATIONAL PERSPECTIVES 22 (July/August 1986).

18. Stork, *supra* note 13, at 21.

19. Regulations appended to the Fourth Hague Convention of the Laws and Customs of War on Land, 32 Stat. 1803, II Malloy 2042, 1 Bevans 247 1907 [hereinafter Hague Regulations].

20. 75 U.N.T.S. 5 (1949). Of particular importance to the present issue is the Fourth Geneva Convention Relative to the Protection of Civilian Persons in Time of War of August 12, 1949, 6 U.S.T. 3516, T.I.A.S. No. 3365, 75 U.N.T.S. 287 [hereinafter Fourth Geneva Convention].

21. Roberts, *The New Rules for Waging War: The Case Against Ratification of Additional Protocol I*, 26 VA. J. INT'L L. 109, 114 (1985).

22. *Id.* at 124.

23. Report of the Secretary General, *Implications, under international law, of the United Nations resolutions on permanent sovereignty over natural resources, on the occupied Palestinian and other Arab territories and on the obligations of Israel concerning its conduct in these territories*, at 13-14, U.N. Doc. A/38/265 (1983) [hereinafter Secretary-General A/38/265].

erting undue interference with the sovereign of an occupied territory and the civilian interests within it.²⁴

A. *Application of Norms of Belligerent Occupation to the West Bank*

The applicability of international norms to the West Bank and other territories occupied by Israel is the subject of some controversy. While Israel declares that it abides *de facto* by the rules of the Fourth Geneva Convention which it ratified in 1951, it refuses to acknowledge the Convention's mandatory application to the Arab territories it occupied after the Six-Day War of 1967. Simply put, the official Israeli position is based on the assertion that only territory from which a legitimate sovereign has been ousted is within the scope of the Geneva norms.²⁵ The questionable legitimacy of Jordanian sovereignty over the West Bank from 1949 to 1967, Israel argues, disqualifies the territory from the above definition and thus precludes mandatory application of the Fourth Geneva Convention.²⁶

The official Israeli stance has been criticized by a number of commentators²⁷ and the applicability of the Fourth Geneva Convention to the occupied territories has been asserted by the International Committee of the Red Cross, various United Nations bodies including the Security Council and the General Assembly, and most governments including the United States.²⁸ For the purposes of their application, the *de facto* implementation of the rules of the Fourth Geneva Convention moots the technical refusal by Israel of *de jure* invocation. Furthermore, Israel readily accepts the application of the Hague Regulations to the Occupied Territories.²⁹ Thus, while questions of the

24. E. FEILCHENFELD, *THE INTERNATIONAL ECONOMIC LAW OF BELLIGERENT OCCUPATION* 10 (1942).

25. Shamgar, *The Observance of International Law in the Administered Territories*, 1 ISRAEL Y.B. HUM. RTS. 262, 263 (1971). Meir Shamgar was Attorney General of Israel when he adopted the above argument.

26. *Id.* at 265; E. COHEN, *HUMAN RIGHTS IN THE ISRAELI-OCCUPIED TERRITORIES 1967—1982* 44 (1985). Cohen states that Israel's primary concern in denying applicability of the Convention involved a reluctance to recognize in any manner the legitimacy of Jordanian sovereignty over the region. *Id.* at 45.

27. E. COHEN, *supra* note 26, at 51; Boyd, *The Applicability of International Law to the Occupied Territories*, 1 ISRAEL Y.B. HUM. RTS. 258 (1971); W. MALLISON & S. MALLISON, *THE PALESTINE PROBLEM IN INTERNATIONAL LAW AND WORLD ORDER* (1986). For a criticism of Israeli arguments regarding other territories, see Note, *The Law of Belligerent Occupation and the Legal Status of the Gaza Strip*, 9 MICH. Y.B. INT'L LEGAL STUD. 385, 389 (1988). For a synopsis of the arguments for and against applicability of the Fourth Geneva Convention to the Occupied Territories, see Recent Developments, *Recent Israeli Security Measures under the Fourth Geneva Convention*, 3 CONN. J. INT'L L. 485 (1988).

28. Boyd, *supra* note 27, at 259.

29. E. COHEN, *supra* note 26, at 43.

jurisdiction of the rules governing occupation may have extra-political ramifications, they are of little importance to a discussion of their actual implementation in the case of the West Bank aquifer.

Any application of these rules to the type of issues surrounding the West Bank aquifer, however, is qualified in part by the reluctance of States to eschew broad economic rights within the territories they may come to occupy. Both the Hague Regulations and the Geneva Conventions are relatively silent on the broader economic rights of the citizenries they are intended to protect. Von Glahn states that while the Geneva Conventions provided beneficial elaborations of the positive principles appearing in the Hague Regulations, the absence of explicit references that would limit the economic rights of occupying powers was clearly intentional:

[C]ertain vital areas of belligerent occupation have been left untouched by the [1949 Conventions] and are thus not regulated specifically by conventional international law, such as many aspects of economic exploitation of occupied enemy areas. This omission is not very surprising, inasmuch as the contents of both the Hague Regulations and the Fourth Geneva Convention represent compromises between sharply opposing national points of view and denote in many instances the current maximum concessions which major military powers are willing to grant in favor of the inhabitants of occupied territory. No one need wonder excessively at the hesitation of military men and of politicians to sacrifice all economic benefits possibly accruing from belligerent occupation in an age when technological warfare depends on a steady supply of raw materials and manufactured goods of almost infinite variety.³⁰

Underlying von Glahn's statement is the notion that the broad economic exploitation of occupied territory becomes an irresistible asset to support the militarily mobilized societies of today's conflicts which have replaced the pillaging private armies of yesterday. The danger of inexplicit rules regarding economic exploitation comes in the form of occupiers who employ harsh economic measures "which remain within the letter of the law even if they run counter to its original spirit" of protecting a territory's inhabitants.³¹

One body of law which sought to fill in the economic gaps of occupation law has yet to receive broad acceptance. Protocol I of the Geneva Conventions of 1949³² aims to "reaffirm and develop the

30. G. VON GLAHN, *THE OCCUPATION OF ENEMY TERRITORY. . . A COMMENTARY ON THE LAW AND PRACTICE OF BELLIGERENT OCCUPATION* 20-21 (1957).

31. E. FEILCHENFELD, *supra* note 24, at 25.

32. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), *opened for signature* Dec. 12, 1977, U.N. Doc. A/32/144, Annex I, *reprinted in* 16 I.L.M. 1391 (1978), and INTERNATIONAL COMMITTEE OF THE RED CROSS, *PROTOCOLS ADDITIONAL TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949*, at 3 (1977) [hereinafter Protocol I].

provisions protecting the victims of armed conflicts and to supplement measures intended to reinforce their application."³³ The protocol is marked by its sweeping protection of occupied people's rights and its tighter restrictions on occupying powers. In particular, Protocol I addresses the protection of objects indispensable to the survival of a civilian population.³⁴ Water resources are explicitly included within the language of article 54³⁵ and article 55 states that "care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage."³⁶

While the language of article 54 appears directly applicable to the question at hand, as of December 1986, only 66 countries had ratified or acceded to it.³⁷ Although Jordan has ratified the protocol, Israel has neither signed nor ratified it. The United States, the Soviet Union and other dominant actors in international affairs also have not ratified the document.³⁸ Given the lack of Israel's adherence to Protocol I, it is not directly applicable to the situation regarding the West Bank aq-

33. *Id.*, preamble.

34. Protocol I, article 54, paragraph 2 reads:

It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.

The above language is qualified by that found in the third and fifth paragraphs of the same article:

3. The provisions in paragraph 2 shall not apply to such of the objects covered by it as used by an adverse Party:

(a) as sustenance solely for the members of its armed forces; or

(b) if not as sustenance, then in direct support of military action, provided, however, that in no event shall actions against these objects be taken which may be expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement.

5. In recognition of the vital requirements of any Party to the conflict in the defence of its national territory against invasion, derogation from the prohibitions contained in paragraph 2 may be made by a Party to the conflict within such territory under its own control where required by imperative military necessity.

Id.

35. *Id.*

36. *Id.* at art. 55. While the language of article 55 arguably might apply to the protection of water aquifers as a part of the environment, further language in article 55 implies that it applies to only those actions of warfare "intended. . . or expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population." *Id.*

37. International Committee for the Red Cross, *Status of Four Geneva Conventions and Additional Protocols I and II*, 26 I.L.M. 553 (1987).

38. In 1987, U.S. President Reagan recommended Senate ratification of Protocol II Relating to the Victims of Non-International Armed Conflicts, *reprinted in* 16 I.L.M. 1442 (1977), but did not submit Protocol I for ratification, describing it as "fundamentally and irreconcilably flawed." Message from the President transmitting Protocol II Additional to the 1949 Geneva Conventions, Relating to the Protection of the Victims of Non-International Armed Conflicts, 26 I.L.M. 561, 562 (1987).

uifer; while the protocol is championed by the United Nations as a new development in substantive international law,³⁹ its cold reception by other international actors precludes it from consideration as a source of customary law.⁴⁰ Protocol I's directly relevant language can serve only as a persuasive model of how Israel might behave regarding the West Bank aquifer, not how it must behave to be in accord with international law. Further discussion of the relevant non-obligatory norms of Protocol I will appear in the final section of this note dealing with potential developments.

B. *Application of the Hague Regulations and the Fourth Geneva Convention*

Despite the absence of explicit provisions dealing with the protection of economic resources in the Hague Regulations and the Fourth Geneva Convention, both documents codify principles applicable to such protection. The case of the West Bank aquifer is particularly complex in this regard because of the many ways in which water and water usage can be categorized for the purposes of both bodies of law. For example, water may or may not be considered an immovable property under the terms protecting such properties in the Hague Regulations. Similarly, water may or may not fall within the scope of those provisions dealing with foodstuffs and medical supplies in the Fourth Geneva Convention. Furthermore, water from wells may qualify as private property, public property or a hybrid between the two in the form of municipal property; the different ownership categories determine which principles to apply in both the Hague and Geneva instruments. Finally, water may even be categorized as a weapon integral to the conflict between the parties. The ubiquity of water in the above theoretical paradigms is a direct result of its scarcity in the actual situation. The geological linking of crucial water supplies in the region guarantees the preeminence of water considerations in all aspects of occupation. The relative abundance of water in Europe during the periods of conflict which gave rise to the Hague and Geneva instruments likely explains the oversight of its potential importance in other regions.

In light of the above, water potentially applies to many portions of

39. Secretary General A/38/265, *supra* note 23, at 12.

40. The diverging opinions apparent among scholars after the presentation of Protocol I also weakens any assertions that it has become customary. See generally Roberts, *supra* note 21; Bagley, *Ratification of Protocol I to the Geneva Conventions of 1949 by the United States: Discussion and Suggestions for the American Lawyer-Citizen*, 11 LOY. L.A. INT'L & COMP. L. J. 439 (1989); Aldrich, *Commentary: Progressive Development of the Laws of War: A Reply to Criticisms of the 1977 Geneva Protocol I*, 26 VA. J. INT'L L. 693 (1986).

the conventional laws on occupation. The most obvious of these is the concept of usufruct embodied in article 55 of the Hague Regulations of 1907.⁴¹ Article 55 reads:

The occupying State shall be regarded only as an administrator and usufructuary of public buildings, real estate, forests, and agricultural estates belonging to the hostile State, and situated in the occupied country. It must safeguard the capital of these properties, and administer them in accordance with the rules of usufruct.⁴²

While the Hague Regulations offer no specific definition of the term usufruct, it is apparent that the drafters realized its use as a legal term of art and intended that it inculcate general principles associated with it at the time.⁴³ Generally defined, usufruct is "the right of using and enjoying the property of other people, without detriment to the substance of the property."⁴⁴ A common understanding is that usufruct permits the exploitation of the fruits of a property without a broader right of ownership.⁴⁵ Included within the common definition of usufruct and the "safeguard" language used in article 55 is the notion that the powers of the occupant are limited by a concern for the future value of the property. Von Glahn states that while article 55 grants an occupying power the right to profit, it prohibits it from exploiting the property "beyond normal use."⁴⁶

The scope of article 55 encompassing state-owned public buildings, real estate, forests and agricultural estates also distinguishes these items from movable state-owned chattels subject to appropriation under article 53.⁴⁷ Article 53, paragraph 1, of the Hague regulations reads:

An army of occupation can only take possession of cash, funds, and realizable securities which are strictly the property of the State, depots of arms, means of transport, stores and supplies, and, generally, all *movable* property belonging to the State which may be used for operations of war.⁴⁸

While the movable-immovable properties distinction is not explicitly spelled out in the Regulations, the necessary interpretations of articles

41. Secretary-General A/38/265, *supra* note 23, at 13-14.

42. Hague Regulations, *supra* note 19, art. 55.

43. Clagett & Johnson, *May Israel as a Belligerent Occupant Lawfully Exploit Previously Unexploited Resources on the Gulf of Suez?*, 72 AM. J. INT'L L. 558, 566 (1978).

44. *Id.* at 567, citing THE INSTITUTES OF JUSTINIAN 2.4 (J. Abdy & B. Walker trans. 1876). For an analysis of the difference between usufruct and title, see Goldie, *Title and Use (and Usufruct)—An Ancient Distinction Too Oft Forgotten*, 79 AM. J. INT'L L. 689 (1985).

45. United States Dept. of State Legal Adviser, Memorandum of Law, Oct. 1 1976, *reprinted* in 16 I.L.M. 733, 736 (1977) [hereinafter U.S. Memorandum].

46. G. VON GLAHN, *supra* note 30, at 177.

47. See E. FEILCHENFELD, *supra* note 24, at 52-54.

48. Hague Regulations, *supra* note 19, art. 53 (emphasis added).

53 and 55 have led most scholars to accept the distinction.⁴⁹ The distinction becomes critical regarding items for which a classification is not readily apparent. Under article 53, the occupying power's right to possess state-owned movable properties is much broader than in the case of immovable state-owned property.⁵⁰ In addition to state-owned financial resources, military equipment, transport systems and stockpiles, the occupying power can legitimately appropriate any other movable property of the enemy state if it can serve a military purpose.⁵¹ Once a resource classifies as a munition, nothing bars an occupying power from exhausting it under article 53. Conversely, article 55 limits an occupying power's ability to exhaust resources, but, on its face, the article does not restrict usufructuary rights only to those resources adaptable to military purposes. Article 55 has no explicit limitations on the nature of the occupier's use of the resources, but scholars have suggested that such limitations exist. The post-World War II notion that the economy of an occupied region could only be required to bear the expenses of the occupation itself restricts an article 55 usufructuary from disposing of property for purposes other than the maintenance of public order.⁵² Thus, article 55 further protects properties integrally associated with the territory occupied from the exhaustion of supply implicitly accepted for movable properties in article 53.

The situation most analogous to that of the West Bank aquifer and the source of the most recent discussion of usufruct as it relates to belligerent occupancy involves the extraction of oil.⁵³ The Israeli practice of exploiting oil fields previously developed by Egypt began shortly after Israel occupied the Sinai territory in the Six-Day war of 1967. When these fields were returned to Egypt under the phased Israeli-Egyptian disengagement agreements in the 1970s, Israel began to develop Egypt's previously unexploited oil reserves in the eastern Gulf of Suez.⁵⁴ The activities ran counter to the interests of a U.S. oil company and the United States and Israel exchanged legal memoranda expressing their respective theories on the validity of Israel's actions under the Hague Regulations.⁵⁵ The United States took the position

49. See, e.g., E. FEILCHENFELD, *supra* note 24, at 52; G. VON GLAHN, *supra* note 30, at 176.

50. G. VON GLAHN, *supra* note 30, at 180.

51. *Id.* at 181. Von Glahn adds that in modern practice, few state-owned articles escape confiscation by an occupying power because of broad interpretations regarding the adaptability of most raw materials into arguably military purposes. *Id.*

52. Secretary General A/38/265, *supra* note 23, at 15.

53. *Id.* at 14.

54. See Clagett & Johnson, *supra* note 43, at 558.

55. U.S. Memorandum, *supra* note 45; Government of Israel, Memorandum of Law, *re-*

that the exploitation of previously unexploited immovable property was a violation of article 55 of the Hague Regulations in that it violated generally accepted principles regarding usufruct.⁵⁶ Israel contended that the applicability of the Hague Regulations in the Sinai was questionable,⁵⁷ but that, even within the Regulations' limits, the Israeli practice was legitimate.

Both parties referred to a decision by the Singapore Court of Appeal⁵⁸ which dealt with privately owned oil deposits exploited by Japanese forces during the World War II occupation of the Dutch East Indies. The Chief Justice's ruling that the oil deposits were immovable⁵⁹ supports the United States argument. A concurring opinion provides some support to the Israeli argument that such reserves may be classified as munitions subject to legitimate confiscation by an occupying force under article 53 of the Hague Regulations.⁶⁰ Some commentators have provided different views as to whether oil deposits may be classified as munitions, but none conclusively state that such property is not immovable.⁶¹

While underground water sources and oil deposits differ in many respects, the similarities between them in determining whether subsurface water resources are immovable for article 55 purposes cannot be ignored. Both oil and subsurface water require subterranean extraction through varying levels of collective effort. Both are integrally linked to the properties beneath which they are located. Both may

printed in 17 I.L.M. 432 (1978) [hereinafter Israel Memorandum]. See Clagett & Johnson, *supra* note 43, at 566.

56. "The civil law tradition generally recognizes a usufructuary's right to continue, at the previous rate of exploitation, to work mines that had that had been already opened by the owner at the time the usufruct began. The usufructuary may not open new mines and exploit them even at a reasonable rate." U.S. Memorandum, *supra* note 45, at 737 (basing their argument on French civil law and common law as representative norms). The State Department noted that German rules regarding usufruct were more liberal than those outlined above, but added that article 55's separate emphasis on an occupying power's duty to safeguard the capital of the property "precludes any rule which even less protection for that capital than the French or common law interpretations." *Id.* at 740.

57. Israel Memorandum, *supra* note 55, at 432, 442. The Israeli argument cites Feilchenfeld for the proposition that the Hague Regulations on belligerent occupation apply to only the type of belligerent occupation involving armies "still fighting in the field." *Id.* at 433.

58. *N.V. de Bataafsche Petroleum Maatschappij v. The War Damage Commission*, 23 I.L.R. 810 (1956).

59. *Id.* at 824.

60. The concurrence of Justice Whitton indicates that "changes in the nature of warfare necessarily make it difficult to determine whether crude oil is a '*munition de guerre*'." Whitton does not refute the majority opinion's determination that oil deposits are immovable, but suggests that article 53 is more applicable to the situation than article 55 because of oil's increasingly strategic value. *Id.* at 846-47. He eventually agrees with the court's outcome because of the wrong inflicted upon the private owners who were not recompensed by the Japanese as required under other Hague Regulations regarding requisition of private property. *Id.* at 849.

61. Clagett & Johnson, *supra* note 43, at 563 n.27.

straddle international boundaries. Though underground water sources are renewable and oil deposits are essentially non-renewable, overdrafting of water aquifers may lead to permanent damage and consequent non-renewability.⁶² Instances of such abuse classify as "mining" because of the essential inability of an aquifer to renew itself when the overdraft has been too severe.⁶³ Hence, oil deposits and certain underground water supplies would seem to deserve similar treatment in international law.

The traditional line of demarcation between movable and immovable items is drawn by prevailing notions of the economic significance of the item.⁶⁴ Yiannopoulos describes the traditional reasons for providing extra property protections to immovable items and contrasts them with modern trends:

Since ancient times and up to the era of the industrial revolution, landed property was regarded as the most important species of wealth from the viewpoints of both social and individual interests. Hence, particular rules were developed to safeguard interests connected with the use and enjoyment of landed property. In modern times, economic emphasis has shifted to values other than landed property and the law has been slowly developing in new directions. In medieval civil law, the criteria for the distinction between movables and immovables were durability and the utility of the thing as a source of income. In contemporary civil law the distinction rests, in principle, on physical notions and on "inherent" characteristics of things.⁶⁵

Given the essential nature of underground water in the West Bank and Israel, and water's importance to societal wealth generally, underground water resources would appear to qualify for the special protection provided for immovable properties under the Yiannopoulos description. The United Nations Secretary General has underscored the fact that "the economic value of land in this region is directly dependent on the availability of water supplies."⁶⁶

Assuming that the West Bank aquifer falls within a pattern of state

62. The potential for this in Israel is outlined in Davis, Maks, & Richardson, *Israel's Water Policies*, J. PALESTINE STUD., 3, 16 (Winter 1980) (outlining an Israeli author's concerns that previously static salinity belts surrounding Israel's main fresh water aquifer might irreversibly spoil sweet waters due to excessive pumping from the aquifer). Overextraction has already been associated with irreversible salinity damage to some West Bank wells in the vicinity of Jericho where two new wells were sunk by the Israeli government near an existing well. Dillman, *supra* note 15, at 56. See also D. PERETZ, *supra* note 9, at 65.

63. J. SAX & R. ABRAMS, LEGAL CONTROL OF WATER RESOURCES 831 (1986); but see *id.* at 822-24 (discussion of the general differences between overdraft and mining).

64. Yiannopoulos, *Movables and Immovables in Louisiana and Comparative Law*, 22 LA. L. REV. 517, 518 (1962).

65. *Id.* Yiannopoulos goes on to state that policy developments may lead to classifications of movable and immovable properties contrary to lay notions. *Id.*

66. Secretary-General Report 1984, *supra* note 4, at 6.

ownership, under article 55 of the Hague Regulations, Israel assumes a usufructuary power over it. While the power to control the aquifer is complete, its use by Israel is limited to that which "safeguards" the value of the property and does not exceed normal use.⁶⁷ The nature of Israel's use is also confined to that which maintains public order and safety in the West Bank. Israel's present activities regarding the aquifer may exceed these limitations.

Water resources for the West Bank are under the authority of *Mekorot*, the Israeli Water Company, which is owned jointly by the Israeli government, the Jewish Agency, the Jewish National Fund and Histadrut, an Israeli workers union.⁶⁸ Much of the activity of *Mekorot* involves the establishment and maintenance of a water distribution system that meets the needs of the country's inhabitants. Since the beginning of its occupation in 1967, Israel has settled civilians within the West Bank, both around Jerusalem and in outlying regions.⁶⁹ *Mekorot* has increasingly permitted and overseen the tapping of the West Bank aquifer to meet the domestic and irrigation needs of Israeli settlers.⁷⁰ Simultaneously, *Mekorot*, along with the Israeli government, has severely restricted the ability of Palestinian inhabitants to use the aquifer themselves.⁷¹

The result of *Mekorot* and government policies has been disproportionately high levels of consumption by a relatively small number of Israeli settlers. Such consumption may exceed the twin constraints of "normal use" and "maintenance of public order." Excluding the entire population of East Jerusalem, Israeli settlers amount to only three percent of the West Bank population, yet they account for 20 percent of its total water consumption with 96 percent of that consumption assigned to irrigation.⁷² Thus, three percent of the West Bank population outside of Jerusalem is using roughly 20 percent of the area's consumable water for non-domestic purposes. This high level of agricultural use combined with restrictions on the indigenous population's water accessibility arguably constitutes an abnormal use contrary to the spirit of article 55 which is intended to safeguard resources for the occupied populace.

There are substantive and theoretical abnormalities in the Israel's

67. See *supra* notes 45-47 and accompanying text.

68. Dillman, *supra* note 15, at 54.

69. The legal or illegal status of these settlements in light of international law is not within the scope of this note.

70. Dillman, *supra* note 15, at 54-59.

71. Secretary-General Report 1984, *supra* note 4, at 11-12.

72. D. PERETZ, *supra* note 9, at 65.

present use. The use is abnormal in practice because it far exceeds the traditional per capita consumption of the Palestinian residents;⁷³ it is also abnormal in principle because Israel, through its restrictive policies, has turned the West Bank aquifer into an Israeli reservoir. An assumedly "normal" use of the aquifer would entail independent, but responsible tapping of the resource by the indigenous population. Under the present "abnormal" use, Palestinians are prevented from satisfying their own water needs to satisfy Israel's evergrowing needs.

Abnormalities also exist in the legal and institutional framework for water administration imposed by the Israeli government. Present Israeli policies and practices differ fundamentally from those in effect in the West Bank before 1967.⁷⁴ One example of this is Israel's implementation of a "water sharing" system whereby it freely moves water from one water basin or aquifer to another.⁷⁵ Under formerly implemented Jordanian laws, such transfers were forbidden.⁷⁶ Such shifting can affect use patterns and established water rights in the region. To the extent "water sharing" results in a net water loss to the Occupied Territories, it raises the issue of direct water transfer from the Occupied Territory to the occupying power's own territory.⁷⁷

Arguably the Israelis are using the aquifer in a manner which the Palestinians would soon adopt if left to their own devices; it might follow that such irrigation projects do not constitute abnormal use. However, the normal use of water should be defined by the indigenous Palestinians rather than the occupying force. If they decide to change water consumption patterns on their own, they will obviously change the standard for normal use. This change is their own prerogative and

73. In 1982, the West Bank Palestinian consumption per capita approached 35 cubic meters per year in towns and 15 cubic meters per year in villages. While this consumption is predicted to gradually increase to 60 cubic meters in towns and 35 cubic meters in villages per annum by the year 2010, planned consumption per capita for Israeli settlements is 90 cubic meters per annum. M. BENVENISTI, *supra* note 9, at 22. "The total amount of water planned for allocation to the Arab sector (agricultural and domestic consumption) [in 1990] is 137 million cubic meters per year (for about one million people) and for the Jewish Population, approximately 100 million cubic meters (for about 100,000 people)." *Id.*

74. Secretary-General Report 1984, *supra* note 4, at 15.

75. *Id.* at 15 (citing STATE OF ISRAEL, MINISTRY OF DEFENSE, JUDEA-SAMARIA AND THE GAZA DISTRICT: A SIXTEEN-YEAR SURVEY (1967-83)).

76. *Id.*

77. *Id.* Concerns related to "water sharing" have recently reached a new level. Israeli water officials have authorized an ambitious drilling project near Bethlehem into part of the eastward running aquifer. The well, at a proposed depth of 1,000 meters with horizontal branches, may threaten shallow Arab wells. Fifty percent of the outflow would be directed to West Jerusalem and West Bank settlements. See Letter dated July 1987 from the Permanent Representative of Jordan to the United Nations addressed to the Secretary-General, U.N. DOC. A/42/385 (1987); Plan to Drill for Water on West Bank Stirs Dispute, The Washington Post, Oct. 1, 1987, at A31, col. 1.

a sovereign right. As an occupying power, however, Israel cannot foist these changes upon an occupied people without overstepping the bounds of normal use. To hold that an occupying power can unilaterally redefine normal use patterns, would negate any meaning that the doctrine would have regarding proper limits to an occupying power's actions.

The water that remained within the aquifer due to relatively low levels of irrigation in the area before the Israeli occupation is arguably similar to the unexploited oil fields in the Sinai prior to the Israeli occupation there. The United States argument that new oil wells were violative of article 55's principle of usufruct implies that new water wells would be equally prohibited. While, as has been stated, water is a more readily renewable resource than oil, commentators have expressed a concern over potentially permanent damage to the aquifer as a result of overextraction.⁷⁸

The above arguments assume the correct application of the concept of usufruct and article 55 of the Hague regulations. As noted earlier, it is sometimes questionable whether article 53 of the Hague Regulations, governing the requisition a state's movable property adaptable to the operations of war, should apply instead.⁷⁹ While von Glahn argues that most state-owned articles can be construed to involve a military function,⁸⁰ the use of water as a weapon at first appears counter intuitive. Greenspan is one theorist who has classified water as a potential instrument of war: "Enemy forces may be deprived of food and water in order to compel them to surrender. For this purpose springs may be dried up and rivers and aqueducts diverted."⁸¹ As crucial as water supply is in the Middle East, it is more likely to become a useful weapon than in other regions. Most of the direct conflicts in the Arab-Israeli disputes can be linked with aggressive and defensive water policies on both sides.⁸² In this "water as a weapon analysis," however, it is important to keep in mind the distinction that Greenspan makes regarding enemy "forces." His statement implies that civilians in a conflict should not be subject to the same

78. See *supra* note 8 and accompanying text.

79. See *supra* note 61 and accompanying text.

80. G. VON GLAHN, *supra* note 30, at 181.

81. M. GREENSPAN, *THE MODERN LAW OF WARFARE* 316-17 (1959). Greenspan goes on to state, however, that it is forbidden to deliberately contaminate water intended to be used by the enemy. *Id.*

82. *Report of the Security Council Commission Established Under Resolution 446 (1979)*, at 36, U.N. Doc. S/14268 (1980) [hereinafter Security Council Report 1980]; see also Skutel, *supra* note 17, at 22. Israel, Syria and Jordan have each engaged in water diversion projects with presumably negative effects on other parties in the region. See T. NAFF & R. MATSON, *supra* note 4, at 36-37.

measures. This implication is backed by the primary purposes of the laws of belligerent occupation which are to protect civilians during time of war. Thus, water is a legitimate weapon only against "forces," an isolated group of troops, for instance, and not against civilians. It follows that while Israel may be able to seize control of the West Bank aquifer because of its potential uses as a weapon against Israel, it must not deprive Palestinian civilians of the resource. Uncoordinated activities of civilians, unlike those of governments or military forces, do not amount to use of water as a munition. In seizing the resource, Israel must acknowledge that, vis-à-vis Palestinian civilians, water is not a weapon. Therefore, even if Israel decides to control the resource, it cannot justifiably deprive Palestinian civilians from using it under Israeli dominion.

The above analysis indicates a gap in Greenspan's perception of water as a weapon. Greenspan only views water as a direct military weapon and does not consider its general security value. Regardless of a state of conflict or peace between Israel and the Palestinians, water security in Israel depends on maintaining a certain underground flow from the West Bank. Water security for Palestinians entails maintaining an increasing flow to the surface. Given the apparent value of water as a security asset and its value as a vital natural resource, the best rule to adapt in such a circumstance would consider water as both a vital natural resource and a strategic asset. This result seems to call for the joint and simultaneous application of articles 53 and 55 of the Hague Regulations. While water may be requisitioned as a potential instrument of war under article 53, it should also be subject to article 55's conditions of usufruct outlined earlier. This combination of rules takes into account the security of the occupying power and the well-being of the occupied civilian populace. Under such an analysis, the occupied regions's resources are protected from exhaustion by the principles of usufruct, while the occupying power can requisition the water it needs for legitimate security purposes only. While the combined powers of article 53 and article 55 appear to be less than those of each regulation taken separately,⁸³ such a result reinforces the principles behind the rules despite the technical ambiguities in their language. Thus, the economic inadequacies of the rules as noted by Feilchenfeld and von Glahn⁸⁴ can be overcome in the crucial concern

83. Put simply, in the combination of the two regulations, article 53 limits the application of article 55 to military purposes and article 55 places usufructuary conditions on the requisitions of article 53. It must be noted that the combined approach need only be taken with properties such as water, which while potentially of strategic value, are crucial to the well being of the civilian populace.

84. See *supra* notes 30-31 and accompanying text.

for water resources.

Thus far, the analyses of both article 55's concept of usufruct and article 53's application to properties adaptable for military purposes have assumed that water in the West Bank has always been a state-owned resource. This assumption is a broad one, but is not without arguable validity. Under Jordanian law, contrary to present Israeli law, private water ownership rights were recognized.⁸⁵ However, groundwaters, before being brought to the surface, were not subject to private ownership.⁸⁶ Water in an aquifer was thus implicitly subject to the state's jurisdiction. Underground Water Control Regulation, No. 88 of 1966 provided the state with the authority to regulate the flow of underground water prior to the 1967 War.⁸⁷ The limits to the actual ownership of underground waters and the state's subsequent control act qualify the resource as state property for the purposes of the laws of belligerent occupation.⁸⁸ Still, issues of mixed public/private property may arise in the form of state-owned resources subject to municipal or proprietary rights.⁸⁹ In such a case, the right itself to pump water may be considered a private property.

If any underground water or the right to pump it is determined to be of a private nature, it would be subject to stronger protections against the occupier's use. Article 52 of the Hague Regulations provides that:

Requisitions in kind and services shall not be demanded from municipalities or inhabitants except for the need of army occupation. They shall be in proportion to the resources of the country, and of such nature as to not involve the population in the obligation of taking part in the operations of the war against their country.⁹⁰

Thus if any underground waters or the use thereof are of a private or municipal nature, they are only subject to requisition for use by army forces. The proportionality language of the regulation requires that care be taken that such use does not exhaust the local supply.

Though articles 55 and 53 of the Hague Regulations are the most generally applicable rules of belligerent occupation regarding the West Bank aquifer, the Fourth Geneva Convention provides more specific language. The Fourth Geneva Convention supplements the general rules of the Hague Regulations with an increased emphasis on the

85. D. CAPONERA, *WATER LAWS IN MOSLEM COUNTRIES* 99 (1973).

86. *Id.*

87. *Id.*

88. See E. FEILCHENFELD, *supra* note 24, at 52 (discussing the tests by which to determine questionably state-owned properties for the purposes of the Hague Regulations).

89. See Secretary-General Report 1984, *supra* note 4, at 9.

90. Hague Regulations, *supra* note 19, art. 52.

rights of individual citizens during a time of occupation. While rules to protect the entire citizenry are less clear than those applying specifically to individuals and institutions, the convention does include provisions that elaborate on the Hague Regulations protection of group rights. Article 55 of the Fourth Geneva Convention is particularly relevant to the question of the West Bank aquifer. The second paragraph of the article reads:

The Occupying Power may not requisition foodstuffs, articles or medical supplies available in the occupied territory, except for use by the occupation forces and administration personnel, and then only if the requirements of the civilian population have been taken into account. Subject to the provisions of other international Conventions, the Occupying Power shall make arrangements to ensure that fair value is paid for any requisitioned goods.⁹¹

While water resources are not specifically mentioned as they are in the later Protocol I,⁹² they are likely to fall under the scope of "foodstuffs" or "articles." The general language of the provision implies a high level of protection of the occupied people's rights to use any resources, private or public, existing in the territory with minimal interference from the requisitioning of the occupying power. Unlike articles 55 and 53 of the Hague Regulations, article 55 of the Fourth Geneva Convention makes no distinction between state-owned and privately owned goods.⁹³

While Israeli courts have accepted government arguments that settlements, and presumably the water that they draw from the West Bank aquifer, are justified by Israel's security needs,⁹⁴ it is questionable whether such a notion of general security needs falls within the scope of "use by the occupation forces and administration personnel" outlined in the provision. In any regard, the Israeli well-drilling operations in the region have rarely taken into account the needs of the occupied populace. One example of Israeli indifference to the needs of the occupied populace is seen in the drilling of Israeli wells in close

91. Fourth Geneva Convention, *supra* note 20, art. 55.

92. See *supra* note 34 and accompanying text.

93. In fact, another article in the convention with potential application to natural resources specifically negates the difference between publicly and privately held property. Article 53 of the Fourth Geneva Convention deals with destruction of property and reads:

Any destruction by the Occupying Power of real or personal property belonging to individually or collectively to private persons, or to the State, or to other public authorities, or to social or cooperative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military operations.

In addition to highlighting the lack of differentiation between public and private property, article 53 may also be specifically applicable to the West Bank aquifer. High levels of Israeli water extraction from the aquifer may lead to its destruction. Deep bore wells placed near more shallow Arab wells have arguably led to the individual destruction of Arab water facilities.

94. E. COHEN, *supra* note 26, at 156-59.

proximity to Palestinian wells. New wells dug for Israeli settlements within a few hundred meters of existing Arab wells or springs have drastically diminished the water supply of certain villages.⁹⁵ Thus while the Israeli government has claimed *de facto* compliance with the Fourth Geneva Convention, it does not appear to meet its high standards.

III. POTENTIAL DEVELOPMENTS

So far this note has analyzed the application of existing conventions on belligerent occupation to the situation of the West Bank aquifer. In each case, the analysis has been an exercise in tailoring relatively ill-fitting rules to meet a situation which the drafters of the conventions did not anticipate. The necessary exploitation of the same crucial groundwater resources by both the occupied and the occupier in an arid region appears to be a scenario in which the needs of both parties are mutually exclusive. The water security needs of Israel require some form of guarantee that a certain amount of water continue to flow from the West Bank aquifer, not only to supply usable water but also to provide the necessary water pressure to prevent Mediterranean salination of Israeli wells. The sovereignty and development of Palestinians, however, is equally dependent upon self-control of the water resources beneath them.

The only international rule that begins to approach an accommodation of both parties interests, article 54 of Protocol I of the Geneva Conventions of 1949, has been discussed briefly in the previous section. Though Protocol I in its entirety has not been ratified by Israel, there are strong arguments for the implementation of article 54 alone in the case of the West Bank aquifer. The concepts of article 54 when combined with developing principles of international groundwater law can create a mutually beneficial situation rather than the mutually exclusive outcome discussed above.

Article 54 states quite boldly that "[i]t is prohibited to . . . remove [or] . . . render useless objects indispensable to the survival of the civilian population, such as . . . drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population . . . whatever the motive . . ."⁹⁶ The official commentary on the Protocol emphasizes that the

95. Security Council Report 1980, *supra* note 82, at 41-42 (listing six villages by name and recounting incident where one Israeli well was approved despite a warning from the water authority of adverse affects to nearby Arab wells).

96. Protocol I, *supra* note 34, art. 54, para. 2.

rule was intended to cover "all possibilities"⁹⁷ of an occupier's actions. The current Israeli practices of decisively limiting the Palestinian use of indigenous water supplies would apparently fall under the prohibiting scope of the provision. The Israeli actions essentially "remove" the aquifer from the use of the occupied civilians; certain Palestinian wells have arguably been "rendered useless" by wells drilled for Israeli settlements.

Thus article 54 of Protocol I is the first international norm that can directly curtail the activities of an occupying power in the case of groundwater. Built into the rule, however, is a qualifying provision that takes into consideration the security needs of the occupying power. Paragraph 5 of the provision recognizes the "vital requirements of any Party to the Conflict in the defence of its national territory against invasion. . . ."⁹⁸ While the rule explicitly allows derogation from article 54's principles to defend only against an invasion, implicit within the rule is the notion that an occupying state may derogate from article 54 in a legitimate case of general self-defense. The water needs of any country in an arid land are obviously a matter of national security on a par with that of national defense. Thus, while article 54 would severely limit current Israeli water policies regarding the West Bank aquifer, there is an implicit escape clause within the rule that takes Israeli water security into consideration.

Such a result parallels the developments of international water law as it applies to shared resources. While the sovereignty of individual states, including occupied states, is respected, the notion of mutual cooperation in the development and equitable use of shared water resources is also fostered. Such water law rules developed first through the necessary cooperation of nonconflicting states, but they can also be applied to the situation in West Bank despite the present hostilities between occupier and occupied.

International water law in general has traditionally been divided into separate categories depending on the use of the water in question. The distinction between international agreements concerning the navigability of waterways and those concerning international water consumption is just one example of the former specialization of international water law. However, the discovery of the hydrological connections between surface water and groundwater has led to the concept of the "International Water Basin" in the discussion of non-

97. INT'L COMMITTEE OF THE RED CROSS, COMMENTARY ON THE ADDITIONAL PROTOCOLS OF JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, at 655 (Y. Sandoz, C. Swinarski & B. Zimmerman eds. 1987).

98. Protocol I, *supra* note 34, art. 54, para. 5.

transportation related water issues. The basin concept melds notions of surface water and groundwater law together, while emphasizing that parties using the same water resources should respect each other's needs. The United Nations Natural Resources Council has stated:

Whenever there is a hydrological interconnexion, surface or underground, and more than one state's territory is involved, the water resources so occurring and connected must be treated as international, which is to say that their development and utilization are to be undertaken in accordance with the pertinent conventional and customary international law principles and rules.⁹⁹

Among the principles that the United Nations has espoused concerning water is the notion of equitable utilization.¹⁰⁰ In defining "equitable use" commentators consider the factors of ownership, present use, seniority, reasonability and overall optimal use potential.¹⁰¹ In addition to equitable utilization, the United Nations has called for: 1) review of existing techniques for managing shared water resources, 2) cooperation and establishment of institutions and programs, and 3) exchange of information.¹⁰² The international water law principles which have begun to develop between non-conflicting countries are easily adaptable to the rules of belligerent occupation. Both bodies of law have the similar goal of protecting the sovereign and individual interests of countries in conflict. Both bodies of law deal with national security and well-being. In the case of the West Bank aquifer, it is only natural that the laws of belligerent occupation should mirror the principles behind international water law.

Applying the principles of article 54 of Protocol I in light of international water law norms can lead to a situation in which both Palestinian and Israeli interests are maximized. Under article 54, the Israelis would be required to curtail their present practice of limiting water supplies to the indigenous Palestinians. They would also be forced to change their policies regarding use of the West Bank aquifer for Israeli settlements. These changes do not mean that Palestinians

99. *Management of International Water Resources: Institutional and Legal Aspects*, UN Nat. Resources Council, Water series No.1, at 9 (1975).

100. At the Mar Del Plata Conference on water use in 1977, the committee included the following among their proposals:

In relation to the use, management and development of shared water resources, national policies should take into consideration the right of each state sharing the resources to equitably utilize such resources to equitably utilize such resources as the means to promote bonds of solidarity and cooperation.

U.N. WATER CONFERENCE, MAR DEL PLATA at 53, U.N. Doc. E/CONF.70/29, U.N. Sales No. E.77.II.A.12 (1977) [hereinafter Mar Del Plata Conference].

101. Caponera & Alh  riti  re, *Principles for International Groundwater Law*, INTERNATIONAL GROUNDWATER LAW 39 (L. Teclaff & A. Utton eds. 1981).

102. Mar Del Plata Conference, *supra* note 100, at 53-58.

would have *carte blanche* power over the aquifer. Under the twin constraints of article 54 and international water laws, Palestinians would have to consider Israeli water security needs when exploiting the resource for their own purposes. They may even be required under the equitable use theories, which take into account present use of water resources, to sell water to Israeli institutions. Such a result takes away the economic advantages the Israelis have maintained in their occupation of the West Bank, but it does not threaten their security, the primary goal of the occupation. A forced sale of water resources is a partial invasion of Palestinian sovereignty or autonomy, but it at least presents them with fair compensation for Israeli use of the aquifer. Both sides would end up compromising toward a jointly optimal solution rather than an individually optimal situation which would deny the other's water security.

The dovetailing of international groundwater laws and laws of belligerent occupation may also necessitate joint administration of the West Bank aquifer by the conflicting parties. Joint administration, with equal participation by Israeli and Palestinian institutions, better reflects the spirit of the rules of belligerent occupation to protect the occupied region's sovereign integrity while ensuring the occupier's security interests. Joint administration also furthers the equitable utilization doctrine outlined in the principles of international water law.

In a jointly administered system, both sides would gain. Each side currently enjoys a geographical or geological advantage over the other in some form of water resource. The position of the Palestinians over portions of the West Bank aquifer which feed Israeli wells has been discussed extensively. Outside the scope of this note so far has been the advantageous position Israeli holds over the Occupied Territories in terms of the surface waters of the Jordan River system.¹⁰³ Offsetting advantages increase the likelihood that each side will seek to respect the other's concerns. Each side could obtain fair benefits from the water resource over which the other side enjoys a natural advantage.

Whether the parties choose independent, but cooperative measures or joint administration in order to equitably distribute crucial resources, either method would comply with the conventions on belligerent occupation and international water law far better than the present Israeli practice. Though Israel will undoubtedly lose certain economic and security advantages that it now possesses, those short-

103. Israel borders the southward flowing Jordan River at a point north of the river's contact with the West Bank.

term advantages are less palatable in the long run. Quenching the thirst of the conqueror at the complete expense of the Palestinians only raises resentment and acts of desperation in the occupied region. Implementing a system today that fairly accounts for Israeli security and Palestinian needs will strengthen mutually beneficial water sharing between the two regions in the future.

IV. Conclusion

The water issue is one of the most crucial in the Israeli-Palestinian conflict. While territorial disputes may be solved by guaranteed borders, shared water resources, particularly those underground, do not acknowledge lines on a map. The issue is exacerbated by the present Israeli occupation of Palestinian territory. Though currently accepted conventions regarding the laws of belligerent occupation only address the issue of shared water resources tangentially, they do imply certain standards which Israel apparently fails to meet regarding the West Bank aquifer. At the very least, Israel has violated the spirit of the conventions which serve to protect occupied inhabitants from undue interference by the occupying power.

The direct address of water concerns in Protocol I to the Fourth Geneva Convention provides a positive rule within which the needs of both parties may be met. Additionally, general principles of international water sharing could be implemented in a system whereby Israeli and Palestinian interests are equally matched. Such cooperation is necessary to prevent either party from benefitting from the thirst of the other.

