

LEGAL RESTRAINTS IN THE USE OF LANDMINES: HUMANITARIAN AND ENVIRONMENTAL CRISIS

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Landmines may be one of the most widespread, lethal, and long lasting forms of pollution we have yet encountered, and we are currently losing the battle to protect innocent civilians from their effects.¹

INTRODUCTION

Great strides have been made in recent years in the negotiation of international agreements which attempt to address problems of environmental concern.² However, one of the most endemic and pervasive problems of environmental pollution remains, to a large extent, beyond the purview of international environmental law. Lauterpacht's oft-quoted observation that the law of war exists at the vanishing point of law³ places the rules relating to landmines in an unhappy position from which to address a problem which has reached global epidemic proportions.

The landmine crisis in over twenty-six countries throughout the world has, in many cases, intensified instability in already fragmented societies and threatens to undermine reconstruction efforts after years of costly civil war or external aggression. A country such as Cambodia, faced with a severe health crisis,⁴ whose infrastructure and natural resource base is rendered unusable by the presence of landmines,⁵ must rely upon expensive and technologically imperfect demining techniques to mitigate the damage which these weapons—and other unexploded ordnance—cause.⁶

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1. *Assistance in Mine Clearance, Report of the Secretary-General*, U.N. GAOR, 49th Sess., Agenda Item 22, U.N. Doc. A/49/357/Add. 1 (1994) [hereinafter *Mine Clearance*].

2. See Edith Brown Weiss, *New Directions in International Environmental Law*, Address before the United Nations Congress on Public International Law (March 15, 1995). Weiss reports that the some 900 treaties negotiated since 1972 amount to a "treaty congestion" in the sense that critics complain of overlapping mechanisms and inconsistencies in provisions, demonstrating that efficiency needs to be improved. *Id.* at 4.

3. See, e.g., W. Hays Parks, *Air War and the Law of War*, 32 A.F. L. REV. 1, 225 n.5 (1990).

4. See ASIA WATCH AND PHYSICIANS FOR HUMAN RIGHTS, *LAND MINES IN CAMBODIA: THE COWARDS' WAR* 59 (Sept. 1991) [hereinafter *THE COWARDS' WAR*].

5. *Id.*

6. For an assessment of current demining techniques, see generally Patrick M. Blagden, *Summary of United Nations Demining in SYMPOSIUM ON ANTI-PERSONNEL MINES: MONTREUX 117* (1993) [hereinafter *SYMPOSIUM*]; Paul Jefferson, *An Overview of Demining, Including Mine Detection Equipment*, in *SYMPOSIUM*, *id.* at 125; Brian Halliwell & L. Malin, *Demining—An Operator's View in SYMPOSIUM*, *id.*

The littering of landmines across the globe constitutes a significant humanitarian, environmental and developmental challenge. It is no exaggeration to present the landmine crisis as a threat to international peace which, it is thought, must be based upon the existence of secure and stable governments which are poised to pursue sustainable development.⁷ Thus it is the case that landmines present the international legal system with a formidable task: international law provides no immediate answers either in terms of responsibility for mine removal or in terms of enforcement of regulations which do exist. For example, there is no verification mechanism to evaluate the implementation of rules governing the use of landmines. Developing countries do not have the financial means to undertake costly mine clearance operations which adds further pressure to a fragile peace in countries recovering from war.

Part I of this article outlines the scope of the landmine problem in countries throughout the world and the impact of widespread and often indiscriminate landmine use on people and their environment. Country conditions in the Falkland-Malvinas Islands, Kuwait, Afghanistan, Angola, Cambodia, Croatia, and Mozambique provide the basis for an understanding of the multi-dimensional societal problems posed by landmine use. Part II examines the legal framework which governs the use of landmines under international humanitarian law. Part III concludes by evaluating the effectiveness of the current legal regime governing the use of landmines in armed conflict and advances proposals for future reform.

I. THE SCOPE OF THE LANDMINE PROBLEM

Anti-tank mines destroy tanks, impede enemy forces, deny access to strategic locations, and encourage the channeling of enemy forces into

at 133; J. Alastair Craib, *Mine Detection and Demining*, in SYMPOSIUM, *id.* at 147; Terry J. Gander, *Mine Detection and Mine Clearance*, in SYMPOSIUM, *id.* at 175; Curt Larsson, *Radar, Multispectral and Biosensor Techniques for Mine Detection*, in SYMPOSIUM, *id.* at 179. See also THE ARMS PROJECT AND PHYSICIANS FOR HUMAN RIGHTS, LANDMINES: A DEADLY LEGACY 243 (1993) [hereinafter ARMS PROJECT]; OFFICE OF INTERNATIONAL SECURITY OPERATIONS, U.S. DEP'T OF STATE KILLERS: THE GLOBAL PROBLEM WITH UNCLEARED LANDMINES 15 (1993) [hereinafter OFFICE OF INTERNATIONAL SECURITY OPERATIONS].

7. This is precisely the position articulated by the U.S. Department of State in its report on international demining. See OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 178. The landmine crisis has been considered by numerous organizations in recent years, including the United Nations, the Organization of American States, the Economic Community of West African States, the International Committee of the Red Cross, Handicapped International, Human Rights Watch, Medecins Sans Frontieres, Medical International, Mines Advisory Group, Vietnam Veterans of America Foundation, Friends World Committee, Handicap International, and Physicians for Human Rights. Many organizations have made a substantial contribution to research on the various dimensions of the landmine problem in the form of reports on country conditions. See, e.g., AFRICA WATCH, LANDMINES IN ANGOLA (1993); AMERICAS WATCH, LANDMINES IN EL SALVADOR AND NICARAGUA: THE CIVILIAN VICTIMS (1986); THE COWARDS' WAR, *supra* note 4; MIDDLE EAST WATCH, HIDDEN DEATH: LAND MINES AND CIVILIAN CASUALTIES IN IRAQI KURDISTAN (1992); HANDICAP INTERNATIONAL, LA GUERRE DES LÂCHES (1992); PHYSICIANS FOR HUMAN RIGHTS, HIDDEN ENEMIES: LAND MINES IN NORTHERN SOMALIA (1992); MINES ADVISORY GROUP, REPORT OF THE AFGHANISTAN MINES SURVEY (1991).

particular routes to the advantage of friendly forces.⁸ Anti-personnel mines, initially developed for use in conjunction with anti-tank mines, delay and hinder the clearing of anti-tank mines, harass ground troops and delay their movement.⁹ The use of anti-personnel mines gradually expanded and is now employed as a nuisance factor, contributing to the disruption of enemy supply lines and creating a demoralizing effect among enemy troops.¹⁰ The development of new types of anti-personnel mines which can be deployed from aircraft has contributed to the proliferation of landmine use in recent decades.¹¹ Mines are no longer exclusively emplaced by hand. Today, mines can be delivered by artillery, mortar, or aircraft.¹² Moreover, in recent decades inexpensive mines with a low metal content made principally of plastics or ceramics have expanded the market in landmines.¹³ These innovations make it increasingly difficult to maintain the traditional law of war distinction between combatants and non-combatants and between military and non-military objectives.¹⁴

Concern in recent years has focused on the unconventional military tactics of insurgents, guerrillas, and terrorists whose strategies have contributed to widespread mining of agricultural lands, villages, water sources, and civilian objects such as religious sites.¹⁵ Sub-national or ethnic groups engaged in armed conflicts over a disputed territory are interested in using weapons which are cheap, lightweight and uncomplicated.¹⁶ Mines, and the smaller categories of anti-personnel mines in particular, are a readily available weapon of choice.¹⁷

Unlike so many challenges to the environment which are rife with scientific uncertainty, we know precisely what effect landmines can have on present and future generations. World War II mines continue to maim and

8. See generally *Mine Clearance*, *supra* note 1. See also Alan Epstein, *Mine Warfare*, in OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 11.

9. Gander, *supra* note 6, at 203. For a general overview of the development and use of landmines in modern combat, see ARMS PROJECT *supra* note 6, at 16-34.

10. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 11, 13.

11. *Id.* at 12.

12. *Id.*

13. *Id.* at 12. See also ARMS PROJECT, *supra* note 6, at 27. Some 18 countries are reported to have produced low-metal or minimum-metal anti-personnel mines, including Argentina, Belgium, Brazil, China, Egypt, Germany, Greece, Hungary, India, Italy, the Netherlands, Pakistan, Portugal, South Africa, Spain, the United States, the former USSR and the former Yugoslavia. These landmines are extremely difficult to detect, deactivate and destroy and pose serious medical problems because plastic fragments are not detected by standard x-ray equipment. ARMS PROJECT, *supra* note 6, at 28.

14. HILAIRE MCCOUBREY, INTERNATIONAL HUMANITARIAN LAW: THE REGULATION OF ARMED CONFLICTS 80-82, 114 (1990).

15. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 7.

16. For an overview of landmine pricing, see ARMS PROJECT, *supra* note 6, at 55-57. Anti-personnel mines may be purchased for as little as \$3 each and anti-tanks mines for less than \$75 each. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 2.

17. The use of anti-personnel mines has proliferated and caused the "intensely local and guerilla nature" of many recent conflicts. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 27.

kill in many countries throughout Europe and parts of Africa.¹⁸ Recent armed conflicts in Afghanistan, Angola, Cambodia, Kuwait, and the republics of the former Yugoslavia have created landmine problems of unprecedented scale which will pose a threat to civilians for many years to come.¹⁹ Some fifty-six countries throughout Africa, Europe, Latin America, the Middle East, East Asia, and South Asia have significant landmine problems.²⁰ The degradation of uncleared landmines is an exceedingly slow process and land left uncleared or only partially cleared is rendered useless for years and even decades after emplacement.²¹ The humanitarian, environmental and developmental consequences which the presence of landmines can have on a society will vary according to the manner and extent of mining, the type of mines used, and the success of demining operations. However, even under the best circumstances, landmines create major obstacles for any country challenged with their clean-up. The aftermath of armed conflict in a number of countries throughout the world has created an unparalleled crisis owing to the massive increase in the emplacement of landmines and the inability of clearance operations to achieve the high levels of removal necessary for the protection of the civilian population and to facilitate reconstruction efforts.²²

A. *Falkland-Malvinas Islands*

Despite the advanced capabilities of the British Armed Forces in mine location, removal and destruction,²³ vast tracts of land in the Falkland-Malvinas Islands have been cordoned off due to the inability of the demining operation to clear all mines and other unexploded ordnance from the archipelago.²⁴

This dilemma has prompted the British Government to offer a reward for

18. An average of twelve people per year are injured in the Netherlands as a result of World War II landmines. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 5. The UN representative of the Libyan Arab Jamahiriya has made repeated appeals before the United Nations General Assembly in order to pressure former colonialist powers to assist in the identification of World War II era minefield locations and to provide compensation for losses of life and property caused by minefields. U.N. GAOR, 35th Sess., U.N. Doc. A/35/PV.25 (prov. ed. 1980).

19. See *infra* notes 28-70 and accompanying text.

20. For a country analysis of the landmine problem prepared by the U.S. Department of State, see OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 41-177. See also ARMS PROJECT, *supra* note 6, at 141-233.

21. For an account of the devastating effects of uncleared landmines and other explosive ordnance from World War II on Libyan development, see Khairi Sgaier, *Explosive Remnants of World War II in Libya: Impact on Agricultural Development*, in EXPLOSIVE REMNANTS OF WAR: MITIGATING THE ENVIRONMENTAL EFFECTS 33-37 (Arthur H. Westing ed., 1985).

22. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 9, 10. See also ARMS PROJECT, *supra* note 6, at 234, 235.

23. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 172.

24. John Leonard, *Spring Fails to Chase Fear from Falklands*, WASH. POST, Oct. 19, 1982, at A23. According to media accounts, mines which were laid on peat bogs which supply Port Stanley's fuel have rendered such areas too dangerous for residents to enter. The reports of experts indicate that the economy of the islands faces collapse unless the British Government makes good its attempt to stimulate development. The mining of farm yards, peat bogs and beaches presents a real obstacle to development. *Id.*

any individual who comes up with a successful plan which will rid the remaining landmines.²⁵ The minefield problem exists notwithstanding the fact that the war between Argentina and the United Kingdom conformed to the practices of conventional armed conflict, with mined areas being identified and mapped by the armed forces.²⁶ The use of mining in the Falkland-Malvinas Islands stands in stark contrast to the mining practices of many insurgent forces fighting an internal war where conventional practices give way to indiscriminate use of mining.²⁷

B. Kuwait

The Iraqi occupation of Kuwait resulted in the laying of approximately seven million mines.²⁸ Contracts to clear the country of anti-personnel and anti-tank mines are worth some \$100 million each.²⁹ Mines laid in many parts of Kuwait limit the seasonal movement of pastoralists and their herds and also hinder tourism in several national parks and reserves.³⁰ The Report of the United Nations Mission to Kuwait indicates that even swept areas will continue to pose a threat to the population due to the inability of current mine clearing technology to achieve complete clearance.³¹ This is so notwithstanding the comparative advantages which the Kuwaiti Government had over other countries with severe landmine problems. The demining operation did not suffer from the kind of fund shortage which faces most countries with a landmine problem.³² In Kuwait most mines were surface laid and followed a predictable pattern.³³ Kuwaiti officials had the resources to launch a large public awareness campaign regarding minefields through television, radio and posters.³⁴ Readily available medical facilities in Kuwait were able to provide the care for mine victims.³⁵ However, despite all of these factors,

25. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 172.

26. Halliwell & Malin, *supra* note 6, at 136.

27. For example, all parties in the armed conflict in the former Yugoslavia are accused of using landmines indiscriminately as weapons of terror, mining schools, churches, and other places where civilians might seek shelter. Bosnian Serb forces are accused of using landmines to implement their policy of "ethnic cleansing" by mining villages and essential infrastructure to inhibit the return of Muslim refugees to their homes. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 39.

28. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 114.

29. *Id.* at 36. For a media account of the Kuwaiti contracts to clear mines and other explosives left behind by Iraqi troops, see Stuart Auerbach, *U.S. Firms Angered by Kuwait Contract Award*, WASH. POST, Oct. 29, 1991, at D1:1.

30. See *Report to the Secretary-General by a UN Mission, Assessing the Scope and Nature of Damage Inflicted on Kuwait's Infrastructure During the Iraqi Occupation of the Country from Aug. 1990 to Feb. 27, 1991*, U.N. SCOR, 46th Sess., U.N. Doc. S/22535 (1991) [hereinafter *Kuwait Report*].

31. *Id.*

32. The State Department Report emphasizes that "it is beyond the financial capability of most of these [lesser developed countries] to pay for the clearance of landmines, yet the economic burden of allowing them to remain is even more expensive." OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 10.

33. Halliwell & Malin, *supra* note 6, at 136.

34. See *Kuwait Report*, *supra* note 30.

35. See Halliwell & Malin, *supra* note 6, at 136.

the demining operations and operator protection were not as successful as experts anticipated. Shifting sands hindered the detection and removal process because some mines required the digging out of five feet of sand; fences around danger areas were removed by children and fisherman seeking access to the water; and some areas were so extensively mined that they required securing against citizen access for the foreseeable future.³⁶

C. Angola

Civil strife in Angola has contributed to mining throughout the country. Although the number of uncleared landmines is unknown, estimates range from nine million³⁷ to twenty million³⁸ affecting all regions of Angola.

Africa Watch undertook a study of the landmine crisis in Angola and concluded that mine laying was practiced in Angola from 1961 through 1991 and a recent resumption in fighting has led to further emplacement of mines.³⁹ Widespread mining in agricultural areas has had dire consequences on the rural economy and has severely impeded the progress of relief operations for the civilian population.⁴⁰

Mines have rendered large areas of arable land and pasture, many roads, bridges, riverbanks and villages, and some important economic installations, off-limits to people. The presence of live mines represents a formidable obstacle to commerce and free movement, to economic reconstruction, and to the effective delivery of relief and other forms of aid. In particular, mines will prevent the rapid and safe return of refugees.⁴¹

The return of refugees to their homelands is exceedingly dangerous in many areas where both major and secondary bridges are down and surrounded by minefields.⁴² Severe food shortages in cities such as Malanje force citizens to search for maize and manioc outside the city which is ringed with mines.⁴³

D. Cambodia

The reconstruction of Cambodia following years of civil war has been especially problematic due to vast mine laying by all sides to the conflict.⁴⁴

36. *Id.* at 138.

37. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 45.

38. Jody Williams, *Social Consequences of Widespread Use of Landmines*, in SYMPOSIUM, *supra* note 6, at 69, 74.

39. AFRICA WATCH, *LANDMINES IN ANGOLA* (1993). See also ARMS PROJECT, *supra* note 6, at 149. For an overview of the mine assistance program in Angola, see *Mine Clearance*, *supra* note 1.

40. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 34.

41. ARMS PROJECT, *supra* note 6, at 150.

42. See Williams, *supra* note 38, at 74.

43. *Angola: A Slow Death*, THE ECONOMIST, Sept. 18, 1993, at 46.

44. ARMS PROJECT, *supra* note 6, at 165.

Mines were laid around bridges and roads, and strategic locations. Mines were also used to secure trade routes. In some instances minefields were planted around villages or military camps which were bombarded, forcing evacuees into escape routes which were heavily mined.⁴⁵ Mines were emplaced in a seemingly indiscriminate fashion in areas such as fields and forests or were laid in areas heavily used by the civilian population such as footpaths and river beds.⁴⁶ One epidemiological study of the population of Cambodia assumes a rate of one amputation for every 236 people.⁴⁷ The rate of amputation in the United States where no such landmine problem exists is, by comparison, one in 22,000 people.⁴⁸

The societal consequences resulting from the extensive mining in Cambodia are by no means confined to the immediate financial burdens imposed by demining operations and the medical response to injuries. Despite the action taken in Cambodia to address the landmine crisis, the magnitude of the problem has hampered relief efforts. The existence of vast minefields has been cited as a major obstacle to the implementation of the Paris Agreements of 23 October 1991⁴⁹ and, in particular, to the prompt return of Cambodian refugees and displaced persons.⁵⁰ The landmine problem has also prevented many Cambodians from pursuing their livelihood. Farmers are unable to return to hazardous fields or, where they do return, face the real danger of being permanently injured by landmines.⁵¹ Civilians from rural districts, unable to work in mined rice paddies, have moved into Phnom Penh, doubling the city population and placing severe strains on limited resources.⁵² Media accounts have reported an influx of landmine victims into the cities who form gangs and extort money from shopkeepers, causing unrest in the urban environment.⁵³

A report issued by the Cambodian Mine Action Centre expressed serious concern over the insufficient funding of the Cambodian demining program

45. United Nations, Secretariat, *Mines in Warfare and After*, DISARMAMENT NEWSLETTER, (U.N. Office, Office for Disarmament Affairs) 14 April 1992, at 14 [hereinafter DISARMAMENT NEWSLETTER].

46. See OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 64, 65. For media interviews with relief organizations working in Cambodia, see William Branigan, *Cambodians Facing Deadly Threat*, WASH. POST, Nov. 22, 1991, at A35. The ICRC reports indicate that there are 300 new amputee mine victims in Cambodia every month. *Id.*

47. Media Natura, *The Deadly Legacy: Report on Western Views of Landmines and Ways of Restricting Their Indiscriminate Use*, in SYMPOSIUM, *supra* note 6, at 271. Statistics regarding amputations in other mine-affected regions are as follows: Angola: one per 470 people; Somalia: one per 650 people; Uganda: one per 1,100 people; Vietnam: one per 1,250 people; Mozambique: one per 1,862 people. *Id.*

48. *Id.*

49. See ARMS PROJECT, *supra* note 6, at 178.

50. DISARMAMENT NEWSLETTER, *supra* note 45, at 14. The Paris Agreements provide that the United Nations Transitional Authority in Cambodia will assist with clearing mines, marking known minefields, and training Cambodians in mine awareness. Pursuant to the Agreements, the United Nations Cambodian Mine Action Center was established to lead in mine clearing operations. At least five other aid organizations and numerous national governments have contributed to the effort. Still, additional funding is urgently required. See OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 64, 65.

51. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 64.

52. *Id.*

53. See Branigan, *supra* note 46, at A35.

and suggested that the mandate of the organization would be undermined without immediate financial help.⁵⁴ One can imagine the hard choices facing the non-governmental mine clearance organizations which have joined in the effort to clear minefields in Cambodia, given the massive scope of the landmine problem. These groups choose demining sites in accordance with the importance of a mined area to the community as a whole. For example, wells, main roads, bridges and land around hospitals and schools are demined before rice paddies.⁵⁵ Clearance of mines in agricultural areas, which will provide Cambodian refugees with their livelihood, will take decades under current conditions.⁵⁶

E. Afghanistan

A recent report issued by the State Department describes the estimated 10 million landmines yet to be cleared in Afghanistan as “a major impediment to the repatriation of the remaining 2 million Afghan refugees in Pakistan and the 1.5 million in Iran.”⁵⁷ As overall country conditions improve, more refugees will seek to return to their homes and, as a result of their unfamiliarity with mine locations, death and injuries will increase, thus straining medical resources and retarding economic reconstruction.⁵⁸

The International Committee of the Red Cross (ICRC) treats mine victims throughout the developing world in its surgical hospitals and rehabilitation facilities. The main objective of these medical activities is to provide initial emergency aid to victims followed up by rehabilitation and the provision of prostheses and appliances.⁵⁹ The ICRC mandate is, in this context, closely related to the recognition that societal recovery depends upon the full social integration of all civilians in society.⁶⁰ Given the overwhelming numbers of mine victims in countries such as Afghanistan, the restoration of functional capacity of victims and their social integration is an extremely difficult task, but one which is crucial for reconstruction. ICRC statistics on the provision of emergency services to mine victims in Afghanistan suggests that the refugee population is seriously endangered by mine presence upon return to their communities:

According to the office of the United Nations High Commissioner for Refugees, more than one million refugees returned to Afghanistan in the first nine months of 1992. Between April and June of this year, the number of mine victims in the ICRC's hospitals alone was two or three

54. For an overview of the Cambodian mine clearance initiatives, see *Mine Clearance*, *supra* note 1.

55. ARMS PROJECT, *supra* note 6, at 179.

56. *Id.*

57. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 30.

58. *Id.*

59. For an overview of the medical work of the ICRC, see ICRC, A PERVERSE USE OF TECHNOLOGY: MINES 18 (1992).

60. *Id.*

times higher than during the same period the previous year. This figure only partially mirrors the reality, since it does not take into account those who were killed and the injured who were unable to reach a surgical centre.⁶¹

The war in Afghanistan left guerilla infiltration routes, government posts, and strategic installations littered with landmines. Random placement in wheat fields and mountains and in areas outside the one-mile radius of abandoned outposts occurred throughout the country.⁶² According to the U.S. Department of State study on international demining, the problem affects every region in Afghanistan:

There are mines everywhere—on arable land and lowland grazing terrain, on footpaths, on all classes of roads, on the hillsides and mountainous grazing land, on hilltops and mountaintops, and in irrigation channels and canals in both urban and rural settings.⁶³

Repatriation of some three million refugees has rendered the promise of safe passage meaningless in light of the minefield crisis.⁶⁴

F. Croatia

The armed conflict which has engulfed the former Yugoslavia has created massive human rights violations leading to the death of thousands and the displacement of millions of people.⁶⁵ A recent item on the agenda of the UN General Assembly concerned the pressing need for a comprehensive mine clearance program in the Republic of Croatia.⁶⁶ The implementation of such a plan was identified by the United Nations as a priority which was crucial to the economic recovery of the country as well as the return of refugees and displaced persons.⁶⁷ Croatia agriculture has already suffered an annual net loss of 230 million U.S. dollars due to the vast wasteland of mines resulting

61. *Id.* at 8.

62. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 42. See also Jonathan C. Randal, *Afghans Face Another Threat: Landmines*, WASH. POST, June 19, 1988, at A27. For the most recent report on the problems posed by the presence of mines and other unexploded ordnance on the economy and on society in general in Afghanistan, see *Mine Clearance*, *supra* note 1.

63. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 42.

64. See *Summary Report of the Independent Council on International Human Rights: The Mining of Afghanistan*, U.N. GAOR, 44th Sess., Annex to U.N. Doc. AJ/44/99 (1989). See also *Mine Clearance*, *supra* note 1.

65. For an overview of the conflict in the former Yugoslavia and the humanitarian crisis which is the result of continued fighting, see FRANCIS M. DENG, *PROTECTING THE DISPOSSESSED* 23-36 (1993). A recent United Nations report indicates that some 2 to 5 million landmines are scattered throughout much of Bosnia and Herzegovina, Croatia and Slovenia and parts of Serbia and Montenegro and an estimated 1 million mines are being laid each year. As armed conflict continues, only limited clearance operations are in effect. See *Mine Clearance*, *supra* note 1.

66. *Letter dated 8 October 1993 from the Permanent Representative of Croatia to the United Nations addressed to the Secretary-General*, U.N. GAOR, 48th Sess., Agenda Items 103 and 155, U.N. Doc. AJ/48/490 (1993).

67. *Id.*

from armed conflict.⁶⁸ The logging and tourism industries have also been cited as victims of extensive mining.⁶⁹ The passage of harvest cycles inhibits the detection of minefields owing to the accumulation of foliage and ground vegetation which, in effect, camouflages minefields.⁷⁰

G. Mozambique

Mozambique has endured virtually uninterrupted civil conflict from the beginning of the movement against Portuguese colonial domination in the 1960s until a cease fire was reached between the Mozambican government and the Renamo rebels in October 1991.⁷¹ The scope of the landmine problem in Mozambique is severe and its impact on refugees and displaced persons is devastating. One report describes Mozambique as the "classic example of how mines inhibit refugee repatriation."⁷²

Mozambican refugees form large refugee populations in neighboring South Africa and Zimbabwe.⁷³ Their efforts to return home are seriously hampered by the widespread mining of the country. The problem of the return of the huge refugee population to Mozambique has been exacerbated by the effect which widespread mining has had and will continue to have on agricultural and commercial reconstruction.⁷⁴

H. The Humanitarian and Environmental Legacy

Although widespread mining during armed conflicts throughout the world has gone on for decades, it is only in recent years that there has been any attention given to the long term consequences of widespread mining.

Recent studies emphasize the social and medical consequences associated with the aftermath of armed conflict in which anti-personnel mines were used.⁷⁵ Mine victims require extended hospital stays. Their survival

68. *Id.*

69. *Id.*

70. *Id.*

71. ARMS PROJECT, *supra* note 6, at 204.

72. *Id.* at 127. Mine assistance operations are being provided through the United Nations Operation in Mozambique. NGOs are actively involved in clearance operations. Despite attempts to make early progress in establishing mine clearance and assistance operations, numerous obstacles prevent the realization of these goals. See *Mine Clearance*, *supra* note 1.

73. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 34.

74. All major roads and railroads, power lines, agricultural land, power pylons, and agricultural fields in southern Mozambique contain uncleared landmines. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 127. The Mozambique National Resistance, used landmines to terrorize civilian communities and to deny civilian access to farm lands, water, and fishing outlets. ARMS PROJECT, *supra* note 6, at 207.

75. Robin Gray, *Humanitarian Consequences of Mine Use*, in SYMPOSIUM, *supra* note 6, at 63-66. See also Chauvin B. Eshaya & R.M. Coupland, *Transfusion Requirements for the Management of War Wounded: The Experience of the International Committee of the Red Cross*, 68 BRIT. J. ANESTHESIOLOGY, 221 (1992); R.M. Coupland & A. Korver, *Injuries from Anti-Personnel Mines: The Experience of the International Committee of the Red Cross* 303 BRIT. MED. J. 1509-12 (1991); D.B. Adams & C.W. Schwab, *Twenty One Year Experience with Land Mine Injuries* 28 (suppl.) J. TRAUMA 159 (1988); R.

depends upon the provision of antibiotics and adequate blood supplies. This assumes, of course, that health care facilities and transport from the place of injury are readily available. The surgery required for the treatment of mine victims is time consuming and extremely demanding.⁷⁶ Surgery is one of the most expensive health care services and, as a result, surgical services are often neglected in poor countries so that resources may be channelled to the provision of primary health care.⁷⁷ After the hospital stay, long term physical therapy and prosthetic devices are needed to ensure that mine victims can return to society and lead productive lives.⁷⁸

Environmental protection and economic development are now seen as more or less compatible goals, hence the emergence of the concept of "sustainable development"⁷⁹ which expresses aspects of each of these goals. At the very least, countries are now willing to accept the need to achieve a balance between the two. The planting of landmines, particularly in less developed countries (LDCs) with limited resources to address the problems which such usage entails, creates real threats to the realization of both environmental protection and economic development.⁸⁰ The question of how to achieve an acceptable balance between the two is rendered moot where there exists a serious landmine problem. Typically, LDCs express the

Scott, *Unnecessary Suffering?—A Medical View in ARMED CONFLICT AND THE NEW LAW: ASPECTS OF THE 1977 GENEVA PROTOCOLS AND THE 1981 WEAPONS CONVENTION* (1980). For country-specific studies, see D. Charles, *The Killing Minefields of Cambodia*, NEW SCIENTIST, Oct. 19, 1991, at 27; J. Rautio & P. Paavolaianen, *Afghan War Wounded: Experience with 200 Cases*, 28 J. TRAUMA 523 (1988); L.W. Traverso, et al., *Combat Casualties in Northern Thailand: Emphasis on Land Mines and Levels of Amputation* 146 MIL. MED. 682 (1981); D.E. Johnson, et al., *Epidemiology of Combat Casualties in Thailand* 21 J. TRAUMA (1981); R.M. Hardaway, *Vietnam Wound Analysis* 18 J. TRAUMA 635 (1978).

76. ARMS PROJECT, *supra* note 6, at 121. See also THE COWARDS' WAR, *supra* note 4, at 67 (describing the surgical technique associated with the treatment of mine injuries according to Dr. Chris Giannou, a surgeon with the ICRC who emphasizes that debridement, the process of cutting away dead and severely damaged tissue and the removal of debris and dirt from a wound, is extremely complicated in mine injury cases where dirt, bacteria and shrapnel is driven into muscle tissue and that failure to remove dead tissue and debris causes severe infection and requires further surgical procedures).

77. Gray, *supra* note 75, at 66.

78. ARMS PROJECT, *supra* note 6, at 128. See also Alain Garachon, *ICRC Rehabilitation Programmes on Behalf of War Disabled*, in SYMPOSIUM, *supra* note 6, at 81. The ICRC has created a special department within its Medical Division to assist mine victims in countries with serious landmine problems. Over thirty orthopaedic programmes exist for amputees, operating in collaboration with local organizations such as ministries of health and National Red Cross Societies. The goals of these programmes are to manufacture artificial limbs locally, where prosthetics are needed, and to train local prosthetists. Garachon, *supra* note 6, at 81.

79. The broad notion of "sustainable development" refers to the concept of passing on to future generations the resources and the knowledge required by them to pursue their own development and, therefore, embraces some measure of restraint on activities which stand in the way of long-term development. The UNEP Governing Council defines "sustainable development" as "development that meets the needs of the present without compromising the ability of the future generations to meet their own needs and does not imply in any way encroachment upon national sovereignty." Statement by the UNEP Governing Council on Sustainable Development, Doc. UNEP/GC 15/L.37, Annex II (1989). For a lucid discussion of the concept, see Gunther Handl, *Environmental Security and Global Change: The Challenge to International Law*, in ENVIRONMENTAL PROTECTION AND INTERNATIONAL LAW 59, 79-83 (Winfried Lang et al. eds., 1991).

80. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 10. The widespread and indiscriminate use of landmines "has placed extreme burdens on the infrastructure and economies of lesser developed countries trying to recover from civil strife or external conflict. It is beyond the capability of most of these countries to pay for the clearance of landmines, yet the economic burden of allowing them to remain is even more expensive." *Id.*

concern in international negotiations that attempts to control pollution will divert resources away from their more pressing goal of economic development.⁸¹ The primary objective is to improve the welfare of their own populations through economic development; environmental concerns may therefore be regarded as a secondary priority, and perhaps even a threat to developmental progress.⁸² Accordingly, pollution control costs are often perceived as potential retardants of economic development, and industrialization in particular, causing LDCs to voice demands for financial or technical assistance in exchange for support of international environmental standards.⁸³ In a country with a landmine problem, the options for future development may be severely limited.

II. SOURCES OF LAW RELEVANT TO THE USE OF LANDMINES

A. Customary Principles Relating to Weapons

The general principle of greatest significance for an assessment of customary principles as they relate to the use of weapons in armed conflict provides that the right of parties to an armed conflict to choose methods or means of warfare is not unlimited.⁸⁴ Recognition of this principle provided the impetus for the first attempt by the international community to prohibit the use of specific weapons, namely the 1868 St. Petersburg Declaration prohibiting the use of certain explosive projectiles.⁸⁵ The rule against unlimited choice of the means and methods of warfare has reemerged in subsequent international instruments and appears as Article 35(1) of the 1977 Protocol Additional to the Geneva Conventions of August 12, 1949.⁸⁶ While the principle suggests by implication that the use of certain weapons or methods of warfare is unlawful, it does not provide any insight into specific military restraints. However, it does provide the much needed underpinning for other customary principles and anticipates further develop-

81. For an overview of the North-South divide regarding development and environmental protection, see Handl, *supra* note 79, at 83-85.

82. *Id.* at 84.

83. *Id.*

84. Article 22 of the Hague Regulations provides: "The right of belligerents to adopt means of injuring the enemy is not unlimited." 1907 Hague Convention IV Respecting the Laws and Customs of War on Land, Regulations Respecting the Laws and Customs of War on Land (Annex), Oct. 18, 1907, 36 Stat. 2277, 2295, 2 Am. J. Int'l L. Supp. 90-117 (1908) [hereinafter Hague Convention IV and Hague Regulations].

85. 1868 St. Petersburg Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight, Dec. 11, 1868 [hereinafter St. Petersburg Declaration], reprinted in DOCUMENTS ON THE LAWS OF WAR 30 (Adam Roberts & Richard Guelff eds., 2d ed. 1989) [hereinafter DOCUMENTS].

86. Protocol Additional to the Geneva Conventions of Aug. 12, 1949 (Protocol I), June 8, 1977, 1125 U.N.T.S. 2, 21, 16 I.L.M. 1391, 1408 (entered into force Dec. 7, 1978) [hereinafter Protocol I].

ments in the law of war.⁸⁷ This principle is of particular significance with respect to the landmine problem because it has both humanitarian and environmental implications.

A second fundamental principle of customary international law states that the use of weapons which are calculated to cause unnecessary suffering is prohibited.⁸⁸ The 1868 St. Petersburg Declaration prohibiting the use of explosive projectiles is an early expression of this principle. The Declaration bans the use of a certain class of bullets which "uselessly aggravate the sufferings of disabled men" thereby exceeding legitimate military objectives "contrary to the laws of humanity."⁸⁹ The modern formulation of the unnecessary suffering doctrine appears in Article 35(2) of Protocol I which provides: "It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering."⁹⁰

The injuries suffered by victims of landmines and the long term medical effects which mine blasts have are well documented.⁹¹ Less familiar is the suffering which exists as a direct result of landmine use which is not tied to physical suffering.⁹² Landmines are barriers to the repatriation of war refugees to their homelands.⁹³ Their presence also inhibits the cultivation of farm land and the grazing of cattle, thus preventing rural populations in mined areas from pursuing their livelihood free from the fear of severe injury. The consequences of widespread mining span across a broad spectrum of human activity and impact society long after their military usefulness has expired. It is for these reasons that the legality of using landmines is frequently assessed against the backdrop of the customary rule pertaining to weapons deemed to cause unnecessary suffering.⁹⁴

Two subsidiary principles of customary law which are based upon the fundamental principle limiting the right of belligerents to injure the enemy are

87. This principle is the point of departure for other normative pronouncements of a far more specific nature. Article 23 of the Hague Regulations, which follows the rule against using unlimited means, enumerates rules of greater specificity regarding the means of injuring the enemy. Thus, for example, Article 23(a) forbids the use of "poison or poisoned weapons," Hague Regulations, *supra* note 84, 36 Stat. at 2301. Article 23(b) forbids the "kill[ing] or wound[ing] treacherously individuals belonging to the hostile nations or army," *id.* at 2302; Article 23(g) forbids the destruction or seizing of the enemy's property, "unless such destruction or seizure be imperatively demanded by the necessities of war," *id.*; and Article 23(e) prohibits the employment of "arms, projectiles, or material calculated to cause unnecessary suffering." *Id.*

88. Protocol I, *supra* note 86, art. 35(2), 1125 U.N.T.S. at 21, 16 I.L.M. at 1409.

89. St. Petersburg Declaration, ¶20, *supra* note 85. Subsequent explicit embodiments of the general customary principle prohibiting the use of weapons deemed to cause unnecessary suffering include Article 23(e) of the Hague Regulations. See Hague Regulations, *supra* note 84, at 2302.

90. Protocol I, *supra* note 86, 1125 U.N.T.S. at 21, 16 I.L.M. at 1409.

91. See *supra* note 75 and accompanying text.

92. See *supra* note 80 and accompanying text.

93. See OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 25-32; ARMS PROJECT, *supra* note 6, at 141-221.

94. See, e.g., ARMS PROJECT, *supra* note 6, at 268.

the principles of proportionality⁹⁵ and discrimination.⁹⁶ The concept of proportionality “involves weighing the interests arising from the success of the operation on the one hand, against the possible harmful effects upon protected persons and objects on the other.”⁹⁷ To that end proportionality suggests that “there must be an acceptable relation between the legitimate destructive effect and undesirable collateral effects.”⁹⁸ Discrimination is the general principle which addresses the acceptability of using certain weapons, methods of warfare and the selection of targets.⁹⁹ In the context of an armed attack, Protocol I prohibits indiscriminate attacks defined as follows in Article 51(4):

(a) Those which are not directed at a specific military objective;

(b) Those which employ a method or means of combat which cannot be directed at a specific military objective; or

(c) Those which employ a method or means of combat the effects of which cannot be limited as required by the Protocol;

and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction.¹⁰⁰

The two principles of proportionality and discrimination form the basis for three additional customary principles referred to as the principles of military necessity, humanity, and chivalry. A formulation of all three principles is embodied in the following text taken from the *Commander's Handbook on the Law of Naval Operations* of the U.S. Department of the Navy:

(1) Only that degree and kind of force, not otherwise prohibited by the law of armed conflict, required for the partial or complete submission of the enemy with a minimum expenditure of time, life and physical resources may be applied.

(2) The employment of any kind or degree of force not required for the purpose of the partial or complete submission of the enemy with a minimum expenditure of time, life and physical resources is prohibited.

(3) Dishonorable (treacherous) means, dishonorable expedi-

95. See generally Bernard L. Brown, *The Proportionality Principle in the Humanitarian Law of Warfare: Recent Efforts at Codification*, 10 CORNELL INT'L L.J. 134-55 (1976).

96. For an interesting history of the principles of proportionality and discrimination, see JAMES TURNER JOHNSON, *JUST WAR TRADITION AND THE RESTRAINT OF WAR: A MORAL AND HISTORICAL INQUIRY* 196-228 (1981).

97. W. J. Fenrick, *New Developments in the Law Concerning the Use of Conventional Weapons in Armed Conflict*, 19 CANADIAN Y.B. INT'L L. 229, 231 (1981).

98. *Id.*

99. DOCUMENTS, *supra* note 85, at 5.

100. Protocol I, *supra* note 86, art. 51(4), 1125 U.N.T.S. at 26, 16 I.L.M. at 1413.

ents, and dishonorable conduct during armed conflict are forbidden.¹⁰¹

Gehring defines the modern definition of military necessity as follows:

- (1) a compelling requirement that the military actions in question be taken if the war objectives are to be achieved; and
- (2) recognition that the rules of war prohibit some forms of military action even in the face of a compelling requirement.¹⁰²

“Compelling requirement” has been substituted by some authors for terms such as “urgent need, admitting of no delay”¹⁰³ and “indispensable.”¹⁰⁴ The temporal focus of this latter interpretation may not be particularly applicable to the wide array of landmining strategies, some of which call for heavy mining to create a more or less permanent barrier for the enemy.¹⁰⁵

The various rules of customary international law are too general to be employed as indicators of circumstances calling for military restraint. This is especially so within the context of weapons use. However, although general principles relating to the use of weapons have meant little in terms of actual practice, the rules of customary international law are nevertheless essential sources of the law of war relating to weapons and modes of fighting. They serve several purposes insofar as they form the foundation and rationale for further expressions and developments in the law and provide the basis for the inclusion of certain topics in law of war negotiations, as opposed to other forums.¹⁰⁶ Also, the various customary rules are instructive in that they can form springboards to the formulation of specific guidelines embodying the general principle. Customary principles addressing law of war issues have been characterized as providing “compasses for advice” in that they can focus the agenda for international negotiations on areas of particular concern.¹⁰⁷ Finally, as Kalshoven has observed, the legal principles touching on the use

101. United States, Department of the Navy, Office of the Chief of Naval Operations, THE COMMANDER'S HANDBOOK ON THE LAWS OF NAVAL OPERATIONS NWP 9 (July 1987), reprinted in DOCUMENTS, *supra* note 85 at 5. Although national military manuals which outline the laws of war for the use of armed forces are not themselves authoritative sources of law, they provide evidence of the law. *Id.* at 7.

102. Robert Wayne Gehring, *Protection of the Civilian Infrastructure*, 42 LAW AND CONTEMPORARY PROBLEMS 95, 98 (1978).

103. William Gerald Downey, Jr., *The Law of War and Military Necessity*, 47 AM. J. INT'L L. 251, 254 (1953).

104. N.C.H. Dunbar, *Military Necessity in War Crimes Trials*, 29 BRIT. Y.B. INT'L L. 442-446 (1952).

105. ARMS PROJECT, *supra* note 6, at 21.

106. Hans Blix, *Proceedings of the 72nd Annual Meeting*, AM. SOC'Y INT'L L. 45 (1978).

107. *Id.* at 36. Carnahan asserts that one of the reasons for the interest in restricting the use of landmines arose from the concern that the development of remotely delivered mines might be used “indiscriminately” and thus fall foul of customary international law. Lt. Col. Burris M. Carnahan, *The Law of Land Mine Warfare: Protocol II to the United Nations Convention on Certain Conventional Weapons* 105 MIL. L. REV. 73, 75 (1984).

of weapons in international law may be invoked by third parties and used as a means of moral persuasion in protests concerning particular armed conflicts.¹⁰⁸ He is right to state, however, that “the persuasive force of such third-party protests depends on such factors as the authority and good faith of the protesting party, the blatancy of the violation and . . . the vulnerability of the belligerent to the pressures of public opinion.”¹⁰⁹

Much of the early debate which led to a conference addressing the use of landmines (and other conventional weapons) focused on the rules of customary international law and the need to base further developments in the law on a careful weighing of the principles of unnecessary suffering, “no unlimited use,” military necessity, proportionality, discrimination, humanity and chivalry.¹¹⁰ Against this background, principles of customary international law are the building blocks for a weapons regime comprised of rules of greater specificity than generally worded norms.

B. Antecedent Law of War Treaty Provisions Relevant to the Use of Landmines

The framework within which the law pertaining to the protection of civilians, combatants, and prisoners of war has developed is embodied in the four Geneva Conventions concluded in 1949.¹¹¹ The 1977 Protocols were intended to bolster the protection of civilians, combatants and prisoners of war.¹¹² The 1977 Protocols helped to refine and develop the body of rules pertaining to the means and methods of warfare - the Law of the Hague.¹¹³ Article 35 of Protocol I thus provides:

1. In any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited.

108. Frits Kalshoven, *The Conventional Weapons Convention: Underlying Legal Principles*, 279 INT'L REV. RED CROSS 510, 516 (1990).

109. *Id.*

110. See, e.g., REPORTS OF THE AD HOC COMMITTEE ON CONVENTIONAL WEAPONS, 16 OFFICIAL RECORDS OF THE DIPLOMATIC CONFERENCE ON THE REAFFIRMATION AND DEVELOPMENT OF INTERNATIONAL HUMANITARIAN LAW APPLICABLE IN ARMED CONFLICTS (1978) [hereinafter *AD HOC REPORTS*].

111. Convention for the Amelioration of the Wounded and Sick in Armed Forces in the Field, August 12, 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31 [hereinafter *First Geneva Convention*]; Convention for the Amelioration of the Wounded, Sick and Shipwrecked Members of the Armed Forces at Sea, August 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter *Second Geneva Convention*]; Geneva Convention Relative to the Treatment of Prisoners of War, August 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter *Third Geneva Convention*]; Geneva Convention Relative to the Protection of Civilian Persons in Time of War, August 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287 [hereinafter *Fourth Geneva Convention*].

112. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), June 8, 1977, 1125 U.N.T.S. 610, 16 I.L.M. 1442 (entered into force Dec. 7, 1978); Protocol I, *supra* note 86.

113. The Hague Convention IV represents an early attempt to develop the laws of war in order to articulate standards which civilized countries would agree to follow in times of war. See *supra* note 84 and accompanying text.

2. It is prohibited to employ weapons, projectiles and materials and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.

3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.¹¹⁴

The first two paragraphs represent no real change in the law and may be seen as a reaffirmation of two rules of customary international law.¹¹⁵ However, the inclusion of paragraph 3 in Article 35 signifies a development in the law insofar as the protection of the environment is, by implication, directly linked to the more traditional humanitarian law notions addressed in paragraphs 1 and 2.¹¹⁶ One writer suggests that the appearance of paragraph 3 in the same article as two fundamental tenets of the law of war “implies that the protection of the environment in time of international armed conflict should be given priority in the conduct of hostilities.”¹¹⁷

The advent of international environmental law has contributed to the movement for recognition of the right to a safe environment in both the domestic and international legal systems.¹¹⁸ While there exists a major debate on the advisability of using rights language in the expression of environmental values and norms,¹¹⁹ the relationship between the concerns of international environmental law and international human rights law suggests that the right to a safe environment may be of some benefit: “In particular, the right to a safe environment can play a useful and justifiable role in protecting human interests in a safe environment and in providing a link between the environmental and human rights movements.”¹²⁰ It is in this regard that the inclusion of paragraph 3 is useful in providing a

114. Protocol I, *supra* note 86, art. 35, 1125 U.N.T.S. at 21, 16 I.L.M. at 1408.

115. See *supra* notes 84-90 and accompanying text.

116. This is not to say that environmental concerns have previously been ignored in the law of war. The prohibition against the poisoning of wells or the so-called “scorched earth policy” for example, are ancient rules of customary law. In recent years attention has focused on the intentional destruction of natural resources in armed conflict and the extent to which the law proscribes such activity. See, e.g., Marc A. Ross, *Environmental Warfare and the Persian Gulf War: Possible Remedies to Combat Intentional Destruction of the Environment*, 10 DICK. L. REV. 515, 516 (1992).

117. Philippe Antoine, *International Humanitarian Law and the Protection of the Environment in Time of Armed Conflict*, 291 INT’L REV. RED CROSS 517, 521 (1992).

118. EDITH BROWN WEISS, IN FAIRNESS TO FUTURE GENERATIONS: INTERNATIONAL LAW, COMMON PATRIMONY, AND INTERGENERATIONAL EQUITY 18-20 (1986).

119. See, e.g., the debate on the notion of planetary rights and Anthony D’Amato’s criticism of the environmental rights to future generations theory espoused by Edith Brown Weiss in *Agora: What Obligation Does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility*, 84 AM. J. INT’L L. 190, 195, 198 (1991). The basis of Edith Brown Weiss’s theory of intergenerational equity is the philosophical notion that future generations have rights which impose obligations on present generations to protect and conserve the natural environment. Additionally, present generations, as legatees of planetary resources, have rights which entitle them to make use of the environment. See Weiss, *supra* note 118, at 18-20. Weiss painstakingly traces the entry of these notions into modern legal systems. *Id.* at 18-20 and App. B. See also Weiss, *The Planetary Trust: Conservation and Intergenerational Equity*, 11 ECOLOGY L.Q. 495 (1984).

120. James W. Nickel, *The Human Right to a Safe Environment: Philosophical Perspectives in its Scope and Justification*, 18 YALE J. INT’L L. 281, 282 (1993).

conceptual link between environmental protection and humanitarian concerns within the specific context of the law of war.

There are several other treaty provisions which afford indirect protection to civilians and the environment and which predate the creation of a specific conventional weapons regime.

In Protocol I, Part IV is devoted to the protection of the civilian population.¹²¹ Chapter II of Part IV deals with civilians and the civilian population.¹²² Chapter III of Part IV concerns civilian objects¹²³, and Chapter IV of Part IV¹²⁴ provides for certain precautionary measures to be taken in the interest of civilians.

Articles 51(4) and (5) of Protocol I prohibit indiscriminate attacks and attacks which “employ a method or means of combat the effects of which cannot be limited as required by this Protocol.”¹²⁵ The protection of civilian objects is addressed in Article 52 and limits attacks to military objectives.¹²⁶ Article 54(2) deals with the protection of objects which are indispensable to the survival of the civilian population including “foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works.”¹²⁷ Article 57 lists precautions which must be taken with respect to the planning and carrying out of attacks and, with respect to the use of weapons, requires that those who plan or decide to launch an attack shall take “all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects.”¹²⁸ Article 57 also calls for the cancellation or suspension of an attack where the objective is not a military one or is subject to special protection or where excessive incidental civilian injury may be expected to occur.¹²⁹ Furthermore, Article 57 requires advance warning of attacks which may affect the civilian population unless circumstances do not permit it.¹³⁰ Finally, Article 58 provides for precautions which belligerents must take to ensure the protection of civilian objects including precautions necessary “to protect the civilian population, individual civilians and civilian

121. Protocol I, *supra* note 86, 1125 U.N.T.S. at 25, 16 I.L.M. at 1412..

122. Protocol I, *supra* note 86, 1125 U.N.T.S. at 26, 16 I.L.M. at 1413. Chapter II is comprised of Article 50, on the definition of civilians and the civilian population, and Article 51, addressing the specific protection accorded to the civilian population.

123. *Id.* Articles 52, 53, 54, 55 and 56 accord protection to civilian objects, *id.*, 1125 U.N.T.S. at 27-28, 16 I.L.M. at 1414-15.

124. *Id.* Articles 57 and 58 prescribe rules on the precautions to be taken in conduct of military operations in attack and precautionary measures to be taken against the effects of attacks, *id.*, 1125 U.N.T.S. at 29-30, 16 I.L.M. at 1415-16.

125. *Id.*, art. 51, ¶¶ 4 and 5, 1125 U.N.T.S. at 26-27, 16 I.L.M. at 1413-14.

126. *Id.*, art. Article 52, ¶ 1, 1125 U.N.T.S. at 27, 16 I.L.M. at 1414.

127. *Id.*, art. 54, ¶ 2, 1125 U.N.T.S. at 27-28, 16 I.L.M. at 1414.

128. *Id.*, art. 57, ¶ 2(a)(ii), 1125 U.N.T.S. at 29, 16 I.L.M. at 1415-16.

129. *Id.*, art. 57, ¶ 2(b), 1125 U.N.T.S. at 29, 16 I.L.M. at 1416.

130. *Id.*, art. 57, ¶ 2(c), 1125 U.N.T.S. at 29, 16 I.L.M. at 1416.

military operations.”¹³¹

The value of Article 35 of Protocol I, in reaffirming the principles of the law of war and contributing to its development is clear. However, the general principles housed in Article 35 and the broadly drafted provisions in Chapters II, III, and IV of Protocol I place too few limits on the conduct of hostilities. Therefore, these provisions are ill-suited to address the concerns which widespread landmine use has raised. Furthermore, the application of treaties which do not explicitly address the use of a particular weapon or other aspect of armed conflict to new weapons or other developments is of dubious practical utility, particularly when one considers the typical State practice of declining to transfer the application of provisions to new developments.¹³² While the 1868 St. Petersburg Declaration¹³³ applies, in theory, to certain incendiary weapons under 400 grammes weight,¹³⁴ State practice did not support the application of the Declaration to new weapons.¹³⁵ Therefore, the need arose to conclude an agreement which related specifically to incendiaries.

C. *The Weapons Convention and the Mines Protocol*

The history of modern efforts to conclude a treaty to restrict or prohibit the use of conventional weapons has been traced to the impetus provided by the 20th International Conference of the Red Cross held in Vienna in 1965.¹³⁶ The International Conference on Human Rights in Tehran in 1968 specifically called upon the United Nations to study the need for new international treaties to prohibit or restrict the use of certain methods and means of warfare.¹³⁷ Although continued efforts were made by the United Nations and the International Committee of the Red Cross to address the subject of international restriction on the use of weapons, no serious and concerted negotiations took place until the convening of the Geneva Diplomatic Conference on Humanitarian Law which met from 1974 to 1977

131. *Id.*, art. 58, ¶ 1(c), 1125 U.N.T.S. at 30, 16 I.L.M. at 1416.

132. Roberts and Guelff make the observation that although provisions relating to the use of one category of weapons may be applied in principle to other types of weapons, State practice runs contrary to this type of interpretive venture. See DOCUMENTS, *supra* note 85, at 30.

133. See DOCUMENTS, *supra* note 85, at 30.

134. Paragraph 6 of the Declaration provides: “The Contracting Parties engage mutually to renounce, in case of war among themselves, the employment by their military or naval troops of *any projectile* of a weight below 400 grammes, which is either explosive or charged with fulminating or inflammable substances.” *Id.* (emphasis added).

135. DOCUMENTS, *supra* note 85, at 30.

136. Captain J. Ashley Roach, *Certain Conventional Weapons Convention: Arms Control or Humanitarian Law?* 105 MIL. L. REV. 3, 6 (1984). Resolution XXVII of the Conference urged the International Committee of the Red Cross to pursue the development of international humanitarian law and to address the dangers to civilians during armed conflict. For the text of the resolution, see D. SCHINDLER & J. TOMAN, *THE LAWS OF ARMED CONFLICTS: A COLLECTION OF CONVENTIONS, RESOLUTIONS AND OTHER DOCUMENTS* 195 (2d ed. 1981).

137. U.N. Doc. A/CONF.33/41 (1968), *reprinted in* SCHINDLER & TOMAN, *supra* note 136, at 197.

and produced two Additional Protocols to the 1949 Geneva Conventions.¹³⁸ However, the Conference was unable to conclude any agreements on the restriction or prohibition of any specific conventional weapons. The Conference was successful in establishing the Ad Hoc Committee on Weapons, which laid the groundwork for future negotiations on a weapons treaty.¹³⁹

The United Nations Conventional Weapons Conference adopted the Conventional Weapons Convention and three annexed protocols relating to non-detectable fragments, mines, booby-traps and similar devices, and incendiary weapons.¹⁴⁰ The optional Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices [hereinafter Landmines Protocol]¹⁴¹ represents the first attempt to establish a legal regime specifically intended to deal with the use of landmines in armed conflict.¹⁴² Prior to the negotiation of the Weapons Convention and Landmines Protocol, the law relating to the use of landmines was comprised of principles of vague and uncertain scope such as military necessity and the principle of proportionality, as well as the prohibition against the use of weapons of indiscriminate effects.¹⁴³ The law of war provided little guidance to the military commander or international lawyer. In order for a treaty to fill the apparent lacunae in the law of war pertaining to the use of conventional weapons such as landmines in a manner that would be agreeable to governments, a delicate balance had to be achieved. One representative present at the First Session of the Ad Hoc Committee on Conventional Weapons summarized the legal challenge as follows: "In order to draw a dividing line between acceptable and unacceptable weapons and methods of warfare, it would be necessary to rely on the two criteria of unnecessary harm or suffering and indiscriminate effects, and, secondly, to strike a fair balance between humanitarian and

138. See *supra* notes 86 and 112.

139. See generally *AD HOC* REPORTS, *supra* note 110.

140. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects, with annexed Protocols, opened for signature April 10, 1981, 1342 U.N.T.S. 137, Annex 1 to U.N. Doc. A/CONF.95/15, at 20 (1980) [hereinafter Weapons Convention and Landmines Protocol]. For a detailed examination of the legislative history of the Weapons Convention which is not available as a printed record of the sessions, see Roach, *supra* note 136.

141. Cf. 1907 Hague Convention VIII Relative to the Laying of Automatic Submarine Contact Mines, October 18, 1907, 36 *tat.* 2332 (providing for limitations on the use of automatic contact mines at sea). There is some talk of updating the 1907 Convention on naval mining by way of annexing a new protocol to the 1980 Weapons Convention. Sweden presented a working paper and a draft protocol on the subject of naval mines at the 1989 session of the Disarmament Commission intended to update the 1907 Hague Convention. See *Note verbale Dated 4 November 1991 from the Permanent Representative of Sweden to the United Nations Addressed to the Secretary-General*, Annex to U.N. Doc. A/C.1/46/15 (1991). Given the law of war distinction between the use of mines at sea and mines on land, this paper refers to the "Landmines Protocol."

142. Here the usage of the term "regime" is intended to refer to a set of rules which are applicable to the regulation and control of the effects of specific behavior. The development of the concept of "international regime" has taken place within the context of international environmental law and its value has been argued with persuasion. See, e.g., Winfried Lang, *The International Waste Regime*, in ENVIRONMENTAL PROTECTION AND INTERNATIONAL LAW, *supra* note 79, at 147.

143. See *supra* notes 84-110 and accompanying text.

military considerations.”¹⁴⁴

The Weapons Convention and annexed Protocols represent the end result of the above-mentioned summons. It is the preamble of the Weapons Convention, rather than the text itself, which refers back to the principles of customary law forming the foundation and rationale for the conclusion of an agreement on conventional weapons.¹⁴⁵ The preamble thus refers to the protection of the civilian population in time of armed conflict through the concepts of “superfluous injury” and “unnecessary suffering.”¹⁴⁶ The preamble also calls attention to the prohibition against employing means or methods of warfare which are intended, or may be expected, to cause widespread, long-term and severe consequences to the natural environment,¹⁴⁷ thus bringing one facet of environmental harm squarely within the purview of international humanitarian law. Interestingly, the preamble alludes to the interest of the Contracting Parties to contribute to the ending of the arms race and to work towards disarmament.¹⁴⁸ This is suggestive of a blurring of the traditional sectoral division in international law between disarmament and the law of war¹⁴⁹ and raises interesting questions for future developments in the analysis of the conceptual partition.

D. Substantive Provisions of the Weapons Convention and Landmines Protocol

The Weapons Convention applies to international armed conflicts as defined in Article 2 common to the 1949 Geneva Conventions.¹⁵⁰ The

144. *AD HOC* REPORTS, *supra* note 110, at 49. Mr. Ofstad of Norway framed the task of drafting a treaty on specific weapons in succinct terms: “The legal difficulty was to relate general standards such as ‘unnecessary suffering’ to the concept of ‘military necessity.’” *Id.* at 7.

145. Weapons Convention, pmb., *supra* note 140, 1342 U.N.T.S. at 163.

146. *Id.*

147. *Id.*

148. *Id.* at 164.

149. Roach observes that one of the difficulties of convening a conference relating to the regulation of the use of specific conventional weapons in the early 1970s was the notion that the subject went beyond the scope of the law of war and, therefore, should be addressed within the context of disarmament. Roach, *supra* note 136, at 9. See also Hans Blix, Remarks, *Panel: Human Rights and Armed Conflict: Conflicting Views*, 67 *PROC. AM. SOC’Y INT’L L.* 141, 155-56 (1973); *Conference of Government Experts - Geneva 24 May-12 June 1971 (II)*, 1971 *INT’L REV. RED. CROSS* 587, 592-95. This matter received some attention in the early 1980s as negotiations for the Weapons Convention were underway. See Paul C. Szasz, *The Conference on Excessively Injurious or Indiscriminate Weapons*, 74 *AM. J. INT’L L.* 212, 214 (1980).

150. Article 2 provides:

In addition to the provisions which shall be implemented in peace time, the present Convention shall apply to all cases of declared war or of any other armed conflict which may arise between two or more of the High Contracting Parties, even if the state of war is not recognized by one of them.

The Convention shall also apply to all cases of partial or total occupation of the territory of a High Contracting Party, even if the said occupation meets with no armed resistance.

Although one of the Powers in conflict may not be a party to the present Convention, the Powers who are parties thereto shall remain bound in their mutual relations. They shall

treaty also applies to armed conflicts falling within the scope of Article 1(4) of Protocol I.¹⁵¹ Article 2 provides that none of the provisions in the treaty or the protocols shall detract from other obligations imposed by international humanitarian law.¹⁵²

Article 8 of the Weapons Convention addresses the subject of treaty review and amendments.¹⁵³ Following in the tradition of modern treaty-making, and of international environmental agreements in particular, Article 8 provides that any party to the Convention may propose amendments to the treaty or to any annexed protocol to which it is bound.¹⁵⁴ If a majority of at least eighteen parties agree, a conference will be convened to consider the tabled amendments.¹⁵⁵ All parties may attend such a conference, but only those parties to a particular protocol may decide on amendments to that protocol.¹⁵⁶ Similarly, Article 8 provides for the convening of a conference to consider additional protocols relating to other categories of conventional weapons not considered in the other protocols.¹⁵⁷ The importance of this provision should not be underestimated. International environmental law treaties often provide for review meetings which ensure the Parties' continued attention on implementation.¹⁵⁸

Article 6 of the Weapons Convention requires parties to disseminate the Convention and the annexed Protocols as widely as possible and, in

furthermore be bound by the Convention in relation to the said Power, if the latter accepts and applies the provisions thereof.

See generally Geneva Conventions, *supra* note 111.

151. Article 1(4) refers to "armed conflicts in which peoples are fighting against colonial domination and alien occupation and against racist regimes in the exercise of their right of self-determination". Protocol I, art. 1, ¶ 4, *supra* note 86, 1125 U.N.T.S. at 7, 16 I.L.M. at 1397. The Weapons Convention follows the usual procedures in terms of treaty ratification, acceptance, approval and accession, all of which are governed by Article 7. Weapons Convention, *supra* note 140, 1342 U.N.T.S. at 165. The only deviation from these norms is the procedure allowed for during an international armed conflict, including a national war of liberation, which appears in Article 7(2) and (4). Under Article 7, a State which is not bound by the same Protocols as its enemy may enter into an agreement for the duration of hostilities to accept and apply the relevant provisions. This procedure allows a national liberation movement to enter into such an agreement with its adversary as well. Weapons Convention, art. 7, *supra* note 140, 1342 U.N.T.S. at 165.

152. Roach notes that the scope of Article 2 is quite broad, taking into account principles of customary law in addition to international agreements, in contrast to the original proposal of the United Kingdom and the Netherlands which would have made reference only to treaty obligations. Roach, *supra* note 136, at 36.

153. Weapons Convention, art. 8, *supra* note 140, 1342 U.N.T.S. at 166.

154. *Id.* These provisions allow for the on-going negotiation and elaboration of rules or standards which fosters implementations and "gives treaties a dynamic character and enables the parties to respond to new problems or priorities." PATRICIA W. BIRNIE & ALAN E. BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT 161 (1992).

155. Weapons Convention, art. 8, *supra* note 140, 1342 U.N.T.S. at 166.

156. *Id.*

157. *Id.* For the moves made pursuant to this provision, see *infra* notes 229-231 and accompanying text.

158. However, the absence of a provision requiring the parties to keep under continuous review and evaluation the implementation of their obligations in international environmental law agreements is said to risk falling into the category of "sleeping treaties." See BIRNIE & BOYLE, *supra* note 154, at 162.

particular, to their armed forces.¹⁵⁹ The obligation requiring dissemination is an inheritance from other international humanitarian law treaties and may, perhaps, represent an emerging norm of customary international law.¹⁶⁰ The primary difficulty with the mandate set forth in Article 6 is the manner and extent of its implementation.¹⁶¹ The obligation covers only dissemination among armed forces. In civil war conflicts, where the use of conventional weapons is of particular concern, it is doubtful whether all parties to a conflict will be aware of the laws of war, assuming there even exists the motivation to adhere to such rules. This point illustrates the potential role which international organizations can play in promoting the education of all parties to an armed conflict and the inherent difficulty in reaching all those parties to whom the Weapons Convention applies.¹⁶²

The Landmines Protocol applies to the use of mines and booby traps on land.¹⁶³ Article 2(1) defines "mine" in broad terms so as to include landmines placed by hand as well as the so-called "scatterable mines" which may be delivered by aircraft or by artillery, rocket, mortar, or similar means.¹⁶⁴ The definition set forth in Article 2(1) also takes into account the wide array of mine laying techniques and the manner of detonation of modern landmines as it brings within its scope mines "placed under, on or near the ground or other surface area and designed to be detonated or exploded by the presence, proximity or contact of a person or vehicle."¹⁶⁵

159. Article 6 provides:

The High Contracting Parties undertake, in time of peace as in time of armed conflict, to disseminate this Convention and those of its annexed Protocols by which they are bound as widely as possible in their respective countries and, in particular, to include the study thereof in their programmes of military instruction, so that those instruments may become known to their armed forces.

Weapons Convention, art. 6, *supra* note 140, 1342 U.N.T.S. at 165.

160. For parallel provisions relating to dissemination in other law of war treaties, see Article 1 of the 1907 Hague Convention IV, *supra* note 84, 36 Stat. at 2290; Article 47 of the First Geneva Convention, *supra* note 111, 6 U.S.T. at 3146, 75 U.N.T.S. at 62; Article 48 of the Second Geneva Convention, *supra* note 111; Article 127 of the Third Geneva Convention, *supra* note 111; Article 144 of the Fourth Geneva Convention, *supra* note 111, 6 U.S.T. at 3419, 75 U.N.T.S. at 236; Article 83 of the 1977 First Protocol, *supra* note 86, 1125 U.N.T.S. at 39, 16 I.L.M. at 1428.

161. Weapons Convention, art. 6, *supra* note 140, 1342 U.N.T.S. at 165. See Jean-Jaques Surbeck, *Dissemination of International Humanitarian Law* 33 AM. U. L. REV. 125 (1983) (discussing the roles of the National Red Cross Societies and the activities of the ICRC in the dissemination of international humanitarian law and addressing the problem of dissemination of the laws of war in general terms).

162. The ICRC, in addition to disseminating the laws of war, also plays an important role in overseeing the progress made by governments in their dissemination and teaching. ICRC, *Dissemination of Knowledge and Teaching of International Humanitarian Law and of the Principles and Ideals of the Red Cross: Answers from Governments and National Societies to the ICRC Questionnaire*, 24th International Red Cross Conference, Aug. 1981, Doc. CPA/4.1/1, at 9.

163. Landmines Protocol, art. 1, *supra* note 140, 1342 U.N.T.S. at 164. The Landmines Protocol applies to all mines used on land, including those used on beaches. The provisions do not apply to mines used at sea which are covered under a separate regime in 1907 Hague Convention VIII Relative to the Laying of Automatic Submarine Contact Mines. See *supra* note 141. For a thorough review of the legislative history of the Landmines Protocol and a comprehensive discussion of its provisions, see Carnahan, *supra* note 107.

164. Landmines Protocol, art. 2, ¶ 1, *supra* note 140, 1342 U.N.T.S. at 168.

165. *Id.*

The general restrictions in relation to the use of landmines, booby-traps and other devices¹⁶⁶ are found in Article 3.¹⁶⁷ Article 3(2) prohibits directing any such weapons against the civilian population or individual civilians under any circumstances.¹⁶⁸ Article 3(3) prohibits the indiscriminate use of the applicable weapons which is defined as placement which is not on or directed against a military objective.¹⁶⁹ The indiscriminate use provision also prohibits employing a method or means of weapon delivery which cannot be directed against a military objective or which may be expected to cause excessive injury to civilians or excessive damage to civilian objects.¹⁷⁰ Finally, Article 3(4) calls for "all feasible precautions" to be taken to protect civilians from the effects of mines, booby-traps and other devices.¹⁷¹

Article 3 adds specific content to the customary principle of proportionality and discrimination in the context of a particular set of weapons. Moreover, the general restrictions implicitly recognize the inter-temporal dimension of conventional weapons use by defining "indiscriminate use" in terms of anticipated incidental damage. This is evidenced in the language which prohibits the emplacement of "mines, booby-traps and other devices . . . which *may be expected to cause incidental loss.*"¹⁷² Such language acknowledges the unique threat which landmines and other unexploded ordnance on the battlefield may pose to civilians and the natural environment long after such weapons have ceased to serve any military function. Finally, the notions of injury to civilians and damage to civilian objects seem to encompass environmental damage such as the mining of grazing or agricultural lands so long as such objects do not constitute a military objective, broadly defined under Article 2(4).¹⁷³ Given the interest of environmental protection in the preamble of the Weapons Convention and

166. "Booby-trap" is defined in Article 2(2) as "any device or material which is designed, constructed or adapted to kill or injure and which functions unexpectedly when a person disturbs or approaches an apparently harmless object or performs an apparently safe act." This definition includes landmines which have been tampered with in such a way as to meet the criteria set forth in Article 2(2). "Other devices" refers to munitions which are remote-controlled or designed to detonate after a lapse of time. (Article 2(3)). Landmines Protocol, *supra* note 140, 1342 U.N.T.S. at 169. For a report indicating that Turkish forces are experiencing serious difficulties in subduing the Kurdish guerrillas owing to the guerrillas' use of booby-traps, see Chris Hedges, *Turkish Forces Report Surrounding Rebel Kurds in Iraq*, N.Y. TIMES, March 25, 1995, at A3.

167. Landmines Protocol, art. 3, *supra* note 140, 1342 U.N.T.S. at 169.

168. *Id.*

169. *Id.*

170. *Id.*

171. *Id.* This provision in Article 3 is subject to the caveat defining "feasible measures" as "precautions which are practicable or practically possible taking into account all circumstances ruling at the time, including humanitarian and military considerations."

172. *Id.* Edith Brown Weiss's discourse on the inter-temporal doctrine of international law as applied to the protection of the environment is particularly apt in the context of the long-term humanitarian and environmental consequences associated with landmine use. Weiss argues that traditional international law has been reactive in concerning itself with problems that exist in the present or in the past to the exclusion of a broader, inter-temporal focus which not only relates the present to the past, but also the present to the future. WEISS, *supra* note 118, at 34.

173. Landmines Protocol, art. 2, *supra* note 140, 1342 U.N.T.S. at 168.

in recent law of war treaties,¹⁷⁴ the somewhat antiquated predilection which centers around injury to civilians and civilian objects is unhelpful.

Additional protection is accorded to the civilian population in Article 4 of the Landmines Protocol which prohibits the use of mines, booby-traps and other devices in populated areas where ground combat is not taking place or imminent.¹⁷⁵ Exceptions to the rule exist where such weapons are placed on or near enemy controlled military objectives or where measures are taken to protect the civilian population.¹⁷⁶ Article 4 does not apply to remotely-delivered mines.¹⁷⁷ These exceptions weaken the force of the provision and allow, for example, the emplacement of mines around a military objective within a city or town.¹⁷⁸ Of further concern is the unclear relationship of the Article to the problem of the "ringed" city, where mines surround a city or town, thus prohibiting access to relief operations or agricultural or grazing lands.¹⁷⁹

Article 5 of the Landmines Protocol restricts the use of remotely-delivered mines, such as the infamous "butterfly" which is delivered from aircraft and floats to the ground where it arms itself.¹⁸⁰ These mines may only be used within an area which is itself a military objective or which contains military objectives.¹⁸¹ In either case, the location must be accurately recorded pursuant to Article 7(1)(a) (requiring the recording of "pre-planned" minefields) or must have an effective neutralizing mechanism.¹⁸²

The inherent problem with recording the delivery of scatterable mines is that they are particularly susceptible to the whims of nature. Lightweight mines can shift in the wind and rain.¹⁸³ They may be carried away from their initial emplacement location by drifting or melting snow. They may become covered with accumulations of foliage and other debris. All mines, when placed in desert terrain or beach areas, may become buried deep in the sand.¹⁸⁴ Landmines planted in jungles, mountainous areas, wetlands or areas with dense brush may be completely hidden. Thus, it is apparent that the precaution of recording, an important component of the legal regime, may not be enough to prevent the environment from wreaking its own havoc with

174. Weapons Convention, pmbi., ¶ 4, *supra* note 140, 1342 U.N.T.S. at 163.

175. Landmines Protocol, art. 4, *supra* note 140, 1342 U.N.T.S. at 169.

176. *Id.*

177. *Id.*

178. Carnahan, *supra* note 107, at 82.

179. *See, e.g.*, note 43 and accompanying text.

180. Landmines Protocol, art. 5, ¶ 4, *supra* note 140, 1342 U.N.T.S. at 169. The PFM-1 anti-personnel mine or bomblet was first manufactured in the Soviet state arsenals. It is a lightweight plastic weapon with a liquid explosive and can fit into the palm of a hand. The helicopter-dispensed weapons have two wing-like protrusions extending from their core, hence their identification with the butterfly. This has led to the erroneous conclusion that the PFM-1 was a weapon designed to look like a butterfly which would fall foul of the provisions relating to booby-traps in the Landmines Protocol. *See* OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 27.

181. Landmines Protocol, art. 5, *supra* note 140, 1342 U.N.T.S. at 169.

182. *Id.*

183. ARMS PROJECT, *supra* note 6, at 240-41.

184. *See supra* note 36 and accompanying text.

landmine emplacement.

Article 5 also calls for effective advance warning to the civilian population where the delivery of such mines may affect civilians.¹⁸⁵ An exception to the advance warning rule is allowed “where circumstances do not permit.”¹⁸⁶ Given that many scatterable mine systems are delivered by aircraft, it is anticipated that the exception may be invoked by States to ensure that combatant mining teams are not cited with violations of the Landmines Protocol. Moreover, the military necessity of a surprise attack or the importance of safeguarding the aircraft responsible for dropping the mines may also rank among the “circumstances” which do not permit advance warning.¹⁸⁷

Article 6 prohibits the use of certain booby-traps resembling apparently harmless objects or which are in any way connected to or associated with objects such as toys, medical facilities, and signs.¹⁸⁸ Article 7 requires the recording of the location of all “pre-planned” minefields as well as all areas in which they have made “large-scale” and “pre-planned” use of booby-traps.¹⁸⁹ To the extent that minefields are not “pre-planned,” a term which is not defined in the Protocol and which, therefore, the Contracting Parties are left free to interpret, they need not be recorded.¹⁹⁰ The recording of booby-traps is conditioned by the use of the language “pre-planned” and “large scale.”¹⁹¹ The provisions on the recording of the location of minefields and booby-traps are significantly weakened by the use of these terms.

Furthermore, the parties are called upon to endeavor to record the location of all other minefields, mines and booby-traps which they have laid.¹⁹² The Technical Annex to the Landmines Protocol specifies the guidelines for recording the location of minefields, mines, and booby-traps.¹⁹³ Article 7(3) calls on the parties to retain the records and, after the cessation of hostilities, take “all necessary and appropriate measures” to protect civilians from the effects of mine and booby-trap use.¹⁹⁴ Each party is to make available to the other and to the Secretary-General of the United Nations information in their possession concerning the location of mines and booby-traps in adverse party territory or to make such information available

185. Landmines Protocol, art. 5, ¶ 2, *supra* note 140, 1342 U.N.T.S. at 169.

186. *Id.*

187. Carnahan, *supra* note 107, at 81.

188. Landmines Protocol, art. 6, *supra* note 140, 1342 U.N.T.S. at 170.

189. Landmines Protocol, art. 7, *supra* note 140, 1342 U.N.T.S. at 170. The use of the term “pre-planned” is especially problematic because of its lack of definition in the Protocol. Fenrick makes the valid argument that the absence of a definition leaves room for state practice to contribute to the formation of a customary principle which may undermine the recording provisions. Fenrick, *supra* note 97, at 245.

190. Landmines Protocol, art. 7, *supra* note 140, 1342 U.N.T.S. at 170.

191. *Id.*

192. *Id.*

193. Landmines Protocol, Technical Annex, *supra* note 140, 1342 U.N.T.S. at 171.

194. Landmines Protocol, art. 7, *supra* note 140, 1342 U.N.T.S. at 170.

after the complete withdrawal from the territory of the adverse party.¹⁹⁵ When a United Nations force or mission is in operation, recording information must be handed over to them.¹⁹⁶ Finally, Article 7(3)(c) calls for the parties “wherever possible, by mutual agreement” to provide for the release of information concerning mine and booby-trap location, especially in agreements governing the end of hostilities.¹⁹⁷

An interesting and innovative addition to law of war treaty-making is the provision found in Article 8 of the Landmines Protocol which requires a party to remove or render harmless, insofar as possible, landmines and booby-traps in an area where a United Nations force or mission is in operation when asked to do so by the head of the UN project.¹⁹⁸ Measures must also be taken to protect the force or mission while carrying out its duties and to make available existing records relating to the location of mines and booby-traps.¹⁹⁹ Similar protection is accorded to fact-finding missions of the United Nations.²⁰⁰

Article 9, the final provision of the Landmines Protocol, concerns international cooperation in the removal of minefields, mines and booby-traps.²⁰¹ The hortatory language calls into question the utility of the provision, but the importance of the principle of international cooperation cannot be over-stated in the context of landmine clean-up operations. Article 9 thus calls on parties to “endeavor to reach agreement, both among themselves and with other States and with international organizations, on the provision of information and technical and material assistance” after the cessation of hostilities to facilitate the removal of mines and booby-traps.²⁰²

The provisions in the Weapons Convention and the Landmines Protocol uphold fundamental rules of the customary law of war in applying these norms to particular conventional weapons. The law of war, probably more than any other area of international law, faces the toughest challenge in getting states conscientiously to ratify its treaties. Indeed, only thirty-seven countries are bound by the obligations set forth in the instruments. It is evident that in concluding an agreement pertaining to conventional weapons, states were wary of creating for themselves the so-called “normative boomerang.”²⁰³ Thus, the hesitancy of states to agree to obligations which

195. *Id.*

196. *Id.*

197. *Id.*

198. Landmines Protocol, art. 8, *supra* note 140, 1342 U.N.T.S. at 171.

199. *Id.* Landmines now rank as the second major cause of casualties among U.N. peacekeepers due to hostile action. See *Mine Clearance*, *supra* note 1.

200. Landmines Protocol, art. 8 *supra* note 140, 1342 U.N.T.S. at 171.

201. Landmines Protocol, art. 9, *id.*

202. *Id.*

203. The term “normative boomerang” was coined by Professor Brownlie in the context of international environmental law, but seems particularly apt in the law of war context. Gunther Handl, *Transboundary Nuclear Damage*, in *INTERNATIONAL LAW AND POLLUTION* 152 (D. McGraw ed., 1990) (quoting Professor Ian Brownlie, 10th Sokol Colloquium, University of Virginia School of Law, April 15, 1988).

they are unlikely or unable to adhere to in practice can be seen in the provisions of the Landmines Protocol which do little more than put down on paper the general principles of the law of war and link them specifically to landmines. Such linkage has the advantage of laying the initial groundwork from which further developments in the law of war relating to the means and methods of warfare may be pursued, once the will to refine existing rules or to make new ones is manifest.

E. Non-binding Instruments Relevant to the Use of Landmines

Prior to considering possible future developments in the law relating to landmines, a consideration of the residual sources of the law in this area should be outlined. These non-binding or "soft-law" provisions may take the form of guidelines, resolutions, recommendations, declarations or similar documents issued by intergovernmental organizations or non-governmental organizations.²⁰⁴ Soft-law instruments are highly valued in the field of international environmental law and may contribute to the crystallization of new rules of customary international law.²⁰⁵ For example, guidelines published by the World Health Organization relating to air quality are not formally translated into law through the treaty mechanism. However, they have long been recognized as forming the basis for standard-setting at national levels.²⁰⁶

The most famous soft-law instrument in the environmental law sphere is the Stockholm Declaration of the United Nations Conference on the Human Environment²⁰⁷ which marked one of the achievements of the 1972 Stockholm Conference on the Environment.²⁰⁸ One provision of interest which explicitly refers to military activities as they pertain to the environment is Principle 26.²⁰⁹ This final provision of the Declaration addresses the subject of nuclear weapons and weapons of mass destruction. The efforts by

204. See generally Handl, *supra* note 203, at 63.

205. See, e.g., PETER H. SAND, WORLD RESOURCES INST., LESSONS LEARNED IN GLOBAL ENVIRONMENTAL GOVERNANCE, 16, 17 (1990). See also WEISS, *supra* note 118, at 103. (arguing that soft-law instruments in the sphere of international environmental law form part of the evolutionary process of turning planetary rights and obligations into international law by contributing to the creation of customary norms).

206. See SAND, *supra* note 205, at 17. There are numerous examples of soft-law principles which may enhance or supplement rules of international environmental law and also provide springboards for future standard-setting by drawing the attention of the international community to new areas of concern. The Helsinki Rules on the Uses of International Rivers is one such example. International Law Association, *Report of the Fifty-Second Conference* 484 (Helsinki, 1966). For a collection of international soft-law instruments, see INTERNATIONAL ENVIRONMENTAL SOFT LAW (Marlene Jahnke, ed., 1994).

207. Stockholm Declaration of the United Nations Conference on the Human Environment, U.N. Doc. A/CONF.48/14/Rev.1 at 3 (1972) [hereinafter Stockholm Declaration].

208. See generally Louis B. Sohn, *The Stockholm Declaration on the Human Environment*, 14 HARV. INT'L L. J. 423 (1973).

209. Principle 26 provides: "Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons." Stockholm Declaration, *supra* note 207, at 5.

the United States at the Stockholm Conference to relate the principle to weapons in general was not accepted.²¹⁰ The Stockholm Principles are of interest to the present discussion as they highlight the concerns of international environmental law, recognize the important link between problems of development and environmental protection, and promote and encourage international cooperation to address environmental matters.

The World Charter for Nature,²¹¹ adopted by the United Nations General Assembly, restates many of the principles set forth in the Stockholm Declaration.²¹² Though not a binding instrument, the Charter contains normative language which may encourage the crystallization of some of its provisions into customary law. Moreover, the World Charter for Nature was adopted by the General Assembly by an overwhelming majority.²¹³ The only vote against the resolution was that of the United States, which agreed with the resolution in principle, but advocated more concrete language.²¹⁴ There is, therefore, a strong argument in favor of regarding the Charter principles as customary international law. Several of the principles relate to the problem which armed conflict poses for the human environment. Principle 5 of the General Principles division states: "Nature shall be secured against degradation caused by warfare or other hostile activities."²¹⁵ Also of interest with respect to the use of weapons in armed conflict is Principle 11 which provides, *inter alia*: "Activities which might have an impact on nature shall be controlled, and the best available technologies that minimize significant risks to nature or other adverse effects shall be used."²¹⁶ On the matter of implementation the World Charter asserts: "The principles set forth in the present Charter shall be reflected in the law and practice of each State, as well as at the international level."²¹⁷ A final example of a World Charter provision of some significance for landmine use is found in Principle 20 which reads: "Military activities damaging to nature shall be avoided."²¹⁸

Non-binding instruments are of increasing importance in the sphere of international human rights law and international humanitarian law.²¹⁹ Other resolutions of the United Nations General Assembly have made a contribution

210. See Sohn, *supra* note 208, at 509.

211. Adopted by the United Nations General Assembly on October 28, 1982, G.A. Res. 37/7, U.N. GAOR, 37th Sess., Supp. No. 51 at 17, U.N. Doc. A/37/51 (1983) [hereinafter World Charter].

212. See *supra* note 207.

213. The resolution was adopted by 103 votes to one, with 18 abstentions. See *supra* note 211.

214. *Id.*

215. World Charter, *supra* note 211, at 17.

216. *Id.*

217. *Id.*

218. *Id.*

219. The fiftieth session of the U.N. Commission on Human Rights passed several "soft-law" resolutions which, like their counterparts in international environmental law, may provide useful guidelines and standards of conduct despite their non-binding character. A Polish resolution, for example, recommends minimum standards for part-time military or police "civil defense forces." The resolution addresses aspects of the organization and the operation of these forces and is aimed at the prevention of human rights violations by these groups. See CHR Res. 1994/76 (Mar. 9), U.N. ESCOR, 49th Sess., Supp. No. 2, at 219, U.N. Doc. E/1994/24 (1994).

to the development of international humanitarian law. Resolutions may provide the impetus for convening a conference to consider a particular area of concern or may facilitate the setting up and funding of aid programs in a war-torn area. At the very least, they can raise public awareness. The General Assembly Resolution on the Historical Responsibility of States for the Preservation of Nature For Present and Future Generations,²²⁰ for example, emphasizes the devastating effect which the arms race has for the preservation of nature for present and future generations. Resolution 35/71 directly addresses the problem of remnants of war, initially pushed by Libya in relation to uncleared landmines of World War II vintage.²²¹

The U.N. General Assembly and the Commission on Human Rights have focused increased attention on the problem of landmine clearance and other unexploded ordnance resulting from armed conflicts throughout the world. Resolution 1993/83 of the Commission of Human Rights considered the effects of armed conflicts on children's lives, including the dangers posed to children by landmines.²²² The U.N. General Assembly adopted Resolution 48/7 at its forty-eighth session in 1993 concerning "assistance in mine clearance." Resolution 48/7 requested, *inter alia*, that the Secretary-General prepare a report on the problems posed by the presence of landmines in countries throughout the world and included in the provisional agenda of its forty-ninth session an item on assistance in mine clearance.²²³

The above-mentioned examples are just some of the soft-law provisions which examine military activities in light of their effects upon the environment. Scholars continue to stress the significance of soft-law tools in the sphere of international environmental law.²²⁴ Edith Brown Weiss suggests that the international treaty-making process places a severe burden on

220. Adopted on Oct. 30, 1980. G.A. Res. 35/8, U.N. GAOR, 35th Sess., U.N. Doc. A/RES/35/8 (1980) (calling upon States to take measures necessary for preserving nature and for promoting international cooperation in the context of the arms race and its effect on the environment).

221. Adopted on Dec. 5, 1980. G.A. Res. 35/71, U.N. GAOR, 35th Sess., U.N. Doc. A/RES/35/71 (1980). Resolution 35/71 supports the demand of States affected by material remnants of war for compensation and appeals to all States, especially those responsible for war remnants, to cooperate with the Secretary-General to work towards an acceptable solution. The United Kingdom and Italy, in abstaining from the vote, explained that they could not accept any legal obligation to remove war remnants. For the record of the debate on this issue in the Second Committee, see U.N. GAOR 2d Comm., U.N. Doc. A/C.2/36/SR.3-6, 10-24, 25, 26, 30, 31, 32, 35 (1980); 35th Sess., A/36/PV.103 (1980). For subsequent resolutions addressing the problem of remnants of war and reiterating the demands of developing countries for compensation and for the removal of war remnants by those States responsible for implanting them, see G.A. Res. 36/188, U.N. GAOR, 36th Sess., U.N. Doc. A/RES/36/188 (1981); G.A. Res. 37/215, U.N. GAOR, 37th Sess., U.N. Doc. A/RES/37/215 (1982); G.A. Res. 38/162, U.N. GAOR, 38th Sess., U.N. Doc. A/RES/38/162 (1983); G.A. Res. 39/167, U.N. GAOR, 39th Sess., U.N. Doc. A/RES/39/167 (1984).

222. CHR Res. 1993/83, U.N. ESCOR, Supp. No. 3, at 247, U.N. Doc. E/1993/23, chap. II, sect. A (1993).

223. G.A. Res. 48/7, U.N. GAOR, 48th Sess., U.N. Doc. A/RES/48/7 (1993). The protection of the environment has recently received attention by the International Red Cross and Red Crescent Movement which has passed resolutions concerning environmental protection in wartime, in addition to its more traditional focus on the protection of war victims. The resolutions, though non-legal in nature, are nonetheless instrumental in bringing humanitarian and environmental consequences of armed conflict to the platform of international attention.

224. See *supra* note 204 and accompanying text.

developing countries which do not have the resources to take part in lengthy negotiations and implementation of treaty provisions. Thus, she concludes that in the face of pressure to slow the pace of treaty-making, States may look to soft-law instruments with increasing regularity.²²⁵

The espousal of soft-law provisions by a State implies the existence of a political will to move forward, if only in recognizing the need for international law to consider the subject concerned. In the law of war context, where it has proved so difficult to muster the political will to place any real limitations on the means and methods of warfare, soft law provisions purporting to regulate the choices open to the military commander are of dubious value. However, this is not to say that there is no role for soft-law instruments in the law of war. Indeed, such mechanisms may provide much needed guidelines and add meaning to the general provisions housed in law of war treaties. A persuasive argument which has not been stressed enough in the field of international humanitarian law is that military decision-making must factor environmental considerations into its equation.²²⁶ Soft-law instruments may help to drive this point home.

In sum, provisions of a non-legal, non-binding nature do have a role to play in the law of war sphere. While they may have no contribution to make in terms of actual military restraint, they may provide the basis for further developments in this area of law which suffers from many unfortunate gaps. As one author has succinctly stated: "In addition to specific treaty rules, we also need inspirational programs, symbolic value judgments and broad policy outlines, capable of changing attitudes, moods and societal trends."²²⁷ While law reform and actual implementation of legal rules in the law of war context are exceedingly difficult to achieve, there is much to be gained by encouraging more of this type of participation. Indeed, the use of non-binding declarations and resolutions will call attention to law of war issues.

The question remains whether the current regime relating to the use of landmines is adequately poised to mitigate the environmental, developmental and humanitarian problems which the widespread and indiscriminate use of these weapons have caused.

III. A CASE FOR REFORM

Article 8 of the Weapons Convention provides for the convening of conferences to examine additional protocols concerning other categories of conventional weapons not covered by existing protocols, to review the scope and application of the Convention or its protocols, and to examine any

225. EDITH BROWN WEISS, INTRODUCTION TO ENVIRONMENTAL CHANGE AND INTERNATIONAL LAW: NEW CHALLENGES AND DIMENSIONS 3, 12 (1992).

226. BIRNIE & BOYLE, *supra* note 154, at 129.

227. Luzius Wildhaben, *Commentary*, in ENVIRONMENTAL PROTECTION AND INTERNATIONAL LAW, *supra* note 79, at 89.

proposed amendment to the Convention or its protocols.²²⁸ U.N. General Assembly Resolution 48/79,²²⁹ welcomed a request to the Secretary-General to convene a review conference of the Convention and its annexed protocols.²³⁰ Resolution 48/79 encourages State parties to the Convention and its annexed protocols to support the preparation of studies by governmental experts in order to prepare for a review conference.²³¹ The review conference will take place in 1995.

Some of the issues which the review conference should take into account as it considers the Landmines Protocol and the on-going landmine crisis are: the extension of the provision in the Weapons Convention and Protocols to non-international armed conflicts; the inclusion of mine clearance provisions with hard content in cease-fire agreements; the development of effective implementation measures and a system of verification of compliance with the provisions in the Landmines Protocol; and an assessment of international cooperation in the context of landmine clearance and landmine use. A study of international cooperation regarding the landmine problem needs to address coordination of mine clearance operations, the participation of non-governmental organizations in assistance programs and intergovernmental meetings which discuss weapons issues. Finally, the placement of further restrictions on landmine use and rules regulating the manufacture and trade of landmines require serious attention. These focal points are discussed in turn in the hope that the opportunity and challenge for reform will be embraced at the 1995 review conference.

A. *Non-international Armed Conflicts*

Given the incidence of minority separatist movements throughout the world, there is an unfortunate likelihood that internal strife and armed conflict within state borders will continue to arise in hot-spots throughout the world.²³² A substantial portion of the work of the UN Commission on Human Rights during its 1994 session addressed conflicts or tense situations

228. See Weapons Convention, art. 8, *supra* note 140, 1342 U.N.T.S. at 166.

229. *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*, G.A. Res. 48/79, U.N. GAOR, 48th Sess., U.N. Doc. A/RES/48/79 (1993).

230. The Government of France requested the Secretary-General to convene the High Contracting Parties of the Weapons Convention and, in particular, stressed the importance of amending the Landmines Protocol to strengthen its provisions. 47 U.N.Y.B. 138 (1993), U.N. Sales No. E.94.I.1.

231. See *supra* note 228.

232. For a thorough analysis of the relationship between human rights and internal conflict, see THEODOR MERON, *HUMAN RIGHTS IN INTERNAL STRIFE: THEIR INTERNATIONAL PROTECTION* (1987). See also B.G. Ramcharan, *The Role of International Bodies in the Implementation and Enforcement of Humanitarian Law and Human Rights Law in Non-International Armed Conflicts*, 33 AM. UNIV. L. REV. 99 (1983).

within a single country.²³³ Indeed, it is argued that the surge of internal strife and the consequential inflation of human rights violations in the sphere of such “non-international” armed conflicts forced the Commission to consider norms of international humanitarian law in the course of its review of State conduct - a domain previously left to the International Committee of the Red Cross and the military establishment.²³⁴

The legal framework developed to address the concept of internal conflicts in international humanitarian law is comprised of the four Geneva Conventions and the two protocols additional to the Geneva Conventions.²³⁵ Although the four Geneva Conventions adopted common Article 3 which provides for a limited number of humanitarian principles to be applied in non-international armed conflicts, the scope of the provisions are general and certainly inadequate insofar as they are capable of assisting military commanders.²³⁶ Moreover, the general principles of international humanitarian law set forth in common Article 3 are not adequately poised to address the legality of the use of weapons; specific provisions relating to the use of a class or type of weapon are apt to achieve greater results in terms of implementation and compliance than vague and abstract rules which do not speak to the practice of military forces in employing particular means and methods of warfare.

The 1977 Geneva Protocol II²³⁷ is the primary repository of law which relates to the protection of victims of armed conflicts which are of an internal or civil war nature. The provisions of Geneva Protocol II are intended to develop and supplement common Article 3 of the 1949 Geneva Conventions.²³⁸ Protocol II thus inserts the most fundamental humanitarian principles into an agreement designed to extend protection to detained persons, the wounded, sick and shipwrecked, and civilians endangered by internal armed

233. For a resolution passed by the Commission concerning the conflict between the insurrectionist forces on Bougainville, the Papua New Guinea island, see CHR 1994/81 (Mar. 9), U.N. ESCOR, 49th Sess., Supp. No. 4, at 230, U.N. Doc. E/1994/24 (1994). See also CHR Res. 1994/72 (Mar. 9), U.N. ESCOR, 49th Sess., Supp. No. 4, at 203 U.N. Doc. E/1994/24 (1994). (addressing numerous human rights situations in the former Yugoslavia); CHR Res. 1994/75 (Mar. 9), U.N. ESCOR, 49th Sess., Supp. No. 4, at 216, U.N. Doc. E/1994/24 (1994) (concerning Bosnia-Herzegovina); CHR Res. 1994/76 (Mar. 9), U.N. ESCOR, 49th Sess., Supp. No. 4 at 216, U.N. Doc. E/1994/24 (1994) (concerning human rights violations in Kosovo); CHR Res. 1994/77 (Mar. 9) U.N. ESCOR, 49th Sess., Supp. No. 4, at 220, U.N. Doc. E/1994/24 (1994) (concerning the rape and abuse of women as the result of on-going armed conflict in the former Yugoslavia).

234. John R. Crook, *The Fiftieth Session of the UN Commission on Human Rights*, 88 AM. J. INT'L L. 806, 814 (1994).

235. See *supra* notes 86, 111, 112.

236. Common Article 3 provides for minimum standards of protection to be accorded to non-combatants, prisoners of war, and the wounded and the sick in the case of non-international armed conflict. See *supra* note 111.

237. See *supra* note 112. See generally Charles Lysaght, *The Scope of Protocol II and its Relation to Common Article 3 of the Geneva Conventions of 1949 and Other Human Rights Instruments*, 33 AM. UNIV. L. REV. 9 (1983); Sylvie Junod, *Additional Protocol II: History and Scope*, 33 AM. UNIV. L. REV. 29 (1983).

238. See *supra* note 111.

conflict as defined in Article 1.²³⁹

Part IV of Protocol II does prescribe rules designed to protect the civilian population. Thus Part IV of Protocol II prohibits acts the primary purpose of which is to spread terror among the civilian population.²⁴⁰ It further provides protection for works and installations containing dangerous forces,²⁴¹ cultural objects and places of worship,²⁴² and objects indispensable for the survival of the civilian population.²⁴³ Moreover, it prohibits the forced movement of civilians,²⁴⁴ and allows access for relief organizations subject to the consent of the State concerned.²⁴⁵ These rules do little in the way of ensuring protection after the cessation of hostilities and do not address the use of weapons.

The Weapons Convention and Landmines Protocol need to be amended to extend their applicability to internal conflicts which constitute the vast majority of armed conflicts in the world community today. This reform would represent a significant strengthening of existing international humanitarian law provisions which do not adequately address the means and methods of warfare in the context of non-international armed conflicts. The extension of the specific rules pertaining to the use of landmines to internal armed conflicts would, therefore, fill an existing gap in international humanitarian law.

B. Cease-Fire Agreements

The Landmines Protocol defers to agreements between parties on matters relating to the removal of mines and booby-traps and the release of information on the location of such weapons.²⁴⁶ No institutions are actually created for the kind of cooperation called for by the Landmines Protocol.

Cease-fire agreements, peace accords, and peace-keeping operation mandates are the vehicles for addressing all matters which arise after the cessation of hostilities. These include humanitarian concerns such as the repatriation or resettlement of refugees and mine clearance.²⁴⁷ Unfortunately, the instruments which address landmine clearance tend to be vague and

239. The material field of application of Protocol II includes conflicts involving the armed forces of a High Contracting Party within its territory and "dissident armed forces or other organized armed groups which, under responsible command, exercise such control over part of its territory as to enable them to carry out sustained and concerted military operations and to implement this Protocol." Protocol II, art. 1, ¶ 1, *supra* note 112, 1125 U.N.T.S. at 611, 16 I.L.M. at 1443. Article 1 further restricts the scope of the application of Protocol II by excluding from its purview "situations of internal disturbances and tensions, such as riots, isolated and sporadic acts of violence and other acts of a similar nature." Article 1, ¶ 2, *supra* note 112, at 611.

240. *Id.* arts. 13-18, 1125 U.N.T.S. at 615-16, 16 I.L.M. at 1447.

241. *Id.* art. 15, 1125 U.N.T.S. at 615, 16 I.L.M. at 1447.

242. *Id.* art. 16, 1125 U.N.T.S. at 616, 16 I.L.M. at 1447.

243. *Id.*

244. *Id.* art. 17.

245. *Id.* art. 18.

246. Landmines Protocol, art. 7, *supra* note 140, 1342 U.N.T.S. at 170.

247. Carnahan, *supra* note 107, at 83.

generally worded and therefore fail to provide the kind of substantive framework necessary to ensure that landmine clearance—and the clearance of other hazardous military material—takes place in an organized and coordinated fashion.²⁴⁸

Cease-fire arrangements need to address the matter of environmental clean-up and set in motion the completion of a comprehensive assessment of environmental country conditions. In particular, such agreements should address those situations which are likely to have a direct impact on the repatriation of refugees and the resettlement of displaced persons. The inclusion of provisions in cease-fire agreements which address these important issues has the advantage of setting the process of reconstruction in motion. Such inclusion allows for the realistic evaluation of repatriation measures and relief operations. It also takes into account the need to educate returning refugees and the need to prioritize mine clearance. Programs need to be defined within the context of the needs and realities of differing political and economic situations in countries faced with a land mine problem. Notwithstanding this consideration, an annex to the Landmines Protocol or the issuing of non-binding guidelines could contribute to the conclusion of cease-fire agreements which anticipate the complexities of a landmine problem.

C. Implementation and Compliance Verification

The Weapons Convention does not provide for those situations when its terms are violated. Its annexed protocols do not address this issue. There are no provisions in the instruments regarding either individual or state responsibility for breaches nor are there any provisions specifically addressing compliance with the terms of the Weapons Convention or Protocols. Measures to guarantee compliance with the Landmines Protocol and which provide for responsibility for breaches and for the removal of mines would enhance the effectiveness of the obligations pertaining to landmine use.

The creation of a verification commission, a treaty body established in much the same way as those attached to international environmental agreements,²⁴⁹ would help to ensure that possible violations of the Landmines Protocol are addressed in an appropriate forum. Such a body could operate within the framework of the United Nations system. Any State party could request the initiation of an investigation in order to resolve any

248. The Geneva Agreements in the Afghanistan conflict, for example, fall short of providing any substantive guidelines on demining operations or how safe passage for returning refugees is to be implemented. U.N. SCOR, 43d Sess., Supp., Apr. 1988, at 3, U.N. Doc. S/19835 (1988).

249. There are several basic models which international environmental treaties employ for purposes of international supervision of state obligations. These include regular meetings of the parties facilitated by a permanent secretariat, a formal commission in which member states are represented; and a commission with quasi-judicial functions whose members are independent. BIRNIE & BOYLE, *supra* note 154, at 165.

problems relating to possible non-compliance.²⁵⁰ Any such request should be accompanied by relevant information and available evidence regarding the alleged breach of the Landmines Protocol. Once the commission evaluates the information and evidence, it may decide to hold an inquiry, informing all States of its decision to proceed. Moreover, the verification commission should be authorized to conduct an on-site investigation by a team of qualified experts designated by States to investigate possible violations. Any such expert investigation should be followed by the submission of a written report to the commission. The commission, in turn, should submit its findings and those of the team of experts to the States parties. Where a determination is made that a violation has occurred, the party in breach should be required to take measures to remedy the situation. In particular, the State in question should ensure the removal of any minefields and mines which it laid in violation of the Landmines Protocol. In the event of a serious violation or an emergency pertaining to compliance with the Landmines Protocol, the verification commission should be entitled to bring the matter to the attention of the U.N. Security Council.

A verification commission operating in accordance with the procedures outlined above could be instrumental in securing compliance with the obligations undertaken in the Landmines Protocol. Such a commission could provide a forum within which States can study and evaluate the terms of the agreement and, if necessary, defer to a body of experts to address any problems which may arise in securing compliance. Moreover, the focus is on facilitating implementation of the provisions as opposed to adjudicating on the basis of a breach. It is this type of dispute settlement mechanism which may prove especially useful in the law of weapons use arena.

D. The Facilitation of International Cooperation in Mine Clearance

There are several ways in which international cooperation relating to the landmine problem may be enhanced within the parameters of the existing regime. These include facilitating closer coordination of demining operations among the numerous assistance and relief groups involved; expanding the role of international organizations in the context of conventional weapons issues, and non-governmental organizations in particular; expanding the United

250. The employment of the term "verification" in the context of agreements regulating the use of weapons is criticized by Roach who prefers to limit its application to the arms control arena where "verification" means ensuring compliance with terms regarding testing, development, production, transfer, stockpiling, and other provisions relating to weapons. Hence, he favors the use of the terms "complaints procedures," "investigations," and "fact-finding procedures." Roach, *supra* note 136, at 62 n.172. The distinction is probably difficult to maintain given the interests of the United States and others to introduce arms control elements into the Landmines Protocol. See *infra* notes 289-292 and accompanying text. In a written statement submitted to the United Nations, the United States proposed, *inter alia*, the addition of "a comprehensive compliance and verification regime based on the principle of cooperative implementation." See *Moratorium on the Export of Anti-Personnel Land-Mines, Report of the Secretary-General*, U.N. GAOR, 49th Sess., U.N. Doc. A/49/275 (1994).

States moratorium on the export of anti-personnel mines,²⁵¹ and requiring technical changes in the manufacture of landmines.²⁵² Cooperation on an international level in these specific spheres could help address in concrete terms the existing landmine crisis particularly in developing countries where the problem severely strains societal structures.

1. Improved Coordination for the Provision of Humanitarian Assistance and Mine Clearance Operations

A recent General Assembly resolution²⁵³ related to mine clearance emphasized the importance of coordinating all response measures of the international community to the landmine crisis.²⁵⁴ Resolution 48/7 stressed "the importance of coordination by the United Nations of activities . . . related to mine clearance . . . with a view to improving the effectiveness of operations in the field."²⁵⁵ Given the massive scale of many international humanitarian aid projects and the scope of inefficient duplication of efforts among the many aid organizations involved in demining,²⁵⁶ there needs to develop a procedural framework to provide a systematic approach to refugee problems and assistance to people temporarily displaced.

The victims of the armed conflicts in Cambodia, Afghanistan, and Angola continue to require relief on an unprecedented scale.²⁵⁷ It is suggested that what may be gleaned from these and other experiences in large-scale aid projects is the need for closer coordination of humanitarian aid.²⁵⁸ Indeed, this point has been emphasized in the United Nations.²⁵⁹ Notwithstanding the need for coordination of assistance operations, the responses of the international community to date have been politically, not legally, motivated.²⁶⁰

251. See *infra* notes 284-288 and accompanying text.

252. See *infra* notes 289-293 and accompanying text.

253. See *supra* note 222.

254. There are a number of activities necessary to address any landmine clearance operation. These include mine detection and clearance, mine awareness programs to educate populations at risk such as civilians in mined regions, and emergency and long-term rehabilitative medical care for landmine victims. See generally ARMS PROJECT, *supra* note 6.

255. See *supra* note 222.

256. ARMS PROJECT, *supra* note 6, at 249.

257. See *supra* notes 37-64 and accompanying text.

258. Cornelio Sommaruga, *Respect for International Humanitarian Law: ICRC Review of Five Years of Activity (1987-1991)*, 286 INT'L REV. RED CROSS 74, 93 (1992).

259. See *Briefing Note, UN Secretary-General Reports on Strengthening Coordination of Emergency Humanitarian Assistance*, U.N. GAOR, 49th Sess., U.N. Doc. A/49/177 (1994).

260. Thus McCalister-Smith observes:

In principle, every person and every organization seems to be in favor of coordination, but in practice problems arise in determining who shall coordinate and who shall be coordinated. So far, the main responses in this area are of a political, institutional, or administrative nature, rather than of a legal character.

This observation is especially apt considering the potential problems of coordination among organizations addressing the various environmental, military, and medical aspects of the landmine problem. These include inter-governmental bodies such as the United Nations and its specialized agencies such as the World Health Organization, the International Committee of the Red Cross, other non-governmental groups such as medical organizations, and private industries engaged in detection and clearance of mines.²⁶¹ Although the United Nations is the biggest mine clearing agency in the world,²⁶² not one United Nations institution has the overall responsibility of coordinating programs relating to mine clearance and the environmental legacy of armed conflict.²⁶³

There are numerous legal implications in any attempt to address the subject of international humanitarian assistance. Unfortunately, treaty rules do not provide practical procedural rules to govern the large-scale humanitarian assistance required to address humanitarian, environmental and developmental concerns. Such projects entail complex technical arrangements to facilitate the movement of demining personnel, their equipment and medical units.²⁶⁴ Further arrangements must be made to safeguard the endangered civilian population and to provide medical assistance to victims of minefields. Such operations must include emergency assistance as well as long-term rehabilitation, and educational projects to provide general information on the hazards of landmines and other environmental hazards left in the wake of armed conflict.²⁶⁵

It is in this context that practice in the field of environmental protection may provide some useful models. A recurrent theme of international environmental law is the development of coordinated approaches to environmental problems through the treaty mechanism. Increasingly, international environmental law treaties contain specific rules of procedure concerning common or coordinated implementation measures.²⁶⁶ Cooperation may take

Peter McCalister-Smith, *Protection of the Civilian Population and the Prohibition of Starvation as a Method of Warfare*, 284 INT'L REV. RED CROSS 440, 454 (1991).

261. ARMS PROJECT, *supra* note 6, at 49-51.

262. *Id.* at 249.

263. The U.N. Department of Humanitarian Affairs was recently assigned the task of coordinating mine clearance. This is important as U.N. operations in countries with landmines problems work alongside numerous other organizations involved in demining. ARMS PROJECT, *supra* note 6, at 149.

264. ARMS PROJECT, *supra* note 6, at 237-248.

265. See K. Eblagh, *Practical Demining in Afghanistan*, in SYMPOSIUM, *supra* note 6, at 153-166.

266. An important aspect of effective supervision and implementation of international environmental treaty regimes is the requirement that states make periodic reports on measures taken to fulfill treaty obligations. The Paris Convention for the Prevention of Marine Pollution from Land-Based Sources requires the parties to establish a permanent monitoring system to assess "the effectiveness of measures taken under the terms of the present Convention." Paris Convention for the Prevention of Marine Pollution from Land-Based Sources, June 4, 1974, art. 11. U.K.T.S. No. 64 (1978), *reprinted in* 13 I.L.M. 252 (1974). International institutions tied to treaty regimes may also conduct fact-finding or research to verify information supplied on implementation by States. See, e.g., Canberra Convention on the Conservation of Pacific Marine Living Resources, May 20, 1980, art. 14, 33 U.S.T. 3476, 3487 (Article 14 provides for the establishment of a Scientific Committee for the Conservation of Marine Living Resources). Inspection by international agencies is the boldest example of supervision and implementation measures in international environmental law. Interestingly, the inspection roles of international agencies are strongest

many different forms, depending upon the particular environmental challenge which the treaty seeks to address.

One example lies in the depletion of the ozone layer and the recognition by the international community that the problem requires an international solution.²⁶⁷ The matter is addressed within the framework of the multilateral Vienna Convention for the Protection of the Ozone Layer which provides for a specific structure of cooperation between the parties designed to facilitate implementation of the treaty objectives.²⁶⁸ Further examples exist of cooperative regimes institutionalized by written agreement between States addressing the problem of pollution of international watercourses.²⁶⁹

Although the response to the landmine problem necessarily involves both State and non-State actors, an appropriate framework convention and action plan could be a suitable way to deal with technical issues and other matters concerning landmine clearance. Indeed, the Landmines Protocol utilizes a familiar tool of international environmental law by providing a technical annex which specifies guidelines on recording the location of minefields, mines, and booby-traps.²⁷⁰

The landmine problem—and remnants of war in general—calls for a coordinated international response. The landmines crisis in developing countries demonstrates most poignantly the need for an international multilateral conference to negotiate an international regime for the provision of emergency humanitarian assistance. Such an international agreement should address the issues relating to humanitarian assistance when armed conflict occurs, as well as after hostilities have ended. Moreover, such an agreement must take into account the environmental dimension to armed conflict and incorporate into the framework of a humanitarian assistance regime specific provisions related to the mitigation of adverse environmental

in arms control agreements. See, e.g., 1968 Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, 21 U.S.T. 483, 729 U.N.T.S. 161 (1968). For an example from the field of international environmental law involving inspection in the sphere of marine living resources, see 1978 Convention on Future Multilateral Co-operation in the North-West Atlantic Fisheries, Oct. 24, 1978, art. 18, U.S. Sen. Exec. Print 1, 96: 1 Cong. (1978).

267. For a history of international action relating to the protection of the global atmosphere, see Patrick Széll, *Ozone Layer and Climate Change*, in ENVIRONMENTAL PROTECTION AND INTERNATIONAL LAW, *supra* note 79, at 167.

268. Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, T.I.A.S. No. 11097, 26 I.L.M. 1529 (1987). See generally Széll, *supra* note 267, at 167. Here reference should be made to the coordination of surveillance and monitoring activities to access the quality of the water of the Great Lakes System under the 1978 Great Lakes Water Quality Agreement between the United States and Canada. Between the United States of America and Canada on Great Lakes Water Quality, 1978, Nov. 22, 1978, U.S.-Can., 304 U.S.T. 1385 amended by Supplementary Agreement Amending the Agreement Between the United States of America and Canada on Great Lakes Water Quality 1978, Oct. 16, 1983, U.S.-Can., T.I.A.S. No. 10798, amended by Protocol Amending the 1978 Agreement Between the United States of America and Canada on Great Lakes Water Quality, as Amended on October 16, 1983, Nov. 18, 1987, U.S.-Can., T.I.A.S. No. 11551.

269. For example, international commissions have been established to deal with the pollution problems of the Rhine, the Moselle, the Sarre, Lake Constance, Lake Geneva, the Italian-Swiss frontier waters and the Belgian-French-Luxemburg frontier waters. Johan Lammers, *International and European Community Law Aspects of Pollution of International Watercourses*, in ENVIRONMENTAL PROTECTION AND INTERNATIONAL LAW, *supra* note 79, at 115, 136.

270. Landmines Protocol, Technical Annex, *supra* note 140, 1342 U.N.T.S. at 171.

consequences and responses to environmental disasters wrought by armed conflict. Procedural rules whereby the international community creates conditions to facilitate the reconstruction and normalization of a war-torn country can maintain the focus on the central aim of assistance operations: the protection and provision of assistance to affected persons to facilitate the reconstruction of society and promotion of sustainable development.

The recognition that the landmine crisis is essentially a problem of the developing world with consequences extending beyond national borders²⁷¹ suggests that cooperation on a large scale is required. Article 9 of the Landmines Protocol does express the principle of international cooperation.²⁷² Unfortunately, its hortatory language confines it to that category of norms which, owing to their aspirational character, are unlikely to influence State practice in real terms. The time has come to address the provision of humanitarian assistance in concrete terms to enable reconstruction to take place in an orderly and comprehensive fashion and in a manner which ensures the efficient use of available resources.

2. Non-Governmental Organizations

In the same way that international environmental law has worked to include NGOs in international processes, so too can the role of these organizations be strengthened in the sphere of international humanitarian law. On October 16, 1990, the United Nations General Assembly passed Resolution 45/6 granting the International Committee of the Red Cross observer status in order to enhance cooperation between the United Nations and the ICRC.²⁷³ The step was hailed as an important one as it signalled the need for greater cooperation between institutions both in their field activities and in their efforts to encourage respect for the laws of war.²⁷⁴

Phillippe Sands has called for the role of NGOs to be enhanced in international law and suggests that such a move can contribute to shifts in the understanding of the principle of state sovereignty and the recognition of environmental rights.²⁷⁵ The role of NGOs within the sphere of environmental protection has been characterized as follows:

They have become increasingly effective through achieving consultative status at international and regional organizations where their representation and the personal lobbying of their representatives may, if to the point and well researched, influence the negotiating process when conventions and resolutions are in the process of drafting or adoption.²⁷⁶

271. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 10.

272. Landmines Protocol, art. 8, *supra* note 140, 1342 U.N.T.S. at 171.

273. G.A. Res. 45/6, U.N. GAOR, 49th Sess., U.N. Doc. A/45/L.7 and Add.1 (1990).

274. *Miscellaneous Comments*, 279 INT'L REV. RED CROSS 585 (1990).

275. Philippe J. Sands, *The Environment, Community and International Law*, 30 HARV. L.R. 392 (1989).

276. BIRNIE & BOYLE, *supra* note 154, at 76.

In addition to providing for the exchange of information and ideas between treaty negotiators and NGOs, such representation at international meetings may facilitate the coordination of the activities and policies of NGOs.²⁷⁷ A secondary benefit of enhancing the status of NGOs at the international level is the opportunity to promote greater understanding between all interested parties. In the sphere of international humanitarian law this is particularly important given the polarity of views which may arise between military representatives and NGOs and which may often be fueled by misconceptions on both sides of the debate.

International environmental law again provides an example. The treaty mechanism which frequently gives NGOs consultative status in international environmental law agreements is incorporated in Article XI of the Convention on Trade in Endangered Species.²⁷⁸ Article XI allows agencies of the United Nations to attend meetings of the Conference and also allows NGOs to be present at meetings, subject to certain conditions.²⁷⁹ Similarly, a provision for the representation of interested organizations in the sphere of international humanitarian law could be incorporated into existing treaties, such as the Weapons Convention, to enhance cooperation and coordination of activities which is crucial in the massive operations required for demining.

Non-governmental groups are beginning to make a substantial impact in many international law contexts by channeling proposals to States through their consultative status in international organizations, treaty-making bodies, and international conferences and through participation rights in meetings such as preparatory conferences for international conventions.²⁸⁰ These forms of participation provide an opportunity to encourage policy changes which can, in time, lead to substantive legal reform.

3. The Placement of Further Restrictions on Mine Use

The implementation of the mapping, recording and reporting procedures in the Landmines Protocol assumes that users of mines and similar devices

277. The European Environment Bureau is a body through which over sixty NGOs dealing with the European Union receive information and coordinate their activities relating to environmental issues. The EEB also holds workshops, convenes conferences and otherwise facilitates communication between NGOs and government officials. BIRNIE & BOYLE, *supra* note 154, at 77.

278. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 27 U.S.T. 1087, 1104, 993 U.N.T.S. 243, 251 [hereinafter Wild Fauna]. There are a number of other international environmental treaties which allow observer status for environmental NGOs. *See, e.g.*, Vienna Convention for the Protection of the Ozone Layer, Mar. 22, 1985, art 6(5), T.I.A.S. No. 11097, at 4, 26 I.L.M. 1529, 1532 (1985); Convention on the Conservation of Migratory Species of Wild Animals, June 23, 1979, art. 7(9), Cmnd. 7888, 19 I.L.M. 15, 23 (1980); Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 22, 1989, art. 15(6), U.N. Doc. UNEP/WG.190/4, UNEP/IG.80/3 (1989), *reprinted in* 28 I.L.M. 657 (1989).

279. Wild Fauna, *supra* note 278, 27 U.S.T. at 1104, 993 U.N.T.S. at 251.

280. *See generally* FELICE MORGENSTERN, LEGAL PROBLEMS OF INTERNATIONAL ORGANIZATIONS 68-90 (1986).

will have a strong incentive to protect themselves.²⁸¹ This assumes too much, as illustrated by the widespread use of mines, especially in internal conflicts. Landmines and cheap anti-personnel mines are increasingly employed in the local and regional conflicts of the post-Cold War era.²⁸² In order for the implementation of the mapping, recording and reporting procedures to take place in any comprehensive fashion, at the very least, the dissemination of information pertaining to the inherent dangers of mine use must be expanded. Here the mandate of the new U.N. High Commissioner for Human Rights is significant. Resolution 48/141 entrusts the High Commissioner to, *inter alia*, "coordinate relevant United Nations education and public information programs in the field of human rights."²⁸³ The challenge for the High Commissioner will be to ensure that those who are in greatest need of information and education will be reached by human rights agencies throughout the world. The current landmine crisis poignantly illustrates the necessity of disseminating humanitarian rules to those engaged in armed conflict and informing and educating citizens about the dangers of mines.

While the dissemination of educational material on the dangers of remnants of war, including landmines, and rules of international humanitarian law are important, the better solution to the landmine problem lies in the extension of the current U.S. ban on the export of anti-personnel mines to all producing countries.²⁸⁴ The United States has taken the lead in advocating an international ban on the sale, export and transfer abroad of landmines.²⁸⁵ Introduced by Senator Patrick Leahy, the Landmine Moratorium Act prohibits the sale or financing of a sale or transfer of landmines and, in addition, bans the licensing of landmines for export.²⁸⁶ An amendment to the legislation was introduced by Senator Edward Kennedy which requires the President to provide a report to Congress regarding international mine clearing initiatives in situations which have a bearing on the repatriation and resettlement of refugees.²⁸⁷ The State Department report was released in July 1993 pursuant to legislation enacted under Senator Kennedy's initiative.²⁸⁸ The Landmine Moratorium has been extended and the hope is that more states

281. The observation that "new forms of conflict, particularly ethnic conflict, give rise to new abuses" and that ethnic warfare "tends to alter the usual insurgency-counterinsurgency calculations that might otherwise constrain the use of landmines in internal wars" lead one report to conclude that "one side in an ethnic conflict . . . may not care about permanently ruining the land of its ethnic enemy if it does not plan to occupy that land." ARMS PROJECT, *supra* note 6, at 9.

282. The current outbreak in internal conflicts, such as those in Iraqi-Kurdistan, the former Yugoslavia, and the former Soviet Union has exacerbated the current landmines crisis. ARMS PROJECT, *supra* note 6, at 10.

283. G.A. Res. 48/141, U.N. GAOR, 48th Sess., U.N. Doc. A/RES/48/141 (1994).

284. National Defense Authorization Act for Fiscal Year 1993, 57 Fed. Reg. 228 (1992) [hereinafter Authorization Act].

285. The U.S. legislation is the first such legislation in the world. ARMS PROJECT, *supra* note 6, at 320.

286. Authorization Act, *supra* note 285.

287. *Id.*

288. See OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6.

involved in the production of anti-personnel mines will take similar action in the near future.²⁸⁹

4. Rules Regulating the Manufacture of Landmines

The inability of modern demining technology to detect plastic and minimum metal mines raises the cost of clearance and increases the danger to civilians and military personnel.²⁹⁰ Of further concern is the emphasis on development and research in the area of demining placed upon minefield breaching as opposed to minefield clearance.²⁹¹ No current form of clearance devices give the high clearance ratios necessary for humanitarian mine clearance.²⁹² These issues must be addressed so that military countermining activities place as great an emphasis upon demining and the removal of all mines from an area to safeguard civilians as has been placed upon breaching minefields which clears a safe path through a minefield for the use of troops and military equipment.²⁹³

In an address by the United States representative to the International Conference for the Protection of War Victims, held in Geneva in August, 1993, the following assertion was made: “[T]he international community should take steps to limit the trade in those landmines that pose the greatest threat to civilians—those that lack self-neutralizing features and have insufficient quantities of metal to be detected easily.”²⁹⁴

The Weapons Conference convening in 1995 should focus on convincing countries to require manufacturers to equip mines with self-neutralizing or self-destruct mechanisms or, at the very least, to insert enough metallic material in the mines to allow for easier detection. A further improvement to the Weapons Convention and Landmines Protocol would be, therefore, amendments pertaining to the technical requirements of landmines. An amendment should prohibit the use of remotely-delivered mines unless they are used against a military objective *and* they possess a neutralizing mechanism or a self-destruct mechanism. The requirement of such devices can

289. Indeed, the moratorium has been extended and now includes Italy, one of the largest manufacturers of landmines. See *Moratorium on the Export of Anti-Personnel Land-Mines, Report of the Secretary-General*, U.N. GAOR, 49th Sess., U.N. Doc. A/49/275/Add.1 (1994). Measures to ban or restrict the export of anti-personnel landmines also have been adopted by France, Belgium, Argentina, Canada, Israel, Germany, Greece, Spain, the Netherlands, South Africa, and the United Kingdom. *Id.* See also U.N. GAOR, 49th Sess., U.N. Doc. A.49/PV.11 (1994) (statement before the General Assembly by the Minister for Foreign Affairs of Italy formally announcing the national moratorium on the export of anti-personnel mines). For the recent declaration by the Czech Republic declaring a three-year moratorium on the export of anti-personnel mines, see *Letter dated 2 November 1994 from the Permanent Representative of the Czech Republic to the United Nations addressed to the Secretary-General*, U.N. GAOR, 49th Sess., U.N. Doc. A/C.1/49/6 (1994).

290. See *supra* note 6 and accompanying text.

291. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 16-17.

292. Patrick M. Blagden, in SYMPOSIUM, *supra* note 6, at 117, 120.

293. OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6, at 15, 16.

294. Warren Zimmerman, *Protection of War Victims*, Address Before the International Conference for the Protection of War Victims (August 30, 1993), in DEP'T OF STATE DISPATCH, Sept. 6, 1993 at 615.

ensure that remotely-delivered mines may be destroyed or rendered harmless after the weapon has ceased to serve a military purpose.

It remains to be seen whether the international community is determined to place further restrictions on the use of landmines or, more radically, limit their trade and manner of manufacture. The importance of making environmental consequences a serious consideration in military decision-making needs to be emphasized so that the gathering momentum may propel the international community to adopt these urgently required measures.

CONCLUSION

Changes in the nature of modern warfare have rendered meaningless in practical terms the distinction between combatants and non-combatants. In recent decades, weapons technology has made exponential advances which, in some instances, improve accuracy so that targets are reached with minimum collateral damage. On the other hand, rapid technological advances have also spilled over from the field of combat into the civilian domain resulting in massive civilian casualties and extensive environmental damage.²⁹⁵ This is nowhere more evident than in the sphere of landmine use.

Countries are no longer divided over the issue of the compatibility of environmental protection and economic development, a major point of contention at Stockholm.²⁹⁶ Today there is acceptance of the view that economic development must embrace the concept of environmental protection. The current debate has been characterized by Edith Brown Weiss as an equity issue; that is, countries must find a way to finance economic development in a manner which is environmentally sustainable for both present and future generations.²⁹⁷ Special consideration must be given in respect of developing countries which are confronted with the dual objectives of environmental protection and economic development. Indeed, international environmental law contains obligations requiring developed countries to assist developing ones in implementing treaty norms. This approach accepts the view that developing countries must first achieve economic strength through industrial and agricultural progress before they can be expected to undertake full participation in the international protection of the environment. This is an entirely academic debate for countries torn apart by war and faced with the challenges of promoting economic development and social welfare in the face of mined infrastructure, and agricultural and grazing lands. Moreover, the inability of landmine victims to work and their need for expensive medical care adds a further dimension to the challenge of reconstruction.

The restraints imposed on the international legal system by the principle of military necessity will not enable international law to approach the issue

295. See generally OFFICE OF INTERNATIONAL SECURITY OPERATIONS, *supra* note 6.

296. See *supra* note 207 and accompanying text.

297. WEISS, *supra* note 225, at 4.

of landmines in anything like the comprehensive fashion of other international agreements which address forms of pollution without a law of war connection. Moreover, the landmine crisis stands in contrast to those environmental problems which have immediate and direct transboundary implications: pollution in the form of war remnants and anti-personnel mines in particular do not present the same kind of immediate global threat as does depletion of the ozone layer, destruction of the rain forests, or nuclear plant disasters.

Given the scope of the existing landmine problem and the potential for harmful consequences extending into the future, environmental lawyers should pause and focus their attention on this issue. Clearly this is a problem which cannot be divorced from its obvious context within international humanitarian law, but the lessons of international environmental law may well prove useful in addressing aspects of the landmine problem.

Until the military usefulness of landmine warfare subsides and there develops the will to enact a general prohibition against the use of all landmines, preventive measures in the way of mapping minefields and dissemination of mine-awareness information and law of war provisions must suffice. Where a landmine or unexploded ordnance crisis develops, thorough clearing operations after the cessation of hostilities must be undertaken in a spirit of cooperation which addresses every aspect of the task. While there may well lie dormant in existing norms a total prohibition against the use of landmines, members of the international community of States and the United Nations must harness their forces now to deal with the effects of landmines and to ensure that economic development is not thwarted by the humanitarian and environmental destruction which landmines have sown.

