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An Analysis of Municipal Wetlands Laws and Their Relationship to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar)

I. Introduction

In April of 1987, the United States will become a party to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, known as the Ramsar Convention.¹ The purpose of the Ramsar Convention is to promote the wise use of all wetlands and to provide special protection for wetlands of international significance. In view of those stated goals, this paper presents a comparative law survey of municipal wetlands protection statutes in the United States and their relationship to the Ramsar Convention. The discussion set forth in Part II is an overview of the purposes and needs for wetlands protection laws and the development of wetlands protection internationally and in the United States. Part III is a comparative law survey and analysis of the elements of wetlands statutes in temperate climates of three states: New York, Connecticut and Minnesota. Part IV focuses on the Ramsar Convention and its development. In conclusion, Part V discusses various proposals and recommendations for strengthening international wetlands protection, primarily through amendments to the Ramsar Convention.

1. The U.S. Senate confirmed ratification of the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971 and a Protocol to the Convention on Oct. 9, 1986. S. Treaty Doc. 99-28, 99th Cong., 2d Sess., 132 Cong. Rec. 15773 (1986). President Reagan signed the instruments of ratification on Nov. 10, 1986. *Treaties, Current Actions*, 87 Dep't St. Bull. 90 (1987). The instruments of ratification were deposited with UNESCO on Dec. 18, 1986. The U.S. became a full party to the Convention on Apr. 18, 1987. (There is a four month delay between deposit and party status.) *Treaties, Current Actions*, 87 Dep't St. Bull. 86 (1987).

II. Background on Wetlands Protection

A. *Purposes and Need for Wetlands Protection*

Increasing recognition of the intrinsic and the ecological or resource values of natural areas known as wetlands has led to the enactment of protective legislation at the local,² state,³ and national⁴ levels and to the formation of an international agreement.⁵ Wetlands have been generally defined as areas "either periodically or continually inundated by water and generally covered by vegetation adapted to saturated soil conditions that emerges through any standing water."⁶ Broad types or categories of U.S. wetlands include inland freshwater marshes, inland saline marshes, bogs, tundra, shrub swamp, wooded swamps, bottom lands and riparian habitats adjacent to rivers and streams, coastal salt marshes, mangrove swamps, and tidal freshwater marshes.⁷ Their importance as natural resources have been found to be numerous. Wetlands are ecologically valuable as resources that store and convey floodwaters, control shoreline erosion, serve as groundwater recharge systems, improve water quality by temporarily retaining pollutants, provide fish and wildlife habitats, and serve important climatic and atmospheric functions.⁸ In addition to ecological functions, wetlands have intrinsic values to man. They provide opportunities for recreational enjoyment, and serve as a resource for educational activities, and aesthetic enjoyment.⁹

The ecological and economic values of wetlands, however,

2. Both New York and Connecticut state wetland laws provide statutory mechanisms for the regulation of freshwater wetlands to be implemented at the local government level. N.Y. Env'tl. Conserv. Law § 24-0501(1)-(7) (McKinney 1984); Conn. Gen. Stat. § 22a-42 (1987).

3. See, e.g., N.Y. Env'tl. Conserv. Law §§ 25-0101 to -0601, §§ 24-0101 to -1105 (McKinney 1984); Conn. Gen. Stat. §§ 22a-28 to -35, §§ 22a-36 to -45 (1987).

4. Clean Water Act of 1977 § 404, 33 U.S.C. § 1344 (1982 & Supp. III 1985).

5. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, T.I.A.S. No. _____, 996 U.N.T.S. 245, *reprinted in* 11 I.L.M. 963 (1972) [hereinafter Ramsar Convention].

6. Off. of Tech. Assessment, U.S. Cong., Rep. No. OTA-0-206, Wetlands: Their Use and Regulation 25 (1984) [hereinafter OTA Report].

7. *Id.* at 29-32.

8. *Id.* at 37-61.

9. *Id.* at 39-43.

have only recently stimulated the institution of protective measures and it is estimated that the world has lost approximately one-half of its wetlands since 1900.¹⁰ Agriculture, urban expansion, and industrial and commercial development are the principal reasons for disappearing wetlands. In addition, some wetlands are being destroyed by chemical pesticides and other forms of pollution.¹¹ In the United States, it has been estimated that approximately five hundred and fifty thousand acres of wetlands were lost annually between the 1950's and 1970's. Currently three hundred thousand acres of wetlands are annually being converted.¹² Government experts believe that the reduction following the 1970's is primarily due to the declining rate of drainage for agriculture and secondarily due to the governmental regulation of wetlands.¹³

B. *Global Protection and Protection in the United States*

1. *Global Protection*

International environmental principles and policies exhibited in international agreements such as the Stockholm Declaration on the Human Environment¹⁴ and the World Charter for Nature¹⁵ may serve as a basis for an emerging international environmental law. Indeed, it has been suggested by one commentator that these are two fundamental documents which might serve as part of an "international constitution for the world environment."¹⁶

Principle 21 of the Stockholm Declaration on the Human

10. N.Y. Times, Apr. 11, 1986, at A16, col. 3 (discussing a report written by Edward Maltby for Earthscan, a nonprofit international service on international resource and development issues, entitled *Waterlogged Wealth*).

11. *Id.* at A16, col. 2-3.

12. OTA Report, *supra* note 6, at 3.

13. *Id.*

14. See Report of the U.N. Conference on the Human Environment, U.N. Doc. A/CONF.48/14 at 2-65, and Corr.1 (1972), reprinted in 11 I.L.M. 1416-69 (1972) [hereinafter U.N. Conf. on the Human Env't].

15. G.A. Res. 7, 36 U.N. GAOR Supp. (No. 51) at 17, U.N. Doc. A/51 (1982) [hereinafter World Charter for Nature].

16. L. Caldwell, *International Environmental Policy* 280 (1984). The author also includes the Final Report of the Biosphere Conference of 1968 and the World Conservation Strategy (1980) as basic documents of this "Constitution." See *infra* note 27.

Environment (an adopted United Nations Resolution) states that sovereign states have the "responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction."¹⁷ It sets forth the general rule of common law known as the *sic utere* maxim, which states that one is to use one's own property so as not to harm others. In commenting on Principle 21, Professor Louis B. Sohn has stated that the "destruction and depletion of irreplaceable resources are clearly condemned by the Declaration. . . ."¹⁸ This principle can serve as a basis for an integrated international approach to wetlands protection because the effects of wetlands destruction can have impact beyond the local boundary of one nation to the natural resources of another.¹⁹

The World Charter of Nature emphasizes international environmental protection and further extends the meaning of Principle 21.²⁰ The World Charter for Nature sets forth "principles of conservation by which all human conduct affecting nature is to be guided and judged."²¹ The General Principles set forth in the Charter are: that nature and its essential processes are to be respected and unimpaired; all life forms and their necessary habitats shall be safeguarded, while all land and sea areas shall be subject to these principles; unique

17. U.N. Conf. on the Human Env't, *supra* note 14, 11 I.L.M. at 1420.

18. Sohn, *The Stockholm Declaration on the Human Environment*, 14 Harv. Int'l L.J. 423, 492 (1973). The author provides an extensive history and commentary on the formulation of the twenty-six principles of the Stockholm Declaration.

19. See, e.g., Firouz, *Wetland Conservation and Management Problems*, in *Earthcare: Global Protection of Natural Areas* 291 (E. Schofield ed. 1978).

A wetland is rarely a discrete entity, but should be regarded in the context of its entire watershed. Watershed degradation, industrial development, and environmental pollution hundreds of kilometers and often several countries away from a wetland may have significant effects on its integrity and viability. Wetland conservation programs must therefore be viewed in the light of entire regional land-use and development plans, both at the national and international levels.

Id. at 295.

20. World Charter for Nature, *supra* note 15, para. 21(d). The World Charter for Nature was adopted by the U.N. General Assembly as Resolution 7 on Oct. 28, 1982.

21. *Id.*

areas are to be given special protection; and ecosystems and resources are to be managed in a way that does not endanger the integrity of other ecosystems.²²

Two provisions in the Implementation Section of the Charter can be viewed as governing state conduct. First, "the principles set forth . . . shall be reflected in the law and practice of each State, as well as at the international level."²³ Further, at Paragraph 21(d) the Charter re-emphasizes Principle 21 of the Stockholm Declaration in stating that "States . . . shall ensure that activities within their jurisdiction or control do not cause damage to the natural systems located within other States or in areas beyond the limits of national jurisdiction."²⁴ Thus, the principles from these two adopted U.N. Resolutions can serve as a catalyst and a foundation for the strengthening of the Convention of Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention).

The Ramsar Convention is unique as an international instrument because it is an agreement concerned with the protection of one habitat type or ecosystem—wetlands.²⁵ Although the Ramsar Convention was formulated prior to the Stockholm Declaration on The Human Environment, it is likely that the agreement will be modified or amended in the future.²⁶ Modifications which provide special protection to unique areas, encourage the development of State laws for the conservation and protection of wetlands, and provide for the integrated management of wetlands so as not to endanger

22. *Id.* paras. 1-4.

23. *Id.* para. 14.

24. *Id.* para. 21(d).

25. Baldwin, *Conserving the World's Wetlands*, 8 Nat'l Wetlands Newsl. 12, 12 (1986).

26. In December of 1982, at the Extraordinary Conference of the Contracting Parties, a Protocol to Amend the Convention on Wetlands of International Importance Especially as Waterfowl Habitat established an amending mechanism for the Convention. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Extraordinary Conference of the Contracting Parties, Dec. 2-3, 1982, arts. 1-6 (1982). Published by the International Union for the Conservation of Nature and Natural Resources, 1196 Gland, Switzerland, reprinted in 22 I.L.M. 698, 699-702 (1983).

other ecosystems or species are strongly supported by the Stockholm Declaration and the World Charter for Nature as principles of international law.

In addition to these major principles of international environmental law, a world policy has been formulated by the International Union for the Conservation of Nature and Natural Resources (IUCN)²⁷ which provides a statement of world conservation requirements and a framework for the harmonious worldwide development of policies for municipal governments. This document known as the World Conservation Strategy has three main objectives: (1) the maintenance of essential ecological processes and life-support systems, (2) the preservation of genetic diversity and, (3) the sustainable utilization of species and ecosystems.²⁸ An important policy goal of the World Conservation Strategy is the preservation of coastal and freshwater systems. A strengthened Ramsar Convention would serve as an important basis for the implementation of the World Conservation Strategy.²⁹

2. *Wetlands Protection in the United States*

Activities affecting wetlands and the uses of wetlands in the United States are regulated under a variety of programs which include federal, state, local and private regimes. The type of protection methods primarily employed are designed for the effective management and use of wetlands. These include statutes and regulations governing land use and regu-

27. International Union for the Conservation of Nature and Natural Resources, World Conservation Strategy (1980), prepared in cooperation with the United Nations Environment Programme (UNEP), the World Wildlife Fund (WWF), and in collaboration with the United Nations Education, Scientific and Cultural Organization (UNESCO) [hereinafter World Conservation Strategy]. Available from International Union for the Conservation of Nature and Natural Resources, 1196 Gland, Switzerland.

28. World Conservation Strategy, *supra* note 27, § 1, para. 7.

29. De Klemm, *Conservation of Wetlands: Legal and Planning Mechanisms*, in Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Proceedings of the Second Conference of the Contracting Parties, Groningen, Netherlands, May 7-12, 1984, at 219, 240 (1984). Published by the Ramsar Convention Bureau: International Union for the Conservation of Nature and Natural Resources, 1196 Gland, Switzerland.

lated activities. An additional method for wetlands protection focuses on the conservation of wetlands through the acquisition of lands by both public and private parties, and leasing or easement programs.³⁰ This approach can be described as the protected area/preservation approach.

The primary regulatory mechanism for wetlands protection under federal law is Section 404 of the Clean Water Act³¹ which establishes a national permit program for regulating the discharge of dredged or fill materials into all waters of the United States. The program is administered by the Army Corps of Engineers. Section 404 does not regulate all wetlands of the United States nor does it regulate all uses of wetlands. The regulations promulgated pursuant to the statute cover all navigable waters, tributaries of such waters, interstate waters and their tributaries, non-navigable waters whose use or misuse could affect interstate commerce, and freshwater wetlands adjacent to waters covered by the Act.³²

The Corps' authority to regulate wetlands adjacent to navigable or interstate waters and their tributaries was recently upheld by the U.S. Supreme Court in *United States v. Riverside Bayview Homes*.³³ The Court stated that "the evident breadth of congressional concern for protection of water quality and aquatic ecosystems suggests that it is reasonable for the Corps to interpret the term 'waters' to encompass wetlands adjacent to waters as more conventionally defined."³⁴ The Court also stated that wetlands that are not flooded by adjacent regulated waters may drain into those waters and may function as integral parts of the aquatic environment thus requiring regulation by the permit process.³⁵

The permit program does not cover all types of uses and activities on wetlands. The primary intent of the Clean Water

30. See generally OTA Report, *supra* note 6; J. Kusler, *Our National Wetland Heritage* (1983).

31. Clean Water Act of 1977 § 404, 33 U.S.C. § 1344 (1982 & Supp. III 1985).

32. 33 C.F.R. § 323.2 (1986), amended by 51 Fed.Reg. 41,206, 41,210 (1986) (to be codified at 33 C.F.R. § 328).

33. *United States v. Riverside Bayview Homes, Inc.*, 106 S. Ct. 455 (1985).

34. *Id.* at 462.

35. *Id.* at 463.

Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."³⁶ The Corps interprets its primary responsibility as the protection of the quality of water. Other federal agencies such as the Environmental Protection Agency and the U.S. Fish and Wildlife Service interpret the Act's purpose to be the protection of the "integrity of wetlands, including their habitat values."³⁷ The permit program specifically regulates the discharge of pollutants such as end-of-pipe (or point source), sewage, and industrial wastes onto wetlands but does not explicitly cover all excavation projects, drainage activities, clearing of land, and flooding of wetlands.³⁸ Further exemptions are dredging and filling for normal farming (unless it is a new use), silviculture, ranching and maintenance.³⁹

The effect of the federal program under the Clean Water Act has been primarily to minimize or compensate for development of wetlands rather than the prevention of development.⁴⁰ A recent study commissioned by the U.S. Congress found that less than three percent of approximately eleven thousand annual permit applications are denied, thirty-three percent are significantly modified to reduce wetlands impacts, fourteen percent were withdrawn by applicants, and approximately fifty percent of the applications are approved without significant modifications.⁴¹ The direct result of this process from 1980 to 1981 was that approximately one-half of the one hundred thousand acres for which project permits were sought would be converted directly or indirectly if the projects were completed according to the terms of the permits issued.⁴² Thus, Section 404 sets forth primarily a use management scheme for wetlands to mitigate the negative effects of development in wetlands.

Some additional federal programs which focus on the con-

36. 33 U.S.C. § 1251 (1982).

37. OTA Report, *supra* note 6, at 10.

38. *Id.*

39. 33 U.S.C. § 1344(f) (1982).

40. OTA Report, *supra* note 6, at 141.

41. *Id.*

42. *Id.*

servation of wetlands as protected areas are the Wetlands Loan Extension Act,⁴³ the Migratory Bird Conservation Act,⁴⁴ the Federal Water Bank Program,⁴⁵ and the Erodible Land and Wetland Conservation and Reserve Program.⁴⁶ Under the Wetlands Loan Extension Act, the primary purpose is to conserve migratory waterfowl and prevent the loss of wetlands essential to their preservation as set forth in the National Wildlife Refuge System.⁴⁷ Wetlands located within the federal wildlife system (land areas owned by the Federal Government) are regulated for the protection of wildlife and their habitats. The Migratory Bird Conservation Act establishes a fund to be utilized for conservation land uses,⁴⁸ and a commission which determines which areas of land and water may be purchased by the federal government.⁴⁹ However, state governors or appropriate state agency officials must approve the acquisition of lands before the federal government can use this fund.⁵⁰ The Federal Water Bank Program⁵¹ authorizes the Secretary of Agriculture to enter into ten year renewable agreements with landowners in important migratory waterfowl nesting and breeding areas providing compensation for wetlands preservation.⁵² This program is limited to interior wetlands and is an attempt to protect the nesting sites of migratory waterfowl. Under this scheme, the landowner agrees to maintain the natural condition of wetlands in exchange for government payment.⁵³ Thus, these statutes can be viewed primarily as conservation devices protecting wetlands as fish

43. 16 U.S.C. § 668dd (1982).

44. 16 U.S.C. §§ 717-715(s) (1982).

45. 16 U.S.C. §§ 1301-1311 (1982).

46. 16 U.S.C. §§ 3801-3845 (Supp. III 1985). This act provides penalties against farmers who produce crops on converted natural wetlands after Dec. 23, 1985. *Id.* §§ 3821-3822.

47. 16 U.S.C. §§ 668dd-668ee (1982).

48. 16 U.S.C. §§ 715 k-3 to -5 (1982 & Supp. III 1985).

49. 16 U.S.C. § 715(a) (1982).

50. *Id.* § 715(c).

51. 16 U.S.C. §§ 1301-1311 (1982).

52. *Id.* § 1302.

53. Comment, *The Wetlands Controversy: A Coastal Concern Washes Inland*, 52 Notre Dame L. Rev. 1015, 1034 (1977).

and wildlife habitat and also for their intrinsic values to man.

Many states have also developed inland⁵⁴ and tidal⁵⁵ wetlands legislation at the state and local levels. The state wetland programs can at times either overlap with Section 404 (the federal program),⁵⁶ complement the federal program, or in some instances prove more dominant than the federal program.⁵⁷ In states lacking their own wetland regulations, the federal program is the only regulatory program. State and federal programs also may differ in the coverage of uses and activities regulated. Due to state and federal regulatory overlap, not only by the Clean Water Act, but also by Coastal Zone Management programs,⁵⁸ the tidal wetlands generally receive stronger protection than inland wetlands.

54. Cal. Pub. Res. Code §§ 5810-5818 (West 1984); Conn. Gen. Stat. §§ 22a-36 to -45 (1987); Fla. Stat. §§ 253.67 to 253.763, §§ 380.05-.0651 (1975 & Supp. 1987); Me. Rev. Stat. Ann. tit. 12 §§ 4751-4758 (1981), tit. 30 §§ 3251-3262, § 3851 (1978); Mass. Gen. Laws Ann. ch. 131 §§ 40-40A (1974 & Supp. 1986); Mich. Comp. Laws §§ 281.702-.722 (West Supp. 1986); Minn. Stat. Ann. §§ 105.391-.42 (West 1977 & Supp. 1987); Miss. Code Ann. §§ 49-27-1 to 49-27-69 (Supp. 1986); N.Y. Envtl. Conserv. Law §§ 24-0101 to -1105 (McKinney 1984); Vt. Stat. Ann. tit. 10 §§ 851-865, §§ 901-923 (1984 & Supp. 1986); Wisc. Stat. Ann. §§ 23.32, 61.351, 62.231 (West Supp. 1986).

55. Ala. Code §§ 9-7-10 to 9-7-22 (1980 & Supp. 1986); Conn. Gen. Stat. §§ 22a-28 to -35 (1987); Del. Code Ann. tit. 7 §§ 6601-6620 (1983 & Supp. 1986); Fla. Stat. Ann. §§ 161.011 to 161.45 (1972 & Supp. 1987), §§ 253.12- 253.60, §§ 380.19-380.27 (1975 & Supp. 1987); Ga. Code Ann. §§ 12-5-280 to 12-5-312 (1982 & Supp. 1986); Me. Rev. Stat. tit. 38 §§ 471-478 (1978 & Supp. 1986); Md. Nat. Res. Code Ann. §§ 9-101 to -502 (1983 & Supp. 1986); Mass. Gen. Laws Ann. ch. 130 § 105, ch. 131 § 40 (1974 & Supp. 1986); N.H. Rev. Stat. Ann. ch. 483-A (1983 & Supp. 1986); N.J. Rev. Stat. §§ 13. 9A-1 to 9A-10 (1979); N.Y. Envtl. Conserv. Law §§ 2501-0601 (McKinney 1984); R.I. Gen. Laws §§ 2-1-13 to 2-1-27 (1976 & Supp. 1986); S.C. Ann. §§ 48-39-10 to 48-39-220 (1987); Tex. Nat. Res. Code Ann. §§ 33.231-.238 (Vernon Supp. 1987); Va. Code Ann. §§ 62.1-13.1 to 62.1-13.20 (1982 & Supp. 1986); Wash. Rev. Code Ann. §§ 90.58.010 to 90.58.930 (West Supp. 1987).

56. Fisher, *Minnesota Water Management Law and Section 404 Permits: A Practitioner's Perspective*, 7 Hamline L. Rev. 248 (1984) (for a comprehensive discussion on the relationship of Section 404 of the Clean Water Act and the Minnesota Water Management Law).

57. OTA Report, *supra* note 6, at 187.

58. Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451-1464 (1982). This act provides for grants to coastal states to establish management programs whose purposes are to define permissible land and water uses for the coastal zone areas, and to establish organizational structure and laws to implement the program. *Id.* § 1454(b). Under § 1456(f) the requirements of the Clean Water Act must be incorporated into any program developed under the Coastal Zone Management Act.

The states under Section 404 are given authority to create state permit programs to supplant regulation by the Corps if certain agency requirements are met.⁵⁹ The states cannot, however, supersede the jurisdiction of the Corps to regulate discharges into actual navigable waters.⁶⁰ The Department of Interior is authorized to develop a "National Wetlands Inventory"⁶¹ to assist the states in developing programs under Section 404.

III. Comparative Law Survey and Analysis of State Wetlands Statutes

A survey of three statutory schemes for wetlands protection in temperate climates, Connecticut, New York, and Minnesota, serve as the basis for a comparison of different approaches to how wetlands areas are defined, the types of land use regulations employed, the structure and types of governmental control, enforcement mechanisms, and the effectiveness of state statutes and regulations. Connecticut and New York have comprehensive tidal and freshwater wetlands statutes and regulations.⁶² The Connecticut statutory scheme provides for inland wetlands regulation implemented primarily at the local government level according to state policies, and a tidal wetlands statute implemented at the state government level. An analysis of the New York freshwater and tidal wetlands statutes is provided because New York has developed an extensive system of land use controls and classification schemes for wetlands protection.⁶³ Also, New York provides

59. 33 U.S.C. § 1344(g)(1) (1982).

60. *Id.*

61. 33 U.S.C. § 1288(i)(2) (1982). To date, two National Wetlands Inventory state wetland reports have been completed: *Wetlands of New Jersey*, and *Wetlands of Delaware*. See State Wetlands Report for Delaware Published, 8 Nat'l Wetlands Newsl. 3 (1986).

62. See Conn. Gen. Stat. §§ 22a-28 to -35 (1987); Conn. Agencies Regs. §§ 22a-30-1 through 22a-20-17 (1986); Conn. Gen. Stat. §§ 22a-36 to -45 (1987); Conn. Agencies Regs. §§ 22a-39-1 through 22a-39-13.2 (1986); N.Y. Env'tl. Conserv. Law §§ 25-0101 to -0601 (McKinney 1984); N.Y. Comp. Codes R. & Regs. tit. 6, §§ 660.1 to 661.36; N.Y. Env'tl. Conserv. Law 24-0101 to -1105 (McKinney 1984); N.Y. Comp. Codes R. & Regs. tit. 6, §§ 662 to 665.16 (1986).

63. N.Y. Comp. Codes R. & Regs. tit. 6, §§ 660-665.16 (1986).

for wetlands protection in a state preservation area comprised of public and private lands known as the Adirondack Park.⁶⁴ Minnesota's wetlands protection regime utilizes a combination of statutes to monitor the drainage of wetlands for agricultural purposes,⁶⁵ the use of wetlands,⁶⁶ and the conservation of wetlands which serve as nesting habitats in a region which serves as a flyway for migratory birds.

A. *Policies, Definitions and Identification of Wetlands*

Policy statements and legislative findings of fact concerning the value of wetlands, the adverse effects of unregulated use and development and the public interest in preservation are important components of wetlands statutes. These policy statements and findings serve as aids to the agencies and courts whose functions are to interpret the law.⁶⁷ These may be "detailed statements of regulatory goals including suggested uses (e.g., recreation, food, fiber) and findings of fact concerning the problems leading to legislation (e.g., flood damages or water pollution)"⁶⁸

Both New York and Connecticut have lost vast amounts of coastal wetlands. New York's legislative findings state that "if the current rate of loss continues, most of the state's tidal wetlands will be entirely lost before the end of this century."⁶⁹ Connecticut has lost fifty percent of its tidal wetlands⁷⁰ and by 1970 it was found that destruction was "eating into the remaining 14,000 acres at the rate of about 200 acres every year."⁷¹ Marsh destruction and pollution caused the downfall of the state's shellfish industry which declined from a twenty million dollar industry in the 1920's (equivalent to forty-eight

64. N.Y. Env'tl. Conserv. Law §§ 24-0801 to -0805 (McKinney 1984).

65. Minn. Stat. Ann. §§ 105.37-105.43 (West 1977 & Supp. 1987).

66. Minn. R. 6115.0160 (1986).

67. B. Lausche, *Guidelines for Protected Areas Legislation* 22 (1980).

68. J. Kusler, *Regulating Sensitive Areas* 86 (1983).

69. 1973 N.Y. Laws ch. 790, § 1(h).

70. Niering, *The Dilemma of the Coastal Wetlands: Conflict of Local, National and World Priorities*, in *Environmental Crisis* 143, 144 (H. Helfrich ed. 1970).

71. *Id.*

million in 1970) to one and a half million in 1970.⁷²

The Connecticut Tidal Wetlands policy statement describes the adverse effects and elimination of wetlands values by development and pollution, and then declares as its public policy the preservation of wetlands and the prevention of their despoliation and destruction.⁷³ New York sets forth essentially the same policy but adds a consideration of the "reasonable economic and social development of the state."⁷⁴

Both states use similar definitions of tidal wetlands: "[T]hose areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marsh, swamps, meadows, flats or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters,"⁷⁵ and are characterized by specific vegetation types listed in each statute.⁷⁶ Both statutes require the Commissioners of the state environmental agencies, (in Connecticut, Department of Environmental Protection (DEP), and in New York, the Department of Environmental Conservation (DEC)), to inventory the tidal wetlands⁷⁷ using aerial photography and specific mapping techniques. New York prepared more than seven hundred maps of its tidal wetlands by using aerial photographs which were enlarged to produce photo maps, and analysts who interpreted vegetative information to show the size and type of wetlands on the photo maps.⁷⁸ After the states complete the maps, public hearings are held before the maps are adopted.⁷⁹ In New York, the DEC must consider the testimony and rights affected before the final bounds of

72. *Id.* at 146.

73. Conn. Gen. Stat. § 22a-28 (1987).

74. N.Y. Envtl. Conserv. Law § 25-0102 (McKinney 1984).

75. Conn. Gen. Stat. § 22a-29 (1987); N.Y. Envtl. Conserv. Law § 25-0103(1)(a) (McKinney 1984).

76. Conn. Gen. Stat. § 22a-29(2) (1987); N.Y. Envtl. Conserv. Law § 25-0103(1)-(6) (McKinney 1984).

77. Conn. Gen. Stat. § 22a-30(a) (1987); N.Y. Envtl. Conserv. Law § 25-0201 (McKinney 1984).

78. Comment, *supra* note 53, at 1020.

79. Conn. Gen. Stat. § 22a-30(a) (1987); N.Y. Envtl. Conserv. Law § 25-0201(3) (McKinney 1984).

each wetland are established.⁸⁰ Both statutes then require the promulgation of regulations for wetlands use and activities.⁸¹ Individuals wishing to undertake activities in mapped wetlands must apply for permits to appropriate state agencies.⁸² In New York, the regulations and maps identify six categories of coastal wetlands: littoral zone, intertidal marsh, coastal fresh marsh, formerly connected tidal wetlands and coastal shoals, bars and mudflats, high marsh or salt meadow, and adjacent areas.⁸³ Use categories are then established for each wetland. Thus, public policies and legislative findings, and inventory and mapping procedures serve as the basis for the land use regulations employed.

Inland wetlands are defined in Connecticut legislation by soil types: poorly drained, alluvial, and flood plain.⁸⁴ This differs from the New York statute which uses vegetation characteristics for inland wetlands identification.⁸⁵ The U.S. Soil Survey maps are the basis for the inland wetlands mapping and inventory in Connecticut.⁸⁶ The mapping can be done by local inland wetlands agencies in Connecticut or the Commissioner of the DEP. Local maps and regulations must be approved by the DEP so that they conform with state policy and regulation.⁸⁷

In New York, inland wetlands to be regulated must be either at least 12.4 acres in size, or, if smaller, must have unusual local importance for benefits as determined by the Commissioner of the DEC, or if located in the Adirondack Park, must be one acre or more in size or adjacent to a body of water where there is free interchange of water at the surface.⁸⁸

80. N.Y. Envtl. Conserv. Law § 25-0201(3)-(4) (McKinney 1984).

81. Conn. Gen. Stat. § 22a-30(c) (1987); N.Y. Envtl. Conserv. Law § 25-0302(1) (McKinney 1984).

82. Conn. Gen. Stat. § 22a-32 (1987); N.Y. Envtl. Conserv. Law § 25-0401 (McKinney 1984).

83. N.Y. Comp. Codes R. & Regs. tit. 6, § 661.4(hh)(1)-(6) (1986).

84. Conn. Gen. Stat. § 22a-38(15) (1987).

85. N.Y. Envtl. Conserv. Law § 24-0107(1) (McKinney 1984).

86. Conn. Gen. Stat. §§ 22a-39(e), -39(g) (1987); Conn. Agencies Regs. § 22a-39-4.6 (1986).

87. Conn. Agencies Regs. §§ 22a-39-11 to 22a-39-11.8 (1986).

88. N.Y. Envtl. Conserv. Law § 24-0301 (McKinney 1984); N.Y. Exec. Law

The mapping of inland wetlands in New York has been more difficult than the tidal wetlands mapping. The marshes tend to be more scattered or localized causing aerial photographic methods to be more costly and time consuming.⁸⁹ Also, identifying vegetation types is more difficult than in coastal areas because the speciation is more complex.⁹⁰ Both state statutes provide extensive legislative findings⁹¹ and strong public policy statements which have been utilized by courts in interpreting and upholding statutes.

In contrast, Minnesota's policy statement is very broad⁹² and the statute contains no legislative findings. One commentator notes that the broad statement would allow advocates of drainage to argue that drainage would be "in the best interests" of the state to provide more croplands or to eliminate health hazards.⁹³ Minnesota's Water Management Law⁹⁴ regulates three specific types of freshwater wetlands of certain sizes. The wetlands must be ten acres or larger in unincorporated areas and two and a half acres or larger in incorporated areas.⁹⁵ The definition of wetland types comes from a classification scheme designed by the U.S. Fish and Wildlife Service called "Circular 39."⁹⁶ The three types regulated are inland shallow fresh meadows, inland deep fresh meadows, and inland open fresh water. These are types three, four, and five respectively in "Circular 39." Thus, wetlands to be regulated have three identifiable characteristics: size, water depth, and vegetation types.

The inventory and mapping is to be done by the Department of Natural Resources (DNR) at the state level, but sent

§ 802(68) (McKinney 1984).

89. Comment, *supra* note 53, at 1019-21.

90. *Id.*

91. Conn. Gen. Stat. § 22a-36 (1987); N.Y. Env'tl. Conserv. Law § 24-0105 (McKinney 1984).

92. Minn. Stat. Ann. § 105.38 (West 1977 & Supp. 1987).

93. Note, *Preserving Minnesota Wetlands: Plugging the Leak in the Minnesota Water Management Law*, 6 Wm. Mitchell L. Rev. 137, 161 n.182 (1980).

94. Minn. Stat. Ann. §§ 105.37-105.42 (West 1977 & Supp. 1987).

95. *Id.* § 105.37(15) (West Supp. 1987).

96. U.S. Fish & Wildlife Service, U.S. Dep't of the Interior, Circular No. 39, Wetlands of the United States (1971).

to the county boards for public hearings. After the preliminary hearing regarding the wetland boundaries, the public can petition for an additional hearing challenging boundary designations. The decision of this hearing is a final order for purposes of judicial review.

Minnesota also regulates inland wetlands with a state Water Bank program.⁹⁷ This program is designed to supplement and complement the Federal Water Bank program which protects water, soil, landscape and wildlife habitat. Under this program, the DNR can enter into ten year renewable agreements with landowners for the preservation of wetlands. The landowners agree not to drain the area and to preserve the wetland characteristics. In order for a wetland to be eligible for this conservation easement program, the Commissioner of the DNR must make certain findings. These are that a wetland is of a classified type, where drainage would be lawful, feasible and practical, and where cropland is its projected use and draining it would provide high quality cropland.⁹⁸ If these three criteria are met, then the size requirements as stated in the Water Management Law need not be met.

B. *Types of Land Use Regulations*

The common mechanism for regulating uses and activities in wetlands is the permit program in which permits are obtained through the state or the local government agencies. New York regulations set forth a listing of activities to be regulated in inland wetlands including land use and development or subdivision, draining, dredging, excavating, removing soil, peat, mud, sand and gravel, dumping or filling with sand, gravel, rubbish, erecting structures or constructing roads, and pollution including sewage systems.⁹⁹ Exempted activities include recreational activities such as fishing and hunting, and agricultural activities such as grazing and draining for the growth of agricultural products.¹⁰⁰ Classification of wetlands

97. Minn. Stat. Ann. § 105.392(1)-(6) (West 1977 & Supp. 1987).

98. *Id.* § 105.392(2).

99. N.Y. Comp. Codes R. & Regs. tit. 6, § 665.3(x) (1986).

100. *Id.* § 665.3(x)(1)-(3).

ranked according to their ability to perform wetland functions and provide wetland benefits have been devised for New York's freshwater wetlands. These classifications form the basis for the regulation of freshwater wetlands whether the state or the local government has jurisdiction. When an applicant applies for a permit in a regulated area, one must first determine if the wetland is a Class I, II, III, or IV wetland.¹⁰¹ Activities proposed may be either compatible, usually compatible, incompatible, or exempt.¹⁰² Standards for permit issuance are established. The regulating agency must consider the standards for permit issuance in conjunction with the classification of the wetland, and the effects of the proposed activity.¹⁰³

Regulated uses of wetlands in the Adirondack Park (whether private or public) also require an agency permit (in this case, from the Adirondack Park Agency). Regulated activities and exemptions are similar to the ones listed in the DEC regulations. The wetlands are classified into four value types and for a wetland with a value rating of I, a proposed activity must be compatible with the preservation of the entire wetland and must not result in any loss or degradation of the wetland or its associated values.¹⁰⁴ By contrast, a proposed activity in a wetland with a value rating of IV, must be "the only alternative which reasonably can accomplish the applicant's objectives."¹⁰⁵ The types of values that are described may be values related to surface water systems, values due to the presence of threatened or endangered species, values due to geological factors, or social factors such as comparative rarity in a town, and recreational, scientific, educational or aesthetic values.

As stated above, the land use classifications for New York's tidal wetlands define six types of zones in accordance with its delineation on an inventory map, water flow, and vegetation characteristics.¹⁰⁶ The land use guidelines set forth an

101. *Id.* § 665.2(h).

102. *Id.* § 665.7(g).

103. *Id.* § 665.7(c).

104. N.Y. Comp. Codes R. & Regs. tit. 9, § 578.10(a)(1) (1986).

105. *Id.* § 578.10(a)(4).

106. N.Y. Comp. Codes R. & Regs. tit. 6, § 661.4(hh)(1)-(6) (1986).

extensive list of fifty-seven types of uses and rates each use within each of the six wetland types as: (1) uses not requiring a permit or notification letter approval, (2) generally compatible uses where notification letters are required, (3) generally compatible uses where a permit is required, (4) presumptively incompatible uses where a permit is required, (5) incompatible uses, and (6) uses where a permit is required. Development restrictions are set forth¹⁰⁷ although it is possible to obtain variances.¹⁰⁸ Permits may be issued with conditions.¹⁰⁹

Connecticut tidal and inland regulatory programs differ. The tidal wetlands regulations are promulgated and administered at the state level by the DEP and the inland wetlands regulations (with the exception of the actions of state agencies and a few municipalities) are implemented at the local level with regulations which must be in conformity with those of the state. Regulated activities in tidal wetlands are defined as draining, dredging, excavating or removing, dumping or filling soil, mud, sand, gravel or rubbish and erecting structures or driving pilings "whether or not changing the tidal ebb or flow."¹¹⁰ The only exempted activities are those conducted by the mosquito control division, state conservation activities, authorized aid to navigation, and municipal emergencies necessary to protect the public health.¹¹¹ A permit applicant must file an application with the state Commissioner. Upon receipt of the application, the DEP is to notify the municipality and its shellfish commission. The Commissioner has discretion in determining the necessity for a public hearing which may be waved if it is determined that the proposed activity is not likely to have a "significant effect" on the wetland. But a hearing must be held if the Commissioner receives a petition signed by at least twenty-five persons.¹¹²

The DEP Commissioner must consider the effect of the proposed activities to "public health and welfare, marine fish-

107. *Id.* § 661.6(1)-(8).

108. *Id.* § 661.13(a)-(b).

109. *Id.* § 661.11.

110. Conn. Gen. Stat. § 22a-29(3) (1987).

111. *Id.* § 22a-32.

112. *Id.*

eries, shellfisheries, wildlife protection from flood, hurricane and other natural disasters," and the public policy of the state.¹¹³ To grant a permit the Commissioner must find that a proposed activity meets all applicable criteria for preservation of wetlands and prevention of their despoliation, for recreational and navigational uses, for erosion and sedimentation, for marine fisheries, shellfisheries and wildlife, for circulation and quality of coastal or tidal waters, for protection of life and property from hurricanes or natural disaster, and for water dependent uses of tidal wetlands.¹¹⁴ A list of compatible activities under certain conditions, and incompatible activities are set forth as use guidelines.¹¹⁵ It is to be noted, however, that these are guidelines only and each activity must be judged on a case by case basis.

The Connecticut inland wetlands regulations exempt activities such as grazing, farming, nurseries, gardening and harvesting of crops and farm ponds of three acres or less, residential home building if approved prior to the date of effective regulations, and boat anchorages or moorings.¹¹⁶ These are termed "uses permitted as of right."¹¹⁷ A second category of activities are those uses which are permitted provided they do not significantly disturb the inland wetlands such as conservation and recreation (for example, hunting, fishing, swimming).¹¹⁸

The factors to be considered by the Commissioner in deciding whether to approve a permit application are: (1) all evidence presented at a public hearing, (2) state and federal agency reports, (3) additional requested information and, (4) all relevant factors which include but are not limited to: the environmental impact of the proposed action, alternatives, short term uses versus long term productivity, irreversible commitments of resources, degree of injury to the property, suitability of the action to the area, and mitigation mea-

113. Conn. Agencies Regs. § 22a-30-9(1) (1986).

114. *Id.* § 22a-30-10(a)-(h).

115. *Id.* § 22a-30-11.

116. *Id.* § 22a-39-3.1(a)-(e).

117. *Id.*

118. *Id.* § 22a-39-3.2(a), (b).

tures.¹¹⁹ It should be noted that the Commissioner reserves the power to deny a permit even if there is no substantial adverse impact found,¹²⁰ and that the statute does not create a need to balance the factors considered against any development losses.¹²¹

The Minnesota Water Management Law regulates activities that "will cause or result in the alteration of protected waters."¹²² The activities to be regulated are filling, excavating, placing structures in wetlands, constructing water level facilities, bridges or culverts, and drainage.¹²³ The activities are further classified as those not permitted, those for which a permit is not required provided certain criteria and conditions are met, and those activities which require a permit.¹²⁴ The law specifically regulates drainage. A permit will not be issued for drainage unless those regulated waters being drained are replaced by others of equal or greater public value.¹²⁵ There are two methods which allow a regulated wetland owner to drain his property. First, if a wetland is not included in the State Waterbank program and is not acquired by the Commissioner of the Department of Natural Resources or if conservation restrictions, easements or leases or other federal programs are inapplicable, the applicant may drain the wetland. The second method is the provision of a ten year statutory moratorium after which an owner may apply for a permit to drain the wetland.¹²⁶ In times of drought, a wetland owner may use the bed of the wetlands for pasture or cropland as long as the agricultural use "does not result in the drainage of the wetlands or public waters."¹²⁷

119. *Id.* § 22a-39-6.1(a)-(e).

120. T. Tondro, Connecticut Land Use Regulation 133 (1979).

121. *Id.* at 132.

122. Fisher, *supra* note 56, at 265.

123. Minn. R. 6115.0190 (filling), 6115.0200 (excavation), 6115.0210 (structures), 6115.0230 (bridges and culverts), 6115.027 (drainage) (1986).

124. Fisher, *supra* note 56, at 265.

125. Minn. Stat. Ann. § 105.391(3) (West 1977 & Supp. 1987).

126. *Id.*

127. Minn. Stat. Ann. § 105.391(10) (West Supp. 1987).

C. *Structure of Governmental Control*

In comparing the levels of governmental control in the tidal and inland wetlands statutes, both New York and Connecticut's tidal wetlands protection programs are administered at the state level. The inventory and mapping are done by the state agencies (DEC and DEP). Permit applicants must apply to the state agencies for a determination. The land use regulations and criteria for decisions were promulgated at the state level according to the public policies of both statutes.

In Connecticut, although local municipalities are contacted by the state following receipt of a permit application for alteration of a tidal wetland, the Commissioner does not have to utilize the comments of the town in his determination. In addition, the town may not adopt its own ordinances or regulations in lieu of or in supplementation of those of the state.¹²⁸

For tidal wetlands in New York, the state Commissioner prepares the tentative tidal wetlands boundary map, but public hearings are held prior to finalization of the boundaries and the Commissioner is required to consider the testimony given as well as the rights of affected property owners.¹²⁹ The state may enter into cooperative agreements with a locality (village, town, city or county) for joint preservation and maintenance of tidal wetlands.¹³⁰ Permits for regulated activities must be obtained at the state level¹³¹ and the applicant has the burden of demonstrating that the proposed activity will be in complete accord with the policies and provisions of the act.¹³²

The inland wetlands statutes of Connecticut and New York may be regulated at the local government level.¹³³ In or-

128. T. Tondro, *supra* note 120, at 121-22.

129. N.Y. Env'tl. Conserv. Law § 25-0201(3)-(4) (McKinney 1984).

130. *Id.* § 25-0301(3)-(4).

131. *Id.* § 25-0401.

132. *Id.* § 25-0402(1).

133. Conn. Gen. Stat. § 22a-42(a)-(g) (1987); N.Y. Env'tl. Conserv. Law § 24-0501(1)-(7) (1984).

der for the local government to assume authority in Connecticut, an inland wetlands agency must be established which may either be a new board or an existing board or commission so authorized.¹³⁴ Regulations promulgated by the local agency must be in conformity with the state regulations. Municipalities may join together as districts to regulate inland wetlands.¹³⁵ If a municipality does not exercise its regulatory authority, the state shall do so.¹³⁶ A public hearing is held prior to the adoption of local regulations and boundaries (municipalities assume mapping responsibilities pursuant to the U.S. Soil Survey maps) for public comment but there is no statutory mandate that the public comments must be considered. To dispute a boundary, a property owner has the burden of showing that the wetland (or portion thereof) does not have a soil type as classified by the statute.¹³⁷ The DEP retains authority over actions of state agencies.¹³⁸

In New York, the state DEC retains control of the inventory and mapping process pursuant to wetland size and vegetation types, but the local government may adopt a freshwater wetlands protection law or ordinance which must be consistent with the minimum land use regulations established by the DEC.¹³⁹ The Commissioner may exempt certain wetlands from local jurisdiction due to size or special characteristics.¹⁴⁰

In contrast to local government/state policy authority in New York and Connecticut inland wetlands laws, Minnesota retains authority for wetlands regulation at the state level.¹⁴¹ Permit applicants apply to the DNR, and the state promulgates wetlands regulations. The DNR is also responsible for

134. Conn. Gen. Stat. § 22a-42(c) (1987). At the present time, one hundred fifty-four municipalities have established their own inland wetland commissions and fifteen municipalities are regulated by the DEP. Kritz, *The Wetlands Act: A Failure in Connecticut?*, 18 *Quinnehtukqut* 1 (Feb. 1987). Bulletin of the Connecticut Chapter of the Sierra Club, 118 Oak St., Hartford, CT 06106.

135. Conn. Gen. Stat. § 22a-42(d) (1987).

136. *Id.* § 22a-42(f)(2).

137. Conn. Agencies Regs. § 22a-39-4.7(b) (1986).

138. *Id.* § 22a-39-4.4.

139. N.Y. Env'tl. Conserv. Law § 24-0501 (McKinney 1984).

140. *Id.* § 24-0505.

141. Minn. Stat. Ann. § 105.39(3) (West 1977 & Supp. 1987).

the inventory and mapping process with public comment and review provisions given to the county governments.¹⁴² A public hearing is held at the county level, the county board makes its recommendation as to the boundaries, and the DNR may determine whether a map revision will be allowed. This determination may be challenged by petitioning for a hearing with the Commissioner. This in turn triggers a public hearing by a hearings unit whose decision may be appealed by the Commissioner, the county or the aggrieved party.¹⁴³ Once the map is finalized the state, however, regulates the permit program.

D. *Enforcement Mechanisms*

Each of the three states' wetlands protection statutes provide sanctions for persons engaged in regulated conduct without permission. The sanctions may be fines only, fines and imprisonment, and the requiring of the restoration of wetlands to their natural condition.¹⁴⁴ The Connecticut inland wetlands statute provides for a one thousand dollar fine for each offense, and for a continuing violation, each day constitutes a separate offense. The Superior Court (trial court) has jurisdiction to restrain the violation, issue orders and impose fines.¹⁴⁵ Costs and damages assessed to the violator are to be utilized by the DEP to restore the affected wetlands.¹⁴⁶

The New York freshwater wetlands statute's sanctions include both administrative sanctions and criminal penalties.¹⁴⁷ A civil penalty can be assessed for up to three thousand dollars after a hearing is held. Following a hearing, in addition to the assessed fines, the Commissioner or the local government has the power to direct the violator to restore the affected wetlands.¹⁴⁸ A violator can pursue an administrative appeal of the civil penalty or order. In addition to the administrative

142. *Id.* § 105.391(1).

143. *Id.*

144. Conn. Gen. Stat. § 22a-44(b) (1987); Minn. Stat. Ann. § 105.461 (West 1977 & Supp. 1987); N.Y. Env'tl. Conserv. Law § 71-2303(1)-(2) (McKinney 1984).

145. Conn. Gen. Stat. § 22a-44(b) (1987).

146. *Id.*

147. N.Y. Env'tl. Conserv. Law § 71-2303(1)-(2) (McKinney 1984).

148. *Id.* § 71-2303(1).

sanction, criminal sanctions are applied which may include fines, imprisonment or restoration of the affected wetlands.¹⁴⁹

Both New York and Connecticut inland wetlands statutes provide for appeals of permit denials. In Connecticut, an administrative appeal may be made to the Superior Court.¹⁵⁰ In New York, an appeal may be made to the New York Freshwater Wetlands Appeals Board.¹⁵¹ If judicial review pursuant to an administrative appeal is taken first, the applicant's appeal to the New York Freshwater Wetlands Appeals Board is precluded.¹⁵²

Minnesota's statute provides for a fine up to five hundred dollars and imprisonment for up to ninety days for permit violations and violators can be ordered by the DNR to restore the wetland to its natural condition.¹⁵³ There is no specific provision for an appeal for a permit denial but an appeal process is provided through the state's Administrative Procedure Act.¹⁵⁴

E. *Additional Protective Methods*

In addition to the land use regulation and statutory permit models, other methods have been devised to protect wetlands. Wetlands can be acquired for public ownership either at the federal, state or local levels for preservation purposes through purchase, by gift or deed, and by easement provisions. The acquisition of wetlands by purchase is a costly method for protecting wetlands, but may provide for more permanent protection when compared to land use regulations which are subject to change. The disadvantages of acquisition by purchase are the limited numbers of wetlands that will be preserved, loss of property tax values, that the acquiring agency may convert the use later in time, that money is

149. *Id.* § 71-2302(2).

150. Conn. Gen. Stat. § 22a-43 (1987).

151. N.Y. Envtl. Conserv. Law § 24-1101 (McKinney 1984).

152. *Id.* § 24-1105(1)-(2).

153. Minn. Stat. Ann. § 105.461 (West 1977 & Supp. 1987).

154. Minn. Stat. Ann. §§ 14.57 - .62 (West Supp. 1987).

needed for management and protective services,¹⁵⁵ and that the acquisition program may function too slowly to stop "accelerating wetlands depletion."¹⁵⁶

Easement interests may be acquired privately or through local, state or federal programs. The Minnesota Water Bank program¹⁵⁷ discussed previously is an example of this type of protection and complements the Federal Water Bank program.¹⁵⁸ In these programs, the landowner is paid a nominal amount for preserving the wetland property and the government acquires a ten year easement interest in the property which may be renewed. Generally the cost is lower in easement acquisitions than in acquiring full title. Limitations on easement acquisitions are: (1) that intensive public use may result, which may prove to be unsatisfactory to the private property owner, (2) that easements may be difficult to enforce, (3) that lands may be altered by landowners, and (4) that the fees may be too costly.¹⁵⁹ Acquisition of property by purchase or easement should provide for continuity of ownership, the appointment of management, relief from property tax provisions, and a public relations and education program for public understanding.¹⁶⁰

An additional incentive to wetlands owners which is used in the United States is the use of tax credits. Minnesota offers a tax credit to landowners who decide not to drain their wetlands. The tax credit is given at the local level and the local government is compensated by the state.¹⁶¹ This agreement must be made annually and the qualifying land must be "water-covered land valuable as a wildlife habitat and for water conservation that is drainable for agricultural

155. J. Kusler, *supra* note 30, at 102-03.

156. Comment, *supra* note 53, at 1034.

157. Minn. Stat. Ann. § 105.392(1)-(7) (West 1977 & Supp. 1987).

158. 16 U.S.C. §§ 1301-1311 (1982).

159. J. Kusler, *supra* note 30, at 103.

160. Goodwin, *Some Legal Aspects of Private Action in the Establishment of Natural Areas in the United States*, in *Preserving Our Freshwater Wetlands* 33 (B. Thomson ed. 1970). Available from Connecticut Arboretum, Connecticut College, New London, Conn. 06320.

161. Minn. Stat. Ann. § 273.115(1) (West 1977 & Supp. 1987).

use"¹⁶² Under the Connecticut inland wetlands law, owners who have been denied permits are entitled to a re-evaluation of the affected property for tax assessment purposes.¹⁶³

F. Effectiveness of Wetlands Protection

Though acquisition for public ownership can afford more comprehensive conservation protection, it can not protect all wetlands nationwide or worldwide. Enforced land use regulations serve as environmental land use controls for the extensive maintenance and protection of wetlands.

The primary legal constraint in the United States on state and local land use regulation is the argument that land use restrictions on private land amount to an unconstitutional "taking" of property without just compensation.¹⁶⁴ Both state and federal constitutional provisions limit the state's police powers and its eminent domain powers.¹⁶⁵ Recently the United States Supreme Court has upheld the state police powers in regulating private property.¹⁶⁶

In challenges to wetlands statutes, state courts have generally upheld the constitutionality of the wetlands statutes.¹⁶⁷

162. Note, *supra* note 93, at 159.

163. Conn. Gen. Stat. § 22a-45 (1987).

164. See, e.g., Hall, *The Inland Wetlands Act: Reconciling a Collision of Interests*, 48 Conn. B.J. 3 (1974); Reeves, *Demoralized Wetlands Owners: Is There Just Compensation After Brecciaroli v. Connecticut Commissioner of Environmental Protection?*, 53 Conn. B.J. 60 (1979); Comment, *The Freshwater Wetland Act: Permissive Regulation vs. Constructive Taking*, 43 Alb. L. Rev. 295 (1979); Comment, *Can New York's Tidal Wetlands Be Saved? A Constitutional and Common Law Solution*, 39 Alb. L. Rev. 451 (1975); Comment, *The Wetlands Statutes: Regulation or Taking?*, 5 Conn. L. Rev. 64 (1972); Comment, *The Wetlands Controversy: A Coastal Concern Washes Inland*, 52 Notre Dame L. Rev. 1015 (1977).

165. "The property of no person shall be taken for public use without just compensation therefore." Conn. Const. art. I, § 11. "Nor shall private property be taken for public use without just compensation." U.S. Const. amend. V. See also U.S. Const. amend. XIV, § 1.

166. See *United States v. Riverside Bayview Homes, Inc.*, 106 S. Ct. 455 (1985); *Agins v. City of Tiburon*, 447 U.S. 255 (1980); *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978).

167. See, e.g., *Brecciaroli v. Comm'r*, 168 Conn. 349, 362 A.2d 948 (1975) (upholding the constitutionality of Connecticut's tidal wetlands statute); *Spears v. Berle*, 48 N.Y.2d 254, 397 N.E.2d 1304, 422 N.Y.S.2d 636 (1979) (upholding the N.Y. Fresh-

The *Brecciaroli* court, in upholding Connecticut's tidal wetlands statute, reasoned "that it would impose an impossible burden on the state for the law to insist that it acquire every privately owned natural resource which is threatened with destruction or despoliation by some activity of its owner."¹⁶⁸ In the event that the court upholds a "taking" challenge, New York and Connecticut statutes give the state the right of eminent domain to purchase titles or easements.¹⁶⁹

Land use regulations do not offer complete or absolute protection or preservation of a natural resource but often they can serve as effective environmental controls. In order to regulate effectively, comprehensive wetlands statutes as previously discussed include essential elements which function in unison to protect wetlands. These elements include legislative findings of fact concerning the loss of wetlands, wetland values, and the need for protection as a public benefit, and a clear policy statement to aid in the interpretation and the upholding of the statute. Wetland definitions written with specificity are also needed. A designated agency should be authorized to map and inventory wetlands. A state agency or body must be given authority for the regulation of wetlands directly, or at the local level pursuant to state policy. The agency should then adopt administrative rules, criteria, standards and regulations which supplement the statutory directives. The regulations could include a flexible permit process with uses clearly delineated, procedures for monitoring and enforcement, and mechanisms for dispute resolution such as hearings, negotiations and the appeals approach.¹⁷⁰ In some circumstances, a state agency or a party pursuing a regulated use on public land (such as a state reserve) must also comply with environmental impact assessment statutes where alternatives must be considered and mitigation measures may be required.¹⁷¹

water Wetland Act); *New York City Hous. Auth. v. Comm'r*, 83 Misc. 2d 89, 372 N.Y.S.2d 146 (N.Y. Sup. Ct. 1975)(upholding N.Y.'s tidal wetlands statute).

168. *Brecciaroli v. Comm'r*, 168 Conn. 349, 362 A.2d 948 (1975).

169. N.Y. Envtl. Conserv. Law § 25-0404 (McKinney 1984); Conn. Gen. Stat. § 22a-43a(b) (1987).

170. J. Kusler, *supra* note 30, at 67-68.

171. Fisher, *supra* note 56, at 268-77.

Problems which weaken state land use regulation of natural resources include the impact on private property owners, and limitations as to local and state authority where a wetland may extend over another state's boundary and be affected by another state's action, such as pollution. In addition, two problems exist with the permit process. First, exempted or compatible uses may have negative effects on wetlands which may not now be known, and second, at the federal and state level, permits have been granted in the majority of cases. An informal survey done by one commentator notes that approximately ninety percent of all Connecticut permit applications are granted, ninety-three percent in New York, ninety-five percent in Massachusetts, and ninety-eight percent in New Hampshire.¹⁷² This survey does not state, however, the percentage of those which may have been granted with modifications or conditions, or the number of applicants who may have been deterred by the permit process or regulations.

IV. Elements of an International Wetlands Protection Agreement: "Ramsar Convention"

A. *Background and Description*

During the 1960's, the need for international action for the protection of wetlands was recognized by the International Union for the Conservation of Nature and Natural Resources (IUCN), the International Waterfowl Research Bureau (IWRB), and the International Council for Bird Protection (ICBP).¹⁷³ A series of conferences and technical meetings were held in an effort to conserve global wetlands. The preliminary issues of concern arising from these meetings were the conservation of specific wetlands held to be of international significance (particularly significant as habitat for migratory waterfowl), oil pollution, pesticides, research needs, bird breeding habitats, and studying wetlands in the context of Africa. These efforts resulted in the drafting and adoption of the Convention on Wetlands of International Importance

172. Note, *supra* note 93, at 166 n.215.

173. Caldwell, *supra* note 16, at 196.

Especially as Waterfowl Habitat (known as Ramsar for the town in Iran where the agreement was signed) on February 2, 1971.¹⁷⁴ The agreement came into force on December 21, 1975.¹⁷⁵ To date there are approximately forty Parties to the Convention,¹⁷⁶ including the recent addition of the United States.¹⁷⁷

The Convention Preamble recognized that "[w]etlands constitute a resource of great economic, cultural, scientific and recreational value, the loss of which would be irreparable"¹⁷⁸ This objective of the Convention is "to stem the progressive encroachment on and the loss of wetlands now and in the future"¹⁷⁹ This objective is to be achieved by the promotion of the wise use of all wetlands and special protection for wetlands in the "List."¹⁸⁰ The List of Wetlands of International Importance is a requirement of Ramsar. In order for a State to become a Party to the Convention, the State must designate at least one wetland of significance within its territory to be included in the "List." The agreement further directs that each Party "shall consider its international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl,"¹⁸¹ recognizing that the waterfowl are ecologically dependent on the wetlands.¹⁸² To date,

174. See *supra* note 5.

175. S. Lyster, *International Wildlife Law* 183 (1985).

176. Ramsar Parties include: Algeria, Australia, Austria, Belgium, Bulgaria, Canada, Chile, Denmark, Egypt, Federal Republic of Germany, Finland, German Democratic Republic, Greece, Hungary, Iceland, India, Iran, Ireland, Italy, Japan, Jordan, Mali, Mauritania, Morocco, Netherlands, New Zealand, Norway, Pakistan, Poland, Portugal, Senegal, South Africa, Spain, Sweden, Switzerland, Tunisia, U.K., Uruguay, U.S.S.R., and Yugoslavia. The latest list of Contracting Parties and designated wetlands is available from the International Union for the Conservation of Nature and Natural Resources, 1196 Gland, Switzerland.

177. See *supra* note 1.

178. Ramsar Convention, *supra* note 5, Preamble, 996 U.N.T.S. 245, 246, reprinted in 11 I.L.M. 963, 969 (1972).

179. *Id.*

180. Ramsar Convention, *supra* note 5, art. 3(1), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

181. Ramsar Convention, *supra* note 5, art. 2(6), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

182. Ramsar Convention, *supra* note 5, art. 1(2), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 970 (1972).

there are approximately three hundred wetlands sites included in the "List."¹⁸³ Additional provisions call for the implementation and planning of the promotion of the conservation and wise use of not only wetlands in the "List," but also unlisted wetlands in the territories of the Parties.¹⁸⁴ States are called on to establish nature reserves, exchange research and data, train personnel, and to hold additional advisory conferences. A temporary Bureau for the Convention, initially IUCN, was established.¹⁸⁵ A duty to consult is also set forth especially where wetlands extend over more than one Party's territory or where a shared water system exists.¹⁸⁶

B. *Criteria for Inclusion of Wetlands*

The term "wetland" is defined very broadly in the agreement. Wetlands are defined as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres."¹⁸⁷ The original Convention did not set forth criteria regarding the inclusion of wetlands in the "List" as to which wetlands are to be considered internationally important or significant. Article Two, (2), states that wetlands should be selected "in terms of ecology, botany,

183. A Copy of the latest "List of Wetlands of International Importance" is available from the International Union for the Conservation of Nature and Natural Resources, 1196 Gland, Switzerland.

184. Ramsar Convention, *supra* note 5, arts. 3(1), 4(1), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

185. Ramsar Convention, *supra* note 5, arts. 4-8, 996 U.N.T.S. 245, 247-49, reprinted in 11 I.L.M. 963, 971-74 (1972).

186.

The Contracting Parties shall consult with each other about implementing obligations arising from this Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties. They shall at the same time endeavour to co-ordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna.

Ramsar Convention, *supra* note 5, art. 5, 996 U.N.T.S. 245, 248 reprinted in 11 I.L.M. 963, 972 (1972).

187. Ramsar Convention, *supra* note 5, art. 1(1), 996 U.N.T.S. 245, 246-47, reprinted in 11 I.L.M. 963, 969 (1972).

zoology, limnology or hydrology" and "[i]n the first instance wetlands of international importance to waterfowl at any season should be included." The lack of specific criteria as guidelines for the inclusion of wetlands of international importance is seen as one of the primary weaknesses of the Ramsar Convention.¹⁸⁸ As a partial remedy to this problem, a number of the parties drafted criteria at Heiligenhafen in the Federal Republic of Germany after the conclusion of the Convention at the International Conference on Conservation of Wetlands and Waterfowl in December 1974. These criteria became known as the *Heiligenhafen Criteria*.¹⁸⁹ The Heiligenhafen

188. World Conservation Strategy, *supra* note 27, § 15, para. 5.

189.

1. *Criteria Pertaining to a Wetland's Importance to Population and Species*. A wetland should only be considered internationally important if it:

- i. regularly supports 1 percent (being at least 100 individuals) of the flyway or biogeographical population of one species of waterfowl;
- ii. regularly supports either 10,000 ducks, geese, and swans; or 10,000 coots; or 20,000 waders;
- iii. supports an appreciable number of an endangered species of plant or animal;
- iv. is of special value for maintaining genetic and ecological diversity because of the quality and peculiarities of its flora and fauna;
- v. plays a major role in its region as the habitat of plants and of aquatic and other animals of scientific or economic importance.

2. *Criteria Concerned with the Selection of Representative or Unique Wetlands*. A wetland should be considered internationally important if it:

- i. is a representative example of a wetland community characteristic of its biogeographical region;
- ii. exemplifies a critical stage or extreme in biological or hydromorphological processes;
- iii. is an integral part of a peculiar physical feature.

3. *Criteria Concerned with the Research, Educational, or Recreational Values of Wetlands*. A wetland should be considered internationally important if it:

- i. is outstandingly important, well situated, and well equipped for scientific research and for education;
- ii. is well studied and documented over many years and with a continuing program of research of high value, regularly published and contributed to by the scientific community;
- iii. offers especial opportunities for promoting public understanding and appreciation of wetlands, open to people from several countries.

4. *Criteria Concerned with the Practicality of Conservation and Management*. Notwithstanding its fitness to be considered as internationally important on one of the criteria set out under 1, 2, and 3, above, a wetland should

Criteria were revised by a formal meeting of the Parties known as the Cagliari Conference,¹⁹⁰ and adopted as formal recommendations. They are now known as the *Cagliari Criteria*.¹⁹¹ It should be noted that the Cagliari Criteria have quasi-legal force or can serve as "soft law" since they are recommendations and not convention provisions.¹⁹²

only be designated for inclusion in the list of the Ramsar Convention if it:

- i. is physically and administratively capable of being effectively conserved and managed;
- ii. is free from the threat of a major impact of external pollution, hydrological interferences, and land-use or industrial practices. A wetland of national value only may nevertheless be considered of international importance if it forms a complex with another adjacent wetland of similar value across an international border.

Proceedings of the International Conference on the Conservation of Wetlands and Waterfowl (Heiligenhafen, Federal Republic of Germany, December 1974), *reprinted in Earthcare: Global Protection of Natural Areas* 288-90 (E. Schofield ed. 1978).

190. See *infra* note 205.

191.

1. Quantitative criteria for identifying wetlands of importance to waterfowl.

A wetland should be considered internationally important if it:

- a) regularly supports either 10,000 ducks, geese and swans; or 10,000 coots; or 20,000 waders
- or b) regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl
- or c) regularly supports 1% of the breeding pairs in a population of one species or subspecies of waterfowl.

2. General criteria for identifying wetlands of importance to plants or animals. A wetland should be considered internationally important if it:

- a) supports an appreciable number of a rare, vulnerable or endangered species or subspecies of plant or animal
- or b) is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna.
- or c) is of special value as the habitat of plants or animals at a critical stage of their biological cycles
- or d) is of special value for its endemic plant or animal species or communities.

3. Criteria for assessing the value of representative or unique wetlands.

A wetland should be considered internationally important if it is a particularly good example of a specific type of wetland characteristic of its region.

Proceedings of the Conference on Conservation of Wetlands of International Importance Especially as Waterfowl Habitat, Cagliari, Italy. Nov. 24-29, 1980, at 65-66 (M. Spagnesi ed. 1982) [hereinafter Cagliari Conference].

192. S. Lyster, *supra* note 175, at 188 n.19.

The Heiligenhafen Criteria originally set forth four categories to be utilized in considering the selection of wetlands of international importance: (1) the importance of wetlands to populations and species such as waterfowl, endangered species, genetic and ecological diversity, and plant and animal habitat, (2) the representativeness or uniqueness of a wetland, (3) the research, educational or recreational values of wetlands and (4) if a wetlands meets one of the three criteria above, one is to consider the practicality of conservation and management.¹⁹³ To date, wetlands listed primarily are those important as habitat for waterfowl. But these criteria can be interpreted as providing protection for wetlands other than those which serve as waterfowl habitat. For example, the criteria relating to plant and animal habitat extends the possibility of wetlands selection to tidal wetlands which are important as "the habitat of plants and of aquatic and other animals of scientific or economic importance," so that this criterion could be used to protect wetlands valuable as commercial fisheries.

Recently, the United States has expanded the concept of the Ramsar Convention from being exclusively a treaty for migratory waterfowl protection to one of a habitat protection treaty, through its selection of wetlands for inclusion in the List of Wetlands of International Importance. Each of the four sites selected for inclusion by the U.S. Fish and Wildlife Service represent one of the four categories of the Heiligenhafen Criteria.¹⁹⁴ The Izembek National Wildlife Refuge/Izembek State Game Refuge in Alaska was selected primarily for its volume of waterfowl use and the diversity of waterfowl. The Edwin B. Forsythe National Wildlife Refuge in southern New Jersey was selected primarily for its educational value in promoting public understanding and appreciation of wetlands and their values. The Okefenokee National

193. See *supra* note 189.

194. U.S. Fish & Wildlife Service, U.S. Dep't of Interior, Environmental Assessment: Ratification by the United States of the Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar Convention), and of the Protocol to Amend (Paris Protocol) 6 (Apr. 1986). Available from U.S. Fish & Wildlife Service, Office of International Affairs, Washington, D.C. 20240.

Wildlife Refuge in southern Georgia and northern Florida was selected as an outstanding example of a regional wetland complex with high animal and plant species diversity. The Ash Meadows National Wildlife Refuge in Nevada is an example of wetlands with a unique ecosystem, primarily arid land with isolated thermal seeps, springs and wetlands harboring unique groups of plants and animals and important as an endangered species habitat.¹⁹⁵ The selection of wetlands with habitat values in addition to those of migratory waterfowl habitats can be viewed as an important step in strengthening international wetlands protection through the Ramsar Convention, and a goal for future wetlands listings.

The fourth Heiligenhafen Criterion originally stated that wetlands should only be listed if they are capable of being conserved and managed effectively. However, the Ramsar Convention itself does not provide criteria or guidelines as to whether a Party should list a wetland already protected by national legislation, or list wetlands which are not protected and therefore may receive an elevated status as internationally significant. Contracting Parties have used both approaches with varying results. In some cases, listed wetlands previously unprotected have received protection due to their status as an internationally important listed wetland. The revised Cagliari Criteria have eliminated this fourth requirement and, therefore, wetlands previously not protected at the national level can now be listed.¹⁹⁶ The inclusion of wetlands not previously protected at the national level could increase the Convention's effectiveness and coverage in world wetlands protection since a Ramsar site designation could enhance legislative and regulatory protection at the national level.

The delisting of a listed wetland or the right of the Party to change the boundaries of an included wetland is seen as a weakness of the Ramsar Convention. A Party may delist a

195. *Id.* at 8-10. A complete description and maps of the four Ramsar sites are set forth at App. D, Proposed U.S. Wetlands of International Importance: Summary Sheets. The total acreage of the U.S. sites is 867,091 or 1,354.4 sq. mi. *Id.* at D-1.

196. S. Lyster, *supra* note 175, at 189-91. As of 1980, eighty percent of the "listed" wetlands were entirely or partly within nature reserves or other protected areas. *Id.* at 193.

wetland or restrict the boundaries of wetlands included in the list because of urgent national interest.¹⁹⁷ This provision allows for the loss of a national resource area once thought to be of international importance or significance and does not provide for any safeguards for a listed wetland.¹⁹⁸ "Urgent national interest" is not defined in the agreement. At this time a Party can justify "urgent national interest" at his discretion.

C. *Conservation Criteria and Policies*

Once a site is listed in the Ramsar list, the Convention imposes only a few vague conservation requirements on the contracting Parties. Keeping in mind that one policy of the agreement is the "wise use" of wetlands, there are no criteria or management guidelines given as to what constitutes "wise use." Parties are to do three things in relation to conservation. First, Parties are to "formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and . . . the wise use of wetlands in their territory[ies]."¹⁹⁹ Second, Parties must inform the Convention Bureau as to changes in the "ecological character" of wetlands within their territory.²⁰⁰ Third, Parties are to promote conservation "by establishing nature reserves" on wetlands and by providing for their care.²⁰¹

These provisions do not impose legal obligations on the Parties to ensure protection for the listed wetlands nor do they oblige them to prohibit uses or activities which would change the "ecological character" of the wetlands.²⁰² The provision calling for the establishment of nature reserves is consistent with the protected area approach of the Convention

197. Ramsar Convention, *supra* note 5, art. 2(5), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 970 (1972).

198. World Conservation Strategy, *supra* note 27, § 15, para. 5.

199. Ramsar Convention, *supra* note 5, art. 3(1), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

200. Ramsar Convention, *supra* note 5, art. 3(2), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

201. Ramsar Convention, *supra* note 5, art. 4(1), 996 U.N.T.S. 245, 247, reprinted in 11 I.L.M. 963, 971 (1972).

202. S. Lyster, *supra* note 175, at 191-92.

and its focus on habitat protection in contrast to regulating uses. Local protection might be established with this type of approach but the nature reserve method does not protect the resource from pollution or alteration originating outside the State's boundary.

The Ramsar Convention does not determine whether Parties are to include all territories in the formulation and implementation of planning for wetlands conservation or plan only for their own geographic territories. For example, does this conservation planning requirement apply to transfrontier pollution, or would environmental safeguards be required for foreign aid development projects?²⁰³

The conservation provisions in the Ramsar Convention do not uphold the strong conservation principle set forth in the Preamble which is "to stem the progressive encroachment on and loss of wetlands now and in the future . . . [b]eing confident that the conservation of wetlands . . . can be ensured by combining far-sighted national policies with co-ordinated international action."²⁰⁴ In contrast with U.S., state, and local preservation lands which are publicly owned, no specific compatible or incompatible uses for the nature reserves are set forth in Ramsar. Examples of conservation policies on publicly owned land in the U.S. are the regulation of hunting, the acquisition of refuge areas for wildlife and waterfowl protection areas, established use regulations for refuges, propagation and stocking of fish and waterfowl, endangered species protection programs, and programs for conservation education. Thus, although some States may have national conservation policies regarding their own nature reserves, there are no international conservation requirements imposed by Ramsar or standards for the protection of wetlands of international significance (listed wetlands) through national regulation or regional cooperation.

The "wise use" policy suggests that land use regulation may be a more acceptable method of wetlands protection

203. *Id.* at 195.

204. Ramsar Convention, *supra* note 5, Preamble, 996 U.N.T.S. 245, 246, reprinted in 11 I.L.M. 963, 969 (1972).

rather than a totally restrictive or absolute proscription against use with few or no compatible activities or uses permitted. But without criteria setting forth what "wise use" consists of, the policy remains unimplemented. The wetland values sought to be protected through the agreement are limited. Migratory waterfowl and habitat protection and scientific interest are important considerations but values of equal or greater importance such as those of fisheries, flood control and water quality management need to be emphasized.

The previously described municipal wetlands statutes provide essential elements of a wetlands protection scheme regulating land use for public benefit. A land use system or directives would be compatible with the "wise use" policy. These essential elements are:

1. clear policy directives,
2. specific definitions of terms,
3. the classification of wetlands and the establishment of determinations as to which wetlands will be protected,
4. inventory and mapping procedures which can be adjusted only through statutory directives,
5. the designation of a permanent agency at the state level with responsibility for overseeing all natural resources of the state,
6. provision of agency authority for administrative functions,
7. funding provisions,
8. dispute resolution mechanisms, and most importantly,
9. a system for the management of activities or uses for the protection of wetlands as a natural resource.

D. *Effectiveness of the Ramsar Convention*

Since the Ramsar Convention came into force in 1975, there have been several formal meetings of the Parties. The Cagliari Conference which was held in 1980 in Cagliari, Italy resulted in a number of reports and recommendations for improving the effectiveness and implementation mechanisms of the Ramsar Convention.²⁰⁵ The Extraordinary Conference of

205. Proceedings of the Conference on Conservation of Wetlands of International

the Contracting Parties was held in Paris, France in December of 1982 and resulted in the approval of a Protocol to Amend the Convention which requires the acceptance of two-thirds of the Contracting Parties.²⁰⁶ The Second Conference of the Contracting Parties was held in May, 1984 in Groningen, Netherlands.²⁰⁷ Reports from these conferences indicate that changes have been made in the boundaries of listed wetlands, and in the ecological character of listed wetlands. Because the Parties are not required to submit periodic reports on Convention implementation, the reports that were filed were due to the request of the IUCN. It is difficult to measure accurately the effects of the Ramsar Convention on the listed and unlisted wetlands of Contracting Parties. Some of the causes of detrimental changes reported were pollution, development projects, reclamation projects and drainage.²⁰⁸ Two examples of positive ecological changes are a water regeneration plan in Spain, and restoration work to increase the water level of a lake in Sweden.²⁰⁹ Where boundary changes or deletions occurred, some Parties counterbalanced the reductions by extending protection to other areas pursuant to Ramsar Article 4 (2), and other Parties did not.²¹⁰

In 1980, the Cagliari Conference called on Parties to inventory their wetlands and to formulate national wetlands policies. Reports submitted indicate that by 1984, about one-half of the Parties had inventoried important wetlands in their territories and fewer Parties had drawn up national wetlands policies.²¹¹ Nature reserves had been established on non-listed sites by several Parties.

The original approach of the Ramsar Convention, concerning whether listed areas should be only those already pro-

Importance Especially as Waterfowl Habitat, Cagliari, Italy, Nov. 24-29, 1980 (M. Spagnesi ed. 1982) [hereinafter Cagliari Conference].

206. See *supra* note 26, art. 1(5).

207. Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Proceedings of the Second Conference of the Parties, Groningen, Netherlands, May 7-12, 1984. [hereinafter Groningen Conference].

208. Groningen Conference, *supra* note 207, at 161-66.

209. *Id.* at 164, 166.

210. *Id.* at 156-57.

211. *Id.* at 168-71.

tected by national legislation, was a protected area approach. Pursuant to the Heiligenhafen Criteria, a wetland should only be designated under Ramsar if it was "capable of being effectively conserved and managed" and "free from the threat of a major impact of external pollution, hydrological interferences, and land use or industrial practices."²¹² It has been reported that eighty percent of the wetlands listed by 1980 were partly or entirely in nature reserves or protected areas, so that it can be stated that the predominant approach to selecting wetlands of international significance has been to include those wetlands already protected nationally. While the status of international listing was reported in some circumstances to have helped nations protect wetlands, since there are few legal obligations imposed at the international level by Ramsar, it could be argued that the listing of a majority of these lands has not greatly increased their protection.

The strengths of the Ramsar Convention include the attempt to protect natural resources within States recognizing that the loss or serious alteration of wetlands in one area can have significant effects beyond that State's border. The agreement serves a public education function for international understanding of a little understood resource threatened by population growth and development. Strong conservation statements in the Preamble could serve as binding international principles if effectuated.

The basic weaknesses of the agreement are:

1. the lack of criteria for wetlands inclusion,
2. the lack of management criteria for "wise use,"
3. no periodic reporting requirements or monitoring provisions for natural resource protection,
4. no delisting or boundary deletion safeguards,
5. a narrow focus on migratory waterfowl habitat excluding other wetland values,
6. no provisions for transfrontier pollution or the alteration of wetlands from without a state's borders,
7. a lack of dispute resolution mechanisms,

212. See *supra* note 189.

8. no provisions for funding to assist developing nations with research as to their natural resources and conservation methods,

9. no designation of a permanent Secretariat for the Convention,

10. no guidelines for the implementation of national legislation for wetlands protection, and

11. no provision for environmental impact assessments for development projects.

V. Conclusions and Recommendations for International Wetlands Law

Currently, the Ramsar Convention promotes international recognition of the need for wetlands protection, but it has the potential to serve as the basis of an effective international system for wetlands protection in the future. In order to afford more adequate protection of international wetlands resources, the Ramsar Convention provisions need strengthening and further refinement. The World Conservation Strategy states that international conventions or agreements must be strong in order to "provide a legally binding means of ensuring the conservation of those living resources that cannot be conserved by national legislation alone."²¹³ Although international agreements with strong provisions place restraints on individual States, weak conventions can be viewed as detrimental by creating an illusion that the particular problem which is the focus of the agreement is being solved.²¹⁴ The World Conservation Strategy recommends integrated protected areas programs (international and national) with established priorities and goals.

Considering the emphasis of the World Conservation Strategy, the Convention should determine whether a regional approach to wetlands protection would be more effective than a global approach, and provide implementation strategies for municipal wetlands protection regimes which would require

213. World Conservation Strategy, *supra* note 27, § 15, para. 3.

214. *Id.*

regional cooperation. Because wetlands in different regions function in different ways, the protection schemes should reflect the ecological differences of the regions. The commissioning of scientific studies to collect, analyze and assess data regarding the regional values and functions of the resources is necessary to serve as a basis for the development of coordinated national legislation. Education of the public as to these identified values and functions is necessary to promote the development of national wetlands policies.

In strengthening the provisions of the Ramsar Convention itself, the agreement should first focus on expanding the current emphasis on waterfowl habitat by revising the policy statements. The policy statements of the agreement should recognize wetland values in addition to wildlife protection such as flood control, water quality and fishery systems. The policy statement should also list those activities which are found to be detrimental to essential wetland values such as development, pollution and drainage. Recognizing that not all wetlands can be preserved by the protected areas approach and that preservation is but one component of conservation, the Convention should adopt an integrated approach to wetlands conservation including not only the concept of protected areas conservation but also the adoption of consistent regional and national land use regulation programs to effectuate the "wise use" of wetlands. This type of policy statement would assist in the later interpretation of the specific provisions in the agreement and the resulting legal obligations of the Contracting Parties.

The Convention should next focus on the determination of which areas are to be protected, either through preservation methods or through the implementation of land use management schemes. The current method of permitting the Contracting Parties to designate at least one wetland which the Party considers to be internationally significant could be refined in several ways. First, guidelines or criteria would be issued to Parties to aid in the selection process. These guidelines should address the problem of: (1) which wetlands have values and functions which are necessary to protect; (2) whether the protection should be a preservation approach or a

land use management scheme; (3) whether wetlands should be designated which are already receiving national protection or whether unprotected areas should be selected; and (4) whether a neutral body of experts (perhaps composed of scientists and non-governmental organization members) could aid in the selection process. Consideration should also be given to an interim protection process until complete assessments of wetland values and selections can be accomplished.

Recognizing that the process of conservation includes, but is not limited to, preservation, the Convention should address the kinds of management plans which would be necessary to protect or effectuate the "wise use" policy of the agreement. Although the municipal laws surveyed above could not be universally applied to countries throughout the world (since they apply to a common law country and to temperate climates) the concepts behind the methods can be useful when formulating an international, regional or national wetlands land use regime. When examining the selected statutes as management and planning tools, the basic scheme for natural resources protection is found to include: (1) the identification of protected areas through the recognition of values and the determination of the purposes and objectives to be achieved, (2) the setting forth of descriptive terms and the classification of area types to be protected due to their values, (3) the formulation of the types of management strategies necessary (for example, the permitting process) which correspond to the value and uses of the area, (4) a listing of activities which are compatible or incompatible with the type of protection required, and (5) the design and implementation of enforcement schemes to effectuate the purposes and objectives to be achieved.

These types of land use systems are utilized to regulate activities and the wise use of natural resources, not only the protection of habitats. Workable criteria should be established for the management of "listed" and "unlisted" wetlands which would substantiate the Ramsar "wise use" policy. Clear definitions should be drafted for wetland to be protected and a classification system for wetland types according to their values is needed. Specific definitions are especially needed for

the terms: "wise use," "urgent national interest," and "conservation" in the Ramsar Convention. These land use provisions would be established not only for international implementation as to regulating listed wetlands of international significance, but would also serve as a model for individual national legislation schemes to implement the Ramsar Convention at the regional, national and local levels.

The establishment of an integrated protected area/land use management system under the Ramsar Convention creates the need for enforcement mechanisms. The problems of delisting protected wetlands and the deletion of boundaries because of "urgent national interest" must be addressed. In order to achieve international cooperation and national implementation of the Convention, a stronger structure is needed. A permanent Secretariat should have the authority to provide for the formulation of a body which would serve as an International Wetlands Advisory Board.

This Board in turn could be composed of representatives of non-governmental organizations, scientists, and concerned members of the public. The functions of this Board would be to effectuate an enforcement and monitoring plan for the Convention, provide assistance to Contracting Parties in the selection of significant wetlands and in the implementation of national legislation, and to serve as a neutral body for initial dispute resolution.

The enforcement scheme should provide for monitoring and periodic reporting requirements for Contracting Parties in the implementation of the agreement. In addition, the scheme should include dispute resolution procedures concerning the delisting or deletion of protected or regulated areas, the effects of activities which cross national boundaries, and detrimental activities within States which destroy protected wetland areas.

Recognizing the importance of Principle 21 in the Stockholm Declaration and the principles of the World Charter for Nature, the Convention should also include a provision for wetlands protections against transfrontier pollution and the detrimental uses of wetlands in one area which strongly affects the natural resources of other areas (for example, shared

water systems). For large development projects or drainage schemes funded either by foreign aid or within the nation itself, the Convention should call for Contracting Parties to implement national legislation for environmental impact assessments. In the absence of such legislation, the Convention should provide a mechanism whereby the permanent convention bureau could assist the Parties in the environmental assessment process, and provide assistance in the development of alternatives and mitigation measures.

Finally, the Ramsar Convention needs to provide for a financial structure which would assist in the implementation of the agreement and provide assistance to developing nations who wish to adhere to the agreement. This would also serve to attract additional parties to the Convention.

The strengthening of the Ramsar Convention would constitute a major step toward the implementation of the principles of the World Charter for Nature and the effectuation of the World Conservation Strategy. The Ramsar Convention would then serve not only as the foundation for an international wetlands protection regime, but also as the world model for additional international ecosystem protection treaties.

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