

Judicial handbook on Environmental Law

**Dinah Shelton and
Alexandre Kiss**

Introduction by Hon. Judge Christopher G. Weeramantry

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MESSAGE

Deterioration of the Earth's environment increasingly threatens the natural resource base and processes upon which all life on Earth depends. *UNEP's Global Environment Outlook Year Book 2003* highlights the scope and variety of the problems. Over one billion people currently lack safe drinking water and sanitation, making water-borne diseases one of the leading causes of death, especially among children in poor countries. Two-thirds of the world's population now lives in areas of water shortages where, increasingly, desertification threatens the food supply. UN Habitat 2003 reported that more than 180 million people in Africa live in fragile areas where they compete for water and land. In marine waters, nearly three-quarters of all commercial fish stocks are being harvested faster than they can reproduce (FAO, 2002). More than 500,000 people in Asia die every year from diseases related to air pollution (WHO, 2003). Species are becoming extinct at an unprecedented rate, taking with them potential yet unknown sources of medicines, nutrition and other benefits. Munich Re, the world's largest reinsurance company, predicted in 2003 that the global economic loss due to extreme weather events would reach US\$30 billion annually by 2050. In sum, humans are rapidly exceeding the carrying capacity of the environment.

Without strong and multifaceted action by every person, the biosphere may become unable to sustain human life. At the least, coming generations will suffer deprivation and hardship unless current patterns of production, consumption and waste management are dramatically altered. Sustainable development needs to become the watchword and policy of all public agencies and officials and the responsibility of every person.

This handbook is intended to enable national judges in all types of tribunals in both civil law and common law jurisdictions to identify environmental issues coming before them and to be aware of the range of options available to them in interpreting and applying the law. It seeks to provide judges with a practical guide to basic environmental issues that are likely to arise in litigation. It includes information on international and comparative environmental law and references to relevant cases. Judges in each particular country will supplement this overview with more detailed information drawn from national experiences, laws and traditions.

The publication of the Judicial handbook on Environmental Law by UNEP is a response to the request made by the chief justices and other senior judges from some 100 countries who participated in eleven regional judges Symposiums on environmental law convened by UNEP during the period 1995-2002. The request was reiterated in the conclusions and recommendations that were submitted to the World Summit on Sustainable Development by the 2002 Global Judges Symposium held in Johannesburg.

The publication was developed through judicial consultative meetings that were convened by UNEP in Rome (June 2003), London (August 2003) and New York (June 2004).

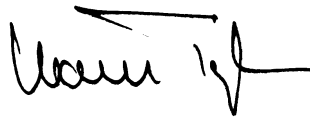
At the request of UNEP, the distinguished jurist and former Vice-President of the International Court of Justice, Judge Christopher G. Weeramantry, prepared an outline of the proposed publication, which was placed before the Commonwealth Magistrates and Judges Association Triennial Conference held in Malawi in August 2003. There it was discussed and approved as a sound basis for the preparation of the Judicial Handbook. The work on the preparation of the Handbook proceeded thereafter on this basis.

At the London judicial consultative meeting, two distinguished Professors of Environmental Law, Dinah Shelton and Alexandre Kiss, were requested to prepare the draft of the publication for judicial review by a team of eminent judges from developed and developing countries. The draft was revised and finalized by the Judicial Editorial Board at the New York consultative meeting held on 2-4 June, 2004, with the able research and editorial assistance of Melinda Mannheim.

It must be appreciated that the specific character of environmental problems will necessarily differ from one country to another and that environmental legislation and case law will thus also differ from jurisdiction to jurisdiction. Moreover, because of cultural variation and differences in socio-economic conditions, judges will at times bring different perspectives to the particular environmental problem before them. While this is so, judges may nonetheless find valuable instruction on how related matters have been addressed and managed in other jurisdictions.

The handbook is organized in two major sections. Part A, entitled “General Framework,” reviews some of the fundamental principles and approaches inherent in most environmental legal regimes and focuses on the role of the courts in furthering the rule of law in the environmental arena. Part B, entitled, “Principal Areas of Environmental Law,” offers a more detailed look at the features of the protection programmes that have developed around specific environmental and natural resource concerns (e.g., air, water, waste, endangered species, etc.), and is intended to serve as an initial reference for judges who encounter a particular kind of environmental case.

In short, the handbook attempts to identify a common core of law and policy most relevant to the world’s judiciary, in the hope that judges might be better equipped to discharge their key role in breathing life into those environmental requirements upon which the world’s collective heritage depends.

A handwritten signature in black ink, appearing to read 'Klaus Toepfer', with a stylized flourish at the end.

Klaus Toepfer
Executive Director

FOREWORD

At the 2002 Global Judges Symposium held in Johannesburg, South Africa, the world's judiciary spoke decisively to the need for the institutions of government, including the judiciary, to do their part to ensure the long-term sustainability of human activity. In this regard, it was determined that a programme of work was needed to prepare the judiciary and other governmental and nongovernmental actors to perform their vital functions in furtherance of environmental protection and stewardship. This Judicial handbook on Environmental Law represents a key step forward in this regard. Together with several other UNEP publications, including, most notably, UNEP's recently revised *Training Manual of Environmental Law*, its *Compendium of Summaries of Judicial Decisions in environment-related cases*, and its *Selected Texts of Legal Instruments in International Environmental Law*, this handbook should provide judges around the world with a set of useful reference materials on environmental law. These materials, augmented by local law and custom, should prove quite useful and instructive in addressing environmental disputes, particularly in developing countries where environmental law is relatively unformed at this juncture.

The completion of this handbook sets the stage for the next chapter in UNEP's programme of work – the development and delivery of capacity-building curriculums for judges around the world, particularly in developing countries. Efforts in this regard, which are already under way, will be informed by the content of this handbook. UNEP expects that the delivery of such capacity building programs will, in turn, lead to identification of additional topics that might profitably be addressed in this handbook. Accordingly, the handbook should not be seen as static product, but rather as a first expression in a dynamic process that will undoubtedly include subsequent editions.

As noted by the judges at the Johannesburg Symposium, judicial capacity-building cannot alone provide a meaningful hedge against environmental degradation. Rather, those elements of society that serve as the engine for developing environmental cases in the first instance – environmental inspectors and prosecutors, and nongovernmental entities – must also be readied for the task. Accordingly, UNEP is, in parallel with this judges initiative, working to increase the capacity of these other stakeholders in the environmental protection effort, again particularly in the developing world.

This said, UNEP is much indebted to the judicial community for the vision and leadership displayed in this initiative. It has, indeed, served as a catalyst for UNEP's broader capacity-building programme, a programme that envisions a sustainable future through the operation of the rule of law.



Bakary Kante
Director
Division of Policy Development and Law

TABLE OF CONTENTS

<i>Message</i>	III
<i>Foreword</i>	V
<i>Table of Contents</i>	VII
<i>Table of Boxes</i>	XI
<i>Table of Abbreviations</i>	XII
<i>Table of Cases</i>	XIII
<i>Table of International Instruments</i>	XVI
<i>Introduction -- Judges and Environmental Law</i>	XVII
PART A GENERAL FRAMEWORK	3
Chapter 1. What is Environmental Law?	3
1.1 Introduction	4
1.2 Meaning of "Environment"	4
1.3 Foundations of Environmental Law	4
1.3.1 Religious traditions	5
1.3.2 Traditional communities	5
1.4 The sources of Environmental Law	6
1.4.1 National law	6
1.4.2 International law	12
Chapter 2. Basic Principles of Environmental Protection	19
2.1 Introduction	19
2.2 Prevention	20
2.3 Precaution	21
2.4 Polluter Pays	22
2.5 Environmental Justice and Equity	23
2.5.1 Environmental justice generally	23
2.5.2 Public trust	23
Chapter 3. Environmental Rights	27
3.1 Introduction	27
3.2 Right to Information	27
3.2.1 National law	27
3.2.2 International law	28
3.3 Public Participation	29
3.3.1 National law	29
3.3.2 International law	29
3.4 Access to Justice	30
3.5 Environmental Quality	30
3.5.1 National law	30
3.5.2 International law	31
Chapter 4. Common Legal Mechanisms of Environmental Protection	33
4.1 Introduction	33
4.2 Prohibiting and Restricting Activities and Substances	33
4.2.1 Polluting activities	33
4.2.2 Use of biological resources	34
4.3 Product and Process Standards	34
4.3.1 Process standards	34
4.3.2 Product standards	34
4.3.3 Emission standards	35

4.3.4	Ambient quality standards	35
4.4	Prior Licensing and Permits	36
4.4.1	National law	36
4.4.2	International law	37
4.5	Prior Informed Consent	38
4.6	Environmental Impact Assessment	38
4.7	Land Use Regulation	40
4.7.1	National and international regulations	40
4.7.2	Land use regulations and property rights	40
Chapter 5.	Litigation	43
5.1	Introduction	43
5.2	Jurisdiction	43
5.2.1	<i>Locus standi</i>	43
5.2.2	Subject matter jurisdiction	46
5.2.3	Timeliness	46
5.2.4	<i>Forum non conveniens</i>	47
5.3	Pre-trial Issues	48
5.3.1	Dispute settlement generally	48
5.3.2	Alternative Dispute Resolution (ADR)	48
5.3.3	Case management	49
5.3.4	Provisional or interim remedial measures	50
5.4	Trials	50
5.4.1	Rules of procedure	50
5.4.2	Evidentiary proof and standards of review	50
5.4.3	Scientific uncertainty	51
5.4.4	Choice of law	52
Chapter 6.	Remedies and Enforcement	53
6.1	Introduction	53
6.2	Injunctions	54
6.3	Damages	55
6.4	Restitution and Remediation	56
6.5	Sanctions and Penalties	56
6.6	Attorneys' Fees and Costs	61
6.7	Enforcement of Judicial Decisions	62
PART B PRINCIPAL AREAS OF ENVIRONMENTAL LAW		
Chapter 7.	Water	65
7.1	Introduction	65
7.2	Freshwater	65
7.2.1	National law	66
7.2.2	International law: transboundary water resources	68
7.2.3	Water regulation and courts	69
7.3	Marine Ecosystems	70
7.3.1	Marine pollution	70
7.3.2	Protection of marine living resources	73
7.3.3	Courts and the marine environment	76
Chapter 8.	Air	79
8.1	Introduction	79
8.2	Air Pollution	79
8.2.1	National law	79
8.2.2	International law	81
8.3	Stratospheric Ozone Depletion	82
8.3.1	Ozone measures	82

8.3.2 National law	83
8.4 Global Climate Change	83
8.4.1 National law	84
8.4.2 International law	84
Chapter 9. Soil	87
9.1 Introduction	87
9.2 National Law and the Courts	87
9.3 International Law	87
9.3.1 Desertification	88
9.3.2 Alpine soil treaty	88
Chapter 10. Biological Diversity and Nature Conservation	91
10.1 Introduction	91
10.2 Protecting Biodiversity	92
10.2.1 National law	92
10.2.2 International law	93
10.3 Migratory Species	94
10.3.1 National law	94
10.3.2 International law	94
10.4 Trade in Endangered Species	95
10.4.1 National law	96
10.4.2 International law	97
10.5 Habitat Protection (including Wetlands)	98
10.5.1 National law	98
10.5.2 International law	100
10.6 Biotechnology and Living Modified Organisms	101
10.6.1 National law	101
10.6.2 International law	103
Chapter 11. Agriculture and Forestry	105
11.1 Introduction	105
11.2 National Law	105
11.3 International law	106
Chapter 12. Protection of Cultural and Natural Heritage	109
12.1 Introduction	109
12.2 National Law	110
12.3 Cultural Heritage Sites and the Courts	111
12.4 International Law	111
Chapter 13. Noise	115
13.1 Introduction	115
13.2 National Law	115
13.3 Noise and the Courts	116
13.4 International Law	117
Chapter 14. Transportation	119
14.1 Introduction	119
14.2 National Law	119
14.3 Transportation and the Courts	120
14.4 International Law	120
Chapter 15. Tourism	123
15.1 Introduction	123
15.1.1 Depletion of natural resources by tourism	123
15.1.2 Pollution and tourism	123

15.1.3 Physical impacts	123
15.2 National Law, Tourism and the Courts	124
15.3 International Law	124
Chapter 16. Toxic and Hazardous Substances and Waste	127
16.1 Introduction	127
16.2 Chemicals	127
16.3 Solid and Hazardous Waste	128
16.4 National Law, Waste and the Courts	129
16.5 International Law on Hazardous Waste	130

TABLE OF BOXES

Box 1	Defining “Environment”	4
Box 2	Judicial Review of Administrative Decisions	9
Box 3	Criminal Responsibility of Corporate Officials	10
Box 4	Toxic Tort Litigation	11
Box 5	International Law in National Legal Systems	13
Box 6	Using International Law to Interpret Domestic Law	14
Box 7	Definition of a Treaty	15
Box 8	The Trail Smelter Arbitration	17
Box 9	Public Trust and the Environment	25
Box 10	Court-Imposed Licensing Conditions	37
Box 11	Reviewing EIAs	39
Box 12	Public Interest Standing	46
Box 13	Assessing Scientific Evidence	51
Box 14	Mandamus	54
Box 15	Environmental Crimes and Punishment	60
Box 16	Disgorging the Economic Benefit of Noncompliance	61
Box 17	Monitoring Judgments	62
Box 18	Greenhouse Gases	84
Box 19	Soil Protection in Africa	89
Box 20	Illegal Logging and Deforestation	107
Box 21	Types of Heritage	109
Box 22	Judicial Actions to Protect Heritage Sites	111
Box 23	Cultural Heritage Sites and International Obligations	112
Box 24	The Taj Mahal Case	113
Box 25	Controlling Air Pollution from Transportation	120
Box 26	The Importance of Enforcing Hazardous Waste Regulatory Requirements	130
Box 27	Controlling the Importation of Waste	131

TABLE OF ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
BACONGO	Belize Alliance of Conservation Non-Government Organisations
BAT	Best available techniques (or Technology)
CBD	Convention on Biological Diversity
CERES	Coalition for Environmentally Responsible Economies
CITES	Convention on International Trade in Endangered Species
DoE	Department of Environment
EC	European Community
ECHR	European Court of Human Rights
ECJ	European Court of Justice
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPL	Environmental Protection License
EU	European Union
FAO	United Nations Food and Agriculture Organization
GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Facility
GMM	Genetically modified microorganisms
GMO	Genetically modified organisms
IBAMA	Brazilian Institute for the Environment and Renewable Resources
ICC	International Criminal Court
ICJ	International Court of Justice
ILO	International Labour Organization
IUCN	World Conservation Union
LGERA	Land and Environment Court Reports (NSW, Australia)
L.L.	Luc Lavrysen, Milieurechtspraak, (Mechelen, Kluwer, 2002)
LMO	Living modified organisms
MARPOL	International Convention for the Prevention of Pollution from Ships
MOU	Memoranda of Understanding
NAFTA	North American Free Trade Agreement
NEAC	National Environmental Appraisal Committee (Belize)
NGO	Non-governmental organization
NGS	National Greenhouse Strategy (Australia)
OECD	Organization for Economic Cooperation and Development
PIC	Prior informed consent
REDE	Revue europeen de droit de l'environnement
RJE	Revue juridique de l'environnement
SEA	Strategic environmental assessment
SEE	Strategic environmental evaluation
SPS	sanitary and phytosanitary
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Science and Culture Organization
US	United States
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
CO ₂	carbon dioxide
SO ₂	Sulfur dioxide

TABLE OF CASES

<i>Abdikadir Sheika Hassan and Others v. Kenya Wildlife Service (High Court of Kenya, Case 2059/1996)</i>	5,43
<i>Ambica Quarry Works v. State of Gujarat and Others (India, AIR 1987 Sc1073)</i>	106
<i>Anderson v. American Smelting & Refining Co., 265 Fed. Rep. 928 (1919)</i>	52
<i>Antonio Horvath Kiss y Otros v. National Commission for the Environment (Supreme Court, March 19, 1997)</i>	7,45
<i>Appeal of W.I.A.B. Fernando and Others against issue of Environmental Protection Licence to Thaha Plastic Industries Ltd, Appeal No. 3/95 to the Ministry of Environment, Sri Lanka</i>	116
<i>Appeal Under Section 23E of the National Environmental Act by E.M.S. Niyaz to the Secretary Ministry of Environment, Sri Lanka (1985)</i>	116
<i>Asociacion Coordinadora de Usuarios, Consumidores y Contribuyentes v. ENRE-EDESUR, Federal Appellate Tribunal of La Plata (2003)</i>	22
<i>Asociacion Para la Proteccion de Medio Ambiente y Educacion Ecologica '18 de Octubre' v Aguas Argentinas S.A. & otros, Federal Appellate Tribunal of La Plata (2003)</i>	7
<i>Association « Les amis de la Terre », Conseil d'Etat, January 29, 1982, R.J.E., 1983/2, 13</i>	99
<i>Association D.R.A.C., Nature et autres, Tribunal administratif de Grenoble, April 26, 1996, R.J.E., 1997/1, 114</i>	93
<i>Association Manche-Nature, France, Tribunal administratif de Caën, April 9, 1996, R.J.E., 1996/3, 339</i>	99
<i>Association pour la protection des animaux sauvages et du patrimoine naturel v. Préfet de l'Aisne, Tribunal administratif d'Amiens, February 8, 1996, R.J.E., 1996/1-2, 123</i>	93
<i>Association pour la protection des animaux sauvages et du patrimoine, Tribunal administratif d'Amiens, December 17, 1996, R.J.E., 1997/2, 205</i>	93
<i>Association pour la protection des oiseaux sauvages et autre, Tribunal administratif de Nantes, March 21, 1996, R.J.E., 1996/1-2, 126</i>	93
<i>Aurelio Vargas y otros v. Municipalidad de Santiago y otros (The Lo Errazuriz Case) Chile Sup.Ct (27 May 1987)</i>	54,4
<i>Bangladesh Environmental Lawyers Association v. The Election Commission and Others, SC of Bangladesh, High Court Div., Writ Petition No. 186 of 1994</i>	116
<i>Bering Sea Fur Seals Case</i>	24
<i>Bladet Tromsø and Stensaas v. Norway (ECHR, May 20, 1999)</i>	28
<i>Bombay Environment Action Group Shaym H K Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board, High Court of Bombay, Writ Petition No. 2733 of 1986</i>	29,27
<i>Byron Shire Businesses for the Future Inc. v Byron Council and Holiday Villages (Byron Bay) PTY Ltd., and Environment Court of New South Wales, (1994) LGERA 434</i>	39,124
<i>Case Concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia), Sep. Op. of Judge C. Weeramantry, n. 44, ICJ, Sept.25, 1997</i>	5
<i>Case of Pjalopoulos and Others v. Greece, (ECHR, judgment of 15 February 2001)</i>	41
<i>Case on the Conservation and Sustainable Exploitation of Swordfish Stocks in the South-Eastern Pacific Ocean (Chile v. EC)</i>	75
<i>Chapman v. The United Kingdom (ECHR, judgment of 18 January 2001)</i>	41
<i>Charan Lal Sahu v. Union of India, AIR 1990 SC 1480 (1991)</i>	8
<i>Claeys, Belgium, Cour de Cassation, November 25, 1997, text in Luc Lavrysen, Milieurechtsspraak, p.517</i>	67
<i>Commission of the European Communities v. Federal Republic of Germany, European Court of Justice of February 28, 1991, R.J.E., 1992/3, 351</i>	99
<i>Commission v. French Republic, European Court of Justice of April 27, 1988, R.J.E., 1988/4, 455</i>	93
<i>Commission v. Italy, European Court of Justice, January 17, 1991, R.J.E., 1994/1, 62</i>	93
<i>Corfu Channel Case (U.K. v. Alb.), 1949 I.C.J. 4, 17</i>	7
<i>Cour de cassation, 1st Chambre civile, November 16, 1982, R.J.E., 1984/3, 225</i>	93
<i>Cour de cassation, Chambre criminelle, February 21, 1996, R.J.E., 1996/4, 494</i>	93
<i>Cour de cassation, Chambre criminelle, July 25, 1995, R.J.E., 1996/1-2, 191</i>	93
<i>Dehra Dun cases (India)</i>	52
<i>Donato Furio Giodano v. Ministry of Environment and Renewable Natural Resources, Supreme Court of Justice, Venezuela, Nov. 25, 1999</i>	41
<i>Dr. Mohiuddin Farooque v. Bangladesh, represented by the Secretary, Ministry of Irrigation, Water Resources and Flood Control and Others, 48 DLR 1996 (SC of Bangladesh, 1996)</i>	8,31,44
<i>Dr. Mohiuddin Farooque v. Secretary Ministry of Communication, Government of the People's Republic of Bangladesh and 12 Others, SC of Bangladesh, High Court Division, Writ Petition No. 300 of 1995</i>	8,117
<i>EFTA Surveillance Authority v. Norway, Case E-3/00</i>	22
<i>Englebert Nbcobo & Others v. Thor Chemical Holdings Ltd., Case No. 1994 N 1212 (U.K.)</i>	47

TABLE OF CASES

Entreprise de dragage et de travaux publics, Conseil d'Etat, December 9, 1988, R.J.E., 1989/2, 187 93

Environment Protection Authority v. Charles Gardner, Land and Environment Court of New South Wales, Matter No. 50072/96 and 50074/96...... 59

Eppawela case 7,23,24,111

Ethyl Corporation v. Canada (June 24, 1998) available at www.naftaclaims.com 41

Fédération départementale de pêche du Maine et Loire v. Transports Jollivet et autre, France, Tribunal d'instance d'Angers, June 27, 1996, R.J.E., 1997/2, 233 67

Festo Balegele and 749 Others v Dar es Salaam City Council (Civil Cause No. 90/1991)...... 43

France, Cour d'appel de Poitiers, Janvier 9, 1997, R.J.E., 1997/3, 423. 99

France, Cour de cassation, Chambre criminelle, October 25, 1995, Req.no.W 94-82.459PF, R.J.E., 1996/1-2, p.196 67

Fundepublico v. Mayor of Bugalagrande and Others, Juzgado Primero superior, Interlocutorio # 032, Tulua, 19 Dec. 1991 7

Gabcikovo-Nagymaros Case 6

General Secretary, West Pakistan Salt Miners Labour Union (CBA) KHWRA, Khelum v. The Director, Industries and Mineral Development, Punjab Lahore, 1996 SC MR 2061 (Supreme Court of Pakistan). 52,62

Gray Davis v. U.S. EPA (9th Cir. July 17, 2003). 43,51

Greenpeace Australia Ltd. v. Redbank Power Company Pty. Ltd. and Singleton Council, 86 LGERA 143 (1994 Australia) 21

Gulf Oil v. Gilbert, 330 U.S. 501 (1947) 47

Gunaratne v. Ceylon Petroleum Corporation, (1996) 1 Sri L R 315 (Sri Lanka) 23

Hatton v. United Kingdom (ECHR, 2003) 117

In re Sause Brothers Ocean Towing Concerning an Oil Spill from the Barge The "Nestucca" off the Coast of British Columbia, 769 F. Supp. 1147 (D. Oregon, 1991) 48

In re Union Carbide Corp. Gas Plant Disaster at Bhopal, India in December 1984, 809 F.2d 185 (2d Ci 4r. 1987) . . 11,47

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Island of Palmas decision, (Neth/US), Apr. 4, 1928, Permanent Court of Arbitration 24

Jose Cuesta Novoa and Miciades Ramirez Melo v. the Secretary of Public Health of Bogota, Colombia, Constitutional Court, May 17, 1995. 44

Joseph D. Kessy and Others v. the City Council of Dar Es Salaam 9

Judges Transfer Case AIR 1982 SC 149 45

Just v. Marinette County, 6 Wis.2d 7 (Supreme Court of Wisconsin) 41

Kajing Tubfk & Others v. Ekran Biid & Others, High Court, Kuala Lumpur (1996). 39,43

Kajing TUBFK and ORS v. OEKran BHD and Others, High Court of Kuala Lumpur, 19 June 1996, Malaysia 29

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Kenya Ports Authority v. East African Power & Lighting Co. Ltd (Court of Appeal, Mombasa, Case 41/1981) 24,52

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La province de la Hollande septentrionale v. Etat français, France, Tribunal administratif de Strasbourg, July 27, 1983, R.J.E., 1983/4, 343 69

Lake Lanoux Arbitration (Spain v. Fr.), 12 U.N.R.I.A.. 281 (1957). 17

Land de Sarre et autres v. Ministre de l'Industrie, France, Tribunal administratif de Strasbourg, June 11, 1987, R.J.E., 1987/4, p.491 69

Leatch v. National Parks and Wildlife Service and Shoalhaven City Council 81 LGERA 270 (1993, Australia) 21,29

Leonardia Safaris v. Premier of Gauteng Province (High Court of South Africa, Witwatersrand Local Division, Case No. 98/18201). 36

Les Amis de la Terre v. Ministre de l'Environnement, France, Tribunal administratif de Grenoble, October 24, 1984, R.J.E., 1985/2, 205 67

Lespinasse, Cour d'appel de Toulouse, October 24, 1994, R.J.E., 1997/1, 47 93

Lubbe v. Cape PLC, UK House of Lords, 20 July 2000. 47

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<i>Michel C. Ramiah/Marie L. Autard, Mauritius, Environment Appeal Tribunal, Case Nos 4/95 et 5/95</i>	99
<i>Ministerio Publico v Federal Union of Brazil (Fed. Court, State of Mato Grosso, 1998)</i>	6
<i>Mouvement Social de Petit Camp v. Ministry of Environment & Quality of Life, Mauritius, Environmental Appeal Tribunal, Case No.2/94</i>	79
<i>Mr. Cadress Chinien Chetty v. Minister of Local Government and Environment and D. Mangrabala v. Minister of the Environment, Urban & Rural Development, Mauritius, Environmental Appeal Tribunal, Case No 02/98</i>	80
<i>Mr.Cadress Chinian Chetty v. Minister of Local Government and Environment, Mauritius, Environmental Appeal Tribunal, Case No 02/98</i>	79
<i>Mrs. Jamamloodeen Dulloo v. Minister of Environment, Environment Appeal Tribunal of Mauritius, Case No. 03/01.</i>	87
<i>Nairobi Golf Hotels (Kenya) Ltd. v Pelican Engineering and Construction Co. Ltd. (High Court of Kenya, Nairobi, Case 706/1997)</i>	46
<i>Narmada case (India)</i>	6
<i>National Association of Professional Environmentalists v. AES Nile Power Ltd. (High Court of Uganda at Kampala, Misc. Case 268/1999)</i>	24,46
<i>National Audubon Society v. Department of Water and Power of the City of Los Angeles, 658 P.2d 709 (Sup. Ct. Calif. 1983)</i>	24
<i>National Farmers' Union (NFU), Case T-76/96 R, [1996] ECR II-815</i>	22
<i>New Zealand v. France (International Court of Justice, dicta of Judge Weeramantry)</i>	23
<i>Nicholls v. Director General of Private National Parks and Wildlife and Others, 81 LGERA 397</i>	39
<i>North Atlantic Coast Fisheries Case, (GB-USA) (Sept. 7, 1910).</i>	24
<i>Pablo Orrego Silva y Otros v. Empresa Electrica Pange SA (Supreme Court, Aug. 5, 1993)</i>	7
<i>Paul K. Nzangu v. Mbiti Ndili (High Court of Kenya at Machakos, Case 8/1991)</i>	56
<i>Pedro Flores y Otros v. Corporation del Cobre (CODELCO), Corte de Apelaciones (23 June 1988), Rol 12.753.FS641, aff'd Sup. Ct. Chile.</i>	14
<i>Pedro Korkowski v. Ministerio Publico, Federal Regional Tribunal (4th Region, Porto Alegre, Nov. 12, 1992)</i>	41
<i>Piper Aircraft Co. v. Reyno, 454 U.S. 235</i>	47
<i>Prakash Mani Sharma & Others on behalf of Pro Public v. Prime Minister & Others, 312 NRL 1997 (SC, Nepal)</i>	45
<i>Prakash Mani Sharma & Others Pro Public v. HMG, Cabinet Secretariat and Others, Writ No. 3017 (1995) (SC, Nepal).</i>	45,54
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<i>Promociones Terra Cardon v. the Republic of Venezuela, Supreme Court of Justice, Venezuela, Jan. 24, 1994.</i>	41
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<i>R.V. Tioxide Canada Inc. (Quebec Court, 1993).</i>	5,58
<i>Rabin Mukherjee and others v. State of West Bengal and others, AIR 1985 Calcutta 222</i>	117
<i>Ramiah and Autard (Mauritius, March 7, 1997)</i>	4,50,52
<i>Ramiah and Autard v. Minister of the Environment and Quality of Life (4/95 and 5/95, judgment March 7,1997)</i>	9,14,37,50
<i>Ratlam Municipality v. Vardhichand AIR 1980 SC 1622 (India)</i>	10,23
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<i>Rogers Muema Nzioka & Others v. Tiomin Kenya Ltd (Kenya, Case 97/2001).</i>	39
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<i>Rural Litigation and Entitlement Kendra v. State of U.P. AIR 1988 SC 2187</i>	23,50
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<i>S. C. Amerasinghe and Others v. the Attorney General and Others, S.C. (Spl) No. 6/92. Supreme Court of Sri Lanka.....</i>	29
<i>Save the Vaal v. The Director of Mineral Development Gauteng Region, High Court of South Africa in Witwatersrand, Case No. 97021011 (1997)</i>	29
<i>Scenic Hudson Preservation Conference v. Federal Power Commission, 354 F.2d 608 (1965) (US)...</i>	51
<i>SCRAP v. U.S., 412 U.S. 669 (1973)</i>	43
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TABLE OF CASES

<i>Société DACO, June 8, 1990, R.J.E., 1991/2, 236</i>	14,96
<i>Société de protection de la nature de Sète v. Préfet de la région Languedoc-Roussillon et autres, Tribunal administratif de Montpellier, May 13, 1988, R.J.E., 1988/4, 516</i>	99
<i>Solothurn v. Aargau, Switzerland Bundesgericht (Federal Tribunal), 1 Nov. 2000</i>	20
<i>State of Himachal Pradesh v. Ganesh Wood Products AIR 1996 SC 149 (India)</i>	23
<i>Ste Wiehe Montocchio & Cie v. Minister of the Environment and Quality of Life (Mauritius Environment Appeal Tribunal, Case 2/95)</i>	36
<i>Story Parchment Company v. Paterson Parchment Paper Company (1931), 210 U.S. 555</i>	55
<i>Subhash Kumar v. State of Bihar, AIR 1991 SC 420, 1991 (1) SCC 598</i>	8
<i>Taj Mahal case</i>	111,113
<i>Talisman (Trinidad) Petroleum Ltd. v. The Environmental Authority (Trinidad & Tobago Environmental Commission, 2003)</i>	16
<i>Tanner v. Armco Steel Corp., 340 F.Supp. 532 (SD Tex. 1972)</i>	31
<i>The Barbuda Council v. Attorney General and Others, High Court of Justice of Antigua and Barbuda, Civil AD 1993</i>	62
<i>The Environmental Action Network Ltd v. The Attorney General and the National Environment Management Authority (High Court of Uganda at Kampala, Misc. App. 39/2001)</i>	45
<i>The Grand Prince Case (Belize v. France)</i>	75
<i>TVA v. Hill, 437 U.S. 153 (1978)</i>	41
<i>U. P. Pollution Control Board v. M/s Modi Distillery and Others, AIR 1988 SC 1128 (India)</i>	9
<i>United Kingdom v. Commission, Case C 180/96, [1996] ECR I-3903</i>	22
<i>United Mexican States v. Metalclad Corporation, 2001 BCSC 1529 (2001)</i>	41
<i>United States v. Billabong II Ans., (D.S.C. July 1, 2003)</i>	58
<i>United States v. John T. Frederick (D. Mich. July 7, 2003)</i>	59
<i>United States v. Riverside Bayview Homes, Inc., 474 US 121 (USSC)</i>	41
<i>Van Huyssten & Others v. Minister of Environmental Affairs & Tourism & Others, 1996 (1) SA 283</i>	27
<i>Vellore Citizens Welfare Forum v. Union of India, [1996] AIR SC 2715</i>	13,21,53
<i>Verstappen v. Port Edward Town Board & Others, Case 4645/93 Durban & Coast Local Division (South Africa)</i>	44
<i>Wildlife Society of Southern Africa & Others v Minister of Environmental Affairs & Tourism & Others, Case 1672/1995 (South Africa)</i>	45
<i>Wildlife Society v Minister of Environment (Transkei Supreme Court 1996)</i>	44
<i>Wiwa v Royal Dutch Petroleum, 226 F.3d 88 (2d Cir. USA, 2000)</i>	47
<i>Yanner v. Eaton (1999 High Court of Australia 53)</i>	6

TABLE OF INTERNATIONAL INSTRUMENTS

<i>Convention on Biological Diversity (1992)</i>	13,15,21,27,30,34,38,40,75,76,91,92,93,100, 102,103
<i>Convention on the Conservation of European Wildlife and Natural Habitats, E.T.S.104</i>	94
<i>Convention on Desertification</i>	28,29,30, 87
<i>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)</i>	14,34,37,75,96,97,98
<i>Convention on Migratory Species</i>	16,34,76,94,95
<i>Convention on Prior Informed Consent</i>	16,28,37,38,128
<i>Convention on Transboundary Movement of Hazardous Wastes (Basel)</i>	37,38,56,130,131
<i>Framework Convention on Climate Change (1992)</i>	15,21,30,35,83,84,85
<i>General Agreement on Tariffs and Trade, TRIPS</i>	13
<i>International Covenant on Civil and Political Rights</i>	14,28,30
<i>International Covenant on Economic, Social and Cultural Rights</i>	14
<i>International Labor Convention 169 on Indigenous People</i>	13
<i>International Whaling Convention (1946)</i>	15,37,75,94
<i>Montreal Protocol to the Vienna Convention for the Protection of the Ozone Layer (1987)</i>	15,31,33,35,83
<i>Ramsar Convention (1971)</i>	15,100
<i>Rio Declaration on Environment and Development</i>	14,16,19,29,30
<i>Stockholm Declaration on the Human Environment</i>	19
<i>Straddling Fish Stocks Convention</i>	16,21
<i>United Nations Convention on the Law of the Sea (UNCLOS) (1982)</i>	15,16,30,37,38,56,57,70,71,72,73,75,76,81
<i>UNESCO Convention for the Protection of the World Cultural and Natural Heritage</i>	100,109,11
<i>Vienna Convention for the Protection of the Ozone Layer (1985)</i>	15,31, 33,82,83
<i>World Charter for Nature</i>	19
<i>World Heritage Convention (1972)</i>	15,110,112

INTRODUCTION - JUDGES AND ENVIRONMENTAL LAW

By Judge Christopher G. Weeramantry

There is one universal law . . . that law is justice. Justice forms the cornerstone of each nation's law.
Alexis de Tocqueville, 1835

To judge a thing, one must first know the standard. Sanskrit Proverb

Do not cut down the tree that gives you shade. Arabian Proverb

WHY A HANDBOOK FOR JUDGES?

This book appears in the context of a global realization that the protection of the environment has rapidly risen in importance to become one of the foremost concerns of the world community. Environmental deterioration through human activity is proceeding at an unprecedented rate, and unless this process is held in check the damage caused will be grave and irreversible, hurting not only ourselves but future generations, and not only the nation where it occurs but the global population in general.

All public institutions, including the judiciary, need therefore to pool their resources against this universal peril. Institutions charged with responsibilities for the protection of the environment are therefore under a special duty to do what they can to avoid a situation where the judiciary is left unprepared to face this momentous challenge.

Indeed the importance of the judiciary in the environmental field was considered so crucial that it was thought appropriate, before the World Summit on Sustainable Development, to convene a meeting of the judges from around the world at Johannesburg with a view to the preparation of a document for the consideration of heads of state at the summit. The result of this meeting was the Johannesburg Principles on the rule of law and sustainable development, which consisted of a series of guidelines and principles for the judiciary in environmental matters.

Such is the background against which the United Nations Environment Programme decided to undertake the production of a handbook for the judges of the world, and to make easily available to them a compendium of relevant information which would be of ready assistance to them in this comparatively unfamiliar judicial territory.

The publication of such a volume is most timely as environmental law is perhaps the most challenging area facing the world's judiciary today. Yet, paradoxically, it is one of the areas of the administration of justice with which the judiciary is least familiar and least equipped to handle, whether by way of concepts, procedures, background information or access to relevant materials.

Environmental law is a comparatively new branch of law and has evolved mainly over the last thirty years. It is therefore as yet in a formative stage and is undergoing a process of rapid development inspired also by a quantum leap in our understanding of the environmental challenge.

By reason of its comparatively recent emergence, environmental law was not generally taught as a subject in law schools. Additionally, many a judge who has to decide these cases may not have studied international law as a subject in law school, for general international law is not a required subject in many law school curricula. The relevant body of law could thus be totally unknown territory to many a judge called upon to take a critical decision in an environmental lawsuit.

In seeking to assist the world's judiciary at this vital new frontier of jurisprudence, the formulators of this project have been conscious that the discharge of the judicial function involves procedures, problems and practicalities for which judicial experience can provide an invaluable guide. Based on the view that judicial experience is essential to an understanding of the numerous practical problems environmental litigation will present, the book has been prepared with the guidance of a small group of specialist judges. That way its usefulness and acceptability can be greatly advanced, especially in view of the enormous scope the topic offers for the wise and

informed exercise of judicial discretion among the numerous leeways of judicial choice that open up before the judge in this comparatively undeveloped field.

Particularly in developing countries, many environmental cases may not fall within a settled legislative provision or judicial decision but in the gray area not specifically covered by black letter law. Yet they may still be within the reach of existing principles that can be applied or extended to them. Even in countries where environmental legislation has been enacted in some detail, it is beyond the competence of the legislature to anticipate every factual situation giving rise to environmental considerations, and consequently it is the judiciary that would have to handle such situations when they arise for the first time. All these factors leave a significant area for the appropriate exercise of judicial discretion. The judges are thus positioned, along with other institutions such as legislatures and environmental agencies, at the cutting edge of the development of environmental law and in the forefront of its adaptation to a diverse array of community needs and challenges.

The panorama of considerations presenting themselves in environmental litigation ranges as far afield as justice between generations, the relationship between humans and other living occupants of the planet and the duty of preservation of the life-sustaining capacity of the earth – considerations far different in quality and reach from those ordinarily surfacing in day-to-day litigation. This handbook aims at lending a hand to the judges in their journey through this unexplored and unfamiliar terrain.

The ways in which the judges will handle the new situations coming before them will influence and shape the development of the relevant aspect of environmental law for the foreseeable future.

Another reason why a handbook of this sort could be useful is that environmental cases are daily being decided in jurisdictions across the world, and judges in any particular jurisdiction could profit from knowledge of the work of their colleagues in the identical field elsewhere.

This handbook will attempt to present to judges, in an easily accessible form, an illustrative selection of decisions by judiciaries from all parts of the world. The selection of cases has been on a representative basis so as to reflect developments in all regions as well as countries whose economies are at different levels of development. The industrialized world as well as the developing world can both profit from the knowledge gained from each other's experiences in the environmental sphere.

Where citations are made to the decisions of other courts an attempt has been made to make these available through a UNEP compendium of more important cases and to direct judges to other sources and other cases that they may wish to pursue.

Apart from the work of their counterparts in other jurisdictions, judges need also to be familiar with international norms and standards, as contained in the growing body of treaties, declarations, covenants, protocols and other documents, because judicial decision-making will often be significantly informed by such norms and standards. While this handbook makes reference to some international instruments, readers are encouraged to refer to UNEP's Manual on International Environmental Law.

They need also to have some familiarity with the various international institutions handling environmental matters, their functions, their competence and their geographical reach. Without such awareness the judiciary would be handling environmental matters without reference to their complete structural context, and this work seeks also to provide them with this necessary background. Further, this work cites most comprehensive juristic treatises for further reference.

The judiciary is moreover one of the most valued and respected institutions in all societies. The tone it sets through the tenor of its decisions influences societal attitudes and reactions towards the matter in question. This is all the more so in a new and rapidly developing area. Judicial decisions and attitudes can also play a great part in influencing society's perception of the environmental danger and of the resources available to society with which to contain it.

A judiciary exhibiting sensitivity to environmental problems can also stimulate more frequent resort to the judiciary for settling environmental problems. A judiciary that is adequately sensitized and informed regarding this vibrant area of legal development will be in a good position to handle the cases that are brought. One of the purposes of this handbook is to stimulate such well-informed responses.

The handbook focuses on judges at the national level rather than on judges in international tribunals who decide disputes between sovereign states. In deciding matters at national level they will be functioning within their own corpus of national law. Yet international law becomes relevant to them primarily through its incorporation into national law where that has taken place. It can also become relevant to the exercise of their domestic jurisdictions where national legislation has been based on international instruments or norms, in which case knowledge of the relevant international law can be of great importance in interpreting the domestic legislation.

Throughout the various stages of preparation of this handbook it has been constantly borne in mind that by reason of their novelty, environmental problems will present various procedural challenges to the judge – whether in the field of evidence, access to the judicial process, appropriate court procedure, methodology of judicial investigation, reception of scientific testimony, burdens of proof and the like. Judges could profit immensely from knowledge of how their colleagues in diverse jurisdictions have addressed these problems. Judges in diverse jurisdictions, faced with problems for which there is no precedent, have sometimes worked out innovative devices and measures wherewith to handle them whether in the procedures for assessment of fact situations on the ground or for ensuring continuing compliance with a judicial order once made or for assessing the environmental impact of an action which is the subject of inquiry. Domestic judges would be greatly assisted by the insights and actions of their counterparts overseas in finding and devising measures, within the framework of their domestic legal systems, for considering environmental cases.

The authors have been conscious, in compiling this work, of the prevalence of different legal systems across the world, resulting in different conceptual and procedural approaches, as for example between common law based legal systems and civil law based legal systems. Every effort has been made in the preparation of this work to take into account these differences and to formulate the guidelines in the handbook in a manner acceptable to both traditions.

Moreover, each jurisdiction has its own constitutional, legislative and procedural framework and the judges of each jurisdiction are best positioned to handle the varied nuances in a manner that appropriately considers the overarching applicable framework.

Another factor of which the authors have been mindful consists of the special problems faced by developing countries as a result of corporate and multinational industrial activity operating in their regions and the current escalation of globalization. Such activities sometimes tend to submerge concepts such as respect for nature, trusteeship of earth resources and community interests in common amenities, present in the traditions of many developing countries. These traditions can be a rich source of inspiration for the environmental law of the future. Where relevant, attention is drawn to them.

THE JUDGE'S ROLE

Judicial institutions serve several functions in society, among them:

1. The peaceful settlement of disputes
2. Upholding the rule of law
3. Applying and interpreting the law

The role of the judge in environmental law is in principle no different from other settings, but for many judges the subject matter may seem complex and unfamiliar. Judges, as guardians of the rule of law, are uniquely positioned to give environmental law force and effect. They can bring integrity and certainty to the process of environmental protection, and help to ensure environmental responsibility and accountability within the government and the private sector. Judges also advance the development of environmental law by their traditional task of interpreting and filling the gaps in the legal texts. They can only fulfil this task if they are adequately informed.

Against this background, the handbook's goals are four-fold:

1. To help judges understand the nature and gravity of the environmental dilemma, so that they will respond to environmental cases with an appropriate measure of seriousness;
2. To introduce some of the common core principles upon which modern environmental law is premised, along with some of the common regulatory methodologies for giving those principles expression and applicability;
3. To expose judges to the judicial experience in other states in the environmental context; and
4. To equip judges with practical guidance for managing environmental cases.

JUDGES AS EDUCATORS

Judges have an important educational role in environmental law. The judiciary should be seen as one of the most stable and respected institutions of the society it serves. As such, the judiciary both reflects and sets the tone for a society at large. The voice of the judge should represent reason, impartiality, and understanding of all the interests at stake. A judge's serious response to a given case helps to shape and reinforce a society's view of the seriousness of the problem represented by that case. Accordingly, judges are able to encourage all groups in society – government, industry and citizens – to share in the task of environmental stewardship.

Protection of the environment may require rethinking and changing economic practices and even ways of life, as well as assuming and sharing new responsibilities and costs. The judge is the ultimate arbiter of the resulting tensions and conflicting interests. He or she is called upon to provide the just answer, in a manner acceptable to the parties and those affected.

Judges are unable to achieve this result by themselves. Their knowledge of the facts rests on the evidence before them, and their understanding is informed by the issues and arguments presented. Indeed, even a well-informed and effective judiciary amounts to relatively little if cases are not brought forward to the courts. Judicial education in this area is but one piece of a broader challenge to educate, inform and equip all important stakeholders.

Public participation and public access to justice -- both directly by access to and involvement in hearings, and indirectly through the media -- are critical to the enforcement and implementation of environmental law. The courts are, in essence, the guarantors of such participation.

NATIONAL AND INTERNATIONAL LAW

As noted, the handbook's focus is on the judge at the national level, rather than on judges in international tribunals who have authority to mediate disputes between sovereign states. For the national judge, international environmental law is most relevant when it has been "nationalized" or become part of the corpus of national law through, for example, ratification, incorporation or transposition.

This is not however, the only manner in which international environmental law may be relevant. In jurisdictions where national legislation closely follows or is modelled after international norms, reference to international law may be of value in interpreting national law. Moreover, developments in international environmental law convey the sense of urgency in the broader international community concerning environmental problems and, accordingly, offer insights into the nature and significance of environmental problems.

For all of these reasons, this handbook will expose readers to some of the key features of international environmental law, while at the same time offering examples of related legislation and jurisprudence at the national level.

DIFFERENT LEGAL SYSTEMS

Substantive law principles relating to the environment, like the environment itself, are potentially of universal relevance. International law, particularly through treaties and other instruments, reflects these shared principles and informs national laws. While the methodology, mechanisms and procedures that the judge uses in administering justice differ in some respects, the search for justice is the same and the substantive law principles are similar as are many of the ways and practices available to affect redress.

Accordingly, many of the same principles are shared by the common law and civil law systems, and authorities and cases under either system may be relevant for both. However, a full understanding of the cases calls for awareness of their origins and attention to their legal context. This handbook will focus on general principles, and cases from national courts will be referred to by way of illustration rather than as legal precedents. Where there are differences between the common law and civil law approaches, the emphasis will be on the former, as the latter may be the subject of a further handbook addressed specifically to judges within civil law systems. It must in any event be remembered that the judge's first duty is to apply the law of the jurisdiction in which he or she serves. Resolution of a given environmental problem will always need to start from consideration of any relevant national and local laws.

The handbook cannot of course offer a substitute for such consideration. It is nonetheless designed to offer some utility in all jurisdictions, in the hope that it might leave judges everywhere better positioned to advance the rule of law in the environmental context.

JUDGING ENVIRONMENTAL CASES

Environmental law is a comparatively new branch of domestic and international law. As such, it is in the process of being moulded, unlike older areas of law, which have already assumed fairly defined concepts, principles and procedures. In this process of moulding, the judiciary has a vital role to play. The fine nuances of particular situations that the judge encounters in individual cases are often not matters with which legislatures have the time and resources to deal. It is often before the judiciary that they come up for the first time. Consequently it is often judicial decision-making that gives shape and direction to the new concepts and procedures involved. As more such situations come before judges, these individual decisions initiate trends, which give the newly emerging discipline of environmental law the requisite conceptual framework and momentum for its development.

Viewed in this light it is essential for the judiciary to have an understanding of environmental problems and a creative vision of how the law can deal with them, failing which environmental law can be rendered ineffective or retarded in its development and implementation. Particular challenges that may need to be addressed include:

- (a) **Dealing with scientific issues** - Environmental law often involves consideration of scientific issues. Different sides in a case may bring forward different interpretations of the available science and may even cite to different bodies of scientific evidence. Thus, whether reviewing government decisions or private sector conduct, courts are increasingly called upon to consider whether the available scientific evidence has received appropriate consideration and whether a particular body of scientific evidence has probative value.
- (b) **Managing uncertainty** - Managing against the uncertainty of whether a given harmful event is likely to occur or not is a difficult and important aspect of judging environmental cases. The administration of justice depends upon developing ways of allocating fairly the risks incident to lack of knowledge. Some of the methods recognized in adjudication include the use of presumptions, and shifting burdens of proof.
- (c) **Sustainable development** - Increasingly, with the integration of principles of sustainable development into national legal frameworks, environmental factors are given equal stature alongside economic and other considerations in governmental decision-making. In its most comprehensive form, integrated policymaking for sustainable development pays explicit attention to social, cultural and environmental consequences of actions. Thus, when reviewing government decisions for legitimacy, courts are, with increasing frequency, called upon to apply principles of sustainability to matters before them.
- (d) **Diversity of issues and setting** - Matters of environment and development which surface in courts are not limited to disputes between the specific parties alone, but could have wide-ranging implications of national and international significance. Judges may be compelled to consider issues of human rights, development policies, and economics in the course of deciding an individual case. These cases often involve the question of the relationship between the state and its citizens.
- (e) **Individuals and society** - A challenge to judicial decision-making in this field is to determine the appropriate balance between individual entitlements and more general societal concerns. Some decisions involving pollution weigh the harm to the individuals against the economic benefits of the enterprise causing the harm. These and other decisions often will have impacts beyond those of the parties directly involved. In many cases, the costs involved in avoiding or remedying the harms in question may be borne by society at large or by a group not fully represented in the action.
- (f) **Economics** - Economic principles provide important background. For example, the notion of an external cost – one that burdens anyone other than the actor – is essential to understanding and applying the polluter pays principle (discussed in Chapter 3). Concepts in environmental law such as strict liability for hazardous activities and the law of nuisance (discussed in Chapter 2) are among the legal concepts that

have played a role in ensuring that externalities of this kind are internalized. Some countries also incorporate notions of cost-benefit balancing or cost-effectiveness into their legal standards via statute or regulations.

- (g) **Retroactive effect** - Judges may face the issue of retroactive effect of environmental statutes and regulations. Law is presumed to be prospective only, but environmental law that seeks to address ongoing harm to the environment may need to apply to pre-existing activities and operations if it is to be effective. In such circumstances, legislators may expressly direct retroactive application of the law or, as appropriate, judges may infer the need for retroactivity in order to give effect to the statutory objective. Retroactive operation of the law may sometimes be premised on the “polluter pays” principle (discussed Chapter 3), on the basis that, even if the condition resulted from conduct arguably lawful at an earlier time, it is more appropriate for the entity creating the harmful condition to pay for the cost of its polluting activity, than to impose those costs on the society at large.

In resolving these issues, judges will use the ordinary techniques of legal interpretation as developed in their own courts, but will need to adapt them to the special context. For example:

- (a) **Reasoned judicial decisions** - Fully reasoned decisions are important in shaping the law and explaining the consequences of individual behaviour, especially when decisions of broad social impact are issued. A fully reasoned opinion not only cloaks judicial decision-making in transparency and fairness, but also provides a more effective basis for review by the higher courts, and the development of a consistent and principled system of law.
- (b) **Statutory Interpretation** - Judicial decision-making begins with the texts of the applicable laws, whether treaty (if self-executing or implemented as a matter of national law), constitutional, statutory or administrative. The words used in the enactment are the best guide to its meaning. If the text is clear then the task is simply to apply it to the case. Where there is uncertainty, further reading may help to put the language in the context of the entire enactment, looking at it as an integrated whole to determine its object and purpose. Canons of construction may help to resolve some ambiguities.
- (c) **Legislative History** - In many legal systems, judges may look at the legislative history, including records of the legislative or administrative process, in order to determine the purposes of the enactment and how its authors intended it should be interpreted. In others, consultation of legislative history is disfavoured, typically out of concern regarding the difficulty ascribing a common intention to a group such as a legislature or administrative body. The extent to which legislative history can be considered will be determined by national law and practice, which, in turn, may be influenced by legislative procedures and the manner in which legislative history is developed and expressed.
- (d) **Precedent** - Legal systems vary in the extent to which they require precedent to be followed. Even where there is no formal obligation to follow precedent, there are sound reasons for treating previous decisions of parallel or higher courts as a guide:
- As a general principle of justice and fairness, equals should be treated equally. Thus, where an issue or case is presented that is in all essential respects the same as one previously addressed, the same result should ordinarily obtain.
 - Following precedent can promote judicial efficiency. Where individuals believe that every issue that has been decided is open for repeated challenge, judicial case loads tend to increase. In addition, precedent can provide a quick reference for the judicial solution of the case, avoiding the need to “reinvent the wheel” or undertake original primary research of the issue.
 - Major changes in interpreting or applying statutory law from one case to another may be criticized as unprincipled or as “judicial legislation.”

However, precedent should not become a straightjacket. In any case, there is a need to evaluate precedent functionally to understand the legal effect of a particular decision. A judge must analyse the earlier case to see if the facts differ materially and whether the differences have legal significance. There may also be good reasons to overturn or disregard precedent, such as where new knowledge undermines the foundation for the earlier ruling, or where societal values have clearly and fundamentally changed.

THE GOAL: A PREPARED JUDICIARY

Simply put, then, the goal of this book is at once both extraordinarily ambitious and essential: to give the judiciary throughout the world a greater sensitivity to environmental matters, a more comprehensive knowledge of environmental concepts and principles, a broader awareness of developments in jurisdictions across the world, a better understanding of the directions this newly developing branch of law is taking, and a greater practical ability to handle these new phenomena which courts have not handled in all the prior centuries of judicial activity.

No one text can provide universal solutions to environmental problems, but this book seeks rather to stimulate the courts in the ways mentioned above so that the judiciary may become an ever more efficient and effective mechanism for resolving environmental disputes.

JUDICIAL HANDBOOK ON ENVIRONMENTAL LAW

PART A

GENERAL FRAMEWORK

Chapter 1

WHAT IS ENVIRONMENTAL LAW?

1.1 INTRODUCTION

Over the past several decades, growing public awareness of threats to the environment, informed by warnings of scientists, has led to demands that law protect the natural surroundings on which human well-being depends. Under growing pressure from national and international public opinion, governments began to demonstrate concern over the general state of the environment during the 1960s and introduced legislation to combat pollution of inland waters, ocean, and air, and to safeguard certain cities or areas. Simultaneously, they established special administrative organs, ministries or environmental agencies, to preserve more effectively the quality of life of their citizens. Developments in international environmental law paralleled this evolution within states, reflecting a growing consensus to accord priority to resolving environmental problems. Today, national and international environmental law is complex and vast, comprising thousands of rules that aim to protect the earth's living and non-living elements and its ecological processes.

Environmental problems stem from two main categories of human activities:

- 1) Use of resources at unsustainable levels, and
- 2) Contamination of the environment through pollution and waste at levels beyond the capacity of the environment to absorb them or render them harmless.

Resulting ecological damage seen around the world includes:

- Biodiversity loss
- Pollution of water and consequent public health problems
- Air pollution and resulting increase in respiratory diseases, deterioration of buildings and monuments
- Loss of soil fertility, desertification and famine
- Depletion of fishing resources
- Increase in skin cancers and eye diseases in certain areas due to ozone depletion
- New diseases and more widespread disease vectors
- Damage to future generations

The laws of nature are inescapable and must be acknowledged. One such law is that all human activities have an impact on the environment. Indeed, each individual has an "ecological footprint" that represents the sum of that person's resource use and contributions to pollution. The ecological footprints of individuals vary considerably both within states and from one region of the world to another.

A second natural law is that all environmental milieu (air, water, soil) and all species are interdependent and harm to one aspect of the environment is thus likely to have broad and unforeseen consequences. A chemical spill at a gold mine, for example, not only will pollute the nearby soil, but it can enter streams and rivers, be transported to the sea, and enter the food chain through absorption by plants and animals. A related natural law is that the environment knows no boundaries; harm in one territory can and often will have effects in another. This makes international collaboration a necessity. It also means judges may have to decide cases concerning transfrontier pollution or other transboundary harm. Finally, the scope of environmental harm depends on the natural characteristics of a given pollutant. Thus, harm from radioactivity, for example, will continue until the radioactive substances naturally deteriorates, which can be hundreds, if not thousands of years.

Achieving sustainable development requires reducing hazards from pollution and interferences with life-support systems like the global climate. It also requires measures to conserve landscapes, natural and cultural heritage and biological diversity through prudent consumption of natural resources, especially non-renewable ones.

1.2 MEANING OF “ENVIRONMENT”

A legal definition of the environment helps delineate the scope of the subject, determine the application of legal rules, and establish the extent of liability when harm occurs. The word *environment* is derived from an ancient French word *environner*, meaning to encircle. By broadly applying to surroundings, environment can include the aggregate of natural, social and cultural conditions that influence the life of an individual or community. Thus, environmental problems can be deemed to include such problems as traffic congestion, crime, and noise. Geographically, *environment* can refer to a limited area or encompass the entire planet, including the atmosphere and stratosphere.

Given the potential breadth of the field, in some circumstances law and policy will respond to environmental deterioration produced by natural events, such as volcanic eruptions, as well as those caused by human intervention. Even though law cannot affect the natural processes causing environmental changes, it can and does regulate human behaviour, including behaviour in response to natural disasters. Overall, broad definitions and the fact that all human activities have an impact on the environment make it difficult to establish the limits of environmental law as an independent legal field; indeed they imply the integration of environmental protection into all areas of law and policy.

Box 1 Defining “Environment”

'Environment': a complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, human health, the cultural and historical heritage and the landscape.

Sec. 1(1) Environmental Protection Act (Supp.)(1991), Bulgaria.

'Environment': that part of nature which is or could be influenced by human activity.

Art. 5(1)(1), Environmental Protection Act of June 1993, Slovenia.

'Environment' includes

- natural resources both biotic and abiotic, such as air, water, soil, fauna and flora and the interactions between the same factors;
- property which forms part of the cultural heritage;
- the characteristics aspects of landscape.

Art. 2(1), *Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment* (Lugano, June 21, 1993)

1.3 FOUNDATIONS OF ENVIRONMENTAL PROTECTION

Law emerges from the cultural traditions and moral and religious values of each society. These traditions and values continue to impact the development of legal norms. In the context of environmental protection, cultures, religions and legal systems throughout the world contain elements that respect and seek to conserve the natural bases of life, maintaining concepts that can enhance and enrich the development of modern environmental law.

1.3.1 Religious traditions

Beliefs supportive of environmental protection can be found in religious traditions from around the World representatives of Baha'ism, Buddhism, Christianity, Daoism, Hinduism, Islam, Jainism, Judaism, Shintoism, Sikhism, and Zoroastrianism who belong to the Alliance of Religions and Conservation, a non-governmental organization, have found common ground in religious traditions for stewardship of the earth.

Ancient Buddhist chronicles, dating to the third century B.C. record a sermon on Buddhism in which the son of the Emperor Asoka of India stated that, “the birds of the air and the beasts have as equal a right to live and

move about in any part of the land as thou. The land belongs to the people and all living beings; thou art only the guardian of it." (*The Mahavamsa, or the Great Chronicle of Ceylon*, Chap. 14, quoted in I.C.J., *Case Concerning the Gabçikovo-Nagymaros Project on the Danube*, Sept. 25, 1997, Sep. Op. of Judge C. Weeramantry, n. 44). Subsequently, the King initiated a legal system that continued to exist into the eighteenth century providing sanctuaries for wild animals.

Certain passages in the Judeo-Christian texts specify that humans do not own the earth and its resources. Jewish law provided for conservation of birds (Deut. 22:6-7) protection of trees during wartime (Deut. 20:19), and regulated the disposal of human waste (Deut. 23:13). Christian tradition allows that man's dominion over nature includes a competence to use and manage the world's resources in the interests of all, being ready to help others in case of necessity. Individual title thus imposes a responsibility and a trust.

In 1983, Muslim experts undertook a study of the relationship between Islam and environmental protection. See: *Islamic Principles for the Conservation of the Natural Environment* (IUCN Environmental Policy and Law Paper 20, 1983). The results underscored that man is a mere manager of the earth and not a proprietor; a beneficiary and not a disposer or ordainer. Man has been granted inheritance to manage and utilize the earth for his benefit, and for the fulfilment of his interests. He therefore has to keep, maintain and preserve it honestly, and has to act within the limits dictated by honesty. Each generation is entitled to use nature to the extent that it does not disrupt or upset the interests of future generations. Islamic principles thus envisage the protection and the conservation of basic natural elements, making protection, conservation and development of the environment and natural resources a mandatory religious duty of every Muslim. In the case of *M.D. Tahir v. Provincial Government & Others*, 1995 CLC 1730, the Pakistani court analysed Islamic law prohibiting unnecessary hunting and killing of birds and animals when a constitutional petition sought an order to ban various hunts under arts. 18 and 199 of the Constitution. The court agreed that unnecessary hunting and killing is against the injunctions of Islam and the Constitution, but found that a blanket prohibition for hunting or killing all animals and birds could not be granted.

1.3.2 Traditional communities

Many traditional communities, forest dwellers, and subsistence hunting and farming communities have long engaged in sustainable practices and developed unique knowledge about their environments and their resources. Examples include the irrigation practices of the Inca, the forest gardens of the hill country of Sri Lanka and the practices discussed in *Abdikadir Sheikh Hassan and others v. Kenya Wildlife Service* (High Ct. Kenya, Civil Case No. 2059/1996). African traditional wisdom, Melanesian, native Australian, Polynesian, Asian, Amerindian and early European traditions all contain principles relevant to environmental justice and sustainable development. In addition, many traditional societies have a unique relationship with the land, which they view as capable of use only, not ownership. Some view the earth in its entirety as a living organism capable of injury and hurt. Areas or resources may be protected by being designated as sacred or taboo.

Many indigenous people have a special relationship with the land and the environment in which they live. As noted by the UN Special Rapporteur Ms. Fatma Zohra Ksentini:

In nearly all indigenous cultures, the land is revered; "Mother Earth" is the core of their culture. The land is the home of the ancestors, the provider of everyday material needs, and the future held in trust for coming generations. According to the indigenous view, land should not be torn open and exploited--this is a violation of the Earth--nor can it be bought, sold or bartered. Furthermore, indigenous peoples have, over a long period of time, developed successful systems of land use and resource management. These systems, including nomadic pastoralism, shifting cultivation, various forms of agro-forestry, terrace agriculture, hunting, herding and fishing, were for a long time considered inefficient, unproductive and primitive. However, as world opinion grows more conscious of the environment and particularly of the damage being done to fragile habitats, there has been a corresponding interest in indigenous land-use practices. The notion of sustainability is the essence of both indigenous economies and their cultures.

At the international level, ILO Convention No.169 on Indigenous Peoples and Article 8 of the Convention on Biological Diversity contain provisions protecting the traditional lifestyles and knowledge of indigenous peoples and local communities.

National or local laws and policies may protect or may adversely affect marginalized and disadvantaged communities, especially indigenous or tribal communities following traditional life styles. In some instances, indigenous people have been forced from their traditional lands to make way for development projects (see *Narmada* case in India), or have found that resources have been exploited, including deforestation of their traditional lands. Some indigenous people have seen their traditional lands declared protected areas where they are no longer permitted to live.

Enforcing traditional laws and norms that guarantee or protect the land and resource rights of such communities has been an important means of ensuring environmental protection in some jurisdictions. *Raul Arturo Rincon Ardila v. the Republic of Colombia* (Constitutional Court, April 9, 1996) and *Ministerio Publico v Federal Union of Brazil* (Fed. Court, State of Mato Grosso, 1998), are examples of cases where indigenous lands have been protected as public goods with a special protection regime; any alteration of the native territories and of the nearby water resources violates the spirit and the letter of the Brazilian Constitution.

At the same time, the practices of indigenous communities may conflict with modern laws to protect particular areas or species. Indigenous populations often retain the right to continue subsistence hunting of endangered species such as polar bears, seals, and whales captured by traditional means, but quotas on takings and restrictions on commercial use may be imposed. When the use of animals, plants or sites is based upon religious beliefs as well as traditional culture, courts will often be asked to apply constitutional or other legal protections of religious liberty pursuant to which indigenous people may under some circumstances be exempted from the application of environmental laws. In *Yanner v. Eaton* (1999 High Court of Australia 53), the court considered the collision between aboriginal cultural and religious practices, which in this case involved taking and eating protected juvenile estuarine crocodiles, and the Fauna Conservation Act 1994. The court found that the law did not entirely deprive the aboriginal community of the ability to exercise traditional rights, but merely regulated particular aspects and thus could be enforced against them.

The judiciary in various countries has at times drawn upon its national or cultural heritage to develop and apply principles that enhance environmental justice and sustainable development. The extent to which such considerations can be taken into account is necessarily a function of the law and jurisprudence of each jurisdiction, but recent national and international case law provides examples where current environmental norms have been interpreted in the light of traditional wisdom. See for instance the separate opinion of Judge Weeramantry, in the *Gabcikovo-Nagymaros Case*, and *Bulankulama v. The Secretary, Min. of Industrial Development* (the Eppawela case).

1.4 THE SOURCES OF ENVIRONMENTAL LAW

Environmental law, being a relatively new field, is largely contained in written texts, although some common law principles are relevant and customary international law is emerging. Governments protect the environment on the basis of their various constitutional and statutory powers to promote the general welfare, regulate commerce and manage public lands, air and water. National authorities may accept additional duties to protect the environment by entering into bilateral and multilateral treaties containing specific obligations.

Promulgation of regulations and permits by administrative authorities is another important source of environmental law. Reporting, monitoring and civil and/or criminal actions to enforce environmental law are critical components of environmental law systems. Some constitutions also contain reference to environmental rights or duties, making these constitutional provisions and their interpretation and application another potentially important source of environmental law. Litigation enforces the laws and regulations by civil or criminal actions. If a constitution contains a right to a specified environmental standard, the provision must be interpreted and applied. Issues may also arise as to the appropriate remedy, which constitutions usually do not specify. Besides defining obligations for regulated entities, statutory provisions may allow individuals to bring suit against an administrative body that abuses its discretion or fails to comply with its mandate, and in some circumstances allow for direct citizen action against the polluters themselves.

1.4.1 National law

The range of subjects that potentially involve environmental issues has a breadth that extends across virtually the entire field of legal regulation. For example:

- Antiquities laws may prohibit looting or unauthorized excavation of protected archaeological or natural sites.
- Regulation of agricultural activities may involve issues of the quality and quantity of water use, as well as limiting recourse to pesticides and fertilizers.
- Public health laws can regulate spraying toxics to eliminate disease vectors such as mosquitoes or raise questions about the safety of vaccines.
- Land use regulation and public trust doctrines may be used for environmental protection.
- Coastal zone management, fisheries and forestry law seek to conserve the resources they regulate.
- Mining and energy laws may regulate the emissions of greenhouse gases and other air pollutants.
- Regulation of industrial activities may establish restrictions on emissions and effluent from industrial operations.

Some environmental cases appear at first glance as consumer protection suits against the manufacturers or sellers of hazardous products. Other cases involve efforts to obtain information about environmental conditions or present actions against government officials and agencies that allegedly have failed to enforce the law. These many topics related to environmental law are regulated by various sources of national law.

a) Constitutional law

On the national level, many constitutions now contain provisions establishing environmental rights, or set forth governmental duties to protect the environment and the state's natural resources. More than 100 constitutions refer to a right to a clean and healthy environment, impose a duty on the state to prevent environmental harm, or mention the protection of the environment or natural resources. At the same time, references to constitutional environmental rights raise difficult questions of justiciability, remedies, and the scope and content of such rights. It remains to be seen what role constitutional environmental rights might play alongside common law, statutory, and regulatory means for protection of the environment.

Among states of Latin America, Argentina deems the right to environment a subjective right entitling any person to initiate an action for environmental protection. In *Irazu Margarita v. Copetro S.A.*, Cámara Civil y Comercial de la Plata, Ruling of 10 May 1993 (available at www.eldial.com), the court said:

The right to live in a healthy and balanced environment is a fundamental attribute of people. Any aggression to the environment ends up becoming a threat to life itself and to the psychological and physical integrity of the person.

See also *Asociacion Para la Proteccion de Medio Ambiente y Educacion Ecologica '18 de Octubre' v Aguas Argentinas S.A. & otros*, Federal Appellate Tribunal of La Plata (2003); *Kattan, Alberto and Others v. National Government*, Juzgado Nacional de la Instancia en lo Contencioso-administrativo Federal. No. 2, Ruling of 10 May 1983, La Ley, 1983-D, 576.

Colombia and Chile also recognize the enforceability of the right to environment. In *Fundepublico v. Mayor of Bugalagrande y otros*, Juzgado Primero superior, Interlocutorio # 032, Tuluá, 19 Dec. 1991 the Colombian court stated:

*It should be recognized that a healthy environment is a *sine qua non* condition for life itself and that no right could be exercised in a deeply altered environment.*

For Chilean cases see *Pablo Orrego Silva y Otros v. Empresa Electrica Pange SA* (Supreme Court, Aug. 5, 1993); *Antonio Horvath Kiss y Otros v. National Commission for the Environment* (Supreme Court, March 19, 1997). South African courts also have deemed the right to environment to be justiciable.

¹Angola, Argentina, Azerbaijan, Belarus, Belgium, Benin, Brazil, Bulgaria, Burkina Faso, Cameroon, Cape Verde, Chad, Chechnya, Chile, China, Colombia, Congo, Costa Rica, Croatia, Cuba, Ecuador, El Salvador, Equatorial Guinea, Eritrea (draft), Finland, Georgia, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hungary, India, Iran, Kazakhstan, Kuwait, Laos, Latvia, Lithuania, Macedonia, Madagascar, Malawi, Mali, Malta, Mexico, Micronesia, Mongolia, Mozambique, Namibia, Nepal, Netherlands, Nicaragua, Niger, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Sao Tome and Principe, Saudi Arabia, Seychelles, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Suriname, Switzerland, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Turkey, Turkmenistan, Uganda, Ukraine, Uzbekistan, Venezuela, Vietnam, Yugoslavia, Zambia.

Even where the right to a healthy environment is not expressly provided, other constitutional rights are being interpreted and enforced by courts in an environmental context. The Supreme Court of India was one of the first courts to develop the concept of the right to a healthy environment as part of the right to life guaranteed by the constitution. See *Bandhua Mukti Morcha v. Union of India*, 3 SCC 161 (1984) and *Charan Lal Sahu v. Union of India*, AIR 1990 SC 1480 (1991). In a subsequent case, the Court observed that the “right to life guaranteed by article 21 includes the right of enjoyment of pollution-free water and air for full enjoyment of life.” *Subhash Kumar v. State of Bihar*, AIR 1991 SC 420, 1991 (1) SCC 598.

In Costa Rica, the Supreme Court similarly has stated that the rights to health and to the environment are necessary to ensure that the right to life is fully enjoyed. *Presidente de la sociedad Marlene S.A. v. Municipalidad de Tibas*, Sala Constitucional de la corte Supreme de justicia. Decision No. 6918/94 of 25 Nov. 1994.

In Bangladesh, the Supreme Court has interpreted the right to life to include the protection and preservation of the environment and ecological balance free from pollution of air and water. See: *Dr. Mohiuddin Farooque v. Bangladesh, represented by the Secretary, Ministry of Irrigation, Water Resources and Flood Control and Others*; *Dr. Mohiuddin Farooque v. Secretary, Ministry of Communication, Government of the People's Republic of Bangladesh and 12 Others*.

b) Environmental legislation

Most environmental cases probably appear before judges as part of an effort to enforce statutory or administrative law or as an appeal from administrative decisions, such as denial of a permit or an order to halt emissions.

Legislative texts often establish general environmental policy, supplemented by specific laws and administrative regulations. Broad or framework environmental statutes have been adopted in many different countries: e.g.,

- Law on the Protection of the Environment (Russia, 2001);
- National Environmental Act of Sri Lanka;
- National Environmental Policy Act of the U.S.A. (1969);
- Environmental Protection Act of India, Environmental Management Act (Trinidad & Tobago, 1995/2000);
- Environmental Conservation Law of Nepal;
- Environment Conservation Act of Bangladesh, Environmental Protection Act of Pakistan;
- Environmental Law of Bulgaria (1991); and
- General Law for Ecological Equilibrium and Environmental Protection (Mexico, 1988).

These statutes use common techniques and procedures of environmental protection, including environmental impact and risk assessment, prior licensing, and emission standards. At the same time, they often respond to specific environmental concerns in the particular country, such as the safety and environmental consequences of nuclear power plants, large dams, or extractive industries like oil or coal. In most countries environmental legislation is supplemented and given greater specificity in administrative regulations.

In addition to general framework laws, national laws often regulate a single environmental milieu, or “medium”, e.g. water, air, soil, or biological diversity, due to the particular environmental problems facing a given area, political or economic priorities, or the ease of achieving consensus on a specific environmental issue. While such media-specific legislation can often deal more thoroughly with a particular sector than framework legislation, one difficulty with such medium-by-medium regulation is that it can sometimes overlook the interrelated and interdependent nature of the environment. For judges, such laws may present problems of reconciling divergent requirements or establishing priorities among the competing laws. One means to address this is sectoral legislation, which simultaneously addresses all environmental impacts from a particular economic sector, e.g. chemicals or agriculture.

Promulgation of standards for various pollutants is often a critical component of the legal framework for environmental protection. Standards may be expressed in terms of ambient standards, which are often health-based and normally embody broad objectives, and performance standards or technology-based standards to

achieve those goals. Countries may use permit systems to elaborate the application of broad standards to specific facilities.

Increasingly, as governments are elaborating their legislative and regulatory treatment of key sectors and pollution sources, they are also moving towards a more comprehensive approach to environmental protection that seeks to integrate pollution prevention and control, i.e. protection against pollution of all natural systems necessary to support the biosphere. The focus of “integrated pollution prevention and control” is on eliminating or at least reducing the input of each polluting substance, noting its origin and geographic target. Integrated pollution prevention and control aspires to a “cradle to grave” approach that considers the whole life cycle of substances and products, anticipates the effects of substances and activities on all environmental media, minimizes the quantity and harmfulness of waste, uses a single method such as risk assessment for estimating and comparing environmental problems, and involves complementary use of objectives and limits.

c) Administrative regulations

Legislation on environmental matters often delegates to administrative agencies regulatory powers, including rule-making, standard-setting and enforcement, to achieve the legislative mandate. In order to achieve environmental protection, many administrative agencies and officers have new powers to obtain information and a wide range of civil enforcement options from orders to injunctions. In many instances citizens have been granted the right to initiate lawsuits to obtain information about the environment or participate in decision-making, as well as enforce environmental laws and regulations, including suits against government officials who fail to perform their duties properly. As a consequence, courts and judges increasingly exercise oversight of administrative agencies.

In permit or licensing proceedings, the court is typically asked to determine whether an administrative agency or governing body’s licensing decision was consistent with the legal requirements. Frequently, in assessing the consistency of agency action with legal requirements, courts will confine their review to the administrative record of decision – that body of information and facts that was before the agency at the time the decision was made. A court may need to reject an administrative decision by an administrative agency or governing body if it determines that the law has been applied in an arbitrary manner or one that infringes basic rights. In the case of *Joseph D. Kessy and Others v. the City Council of Dar Es Salaam*, the City Council argued that the Court had no power to interfere with the Council’s statutory authority to collect and dump garbage and therefore could not enjoin the Council’s use of residential areas as dumping grounds, despite danger to the life and health of local residents. The Court held that while the judiciary cannot interfere with statutory authority, judges are even more required not to condone abusive applications of such authority.

Box 2 Judicial Review of Administrative Decisions

In the cases of *Ramiah and Autard v. Minister of the Environment and Quality of Life* (4/95 and 5/95, Environment Appeal Tribunal, judgment March 7, 1997), the court in Mauritius heard challenges from the denial of a license to subdivide property and construct housing. The licensing board rejected the applications because of the risk of flooding and the character of the site as a sensitive wetland. The tribunal found that the board had not acted in a uniform manner in granting or denying licenses. The tribunal heard experts, made a site visit, assessed all evidence and overturned the denial, imposing its own conditions to ensure protection of the wetland.

d) Criminalizing environmental misconduct

Increasingly, environmental misconduct is treated as a crime. This has led to an expansion of some basic concepts of criminal liability, sometimes lowering the threshold at which liability is imposed (e.g. from wilful and/or knowing to grossly negligent or negligent violation of the law) or extending responsibility to corporate entities and their officers. See e.g. *U. P. Pollution Control Board v. M/s Modi Distillery and Others*, AIR 1988 SC 1128 (India); *R. v. Bata Industries Limited and Others* (1992) 70 CCC (3rd) 395 (Canada).

Indeed, corporations and corporate officials are increasingly prosecuted for environmental crimes. The reason for the large increase in prosecution of corporate officials was growing recognition during the 1980s that the imposition of criminal sanctions against such officials is one of the most effective ways of deterring corporate violations of environmental law. Responsible corporate officials are expected to effectively manage and control the affairs of their organization and in most jurisdictions may be held liable for criminal acts of the company. Increasingly, individuals having a substantial share of the responsibility for a corporation's business enterprise causing a violation are being held criminally liable. The rationale is that a company can only act through individuals who make and carry out the policy. The decision of just who is sufficiently responsible to be held accountable is determined on a case-by-case basis.

In some instances public nuisance actions also may be covered under criminal laws. See *Ratlam Municipality v. Vardhichand* AIR 1980 SC 1622 (India). Public nuisance involves misconduct that interferes with a public right, such as the right to a clean river, and may involve such actions as emissions that result in foul odors or change in water clarity.

While enforcement actions and criminal prosecutions are most commonly brought by public authorities, many jurisdictions now allow citizen complaints to be filed.

The pursuit of sustainable development means that environmental misconduct generally has impacts well beyond the specific individuals involved in the litigation. The consequences of environmental harm are often widespread geographically and temporally, covering neighborhoods or entire regions, with harmful effects that can extend to multiple generations or even be irreversible. Assessing the seriousness of environmental issues and cases involves considering the wider environmental consequences resulting from the behaviour being prosecuted in the case.

Box 3 Criminal Responsibility of Corporate Officials

A seminal case is *United States v. Dotterweich*, 320 U.S. 277 (1943) wherein the US Supreme Court held that a president of a corporation could be prosecuted for his corporation's violations of the Federal Food, Drug and Cosmetic Act stemming from the misbranding and shipment of drugs within the country. The Court stated that the statute touches the lives and health of people who are largely beyond self-protection and the larger good of society justifies placing the burden on the acting company officials. See also *United States v. Park*, 421 U.S. 658 (1975) which held liable a corporate official in charge of sanitary conditions of food shipments for rodent contamination in the food. The court said corporate agents are required to actively pursue policies and actions that will prevent violations from occurring.

e) Tort and other forms of civil liability

Environmental litigation frequently arises in litigation between parties contesting their rights derived from property, contract, or tort law. Even where environmental issues are not directly the basis of a complaint between parties involved in litigation, they may hover behind and affect the outcome of the case, especially when new economic activities are proposed or natural resources are at issue. Allocation of water rights, for example, cannot ignore the qualitative impacts of quantitative determinations.

Plaintiffs who bring civil cases may frame their complaints according to a number of different theories of liability. When a statute is enacted to protect certain interests from a particular kind of harm and such harm has resulted from the breach, the injured party may seek to impose liability on the party who violated the statute. Many environmental statutes impose strict, joint, and several liability on persons or entities who are the "owners or operators" of enterprises or activities on land where hazardous substances are released. Responsible persons may be liable for costs of removal or cleanup and any other necessary costs incurred in response to the pollution.

Since environmental law has partly developed from property law, claims will frequently involve actions by one property owner that impact another person's property or require balancing laws and rights when private land use touches upon the protection of endangered or threatened species. But modern environmental law has moved well beyond property concepts however. Individuals may seek redress for non-property injury or even to enforce public rights or interests in clean air, water and soil. Environmental issues may even arise in bankruptcy cases, where responsible parties may seek to file bankruptcy to avoid cleaning up the pollution they have caused. Such cases are likely to require the judge to determine the interplay of bankruptcy laws and relevant environmental statutes.

A good amount of civil litigation to prevent or remedy environmental harm takes the form of private actions based on tort/delict. Such cases commonly include claims for compensation for damage. Causes of action may include private nuisance, negligence, strict liability, fraud, battery or trespass. Traditional common law doctrines such as nuisance and public trust may be particularly important in jurisdictions that are based on the common law. In these jurisdictions, legal precedent will be an important source of law and decisions from other common law jurisdictions may be viewed as persuasive authority.

- **Negligence.** A negligence theory would allow recovery for conduct causing harm that falls below the standard expected of a reasonably prudent person under similar circumstances. Negligence typically requires proof of the particular standard of conduct; breach of the standard; a causal connection between the conduct and the resulting injury; and actual loss or damage. It has been applied to handling of toxic or hazardous products or waste or dangerous activities such as mining or waste water treatment.
- **Strict liability.** Statutes and common law typically impose strict liability or liability without fault on one who carries on an abnormally dangerous activity, i.e. one which has a high degree of risk of substantial harm to persons, property or the environment and the risks cannot be eliminated through reasonable measures. Where the benefits to the community of the activity outweigh the risk of harm, the activity may not be enjoined, but liability will be imposed for any resulting injury. Among that activities found actionable by courts under this theory of liability are: toxic waste disposal, operation of hazardous waste landfills, industrial activities involving toxic chemicals or other hazardous substances. See *Indian Council for Enviro-Legal Action v. Union of India*, 3 SC 212 (1996) (holding that an enterprise that is engaged in a hazardous or inherently dangerous activity which results in harm to anyone is strictly and absolutely liable to compensate all those who are affected by the accident, expressly invoking the polluter pays principle).

Box 4 Toxic Tort Litigation

Recent developments in toxic tort litigation involve allegations of harm to a person, property or the environment as a result of exposure to contamination from a product, substance or process that can cause physical injury or disease. Manufacturers of hazardous products are subject to laws and regulations governing the use, transport, storage, and disposal of their products. Cases can involve violations of these local or national environmental statutes and regulations or can be based on traditional theories of recovery such as negligence or nuisance. One difference between toxic tort cases and traditional product liability cases is that the hazardous substances involved in the new cases do not always produce an immediate acute injury. Instead, they may produce the risk of disease during a long latency period or cause damage to property that may show up only years after the exposure.

Such lengthy periods produce problems for statutes of limitations and proof of causality. Imperfect scientific knowledge about the origin of particular diseases in the fields of epidemiology or toxicology complicates matters further. While the latter disciplines can generally indicate whether exposure is capable of causing the type of harm, they do not answer the specific inquiry as to which members of an exposed population in fact contracted their disease from the exposure. Several other possible sources of exposure may also be present.

Toxic torts often affect large numbers of persons. Such mass torts may lead plaintiffs to file a class action suit, where such actions are permitted. A class action was filed after the Bhopal disaster and similar suits have been filed over asbestos and tobacco. See *In re Union Carbide Corp. Gas Plant Disaster at Bhopal, India in December 1984*, 809 F.2d 185 (2d Cir. 1987); *In re A.H. Robbins (Dalkon Shield Litigation)*, 880 F. 2d 700) 4th Cir. 1989)

Some jurisdictions may apply the doctrine of transitory tort and allow civil actions to be filed against actors present in the jurisdiction even where the events took place in other countries. The doctrine has been codified in some statutes.

Even where national environmental policy rests upon economic instruments, such as taxes, subsidies or charges, there will be litigation about the propriety and application of such measures. In sum, just as attorneys involved with real estate transactions, probate of testaments, industrial leases, commercial financing and business acquisitions can no longer ignore environmental considerations in the course of their legal review, so, too, are judges increasingly faced with environmental problems.

f) Industry standards and codes of conduct

A growing number of guidelines or codes of conduct have been developed within industry, including the World Industry Council for the Environment, the FAO International Code of Conduct on the Distribution and Use of Pesticides, the Responsible Care Initiative of the Chemical Manufacturers Association, the CERES/Valdez Principles, the ICC Business Charter on Sustainable Development, and the Royal Dutch/Shell Group Statement of General Business Principles. Such private regulation may constrain behavior by exercising a moral or practical (sanctioning) influence. Litigants may argue that breach of such codes or industry standards may be evidence of malpractice or negligence, in an effort to deploy a relatively inexpensive means of evaluating conduct in case of a dispute. The 1990 Valdez Principles were adopted by the Coalition for Environmentally Responsible Economies, a group of investors and environmental organizations. The intent was to create corporate self-governance "that will maintain business practices consistent with the goals of sustaining our fragile environment for future generations, within a culture that respects all life and honors its independence."

With the advent of globalization, international organizations have devoted attention to drafting codes that apply to multinational enterprises. The UN Sub-Commission on Human Rights approved Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights (Aug. 12, 2003), E/CN.4/Sub.2/2003/12/Rev.2, urging that every effort be made so that they become generally known and respected. Although primarily concerned with human rights, the Norms contain a paragraph on corporate responsibilities in the area of environmental protection:

14. Transnational corporations and other business enterprises shall carry out their activities in accordance with national laws, regulations, administrative practices and policies relating to the preservation of the environment of the countries in which they operate, as well as in accordance with relevant international agreements, principles, objectives, responsibilities and standards with regard to the environment as well as human rights, public health and safety, bioethics and the precautionary principle, and shall generally conduct their activities in a manner contributing to the wider goal of sustainable development.

1.4.2 International law

The relationship between national law and international law varies considerably from one legal system to another. International law is considered the supreme body of law by international tribunals and in international relations among states. Thus, a state may not invoke a provision of its national law to excuse its violation of international law. The law of state responsibility provides that each breach of an international obligation attributable to a state automatically gives rise to a duty to cease the breach and make reparation for any injury caused, irrespective of national law.

Within states, international law may be legally binding and applied by courts as a result of one or more means that are usually specified in the constitution. Legal doctrine has developed two theories known as monism and dualism in an attempt to explain and classify national practice, but the reality is more complex than the theory. Monism posits a unified body of rules, and since international law is the most complete expression of unified law, it automatically forms part of this body of rules and is hierarchically superior to other law. Dualism sees separate legal orders and looks to each jurisdiction to determine the sources of law and their hierarchy.

In general, the theory of monism and dualism is most relevant to customary (or law not created through written international agreement) international law and even then in limited fashion. Some legal systems require that customary international law be transposed into national law through legislation or executive order before it becomes the law of the land. Other legal systems view international law as automatically part of the legal order and enforceable by judges without legislative action. The constitutions of Italy, Germany and the Netherlands all have constitutional provisions expressly stipulating that rules of general (or customary) international law are part of the municipal law of the state and enjoy precedence over domestic legislation. Most common law countries consider customary international law to be part of the common law and automatically binding as national law, following Blackstone ("the law of nations, wherever any problem arises which is properly the object of its jurisdiction, is here adopted in its full extent by the common law and is held to be part of the law of the land").

The position of treaties in national law varies even more; some constitutions specify that ratified treaties are automatically the law of the land and must be applied by judges in cases where an issue concerning them arises. Other states, like the United Kingdom, require that a treaty be incorporated by legislation before the judiciary may apply the agreement. English courts have consistently held that a treaty concluded by the UK does not become part of the municipal law except insofar as it is made so by parliament. Yet a third group of states, like the United States, distinguishes self-executing treaties which judges may apply from non-self-executing treaties that require legislative action before judges may enforce them.

When international law has been incorporated and made binding, it may rank at the level of constitutional law or be superior, equal or inferior to legislation, according to the hierarchy of legal sources, generally stipulated in the constitution.

Box 5 International Law in National Legal Systems

"Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international law and international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia."

Art. 144, *Constitution of Namibia*

"The general rules of international law shall be an integral part of federal law. They shall override laws and directly establish rights and obligations for the inhabitants of the federal territory."

Art. 25, *Constitution of Germany*

"Treaties or agreements duly ratified or approved shall, upon their publication, have an authority superior to that of legislation, subject, for each agreement or treaty, to application by the other party."

Art. 55, *Constitution of France (1958), repeated verbatim in the constitutions of Algeria, Benin, Burkina Faso, Central African Republic, Chad, Djibouti, Ethiopia, Guinea, Mali, Mauritania, Niger, and Senegal.*

The extent to which norms arising from international law are justiciable in national courts thus necessarily depends on the manner in which these norms are incorporated in the constitutions as well as on the legal system and jurisprudence of each country. Where international law has been incorporated into the national legal system, judges apply the norms and standards when presented with them in an appropriate case. See *Raul Arturo Rincon Ardila v. Republic of Colombia*, Constitutional Court, Apr. 9, 1996 (applying the Biodiversity Convention, ILO Convention 169 on Indigenous Peoples and GATT's TRIPs Agreement). Indeed, some constitutions explicitly call for judges to consider international or foreign law in interpreting domestic law. Box 3.

In some instances, the parties may disagree about whether or not a given international norm in fact constitutes law. This may be particularly true with respect to questions of customary law, which requires evidence of consistent state practice, followed in the belief that it is legally required. In such circumstances, the judge will need to make a decision regarding the existence of the purported norm. Precedent exists in several jurisdictions finding particular norms to constitute customary international law. See e.g. *Vellore Citizens Welfare Forum v. Union of India*, [1996] AIR SC 2715 (finding the principles of sustainable development, polluter pays and precaution to be part of customary international law).

Box 6 Using International Law to Interpret Domestic Laws

In interpreting the provisions of this Constitution a court of law shall -

- (a) promote the values which underlie an open and democratic society;
- (b) take full account of the provisions of Chapter 111 and Chapter IV and
- (c) where applicable, have regard to current norms of public international law and comparable foreign case law. Sec. 11(2) *Constitution of Malawi (1995)*

When interpreting the Bill of Rights, a court, tribunal or forum -

- (a) must promote the values that underlie an open and democratic society based on human dignity, equality and freedom;
- (b) must consider international law; and
- (c) may consider foreign law. Sec. 39(1) *Constitution of South Africa (1996)*

When interpreting any legislation, every court must prefer any reasonable interpretation of legislation that is consistent with international law over any alternative interpretation that is inconsistent with international law.

Sec. 233, *Constitution of South Africa (1996)*

Where international law is not binding as part of domestic law, it may still be considered persuasive in interpreting constitutional or statutory provisions, as may the law of other countries or even the views of commentators. The jurisprudence of international tribunals also can be considered in this context. Judges may also find persuasive the law of other nations, especially those whose legal systems are similar to theirs. In *Andhra Pradesh Pollution Control Board-II v. Prof. M.V. Nayudu & Others* [2001] 4 LRI 657, Sup. Ct. India, the Court referred to the Declaration of the United Nations Water Conference, the International Covenants on Civil and Political and Economic, Social and Cultural Rights, and the Rio Declaration on Environment and Development as persuasive authority in implying a right of access to drinking water as part of the right to life in the Indian Constitution. The Court also made reference to jurisprudence of the European Court of Justice, the European Court of Human Rights and the Inter-American Commission on Human Rights, as well as decisions of national courts of the Philippines, Colombia and South Africa.

On occasion, courts have looked to treaties for the meaning of undefined terms in national law. In *Ramiah and Autard v. Minister of the Environment and Quality of Life* (Mar. 7, 1997), the Mauritius Environment Appeal Tribunal looked to the Ramsar Convention for a definition of wetlands, although the convention had not yet been ratified by Mauritius. The Ministry of Environment agreed that the Convention provided guidance on the issue.

A court may also take judicial notice of studies done by international organizations as evidence of environmental damage. In *Pedro Flores y Otros v. Corporation del Cobre (CODELCO)*, a Chilean court of appeals referred to a UNEP study in finding that the coastline in question was one of the most seriously polluted around the Pacific Ocean. *Pedro Flores y Otros v. Corporation del Cobre (CODELCO)*, Corte de Apelaciones (June 23, 1988), Rol 12.753.FS641, aff'd Sup. Ct. Chile (ordering disclosure of information, an expert report on the coastline, and an injunction to prevent further pollution).

Some courts have adopted a rule of interpretation that avoids placing the state in breach of a treaty or rule of customary international law, holding that national law should be interpreted and applied in conformity with the state's international obligations. Thus, for example, United States courts adhere to the "Charming Betsy" rule, named after the case in which the Supreme Court announced that courts must interpret and apply statutes consistent with international law, unless it unmistakably appears on the face of a statute that Congress intends to modify or reject an international obligation. *Murray v. Charming Betsy*, 6 U.S. (2 Cranch) 64 (1804). The French Conseil d'Etat also interprets and applies national law in the light of international law. In a case concerning the International Convention on Trade in Endangered Species, the Conseil upheld national law when it found that the Convention clearly permitted the state to adopt stricter measures than those in the Convention. Conseil d'Etat francais, 8 juin 1990, *Societe DACO*, RJE, 1991/2, p. 236.

Sources of international law

The sources of international law that may become domestic law through incorporation generally include those listed in Article 38 of the Statute of the International Court of Justice. The Statute refers to

- (a) international conventions,
- (b) international custom,
- (c) general principles of law, and,
- (d) judicial decisions and doctrine, as subsidiary persuasive sources.

a) Convention or Treaty

International environmental law has developed a vast array of treaties – some say more than 1000 – to address nearly all aspects of environmental protection. A treaty may be concluded between two states (bilateral) or be widely adopted and accepted (multilateral). As the definition of a treaty indicates (see Box 7), the name given to an international instrument (e.g. treaty, convention, protocol, agreement) does not affect its legal status so long as the states involved in its adoption intend for it to be legally binding.

Some of the most important global treaties are the 1946 *International Whaling Convention*, 1971 *Ramsar Convention*, 1972 *World Heritage Convention*, 1982 *United Nations Convention on the Law of the Sea*, 1985 *Vienna Convention for the Protection of the Ozone Layer and its 1987 Protocol*, 1992 *Climate Change Convention* and the 1992 *Biodiversity Convention*.

Box 7 Definition of a Treaty

An international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation.

Principles and norms adopted for the whole community of nations may be given further detail and enforced at the regional level. UNEP has encouraged regional application of international environmental law through conventions for different maritime regions around the globe, including the Mediterranean, Persian Gulf, West Africa, South-East Pacific, Red Sea, Gulf of Aden, Caribbean, and East Africa. These conventions typically rely on similar principles and generally adopt the same norms, often incorporating those previously drafted for global instruments, including some not yet in force. The regional approach is motivated by the similarity of the geography and environment among neighbouring states bordering regional seas and is enhanced in many cases by like economic, cultural, and political conditions. At the same time, the agreements can and do take into consideration the different ecological conditions in the regional seas.

Environmental treaties differ from other kinds of treaties, having characteristics that respond to the specific needs of environmental protection. The main features they frequently share that may impact on their enforcement by courts are:

1) Interrelated provisions or cross-referencing of instruments

An increasing trend with respect to international environmental treaties is their cross-referencing of other international instruments. Recent marine environment treaties, for example, often cite the rules of the United Nations Convention on the Law of the Sea or “generally accepted international standards”, sometimes incorporating such rules by reference. The result is a complex network of regulation and the extension of treaties to a wide range of states. Through ratifying one agreement, a state may in fact become bound by or required to give due regard to many other instruments to which it is not a party.

2) Framework agreements

The technique of "framework conventions" means that a convention of general scope is adopted, proclaiming basic principles on which consent can be achieved. The parties foresee the elaboration of additional protocols containing more detailed obligations. The protocols are separately ratified but usually interpreted and applied to carry out the aims of the main agreement.

3) Interim application

Several international environmental agreements respond to urgent problems that must be confronted in the shortest possible time. Taking this into account, negotiating states have adopted the technique of approving interim application of the agreements pending their entry into force. This technique was used with the 1998 Convention on Prior Informed Consent and the 1995 Agreement for the Implementation of the Provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, Art. 41. This allows judges to apply the agreements even before the participating state has ratified them or they have entered into force.

4) Simplified means of modification or amendment.

In addition to using the technique of framework conventions, states have developed an effective response to rapid advances in scientific knowledge and the emergence of new problems by drafting treaties that establish stable general obligations but also add flexible provisions, especially those prescribing technical norms. The latter may designate the specific products that cannot be dumped or discharged in a given area or may identify the endangered species needing additional protection. The general obligations are set forth in the treaty, which remains stable, while the detailed listing of products or species can be reserved to annexes that the Parties might choose to agree can be modified easily without amending the principal treaty. The annexes are legally binding because they form an integral part of the treaty; thus the modification procedure must be expressly included in the treaty's provisions.

5) Self-executing and non-self-executing obligations

Like other treaties, environmental agreements may contain obligations capable of immediate judicial application and other obligations that require action by the political branches. Non-self-executing provisions of treaties encompass an obligation on the part of states to enact the necessary legislation or regulations. The 1979 *Bonn Convention on the Conservation of Migratory Species of Wild Animals*, for example, requires states parties in the migratory areas of animals listed in Convention Annex I to forbid the taking of any of these animals. States also may be called upon to designate or create organs to be entrusted with certain functions, such as maintaining contacts with the authorities of other states parties, or issuing licenses or authorizations for regulated activities. Of particular interest are treaty provisions that oblige states parties to enact and enforce penal sanctions against persons who violate its terms. Without implementing legislation, judicial powers to enforce non-self-executing treaty obligations may be limited. See e.g. *Talisman (Trinidad) Petroleum Ltd. v. The Environmental Authority* (Trinidad & Tobago Environmental Commission, 2003) (reversing denial of a oil drilling lease in a wetland because the legal framework had not been enacted to protect the area under the Ramsar Convention).

b) Custom

Custom exists when there is "evidence of a general practice, accepted as law." Custom is not time-dependent; it is not required, for example, that a custom has been in place since "time immemorial." While there is a fair amount of disagreement as to how and whether non-binding resolutions and declarations become customary international law, it may be mentioned that formulation of non-binding principles and their universal acceptance could play an important role in the process of developing customary law. The Stockholm Declaration on the Human Environment and the Rio Declaration on Environment and Development, for example, contains several provisions which some international and national courts have declared to be part of customary international law.

c) *General principles of law*

The third source listed in the ICJ Statute identifies general principles of law as a source from which international law may arise. General principles of law are not the same as customary international law. Custom consists of rules arising out of inter-state practice over time, while general principles of law are those principles that are common to the major legal systems of the world, if not to all of them. They thus are a matter of comparative law, not international law, in origin. The proliferation of national norms concerning the environment permits identification of some common principles and rules.

Many environmental norms have spread through the inter-penetration and mutual influence of legal rules at all levels of governance from the global to the municipal. Initiatives begun at one level of governance often lead to similar approaches being adopted in other legal orders. The requirement to conduct environmental impact assessment of proposed activities, for example, started as the law of a component unit of a federal state, was adopted at the federal level, and was then progressively accepted by other countries and by regional organizations and regional treaty systems.

d) *Judicial decisions and doctrine*

Although the Statute of the International Court of Justice refers to judicial decisions as a subsidiary source for determining rules of law, judgments and advisory opinions of the World Court and arbitral or other international tribunals are quite important and often are considered as the affirmation or the revelation of customary international rules. The arbitral judgment of March 11, 1941 in the *Trail Smelter* case is considered as having laid the foundations of international environmental law, at least regarding transfrontier pollution. Confirmed by a more general principle prohibiting causing harm to another state, enunciated in the *Corfu Channel Case* (U.K. v. Alb.), 1949 I.C.J. 4, and referred to in the 1956 *Lake Lanoux Arbitration* (Spain v. Fr.), 12 U.N.R.I.A. 281 (1957) in the context of transfrontier water pollution, the announced rule undoubtedly forms part of positive international law today. Case law relating to environmental issues may emerge out of decisions of the ICJ, the European Court of Justice, the European and Inter-American Courts of Human Rights, decisions of the GATT Dispute Settlement Panels, awards of international arbitral tribunals, and decisions of the International Tribunal on the Law of the Sea.

Box 8 The Trail Smelter Arbitration

Although not legally binding precedent, the arbitral award in this case has been highly influential in the development of international environmental law concerning transfrontier pollution. The 1941 decision resolving a long-standing dispute between the United States and Canada over air pollution originating in a Canadian smelter located in Trail, British Columbia. From the beginning of the smelter's operations in 1896, farmers in the United States suffered damage due to emissions of sulphur dioxide by the plant. After some indemnities were paid and new smokestacks were added, the United States government took up the case and Canada agreed to submit the matter to arbitration. The tribunal found no applicable international law on the topic and turned to norms articulated in the case law of federal states — the United States and Switzerland, in particular — to establish that "no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence." *Trail Smelter Arbitration (U.S. v. Can.)* (1941) 3 U.N.R.I.A.A. 1938 (1949)

Finally, the writings of eminent jurists provide a material source for identifying the law. International bodies like the International Law Commission of the United Nations as well as national institutes and professional organizations may study and publish authoritative restatements or commentaries on aspects of the law. Individual writers author treatises and articles examining particular issues in depth that may be of use to judges.

e) Non-binding international instruments

International practice indicates that instruments that are not treaties and thus not formally binding nonetheless can serve several important roles in the development of environmental law. First, states can avoid serious domestic legal or political obstacles by adopting common rules of conduct in non-binding form. The negotiating period for such instruments generally is shorter and they can take instant effect. Second, non-legally binding instruments may be more appropriate to the substance under consideration than formal agreements. Examples are action plans outlining desirable approaches or orientations, rather than commitments that may be difficult to negotiate and fulfil when contracting parties are at different stages of development. Fourth, the negotiation of non-binding instruments more easily allows the participation of non-state actors in the process of creating and complying with environmental rules. Finally, resolutions and similar non-binding instruments may be used where there is uncertainty about the scope of the problem or the appropriate solution. The result is a growing volume of political commitments undertaken internationally and nationally in the environmental field that may provide some guidance about the direction of the law.

Since their beginning in the nineteenth century, international organizations have adopted non-binding resolutions addressed to member states. This procedure has taken on increased importance over the years, particularly for new fields of international regulation such as environmental protection. Recommendations and declarations of principles of conferences such as Stockholm or meetings of the United Nations Environment Program (Vancouver 1976, Mar del Plate 1977, Nairobi 1978) have had great impact on the evolution of environmental law, being political commitments even if they are not legally binding.

Chapter 2

BASIC PRINCIPLES OF ENVIRONMENTAL PROTECTION

2.1 INTRODUCTION

There are a number of principles that are at the core of most environmental protection systems, whether at the international or national level. Familiarity with these principles can offer insight into the purpose and thrust of the various legal mechanisms that have been built upon them. The principles are best understood in the context of the modern ecological era.

The present ecological era began at the end of the 1960s, after post-World War II reconstruction led to unprecedented global economic development. This development was unequal, accentuating differences in wealth between countries of the Northern and Southern hemispheres as well as within countries. It also required unprecedented use of exhaustible natural resources such as clean water, air, flora and fauna, and minerals. As it became clear that limited resources would ultimately become incapable of satisfying the various needs of industrial and developing countries, public opinion increasingly demanded action to protect the quantity and quality of the components of the environment.

Ecological catastrophes such as the 1967 "black tides" off the coasts of France, England and Belgium, caused by the grounding of the oil tanker *Torrey Canyon*, and realization that the environment increasingly was threatened, incited governments to take action. In some circumstances, action was taken by individual states to address state-specific problems. In other circumstances, efforts focused on international cooperation, as a means of addressing shared concerns. These international collaborations bear particular attention because they both illustrate and articulate some of the key principles that undergird both national and international environmental law.

A pivotal moment in the development of environmental law came in 1972 when the United Nations General Assembly convoked a world conference on the human environment in Stockholm. This development gave rise to intense and diverse activity, particularly within inter-governmental organizations whose mandate could extend to environmental problems. Numerous national and international non-governmental environmental organizations and various governments also engaged in considerable preparatory work. The Conference concluded by adopting a Declaration on the Human Environment and an "Action Plan" containing 109 recommendations.

International and national environmental law substantially increased in the two decades after Stockholm. The United Nations reaffirmed and developed the general principles of the Stockholm Declaration in 1982 when the General Assembly adopted the World Charter for Nature. A few principles of customary law concerning environmental relations among states also emerged during this period. Some of them were embraced by the United Nations Environment Program as part of the "Principles of conduct in the field of the environment for the guidance of States in the conservation and harmonious utilization of natural resources shared by two or more states." Approved by UNEP's Governing Council May 19, 1978, the Principles on Shared Resources reiterated Stockholm Principle 21 in recognizing the sovereign right of states to exploit their own resources coupled with an obligation to ensure that the activities undertaken within the limits of their jurisdiction or under their control do not damage the environment in other states. The UNEP Principles also expressed the obligation of states to notify the latter of plans that can be expected to affect significantly their environment, to enter into consultations with them, and to inform and cooperate in the case of unforeseen situations that could cause harmful effects to the environment. The measures also guaranteed equality of access for nonresidents to administrative and legal procedures in the state originating the harmful conduct, and nondiscrimination in the application of national legislation to polluters, whatever the place of the harmful effects.

In 1992, the United Nations convened a second global meeting, known as the United Nations Conference on Environment and Development (UNCED), which met in Rio de Janeiro from 3 to 14 June 1992. Two texts adopted at UNCED have a general scope: the Declaration on Environment and Development and an action program called Agenda 21. The Declaration reaffirms the Stockholm Declaration of 1972 on which it seeks to build, but its approach and philosophy are very different. The central concept is sustainable development, which integrates development and environmental protection. Principle 4 is important in this regard: it affirms

that in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it. Agenda 21 is the program of action to achieve sustainable development.

In the aftermath of Rio, virtually every major international convention concerning multilateral cooperation includes environmental protection as one of the goals of the states parties. Areas of international law that developed during earlier periods evolved in new directions because of insistence that they take into account environmental considerations. The result has been an infusion of environmental principles and norms into nearly every branch of international law. At the same time, in the decade after the Rio Conference, environmental concerns encountered increasing competition on the international agenda from economic globalization, an emphasis on free trade, and the development crises of poor countries. In addition, mounting evidence could be seen of the disastrous environmental consequences of armed conflict.

Between August 26 and September 4, 2002 the representatives of more than 190 countries met in Johannesburg, South Africa, in order to “reaffirm commitment to the Rio Principles, the full implementation of Agenda 21 and the Programme for the Further Implementation of Agenda 21.” At the end of the conference the participating governments adopted a Declaration on Sustainable Development affirming their will to “assume a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development - economic development, social development and environmental protection - at local, national, regional and global levels.”

These decades of legal developments have led to the emergence of basic principles of environmental protection that are recognized in international and national law, which have in turn informed the development of environmental law by giving meaning to concepts not yet contained in formal legal instruments. Principles can be foundational (e.g., equality and legal certainty) or technical (e.g., proportionality). The key environmental principles developed over the past several decades are discussed below. They have been reproduced in domestic laws and thus have provided a foundation for many environmental decisions. They are influential in most legal systems, although they sometimes may be applied differently.

2.2 PREVENTION

Experience and scientific expertise demonstrate that prevention must be the Golden Rule for the environment, for both ecological and economic reasons. In some instances it can be impossible to remedy environmental injury once it has occurred: the extinction of a species of fauna or flora, erosion, and the dumping of persistent pollutants into the sea create intractable, even irreversible situations. Even when harm is remediable, the cost of rehabilitation is often very high. In many instances it is impossible to prevent all risk of harm. In such instances, it may be judged that measures should be taken to make the risk “as small as practically possible” in order to allow necessary activities to proceed while protecting the environment and the rights of others. *Solothurn v. Aargau*, Switzerland Bundesgericht (Federal Tribunal), 1 Nov. 2000.

The issue of prevention is complex, owing to the number and diversity of the legal instruments in which it occurs. It can perhaps better be considered an overarching aim that gives rise to a multitude of legal mechanisms, including prior assessment of environmental harm, and licensing or authorizations that set out the conditions for operation and the remedial consequences for violation of the conditions. Emission limits and other product or process standards, the use of best available techniques (BAT), and other similar techniques can all be seen as applications of prevention.

Prevention is also linked to the notion of deterrence and the idea that disincentives such as penalties and civil liability will cause actors to take greater care in their behaviour to avoid the increased costs, thus preventing pollution from occurring.

In addition to prevention as a generalized goal of domestic environmental laws, the notion of “pollution prevention” includes the concept that pollution may be reduced, or prevented, at its source, by changing raw materials or production techniques or technologies. Often “pollution prevention” and “source reduction” are conceived as a goal of voluntary efforts that complement “command and control” or “end-of-pipe” environmental regulations that limit the amount of pollution that may be emitted. Pollution prevention sometimes produces economic benefits for industry in terms of increasing efficiency, reducing waste, and

reducing liability. Governments may engage in strategies or programs to educate the regulated community and encourage it to implement pollution prevention techniques, in addition to their efforts to promote and enforce compliance with mandatory regulations.

Case law discussing the concept of prevention includes: *Greenpeace Australia Ltd. v. Redbank Power Company Pty. Ltd. and Singleton Council* 86 LGERA 143 (1994 Australia); *Leatch v. National Parks and Wildlife Service and Shoalhaven City Council* 81 LGERA 270 (1993, Australia); *Vellore Citizens Welfare Forum v. Union of India* AIR 1996 SC 2715; *Shela Zia v. WAPDA* Vol. XLVI All Pakistan Legal Decisions 693. Pollution prevention is also a core concept in a variety of environmental projects and regulatory actions, such as the Great Lakes Action Plan for the Great Lakes in the United States.

2.3 PRECAUTION

While there is no single agreed formulation or “principle” of precaution that is used in all contexts, and precaution has not acquired generally accepted status as a legal principle in its own right or as customary international law, there is a basic concept of precaution that animates much of modern environmental protection regimes – the notion that environmental regulators often have to act on the frontiers of knowledge and in the absence of full scientific certainty. Precaution has variously been associated with the ideas that: 1) scientific uncertainty should not be used as a reason not to take action with respect to a particular environmental concern; 2) action should *affirmatively* be taken with respect to a particular environmental concern; 3) those engaging in a potentially damaging activity should have the burden of establishing the absence of environmental harm; and 4) a State may restrict imports based on a standard involving less than full scientific certainty of environmental harm.

Properly viewed, the concept of precaution operates as part of a science-based approach to regulation, not a substitute for such an approach, and, in practice, the concept is multi-faceted. A sampling of some of the ways different facets of precaution are expressed in different instruments follows:

- the likelihood of environmental harm (e.g., the Rio Declaration Principle 15 uses “where there are threats;” the *1996 Protocol to the London Dumping Convention*² Article 3 uses “reason to believe [dumping] is likely to cause harm”);
- the extent of environmental harm (e.g., Biosafety Protocol Articles 10 and 11 use “potential adverse effects;” *U.N. Framework Convention on Climate Change* Article 3 uses “threats of serious or irreversible damage”);
- level of scientific certainty or uncertainty needed for precautionary action (e.g., Rio Principle 15 references a lack of “full” scientific certainty; Article 5.7 of Sanitary and Phytosanitary Agreement (SPS) references “insufficient” relevant scientific evidence);
- whether cost-effectiveness of measures is relevant (e.g., the *U.N. Framework Convention on Climate Change* Article 3 contemplates cost-effective measures; the *Straddling Fish Stocks Agreement*³ Article 6 does not);
- whether precaution applies to individual Parties or to one of the treaty’s institutions (such as the Conference of the Parties or a scientific/technical body) in its decision-making;
- whether precaution is being applied in an environmental context to encourage action (e.g., *Convention on Biological Diversity* preamble) or a trade context to authorize, but not encourage action (e.g., SPS Article 5.7).

The so-called “precautionary approach” is relatively recent, dating from the late 1980s. The 1992 Rio Declaration, Principle 15, formulates it thus:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.

Because of its many permutations and facets, precaution is at once both useful as a flexible tool or “approach,” and difficult to capture in the context of a generally applicable legal “principle” or standard. This being said, it has found reference in a number of judicial cases. An Argentinean court, for example, required immediate suspension of efforts to establish an electricity grid until defendant prepared a report with the participation of concerned persons, addressing the impacts and preventive or mitigation measures to avoid the potential

²Full title, *1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter*, 1972.

³Full title, *Agreement for the Implementation of the Provision of the U.N. Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (1995)

negative effects of the electromagnetic field to be created by the project. The court explicitly stated that it was applying the precautionary principle embodied in the law and several international environmental instruments. *Asociacion Coordinadora de Usuarios, Consumidores y Contribuyentes v. ENRE-EDESUR*, Federal Appellate Tribunal of La Plata (2003).

The European Court of Justice has likewise been influenced by the concept, particularly in respect to environmental risks that pose dangers to human health. The Court held that the European Commission had not committed manifest error when banning the export of beef during the so-called “mad cow” crisis. Case C 180/96, *United Kingdom v. Commission*, [1996] ECR I-3903, para. 83; Case T-76/96 R, *National Farmers’ Union (NFU)* [1996] ECR II-815, para. 88. The ECJ said in the NFU case:

At the time when the contested decision was adopted, there was great uncertainty as to the risks posed by live animals, bovine meat and derived products. Where there is uncertainty as to the existence or extent of risks to human health, the institutions may take protective measures without having to await the reality and seriousness of those risks to become fully apparent.

Id. at para. 63.

In a European Free Trade Association case, the Court held that it was appropriately precautionary to presuppose identification of potentially negative consequences and a comprehensive evaluation of the risk based upon the most recent scientific information. Case E-3/00, *EFTA Surveillance Authority v. Norway*, paras. 16, 21. According to the Court, where the insufficient, inconclusive or imprecise nature of relevant scientific conclusions make it impossible to determine risk or hazard with any certainty, but the likelihood of significant harm persists, the decision to take restrictive measures is justified. The criteria cited by the Court are as follows:

Such restrictive measures must be non-discriminatory and objective, and must be applied within the framework of a policy based on the best available scientific knowledge at any given time. The precautionary principle can never justify the adoption of arbitrary decisions, and the pursuit of the objective of ‘zero risk’ only in the most exceptional circumstances.

Id. para. 23.

2.4 POLLUTER PAYS

The “polluter pays” principle was originally enunciated by the Organization for Economic Cooperation and Development (OECD) to restrain national public authorities from subsidizing the pollution control costs of private firms. Instead, enterprises should internalise the environmental externalities by bearing the costs of controlling their pollution to the extent required by law.

Historically, pollution control costs have been borne by the community at large, rather than by those who pollute. Community assumption of the costs can be demonstrated using the example of an industry that discharges pollutants into a river. There are at least three possible ways for the community to assume the economic costs of the pollution:

- 1) The river can remain polluted and rendered unsuitable for certain downstream activities, causing the downstream community to suffer an economic loss;
- 2) The downstream community can build an adequate water treatment plant at its own cost;
- 3) The polluter may receive public subsidies for controlling the pollution.

In each case, the affected community bears the cost of the pollution and of the measures designed to eliminate it or to mitigate its effects. The polluter pays principle avoids this result by obliging the polluter to bear the costs of pollution control, to “internalize” them. In most cases the enterprise will in fact incorporate the costs in the price of the products to some degree and pass them on to the consumer.

The polluter pays principle is therefore a method for internalising externalities. Those who benefit from air made cleaner have a positive externality if they do not pay for the cleanup. Where air is fouled by a producer who bears no cost, it is a negative externality; those who buy the product also are free riders if the fouling is not reflected in the price of the goods. Internalisation requires that all the environmental costs be borne by the producer/consumer instead of the community as a whole. Prices will reflect the full cost if regulatory standards or taxes on the production or product correspond to the true cost of environmental protection and damage.

The principle can be applied most easily in a geographic region subject to uniform environmental law, such as a state or a regional economic integration organization. The polluter can be defined as one who directly or indirectly damages the environment or who creates conditions leading to such damage.

Generally, polluters should pay for the cost of pollution control measures, such as the construction and operation of anti-pollution installations, investment in anti-pollution equipment and new processes, so that a necessary environmental quality objective is achieved. Other means of ensuring the polluter pays principle are through taxes and charges. Application of the principle may be difficult in practice where identifying the polluter proves impracticable because the pollution arises from several simultaneous causes or from several consecutive causes, or where the polluter has become financially insolvent. In such instances, there may be no alternative to community assumption of the costs of remediation.

National courts may define and elaborate on the implications of the polluter pays principle. In *Marlene Beatriz Duran Camacho v. the Republic of Colombia* (Sept. 26, 1996), the Constitutional Court, in reviewing the constitutionality of some environmental legislation, approved provisions that impose a special economic burden on those who contribute to the deterioration of the environment and impose on those who take advantage of natural resources the costs of remedying the negative effects that their actions have on the environment. The Indian Supreme Court has said that once an activity carried on is hazardous or inherently dangerous, the person carrying on that activity is liable to make good the loss caused to any other person by that activity. *Indian Council for Environmental Legal Action v. Union of India*, AIR 1996 SC 1446 (1996), 2 SCR 503, 3 SCC 212 (1996).

2.5 ENVIRONMENTAL JUSTICE AND EQUITY

2.5.1 Environmental justice generally

In general, environmental justice seeks to ensure that authorities fairly allocate and regulate scarce resources to ensure that the benefits of environmental resources, the costs associated with protecting them, and any degradation that occurs (i.e. all the benefits and burdens) are equitably shared by all members of society. Environmental justice goes beyond traditional environmental protection objectives to consider the equitable distribution of pollution, and, more broadly, the often disproportionate burden borne by the poor and minority groups in respect to environmental harm.

National and international jurisprudence has given recognition to the various aspects of environmental justice. See *Nuclear Test Cases (New Zealand v. France)* ICJ, dicta of Judge Weeramantry; the *Eppawela* case in Sri Lanka; *State of Himachal Pradesh v. Ganesh Wood Products* AIR 1996 SC 149 (India), and *Rural Litigation and Entitlement Kendra v. State of U.P.* AIR 1988 SC 2187. In *Ratlam Municipality v. Vardihichand*, AIR 1980 SC 1622, the Supreme Court of India indicated some of the elements of the concept of environmental justice:

Public nuisance because of pollutants being discharged by big factories to the detriment of the poorer sections, is a challenge to the social justice component of the rule of law. Likewise, the grievous failure of local authorities to provide the basic amenity of public conveniences, drives the miserable slum-dwellers to ease in the streets, on the sly for a time, and openly thereafter, because under nature's pressure, bashfulness becomes a luxury and dignity a difficult art. A responsible Municipal Council constituted for the precise purpose of preserving public health and providing better facilities cannot run away from its principal duty by pleading financial inability. Decency and dignity are non-negotiable facets of human rights and are a first charge on local self-governing bodies.]

2.5.2 Public trust

The concept of public trust expresses the idea that the present generation holds the natural resources of the earth in trust for future generations. When applicable as a legal principle, public trust contemplates that certain things, such as natural resources and the exercise of public power, are held by governments in trust for the citizenry and must be used for the public benefit. See *Gunaratne v. Ceylon Petroleum Corporation*, (1996) 1 Sri L R 315 (Sri Lanka) and *Premachandra and Dodangoda v. Jayawickreme and Bakeer Markar*, (1993) 2 Sri L R 294 (Sri Lanka).

In Roman law, certain *res* such as rivers, waterways, the seashore, were classified as *res nullius* or *res communes* and were available for the free use of everyone and rights over them could not be given to individuals. In the common law, the Sovereign could own certain natural resources such as rivers and waterways but it was a restricted ownership and could not be granted to private entities because the Sovereign held the resources in trust for the use of the general public.

The concept of *res nullius* may limit actions that can be brought to protect the environment. In *Kenya Ports Authority v. East African Power & Lighting Co. Ltd* (Court of Appeal, Mombasa, Case 41/1981), the port authority was deemed to lack standing to sue for damages for cleaning up the port of Mombasa after oil contamination, because the port waters were classified as *res nullius* and the authority thus lacked a property interest in them. Such limitations may be overcome by recourse to the doctrine of public trust in its more modern form. The Supreme Court of California, for example, held that the state has an affirmative duty to take the public trust into account in the planning and allocation of water resources and to protect public trust uses such as scenic and ecological values, whenever feasible. Urban needs for water must be balanced with the ecological impact of water diversion from a lake whose shores, bed and waters constitute a public trust. *National Audubon Society v. Department of Water and Power of the City of Los Angeles*, 658 P.2d 709 (Sup. Ct. Calif. 1983).

In international law, as early as 1893, the United States government argued in the *Behring Sea Fur Seals Case* that "no possessor of property has an absolute title to it – his title is coupled with a trust for the benefit of mankind. . . . [T]hings themselves are not given him, but only the usufruct or increase – he holds the thing in trust for the present and future generations of man." (J.B. Moore, *History and Digest of the International Arbitrations to which the United States has been a Party* (1989), Vol. I, p. 833). The US argued that it could protect the fur seals based "upon the established principles of the common and civil law, upon the practice of nations, upon the laws of natural history, and upon the common interests of mankind." *Id.* at 811. A divided tribunal rejected the argument insofar as seals were found outside the territorial waters, but laid down regulations for their proper protection and preservation. In the *North Atlantic Coast Fisheries Case*, (GB-USA) (Sept. 7, 1910), the Permanent Court of Arbitration agreed that sovereignty includes not only the right but the duty of preserving and protecting coastal fisheries. Similarly, in the *Island of Palmas* decision, the arbitrator defined sovereignty to include both rights and duties. (Neth/US), Apr. 4, 1928, Permanent Court of Arbitration. Some courts have recognized that the public trust doctrine includes the notion of public guardianship. See e.g., *Bulankulame v. Secretary, Ministry of Industrial Development and Others (the Eppawela Case)* (Sup. Ct. Sri Lanka, 2000). In Australia, also, the doctrine of public trust has been applied to challenge harmful activities in public areas. In *Willoughby City Council v. The Minister*, (1992) 78 LGERA 19, at 27, which concerned commercial activities in part of a national park, Stein J. said ". . . national parks are held by the State in trust for the enjoyment and benefit of its citizens, including future generations. In this instance the public trust is reposed in the Minister, the director and the service. These public officers have a duty to protect and preserve national parks and exercise their functions and powers within the law in order to achieve the objects of the National Parks and Wildlife Act."

Box 9 Public Trust and the Environment

In *M. C. Mehta v. Kamal Nath and Others*, 1 SC 388 (1997), the Supreme Court of India applied the public trust doctrine to combat water pollution. The Court considered the government the trustee of all natural resources that are by nature meant for public use and enjoyment. While the doctrine traditionally protects uses such as navigation, commerce and fishing, the Court concluded that it now extends to ecologically important values, such as preserving freshwater, wetlands and riparian forests. Using this doctrine, the Court quashed a lease granted for a private motel and ordered the government to take over the area and restore it to its original condition. The Court called the lease of ecologically fragile land "*a patent breach of the public trust.*"

Also applying the polluter pays principle, the Court ordered the motel to pay compensation for the restitution of the environment and ecology of the riverbed and banks of the River Beas it had polluted. The local pollution control board was ordered to enforce the law by inspecting the motel's pollution control devices and treatment plants and take action if the devices and plants did not conform to the prescribed standards. The board also was ordered not to permit the discharge of untreated effluent into the river and to inspect all the hotels, institutions and factories in the area to ensure that none of them was acting in violation of the law. The Supreme Court subsequently imposed exemplary damages on the motel. The court stated:

"Pollution is a civil wrong. By its very nature, it is a tort committed against the community as a whole. A person, therefore, who is guilty of causing pollution has to pay damages (compensation) for restoration of the environment and ecology. . . In addition to damages aforesaid, the person guilty of causing pollution can also be held liable to pay exemplary damages so that it may act as a deterrent for others not to cause pollution in any matter."

The Court ordered the motel to pay the exemplary damages to the state government for use for flood protection works in the area affected by the motel's actions. *M.C. Mehta v. Kamel Nath*, [2002] 1 LRI 667.

Chapter 3

ENVIRONMENTAL RIGHTS

3.1 INTRODUCTION

Increasingly, environmental protection generally, and the particular role of the courts in implementing such protection, is being given shape by the creation or recognition of various enforceable rights. A growing number of international, constitutional and statutory provisions set forth rights that are relevant to and invoked for environmental protection. In some instances, the provisions guarantee procedures that are designed to provide transparency and democratic governance by allowing interested persons to have information about and input into decisions that affect their environment or redress when that environment is harmed. Such rights are also viewed as instrumental in achieving sound environmental decision-making. Principle 10 of the Rio Declaration on Environment and Development reflects this notion:

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

Constitutions provisions may also guarantee a right to an environment of a specified quality, such as safe, healthy, ecologically sound, or clean. The proliferation of such provisions has resulted in an increasing number of cases where judges are asked to enforce the stated rights. This chapter reviews some of the national and international laws concerning environmental rights and includes some illustrative judicial decisions.

3.2 RIGHT TO INFORMATION

Access to environmental information is a prerequisite to effective public participation in decision-making and to monitoring governmental and private sector activities. It also can assist enterprises in planning for and utilizing the best available techniques and technology. The nature of environmental deterioration, which often arises only long after a project is completed and can be difficult, if not impossible, to reverse, compels early and complete data to make informed choices. Transboundary impacts also produce significant demands for information across borders. Where national law includes a Freedom of Information Act, issues of access to environmental information can arise in court. Furthermore, during litigation a judge may demand production of information by parties or from state authorities.

3.2.1 National law

The right to information is recognized as a right in most domestic jurisdictions either by constitutional provision or by freedom of information legislation that covers most information held by public authorities, including environmental information. Laws requiring Environmental Impact Assessment (EIAs) have this feature by implication, since EIAs generally must be made available to the public for comment. Laws recognizing citizens' suits also have provisions enabling citizens to obtain necessary information.

Case law has also affirmed the right to information generally and for environmental matters in particular. See *Bombay Environment Action Group Shaym H K Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board*, High Court of Bombay, Writ Petition No. 2733 of 1986, where the court upheld the right of social action groups to obtain information. The court held that the right to information flows from the right of free speech and expression guaranteed by the Constitution. Interested persons have often petitioned the courts for orders for the release of information and documents. See *Van Huyssten & Others v. Minister of Environmental Affairs & Tourism & Others* 1996 (1) SA 283 where the court ordered respondents to release documents on proposed steel mill, so trustees of a protected wetland could safeguard the property.

Some countries have gone as far as to institute Pollutant Release and Transfer Registries, which specify toxic emissions and discharges which facilities are required to publicly disclose.

3.2.2 International law

Human rights texts generally contain a right to freedom of information or a corresponding state duty to inform. The right to information is included in the *Universal Declaration of Human Rights* (Art. 19), the *International Covenant on Civil and Political Rights* (Art. 19(2)), the *Inter-American Declaration of the Rights and Duties of Man* (Art. 10), the *American Convention on Human Rights* (Art. 13), and the *African Charter on the Rights and Duties of Peoples* (Art. 9).

In applying article 10 of the European Convention, the European Court of Human Rights has held that a state may not extend defamation laws to restrict dissemination of environmental information of public interest. *Bladet Tromsø and Stensaas v. Norway* (ECHR, May 20, 1999); *Thoma v. Luxembourg* (ECHR, March 29, 2001). In the first case, the editor and publisher of a newspaper were sued and found to have committed defamation by publishing a series of articles that accused seal hunters of illegal and cruel hunting methods. The European Court said that most careful scrutiny is called for when the measures taken or sanctions imposed on journalists by the national authority are capable of discouraging the participation of the press in debates over matters of legitimate public concern. It found that the crew members' undoubted interest in protecting their reputation was insufficient to outweigh the vital public interest in ensuring an informed public debate over a matter of local and national as well as international interest. Thus, the reasons for imposing liability relied on by Norway, although relevant, were not sufficient to show that the interference with freedom of speech was "necessary in a democratic society." Accordingly, the Court held that there had been a violation of Article 10 of the Convention. The *Thoma* case involved a journalist's accusations of self-dealing by officials engaged in reforestation projects in Luxembourg. Numerous forest wardens and engineers sued for defamation and the journalist was fined a nominal amount. The European Court again found the action incompatible with the requirements of freedom of expression, in part because the subject was one of public concern, but also because the Court noted that public officials must accept a greater amount of scrutiny and criticism than private persons.

Informational rights are widely found in environmental treaties. Broad guarantees of public information are found in regional agreements, including the 1992 *Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (Art. 16), the 1992 *Espoo Convention on Environmental Impact Assessment in a Transboundary Context* (Art. 3[8]), and the 1992 *Paris Convention on the North-East Atlantic* (Art. 9). The last mentioned requires the contracting parties to ensure that their competent authorities are required to make available relevant information to any natural or legal person, in response to any reasonable request, without the person having to prove an interest, without unreasonable charges and within two months of the request.

The provisions of the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (Sept. 11, 1998) encourages parties to ensure that information on chemical and pesticide hazards is made available to the public. Art. 15(2) on implementation requires each state party to ensure, "to the extent practicable" that the public has appropriate access to information on chemical handling and accident management and on alternatives that are safer for human health or the environment than the chemicals listed in Annex III to the Convention.

Other treaties require states parties to inform the public of specific environmental hazards. The IAEA *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* recognizes the importance of informing the public on issues regarding the safety of spent fuel and radioactive waste management. Arts. 6 and 13, on siting of proposed facilities, require each state party to take the appropriate steps to ensure that procedures are established and implemented to make information available to members of the public on the safety of any proposed spent fuel management facility or radioactive waste management facility. Similarly, Art. 10(1) of the *Convention on Persistent Organic Pollutants* (Stockholm, May 22, 2001) specifies that each Party shall, within its capabilities, promote and facilitate provision to the public of all available information on persistent organic pollutants and ensure that the public has access to public information and that the information is kept up-to-date (Art.10 (1)(b) and (2)).

The states participating in the OSCE have confirmed the right of individuals, groups, and organizations to obtain, publish and distribute information on environmental issues. Conference on Security and Cooperation in Europe, Sofia Meeting on Protection of the Environment (October-November 1989), (CSCE/SEM.36, 2 November 1989). The *Ministerial Declaration on Environmentally Sound and Sustainable Development in*

Asia and the Pacific (Bangkok, 16 October 1990), A/CONF.151/PC/38 para. 27 affirms "the right of individuals and non-governmental organizations to be informed of environmental problems relevant to them, to have the necessary access to information, and to participate in the formulation and implementation of decisions likely to affect their environment." The Arab Declaration on Environment and Development and Future Perspectives of September 1991 speaks of the right of individuals and non-governmental organizations to acquire information about environmental issues relevant to them. *Arab Declaration on Environment and Development and Future Perspectives*, adopted by the Arab Ministerial Conference on Environment and Development (Cairo, September 1991), A/46/632, cited in U.N. Doc E/CN.4/Sub.2/1992/7, 20.

3.3 PUBLIC PARTICIPATION

Public participation is emphasized throughout international and national environmental law. Public participation is based on the right of those who may be affected to have a say in the determination of their environmental future. Depending on the jurisdiction, this may include foreign citizens and residents. In the EIA context, the public typically incorporates all stakeholders including communities, women, children, indigenous people, non-governmental organizations, other State and non-State institutions. The EIA report is made available to the public for comment for a specified period and the public is usually allowed to submit written comments. Public hearings may also be held in certain circumstances.

Non-governmental organizations (NGOs) and groups such as trade unions or manufacturers' associations are an organized means of public participation in environmental decision-making. Like individual members of the public, NGOs may compile data, seek to influence legislation, intervene in decisions on licensing or permitting projects, and monitor compliance with environmental laws. With these roles and because of their greater means, expertise, and organized efforts, NGOs often can more effectively assert public rights of information and participation. The importance of NGOs is reflected in the emphasis on their role in recent treaties such as the *Desertification Convention*, which speaks in its preamble of "the special role of non-governmental organizations and other major groups in programmes to combat desertification and mitigate the effects of drought."

3.3.1 National law

In most systems, public participation is provided for, is designed to be meaningful, and is usually legally enforceable. In *Save the Vaal v. The Director of Mineral Development Gauteng Region*, the High Court of South Africa in Witwatersrand Local Division set aside a mining authorization on the basis that the applicant had a right to be heard before the agency took a decision to grant the license. Case No. 97021011 (1997).

If public comments are unjustifiably disregarded in the final decision, there may be a cause of action to challenge the validity of the decision. See *Leatch v. National Parks and Wildlife Service and Shoalhaven City Council*, 81 LGERA 270 (1993); *Bombay Environment Action Group Shaym H K Chainani Indian Inhabitant, Save Pune Citizen's Committee v. Pune Cantonment Board, High Court of Bombay*, Writ Petition No. 2733 of 1986; *Kajing TUBFK and ORS v. OEkran BHD and Others*, High Court of Kuala Lumpur, 19 June 1996, Malaysia; *S. C. Amerasinghe and Others v. the Attorney General and Others*, S.C. (Spl) No. 6/92, Supreme Court of Sri Lanka.

3.3.2 International law

The 1992 *Rio Declaration on Environment and Development*, principle 10, recognizes the need for public participation. Agenda 21, the plan of action adopted at the Rio Conference, calls it "one of the fundamental prerequisites for the achievement of sustainable development." Section III identifies major groups whose participation is needed: women, youth, indigenous and local populations, non-governmental organizations, local authorities, workers, business and industry, scientists, and farmers. It calls for public participation in environmental impact assessment procedures and participation in decisions, particularly those that potentially affect the communities in which individuals and identified groups live and work. It encourages governments to create policies that facilitate a direct exchange of information between the government and the public in environmental issues, suggesting the EIA process as a potential mechanism. In fact, most EIA laws have provision for public participation because this facilitates direct public input into decisions on issues of environment and development.

The *Climate Change Convention*, Art. 41(i), obliges Parties to promote public awareness and to “encourage the widest participation in this process including that of non-governmental organizations”. The *Desertification Convention* recognizes in Art. 3(a) and (c) that there is a need to associate civil society with the action of the State. This treaty is significant in its participatory approach, involving the integrated commitment of all actors – national governments, scientific institutions, local communities and authorities, and non-governmental organizations, as well as international partners, both bilateral and multilateral. The Biodiversity Convention provides for public participation in environmental impact assessment procedures in Art. 14(1)(a).

The right to public participation is also widely expressed in human rights instruments. Article 21 of the *Universal Declaration of Human Rights* affirms the right of everyone to take part in governance of his or her country, as does the *American Declaration of the Rights and Duties of Man* (Art. 20) and the African Charter (Art. 13). Article 25 of the *International Covenant on Civil and Political Rights* provides that citizens have the right, without unreasonable restrictions “to take part in the conduct of public affairs, directly or through freely chosen representatives.” The *American Convention on Human Rights* contains identical language in Article 23.

3.4 ACCESS TO JUSTICE

The right to an effective remedy, meaning access to justice and redress, can be found in both human rights law and in environmental law. The United Nations Covenant on Civil and Political Rights calls for states to provide a remedy whenever rights protected under national or international law have been violated. In the European Convention on Human Rights, Article 13 guarantees a remedy whenever there is a violation of the rights and freedoms contained in the Convention, thus encompassing violations of the right to information. The Inter-American and African regional human rights systems contain a similar guarantee. Environmental instruments frequently proclaim the need for effective remedies. Principle 10 of the Rio Declaration provides that “effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.”

Agenda 21 calls on governments and legislators to establish judicial and administrative procedures for legal redress and remedy of actions affecting the environment that may be unlawful or infringe on rights under the law, and to provide access to individuals, groups and organizations with a recognized legal interest. UNCLOS also provides that states shall ensure that recourse is available for prompt and adequate compensation or other relief for damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction (Art. 235(2)).

The right to a remedy is not necessarily limited to nationals of a state. Some international agreements contain obligations to grant any injured person a right of access to any administrative or judicial procedures equal to that of nationals or residents. Equal access to national remedies has been considered one way of implementing the polluter pays principle because it tends to expand the scope of polluter accountability.

3.5 ENVIRONMENTAL QUALITY

3.5.1 National law

National provisions proclaiming a right to environmental quality are fairly prevalent at this juncture. Almost every constitution adopted or revised since 1970, either states the principle that an environment of a specified quality constitutes a human right or imposes environmental duties upon the state. Article 50 of the Constitution of the Ukraine, adopted 28 June 1996, is an example. It states:

[E]very person has the right to a safe and healthy environment and to compensation for damages resulting from the violation of this right.

Other constitutions refer to a decent, healthy (Hungary, South Africa, Nicaragua, Korea, Turkey), pleasant (Korea), natural, clean, ecologically-balanced (Peru, Philippines, Portugal), or safe environment or one free from contamination (Chile). Within federal systems, including those whose federal constitution lacks mention of the environment, state or provincial constitutions often contain environmental rights.

State practice is divided over the issue of the justiciability of the right to a safe and healthy environment. Some courts have allowed lawsuits to enforce the right, while others have not. These cases are discussed in section 2.4.1. Courts are also divided over whether environmental rights may be implied in constitutional protections when there is no explicit mention of the environment. Some states, such as India, have liberally found and enforced environmental rights as part of the rights to life and health. Others have rejected the notion that a right to environment can be implied. Compare *Tanner v. Armco Steel Corp.*, 340 F.Supp. 532 (SD Tex. 1972) (no judicially cognizable federal constitutional right to a healthful environment) with *Dr. Mohiuddin Farooque v. Bangladesh, represented by the Secretary, Ministry of Irrigation, Water Resources and Flood Control and Others* (the right to life includes the protection and preservation of the environment and ecological balance free from pollution of air and water).

3.5.2 International law

At present, no global human rights treaty proclaims a right to environmental quality, although the *Universal Declaration of Human Rights* and other human rights instruments contain a right to an adequate quality of life and a right to health. It is unclear the extent to which these generally stated rights will ultimately be viewed as including an enforceable right to clean and healthy environment. Compare *Flores v. Southern Peru Copper Corporation*, 343 F.3d 140 (2d Cir. 2002) (where the court found the “right to life” and the “right to health” too indefinite to constitute customary international law and therefore inadequate as a foundation for an enforceable right to a clean environment) with *Kedar Bhakta Shrestha & Others v. HMG, Department of Transportation Management & Others*, Writ No. 3109 (where the Supreme Court of Nepal recognized a right to a healthy environment based in part on the provisions of the *Vienna Convention for the Protection of the Ozone Layer* and the Rio Conference on Environment and Development).

Among non-binding instruments, a significant number have included references to environmental rights or a right to an environment of a specified quality. At the United Nations, the Sub-Commission on Prevention of Discrimination and Protection of Minorities appointed a Special Rapporteur on Human Rights and the Environment in 1989, whose final report was delivered in 1994. See: *Human Rights and the Environment: Final Report Prepared by Mrs. Fatma Zohra Ksentini, Special Rapporteur*, E/CN.4/Sub.2/1994/9, 6 July 1994.

On the regional level, the 1981 *African Charter on Human and Peoples Rights* was the first international human rights instrument to contain an explicit guarantee of environmental quality. Subsequently, the *Protocol on Economic, Social and Cultural Rights to the American Convention on Human Rights* included the right of everyone to live in a healthy environment (Art. 11).

Chapter 4

COMMON LEGAL MECHANISMS OF ENVIRONMENTAL PROTECTION

4.1 INTRODUCTION

The role of the courts in upholding the rule of law in the environmental arena is very much informed by the regulatory mechanisms that deliver environmental protection. Two primary, common regulatory systems aim to prevent environmental harm by anticipatory action. The first is a system that attempts to establish individualized pollution controls and mitigation measures through environmental impact assessment based on the character of the activity and environment surrounding the facility. The second system relies on a permit or licensing regime that requires adherence to pre-established norms (quotas, bans on the use of certain substances). Sometimes a facility or activity must comply with both types of regulatory regime and will have to apply technology-based controls (which tend to require the optimal level of control achieved at comparable facilities) and/or performance-based measures (which tend to focus on ensuring that pollution emissions will not surpass established limits or result in pollution in excess of an ambient environmental standard).

The variety, complexity and acceptance of these legal mechanisms have increased in recent years through the mutual influence of national and international environmental law. International environmental agreements today usually require states parties to adopt environmental impact or risk assessment procedures, licensing requirements and monitoring protocols. Environmental auditing, product labeling, use of best available techniques and practices and prior informed consent also commonly appear in global and regional instruments. States often enact and implement several techniques and procedures simultaneously in response to treaty mandates as well as to particular threats to the environment, national and local conditions, traditions and cultural norms, and the economic situation specific to each country.

Whether the law establishes an environmental impact assessment procedure or licensing system or relies on economic mechanisms to affect conduct, courts are frequently asked to enforce the law and sanction violations. Many cases may be brought in the first instance in administrative tribunals, where licenses revocations may be sought or penalties imposed for non-compliance with the terms of the license. Courts may be asked to review the determinations of administrative bodies to grant or deny a permit and in the process may have to review the adequacy of an environmental impact or risk assessment done by the proponent of an activity. Judges often adjudicate prosecutions or appeals from administrative enforcement of prohibitions and restrictions such as the ban on trade in endangered species or in ozone-depleting substances. This section examines the common legal techniques and some court decisions that have involved them.

4.2 PROHIBITING AND RESTRICTING ACTIVITIES AND SUBSTANCES

4.2.1 Polluting activities

If an activity, product or process presents a substantial risk of environmental harm, strict measures can be imposed in an effort to reduce or eliminate the harm. When the likelihood of risk is too great, a complete prohibition can be enacted. Environmental laws often call for restricting or banning hazardous products, processes or activities. See e.g. *Convention and Montreal Protocol on the Ozone Layer* (March 22, 1985, Sept. 16, 1987); *Convention on the Prevention of Marine Pollution by Dumping of Wastes* (Dec. 29, 1972); *Antarctic Treaty* (Dec. 1, 1959) and *Environmental Protocol* (Oct. 4, 1991); *Sofia Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution concerning the Control of Emissions of Nitrogen Oxides* (Oct. 31, 1988). Criteria such as toxicity, persistence, and bioaccumulation may serve to determine which substances should be banned or severely restricted.

Long lists of polluting substances whose discharge is prohibited or submitted to prior authorization can raise practical problems in enforcement. A substance such as mercury or cadmium usually is discharged in the environment as a component of many different compounds rather than in its pure form. This may raise difficult issues of proof about the origin of pollution when enforcement action is taken.

4.2.2 Use of biological resources

Hunting and collecting restrictions are used to prohibit non-selective means of killing or capturing specimens of wildlife. More generally, protective measures may restrict injury to and destruction or taking of some or all wild plants and animals. The revised *African Convention on the Conservation of Nature and Natural Resources*, for example, requires adoption of adequate legislation to regulate hunting, capture and fishing, and to prohibit certain means of hunting and fishing. (Maputo, July 9, 2003, Art. 9). See also the *ASEAN Convention on the Conservation of Nature and Natural Resources* (July 9, 1985), Art. 4(2) and the *Convention on Biological Diversity* (June 5, 1992), Art. 8. Annexes specify measures to be taken regarding threatened or endangered species, which benefit from the most stringent protective legal measures.

Migratory species are also subject to special protection by treaties such as the *Bonn Convention on the Conservation of Migratory Species of Wild Animals*, which is aimed at all states through which such species transit and in which they spend part of their lives. States parties to the Bonn Convention are obliged to ban or regulate the taking of these animals in cases where the conservation status of such animals--the sum of influences on their long-term distribution and abundance--is unfavorable.

Finally, temporary suspensions and permanent bans on imports and exports are commonly utilized for the protection of wild flora and fauna. The 1973 *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES), for example, uses trade restrictions and trade bans as means of protecting threatened and endangered species. The Convention lists in a first appendix all species threatened with extinction that are or may be affected by trade. Trade in these species is virtually prohibited, requiring prior grant and presentation of export and import permits issued under stringent conditions. Two additional appendices list those species that may become threatened with extinction unless trade is regulated. States have widely implemented these bans and restrictions in practice. Trade regulations also are used to prohibit or regulate transport and dumping of toxic and dangerous wastes.

4.3 PRODUCT AND PROCESS STANDARDS

National and international laws sometimes establish standards for products and processes that impact the environment. Standards are prescriptive norms that govern products or processes or set limits on the amount of pollutants or emissions produced. Standards may be set for production processes, emission levels, product characteristics and ambient quality standards for a given environmental milieu.

4.3.1 Process standards

Process standards specify design requirements or operating procedures applicable to fixed installations such as factories or may designate permissible means and methods of activities like hunting or fishing. Sometimes, a particular production process or technique is imposed on operations, such as the installation of purification or filtration systems in production facilities. Process standards often are used to regulate the operations of hazardous activities posing a risk of accidents or other dangers. Process standards frequently establish norms for an entire industry or class of operation, driving similar types of operations to achieve comparable levels of pollution control. In some systems, for example, all types of operations are required to install best available pollution control technology (BACT) as part of their processes. Some governments maintain inventories or clearinghouses of information regarding what constitutes BACT for a given industrial category, which serves as an important reference for industry and licensing officials alike.

Process standards that apply to imported products sometimes pose particular problems as potential barriers to trade under the international trading regime set up by GATT and the WTO.

4.3.2 Product standards

Product standards are used for items that are created or manufactured for sale or distribution. Such standards may regulate:

- The physical or chemical composition of items such as pharmaceuticals or detergents. Examples include regulations that control the sulphur content of fuels or list substances whose presence is forbidden in certain products, for instance, mercury in pesticides.

- The technical performance of products, such as maximum levels of pollutant or noise emissions from motor vehicles or specifications of required product components such as catalytic converters.
- The handling, presentation and packaging of products, particularly those that are toxic. Packaging regulations may focus on waste minimization and safety.
- Labeling requirements are used to ensure that consumers are aware of the contents and the permissible uses of products. Labeling requirements often aim to avoid accidental environmental harm through misuse, spills or improper disposal of the product. The “green” or “ecolabel” is a recent, increasingly popular incentive to environmental protection. It is part of a gradual trend away from “end of the pipe” reactive solutions, which can be extremely costly, toward identifying and avoiding environmental problems before they occur. The new approach requires manufacturers to examine the entire life cycle of products – production, distribution, use and disposal.

To ensure fair economic competition, product standards usually are adopted for an entire industry. As with process standards, standards for new products are frequently drafted to reflect the best available pollution prevention technology, in some cases requiring new products to achieve a percentage reduction in pollution potential in comparison with older sources. International product standards include the 1991 Amendments to MARPOL 73/78 requiring construction of new oil tankers with "double hulls," the ban on trade in products containing ozone-depleting substances (1987 *Montreal Protocol*, Art. 4(3) as amended), and the requirement to provide unleaded fuel for motor vehicles (*Sofia Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution*, Art. 4).

4.3.3 Emission standards

Emission standards specify the quantity or concentration of pollutants that can be emitted in discharges from a specific source. As a general rule, emission standards apply to fixed installations, such as factories or homes; mobile sources of pollution are more often regulated by product standards. Emission standards establish obligations of result, typically leaving the polluter the free choice of means to conform to the norm. Often the environmental sector of the discharge, e.g. groundwater, air, soil, is a variant factor. Emission standards may also vary according to the number of polluters and the capacity of the sector to absorb pollutants. Different standards may be imposed in response to particular climatic conditions, for example persistent fog or inversion layers. Emission standards are the type of standard most commonly required by international agreements and are mandated by several important agreements (e.g. the Protocols to the 1979 Convention on Long-Range Transboundary Air Pollution, the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources, regional seas agreements, MARPOL, and the Climate Change Convention).

Emission standards are based on assumptions that:

- Certain levels of some contaminants will not produce any undesirable effect;
- There is a finite capacity of each environment to accommodate substances without unacceptable consequences (the assimilative capacity) and;
- The assimilative capacity can be quantified, apportioned to each actor and utilized.

Pollution occurs whenever the effects of the contamination on biological systems can be measured. Emission standards thus most often reflect a political decision about the amount of pollution that is deemed acceptable.

4.3.4 Ambient quality standards

Ambient quality standards fix the maximum allowable level of pollution in an environmental sector during normal periods. A quality standard may set the level of mercury permissible in rivers, the level of sulfur dioxide in the air, or noise level of airplanes in the proximity of residential areas. Quality standards often vary according to the particular use made of the environmental resource. For example, different water quality standards may be set for drinking water and waters used for bathing and fishing. Quality standards also can vary in geographic scope, covering national or regional zones, or a particular resource, such as a river or lake, but each quality standard establishes base norms against which compliance or deviance are measured. The 1992 *UN Convention on the Protection and Use of Transboundary Watercourses and International Lakes* calls on each party to define, where appropriate, water-quality objectives and to adopt water-quality criteria, setting forth guidelines for this purpose in Annex III. Some bilateral and regional agreements on freshwaters and air foresee or mandate water-quality objectives.

4.4 PRIOR LICENSING AND PERMITS

Environmental laws frequently mandate government officials to authorize, certify or issue permits or licenses to activities or establishments or that pose threats to the environment or that use natural resources. "Taking permits," for example, regulate the numbers of wild plants or animals that may be appropriated for private use. Norms that regulate environmental milieu, such as air pollution, drinking water, noise, chemicals, and taking of wildlife often call for licensing as part of their regulatory framework. As a result, hazardous installations such as nuclear plants, mines, natural gas or petroleum works are likely to have more stringent licensing requirements than other operations. Where environmentally hazardous products are present, such as industrial chemicals, pesticides or pharmaceuticals, authorizations may be required for the manufacture, marketing, importation, exportation or use of the product.

Most licensing controls are not designed to eliminate all pollution or risk of resource depletion, but rather to control serious pollution and to conserve resources as much as possible. Pollution-control licenses represent a middle ground between unregulated industrial practices and absolute prohibition. They provide an addition or alternative to zoning as a means to site installations and to allow experimentation through the granting of temporary licenses.

Judges often face appeals from grants or denials of licenses. In such instances, an initial question is the scope of review to be conducted. Some courts conduct a full review or *de novo* hearing, while others afford considerable deference to administrative agency decisions. See generally Chapter 6, *infra*.

4.4.1 National law

Most licensing systems operate on the basis of a list, or an inventory of activities necessitating a license because of their foreseeable potential harm to the environment.

The decision-making process for granting a license may be exercised by central authorities, regional or local bodies. The decision is typically based on information supplied by the applicant, including a description of the planned activities, sometimes accompanied by maps and plans of the installation and its surroundings, a study of accident risks, and a description of possible anti-pollution or anti-nuisance measures. In many cases, an environmental impact assessment will form part of the application procedure. Public information is normally required, including the display of notices and/or publication in the press, followed by public hearings and expert testimony. In general, the costs of the procedure are born by the public authorities, but in some jurisdictions, costs are payable by the applicant.

An essential condition for initial and continuing authorization in most licensing regimes is compliance with certain environmental standards, which are typically written into or incorporated by reference in licenses. These conditions are reviewed periodically and may require, for example, use of the best available techniques; compliance with obligations under national or international law relating to environmental protection; compliance with limits or requirements and achievement of quality standards or objectives prescribed by legislation; imposition of emission limits; and a requirement of advance notification of any proposed change in the operations of the activity or process.

Judges may be asked to hear challenges to these conditions or to determine if they have been complied with. See *Ste Wiehe Montocchio & Cie v. Minister of the Environment and Quality of Life* (Mauritius Environment Appeal Tribunal, Case 2/95) (granting a license to appellant on condition that two buildings at a proposed poultry project be made flyproof, that litter be properly removed and disposed of, that the buildings be cleaned and disinfected after each production cycle to the satisfaction of the Minister of Health, and that no nuisance by virtue of noise, odour or fly proliferation be caused to nearby residents). In reviewing the denial of a license, some courts have imposed their own conditions on the applicant seeking to obtain a license. See Box 10. See also Chapter 7 *infra*.

Once a license is granted, it creates legal rights and obligations and typically can only be cancelled after an investigation, a fair hearing and a decision based on relevant data, evidence and facts. See *E.M.S. Niyas v. Ministry of Environment*, Appeal Court of Sri Lanka (1995). On the other hand, the expectation of obtaining a license has been held not to confer an enforceable legal right. See *Leonardia Safaris v. Premier of Gauteng*

Province (High Court of South Africa, Witwatersrand Local Division, Case No. 98/18201) (applicant cannot compel authorities to grant permits allowing importation of rhinos to be shot, even if applicant had a legitimate expectation that the permits would be granted).

Retroactivity can be a problem when licensing regimes are instituted: are installations constructed and operating prior to initiation of the system obliged to obtain a license? The general trend favors requiring licenses for the continued operation of pre-existing facilities.

Box 10 Court-Imposed Licensing Conditions

Ramiah and Autard v Minister of the Environment and Quality of Life Environment Appeal Tribunal (Mauritius, March 7, 1997)

This decision highlights some measures a court may take to approve a project but minimise environmental harm. The Tribunal reversed a decision to deny licensing permits but ordered that the applicants:

- maintain a minimum distance between the ground surface and the water table to be monitored by the Department of the Environment;
- obtain all necessary permits and adhere to any conditions;
- refrain from disposing of waste in any water course or in the lagoon;
- dispose of sewage by septic tank and leaching field as specified by the competent authorities;
- obtain approval for a network of surface drains for storm water; and
- construct a leaching field per design and specifications of the competent authorities prior to the sale of the land.

Each deed of sale was mandated to include a requirement of individual septic tank and leaching field. Finally, the Tribunal ordered constant monitoring by the Department of the Environment, Ministry of Health, Ministry of Fisheries, Ministry of Works and Ministry of Energy and Water to ensure that applicants abided by all the conditions imposed.

4.4.2 International law

Numerous international treaties oblige their states parties to license potentially harmful activities, e.g. *Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft*; *Paris Convention for the Prevention of Marine Pollution from Land-Based Sources*; *CITES*; *Basel Convention on Hazardous Waste*; *Bamako Convention on Hazardous Waste in Africa*; *London Dumping Convention*; *MARPOL*; *UNCLOS* and the various regional seas agreements; *Whaling Convention*; *African Convention on the Conservation of Nature and Natural Resources*; and the *ASEAN Agreement on the Conservation of Nature and Natural Resources*.

International requirements for licensing are increasing as part of the strong trend towards transparency attending the transboundary movement and use of substances, products and activities that might have a negative impact on the environment. In international trade, the delivery of export licenses and permits is often subject to the prior authorization of the *importing* state. Such consent is required by the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes* (1989). The 1998 *Convention on Prior Informed Consent*, derived from non-binding principles established by UNEP and FAO, extends the system of double authorization to hazardous substances and products other than wastes. It also represents a step towards inter-state recognition of national permits in international commerce. Such a practice is already found in the acceptance by other states of flag state certification that marine vessels conform to international legal standards. The 1977 *International Convention for the Safety of Fishing Vessels* was one of the first to establish that certificates issued by one party according to the provisions of the Convention shall be accepted by other parties as having the same validity as one issued by them. (Art. 4). In 1989, the OECD similarly mandated the mutual recognition of data on chemical hazards provided by states that assure that test data have been generated in accordance with good laboratory practices.

4.5 PRIOR INFORMED CONSENT

Prior informed consent (PIC) is a procedural mechanism utilized in advance of activities in order to avoid potential conflict and reduce the risks of environmental or social harm. Internationally, prior informed consent requires obtaining and disseminating the decisions of importing countries on whether they wish to receive shipments of restricted or banned products after they have been fully informed about the hazards posed by the products. In most instances, the products to which the procedure applies are those that pose serious risks to health or the environment. In national law, judicially enforceable PIC procedures may apply to foreign products seeking entry into the country or mediate access to a state's biological resources, in order to obtain disclosure of potential benefits arising from the entry or access. Some national laws require the prior informed consent of indigenous and local communities before their resources can be accessed.

The FAO incorporated the principle in its *International Code of Conduct on the Distribution and Use of Pesticides* (1985). Three global environmental agreements rely on a form of prior informed consent: the *Convention on Transboundary Movements of Hazardous Wastes* (Basel, March 22, 1989), the *1998 Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (Rotterdam, Sept. 10, 1998) and the *Biosafety Protocol* (Montreal, Jan. 29, 2000) to the *1992 Convention on Biological Diversity* (CBD). The CBD itself calls for access to genetic resources on agreed terms and requires that such access be subject to the prior informed consent of the provider country of such resources. (Art. 15(5)). *UNCLOS* suggests a similar procedure for scientific research within a state's exclusive economic zone, specifying that foreign vessels obtain prior state consent.

4.6 ENVIRONMENTAL IMPACT ASSESSMENT

Environmental impact procedures were first adopted in the 1960s; shortly thereafter, national laws and international treaties began imposing EIA requirements that were increasingly broad in their scope and detailed in their requirements and provisions. At present, environmental impact assessment is singularly important in both domestic and international environmental law. International instruments today commonly provide that states should not undertake or authorize activities without prior consideration, at an early stage, of their environmental effects.

Environmental impact assessment (EIA) seeks to ensure that adequate and early information is obtained on likely environmental consequences of development projects, on possible alternatives, and on measures to mitigate harm. It is generally a prerequisite to decisions to undertake or to authorize designated construction, processes or activities. EIA procedures generally require that a developer or business owner submit a written document to a designated agency or decision-making body, describing the probable or possible future environmental impact of the intended action. An adequate and rigorous consideration of alternatives is at the heart of the EIA decision-making process. The study must produce sufficient information to permit a reasonable choice of alternatives as far as environmental consequences are concerned. Where decisions are made purely on economic and technical grounds without regard to environmental costs and benefits, the EIA may be rejected as seriously flawed.

Not every proposed activity is subject to assessment, only those that may be or are likely to cause a stated level of harm to the environment. The threshold differs in the many treaty references to EIA, with some referring to "measurable" effects, others "appreciable" or "significant" harm. The most frequently stated formulation requires a comprehensive EIA where the extent, nature, or location of a proposed activity is such that it is likely to significantly affect the environment.

The requirement to conduct EIAs may be based upon:

- 1) Lists of categories of activities that by their nature are likely to have significant effects
- 2) Lists of areas that are of special importance or sensitivity (such as national parks) where the impact of any activity within or affecting such areas must be assessed
- 3) Lists of categories of resources or environmental problems which are of special concern
- 4) An initial environmental evaluation of all activities, with a quick and informal assessment to determine whether the effects are likely to be significant
- 5) Defined and listed criteria, which make an impact "significant."

Box 11 Reviewing EIAs

Byron Shire Businesses for the Future Inc v Byron Council & Holiday Villages (Byron Bay) PTY Ltd. Land And Environment Court of New South Wales, (1994) LGERA 434

This case concerned a dispute over the construction of a coastal tourist village on land at Byron Bay, Australia. Byron Council originally granted development consent, subject to conditions, to the second respondent for the land, parts of which were wetlands. At the time of the Council's determination of the development application, reports indicated several species of endangered fauna within or near the site. However, it had not received a fauna impact statement or an environmental impact statement with respect to the development proposal.

The petitioner requested a declaration that the development consent was void and an injunction to prevent the proposal from proceeding. The court found that, based on the material presented, the council could not reasonably conclude that there was unlikely to be a significant effect on the environment of endangered fauna.

When courts undertake review of authorizations based upon EIAs, they generally do so in the light of the purposes for which EIAs are done. An appellate court in France expressed these objectives and the consequences of failing to fulfil them as follows:

An EIA has as its objectives, first to give the possibility to the public to usefully make known its observations on the project in a public inquiry, then to allow the administrative authority to properly evaluate the effects of the project on the environment, as well as the effectiveness of the proposed measures to eliminate or reduce them or to provide compensation for them. The EIA should not contain inexactness, omissions or gaps susceptible to vitiate the procedures, which would result in the illegality of the decision of authorization.

Cour administrative d'appel de Nancy, 4 Nov. 1993, *S.A. Union française des pétroles*, R.J.E. 1994/1. p. 72.

Many questions arise and must be considered in establishing or judicially reviewing an environmental impact assessment procedure:

- What range of impacts must be discussed? Threats to the health of living organisms and to environmental media (air, water, soil) are usually included. The EIA procedure may also require assessment of social and cultural impacts, broadly defining the "environment" that must be assessed.
- What severity of impacts must be discussed? The law can demand assessment of everything from the "worst case scenario" or "all possible environmental consequences" to "reasonably foreseeable" impacts or "probable adverse effects".
- What degree of certainty is required? Environmental impacts may be predicted by "credible scientific evidence", may be "known" or may be "not unreasonably speculative".
- How should magnitude and probability of harm (risk) be evaluated? Consider, for example, whether in normal circumstances a pesticide known to cause 10 extra cancers a year is safer than a pesticide that has a five percent chance of causing one hundred extra cancers annually and a 95 percent chance of causing none.

Although earlier law did not specify with whom the assessment information had to be shared, and required no consultation with affected parties, today consultation and dispersal of information to the public are important objectives of EIAs. Often cases are brought because various parts of the public feel they have been inadequately consulted or informed about the proposed project through the EIA process. See *Sierra Club et al v. Coleman and Tiemann*, 14 ILM 1425 (1995) and 15 ILM 1417 (1996); *Nicholls v. Director General of Private National Parks and Wildlife and Others*, 81 LGERA 397. Where public participation is guaranteed by law, courts may enforce the entitlement by ordering compliance and invalidating any EIA approved in violation of the public's opportunity to comment. *Kajing Tubfk & Others v. Ekran Biid & Others* (High Court, Kuala Lumpur, 1996). Other cases may challenge the EIA report as misleading and inappropriate and seek to enjoin proposed projects until a complete and full EIA is completed. See *Rogers Muema Nzioka & Others v. Tiomin Kenya Ltd* (Kenya, Case 97/2001).

4.7 LAND USE REGULATION

Land use controls play a major role in environmental law for both urban and rural areas, through zoning, physical planning, and the creating of protected areas. Zoning helps distribute activities harmful to the environment in order to limit potential damage and allows application of different legal rules from zone to zone for more effective protection. Zoning can also help implement the concept of environmental justice by ensuring that the benefits and burdens of resource use are shared throughout society. The broader approach of physical planning merges provisions for infrastructure and town and country planning in order to integrate conservation of the environment into social and economic development. Generally, once a planning scheme for the relevant land and water areas is approved by the state or local government, special procedures must be used to obtain exceptions.

4.7.1 National and international regulations

Planning procedures may classify a city, a region or the entire territory of a country into broad land use categories such as residential, industrial, agricultural, forest, or nature conservation. Designated geographical areas may be given special legal protection for nature conservation, including national parks, reserves, and sanctuaries. This type of regulation is commonly required by nature protection agreements such as the 1968 *African Convention on the Conservation of Nature and Natural Resources* and the comparable ASEAN agreement of 1985.

On a national level, land use planning and zoning regulations are normally expressed in negative terms, as prohibitions or restrictions on any undesirable utilization or change in utilization of the area. Modern planning also may encourage and promote economic land uses that are considered beneficial or compatible with environmental objectives and special land use management plans. Because of the evolution of environmental protection schemes and the numerous levels of government involved, land use regulations can become extremely complex.

4.7.2 Land use regulations and property rights

Judges may face claims that zoning regulations or other land use limitations imposed to protect the environment amount to a taking or expropriation of property that are illegal unless undertaken:

- For a public purpose;
- In a non-discriminatory manner;
- With a hearing that accords with due process; and
- With fair compensation.

In addition to zoning restrictions, laws and regulations to protect other species may conflict with uses of property. Endangered species legislation aims to protect such species by prohibiting any taking of an endangered species through human action or any destruction or adverse modification of critical habitats. The law or administrative regulations will usually define in detail the term “taking” (including to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect) and include any intentional or negligent act or omission which creates the likelihood of injury to wildlife, including disruption of breeding or feeding. The protection of habitat obviously places potentially great limits on land uses that might have an imminent prohibited impact on endangered species. Timber companies harvesting trees on private land could fall within this prohibition, which is usually interpreted broadly to achieve the legislative goal of affording strict protection to species threatened with extinction. In assessing whether there is a likelihood of jeopardy to endangered species or adverse habitat modification, the best scientific and commercial data available should be used. If a violation is found, the law normally imposes criminal responsibility, with substantial fines, injunctions and prison terms provided. Some statutes allow citizen enforcement as well as administrative action or criminal prosecutions. Given the irreversible nature of the harm that results from species extinction, serious penalties are typically assessed, despite the fact that some landowners may not easily determine whether land use development will have a detrimental effect on an endangered species.

While it is sometimes asserted that the restrictions on land use in favor of endangered species amount to a taking of land or expropriation for which compensation is required, courts have generally applied endangered

species acts as set forth in the legislation without requiring compensation. A well-known example in the U.S. was the injunction granted halting construction of a large dam after \$100 million had been expended because it was discovered that completion of the project would entirely destroy the habitat of an endangered species. See: *TVA v. Hill*, 437 U.S. 153 (1978). The court found that the plain intent of the legislature in enacting the statute was to halt and reverse the trend toward species extinction, whatever the cost. Despite controversy, the legislation was not substantially amended following the decision, suggesting the court correctly interpreted legislative intent. Instead, amendments were enacted, such as the requirement of a biological assessment, to promote early planning by landowners. Thus, endangered species legislation emphasizes the community will to conserve biological diversity.

Security of property is guaranteed by most constitutions and by international human rights agreements. This does not mean, however, that all property infringement for environmental reasons amount to a compensable taking of property. The European Court of Human Rights has upheld restrictions on land use against claims that they amount to a taking, if the regulations are for an environmental purpose, proclaimed by law, and proportionate to the aim to be achieved. See *Chapman v. The United Kingdom* (ECHR, judgment of 18 January 2001) (upholding refusal to allow the applicant to place a caravan on her land, in a green belt zone); *Case of Pialopoulos and Others v. Greece*, (ECHR, judgment of 15 February 2001) (planning restrictions prevented applicants from building a shopping center on their land. The Court accepted that the impugned measures aimed at environmental protection, but held that the applicants were entitled to compensation and that their property rights had been violated).

Apart from human rights instruments, trade agreements like NAFTA (art. 1110) call for full, adequate and effective compensation for direct and indirect expropriation. The first decision of a NAFTA arbitral tribunal *Ethyl Corporation v. Canada* recognized that environmental legislation may be an expropriation under NAFTA. *Ethyl Corporation v. Canada* (June 24, 1998), available at www.naftaclaims.com. In *Metalclad v. United Mexican States*, a NAFTA arbitral panel found a compensable taking on the basis of a local land use decision. The claimant had sought and received a federal permit to build a hazardous waste landfill on land that it owned, but it did not have the required local permits. Metalclad alleged that it had been informed that no local permit was necessary. The municipality denied the permit and the governor of the state subsequently issued an Ecological Decree declaring the site a natural preserve for the protection of a rare cactus. The tribunal found first that the permitting process was defective in lacking the right for Metalclad to be heard. The tribunal also found that the Ecological Decree constituted an expropriation under Art. 1110 regardless of the motivation for the Decree because expropriation occurs whenever the owner is deprived in whole or in significant part of the use or reasonably expected economic benefit of property. *Metalclad Corporation v. United Mexican States*, No. ARB(AF)/91/1 (Aug. 30, 2000) available at www.naftaclaims.com. The latter point was upheld on appeal. *United Mexican States v. Metalclad Corporation*, 2001 BCSC 1529 (2001).

On the national level, the US Supreme Court and state supreme courts also have upheld land use restrictions against claims that they constitute an unconstitutional taking. See *United States v. Riverside Bayview Homes, Inc.*, 474 US 121 (USSC); *Just v. Marinette County*, 6 Wis.2d 7 (Supreme Court of Wisconsin). In Brazil, a Federal Regional Tribunal upheld a decision that ordered demolition of a building enlargement on appellant's land, located near a UNESCO World Heritage Site. The tribunal noted that property rights today are not sacred and that new principles of environmental law favor social over private concerns. *Pedro Korkowski v. Ministerio Publico*, Federal Regional Tribunal (4th Region, Porto Alegre, Nov. 12, 1992).

A similar result was reached in the Venezuelan Supreme Court, which held that property rights are not of an absolute character and that the Ministry of Environment may order demolition without compensation of works that damage or threaten to damage the environment. *Donato Furio Giodano v. Ministry of Environment and Renewable Natural Resources*, Supreme Court of Justice, Venezuela, Nov. 25, 1999. The plaintiff had constructed a building that incorporated septic wells that did not comply with existing environmental legislation, and it was uncontested that the wells polluted marine waters near the property. (But see *Promociones Terra Cardon v. the Republic of Venezuela*, Supreme Court of Justice, Venezuela, Jan. 24, 1994, granting partial damages for the restriction of property rights after lands on plaintiff's property were incorporated into a national park).

Chapter 5

LITIGATION

5.1 INTRODUCTION

It is through litigation that courts enjoy their unique role in upholding the environmental rule of law. Environmental litigation can take many forms, including civil actions based on tort, contract or property law, criminal prosecutions, public interest litigation, or enforcement of constitutional rights. Particularly complex issues may arise when cases involve transboundary environmental harm. This chapter looks at some of the common problems that arise in the different types of environmental litigation, including issues of jurisdiction, case management, and evidence and causation.

5.2 JURISDICTION

Questions of *locus standi*, subject matter jurisdiction and exhaustion of administrative remedies may arise in environmental litigation. The lengthy period that can occur before harm appears after pollutants enter the environment also make it likely that some cases will present issues of statutes of limitations or laches.

5.2.1 *Locus standi*

a) *Generally*

Traditional *locus standi* rules require a party bringing suit to have a sufficient interest or personal stake in the outcome of a case to distinguish the individual from other persons or the public at large. The plaintiff must have experienced a distinct injury traceable to the alleged conduct of the defendant. Individuals and groups have generally been able to meet the requirement if they show an injury to their aesthetic, conservational or recreational interests. See, e.g., *SCRAP v. U.S.*, 412 U.S. 669 (1973). In France, the administrative tribunal of Rouen held that an association for the promotion of tourism and the protection of nature could present evidence of a sufficient interest, given its object as defined in its statutes, to contest an authorization for a waste treatment plant. The court also found that labor unions, notably those concerned with chemical industries whose interest was to maintain the authorization, also had the right to be heard. Tribunal administratif de Rouen, 8 june 1993, *Association Union touristique des amis de la nature et autres*, R.J.E. 1994/1, p. 61. An appellate court recognized that a nature protection association has standing to intervene in a case seeking the annulment of an authorization permitting the operation of a uranium mine. However, without a showing of material harm, the association could not seek damages. Tribunal administratif de Bordeaux, 2 oct 1986, *SEPANSO c Ministère de l'environnement*, R.J.E., 1987/3, p. 368.

Where injury is shown, it does not matter that the plaintiffs are only a few among many similarly affected. See *Kajing Tubfk & Others v. Ekran Biid & Others*, High Court, Kuala Lumpur (1996) (three individuals among a community of 10,000 are not deprived of standing or relief because of their limited number).

In some jurisdictions, traditional property doctrines have served to expand standing. In *Abdikadir Sheika Hassan and Others v. Kenya Wildlife Service* (High Court of Kenya, Case 2059/1996), for example, the court permitted the plaintiff on his own behalf and on behalf of his community to bring suit to bar the agency from removing or dislocating a rare and endangered species from its natural habitat. The Court observed that according to customary law, those entitled to use the land are also entitled to the fruits thereof, including the fauna and flora; thus the applicants had standing to challenge the agency action.

Cases that are characterized as involving infringements of basic rights also generally afford broad standing to affected persons. See *Festo Balegele and 749 Others v Dar es Salaam City Council* (Civil Cause No. 90/1991, High Court Tanzania) (allowing residents of a neighborhood to sue the City Council to halt an illegal dump site that was found to deliberately expose their lives to danger).

Governments, too, must demonstrate that they have standing. In *Gray Davis et al. v. U.S. EPA* (9th Cir. July 17, 2003), the federal government argued that California lacked standing to challenge EPA action denying a waiver from some regulations on air quality. The Court held that California was acting to protect its own interests and

that furthermore, the Governor and state agency had acted in their official capacities with proprietary interests in the land, air and water of the state. This the court held to be sufficiently concrete to give them standing.

Where numerous individuals are harmed, as is often the case with environmental damage, many jurisdictions allow class actions to be filed by one or more members of the group or class of persons who have suffered a similar injury or have a similar cause of action. The class action is essentially a procedural device to quickly and efficiently dispose of cases where there are a large number of aggrieved persons. It helps ensure consistency in judgments and awards of compensation, as well as prevents proliferation of separate and individual actions. Petitioners file on behalf of themselves and others of their class, representing the others and subsequently others are asked to join in. Often public notices are put out asking interested persons to join the case. To be maintainable, class actions usually must be permitted under the procedural rules of the country, as in the U.S. and in India. Class actions may also be permitted, even recommended by courts, as a means to enforce the Constitutional right to a healthy environment when the specific facts threaten to violate the rights of an undermined number of people. See *Jose Cuesta Novoa and Miciades Ramirez Melo v. the Secretary of Public Health of Bogota* (May 17, 1995), Const. Ct., Colombia; *Minors Oposa*, Sup. Ct. Philippines.

b) Enforcement of statutes

Environmental statutes and regulations allowing citizen suits, either against an administrator for failure to perform a required act or against a person who is allegedly in violation of an environmental regulation or standard, have served to enlarge the standing of citizens to seek redress through the courts. Broad laws have been drafted, for example, in New South Wales, Australia, to allow “any person” to commence an action against any other person alleged to be in violation of a permit, standard, regulation, condition, requirement, prohibition, or order under the law. Similar legislation has been adopted in India and the United States. Courts must decide how broadly to read the term “any person.” In particular they must determine whether the individuals must have some interest adversely affected or whether the law was intended to open the doors to all persons taking an interest in the matter, acting as private prosecutors.

In South Africa, courts have looked to a number of factors to determine whether a member of the public has *locus standi* to prevent the commission of an act prohibited by statute:

- Did the legislature prohibit doing the act in the interests of a particular class of persons or was the prohibition merely in the general public interest
- In the former instance, any person belonging to the class of protected persons may interdict the act without proof of any special damage.
- For legislation of general interest, the applicant must prove that he or she has suffered or will suffer special damage as a result of the doing of the act.

Applying these tests to the Environmental Conservation Act of 1989, a court in Durban found it to be in the general interest requiring proof of special harm, but allowed applicant to proceed on a nuisance claim if she could prove that the management and operation of the site in question constituted such nuisance. *Verstappen v. Port Edward Town Board & Others*, Case 4645/93 Durban & Coast Local Division (South Africa).

Some courts have called for reexamining traditional rules of standing in environmental matters involving the state, in order to adapt such rules to the changing needs of society. See *Wildlife Society v Minister of Environment* (Transkei Supreme Court 1996) (a group whose main aim is to promote environmental conservation should have standing to apply for an order to compel the state to comply with its statutory obligations to protect the environment. Should access to the courts be abused, the judiciary may impose appropriate orders of costs to discourage frivolous actions). Cases filed by the Secretary General of the Bangladesh Environmental Lawyers Association similarly led the Supreme Court to hold that any person other than an officious intervener or a wayfarer without any interest in the cause may have sufficient interest in environmental matters to qualify as a person aggrieved. e.g., *Dr. Mohiuddin Farooque v. Bangladesh, Represented by the Secretary Ministry of Irrigation, Water Resources and Flood Control and Others* 48 DLR 1996 (SC Bangladesh, 1996).

c) *Public interest litigation*

Public interest litigation differs from conventional litigation where the parties seek to resolve a dispute that is peculiar to them and there is no impact on the general public except in so far as it clarifies the law on that point. Public interest litigation, on the contrary, generally involves disputes over the rights of the public or a segment of it and the grievance is often against the state in respect of administrative or executive action. Redress may be limited to a declaration of the law on the point or an injunction, because compensation is not usually the main objective. Public interest litigation is initiated usually by public interest groups and individuals. Some laws support public interest litigation by broadly allowing actions to abate any "imminent or substantial endangerment to health or environment." These laws most often apply to issues involving hazardous wastes.

Judicial powers in some states, e.g., India and Pakistan, extend to allowing letters and petitions to the court to be converted into public interest litigation. A letter from the Karachi Administration Women's Welfare Society, for example, complaining of water for household use being polluted by sewage, was converted by the Supreme Court into Human Rights Case No. 9-K/1992.

Where a constitution includes a right to a clean and healthy environment, courts have often allowed public interest litigation. In *Antonio Horvath Kiss y Otros v. National Commission for the Environment* (March 19, 1997) the Supreme Court of Chile granted standing to citizens not directly affected because it found that the constitutional right to a healthy environment does not impose a requirement that the affected people themselves present the action. See also *The Environmental Action Network Ltd v. The Attorney General and the National Environment Management Authority* (High Court of Uganda at Kampala, Misc. App. 39/2001) (holding that article 50 of the Uganda Constitution allows public interest litigation). The inclusion of environmental rights in the South African constitution has expanded standing. See *Wildlife Society of Southern Africa & Others v Minister of Environmental Affairs & Tourism & Others*, Case 1672/1995 (South Africa) (allowing members of environmental groups to compel enforcement of Decree 9 (Environmental Conservation) (1992) promulgated by the Government of Transkei).

Courts have also opened the door to citizen enforcement of laws and treaties signed by the state. The Supreme Court of Nepal, for example, accepted the *locus standi* of individuals suing in the public interest to protect public property and the "public right" to have the government act in conformity with Directive Principles in the Constitution. The Court emphasized the obligation of the government to give effect to its obligations under the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage to which the state is a party. The Court ordered the government to formulate a national policy regarding religious, cultural and historical places of importance. *Prakash Mani Sharma & Others on behalf of Pro Public v. Prime Minister & Others*, 312 NRL 1997 (SC, Nepal); see also *Prakash Mani Sharma & Others Pro Public v. HMG, Cabinet Secretariat and Others*, Writ No. 3017 (1995)(SC, Nepal) challenging a government decision to dismantle existing historical structures to construct a park on the banks of the Bagmati River. The Supreme Court ordered different governmental bodies to ensure protection of the environment, including religious, archaeological and cultural areas of importance.

A predicate question in public interest litigation is whether standing pertains only to individuals or also to non-governmental organizations (NGOs). Many jurisdictions have recognized the capacity of NGOs to sue on behalf of their members. For example, in India *locus standi* has been made sufficiently flexible to permit the initiation of public interest litigation by interested organizations or individuals. The Indian Supreme Court has essentially declared that there are two categories of standing: representative standing and citizen standing (see *Judges Transfer Case* AIR 1982 SC 149). Representative standing permits public interest groups and others to represent injured persons or communities, usually in fundamental rights cases. Citizen standing permits interested groups or persons to claim that as citizens they have an interest in a matter of national importance; it is used usually in the area of administrative law. (See, for example, *M.C. Mehta v. Kamal Nath and Others*, 1 Sup. Ct. 388 (1997); *M.C. Mehta v. Union of India and Others*, Writ Petition (Civil) No. 860 1991 (Sup. Ct., India); *M.C. Mehta v. Union of India and Others*, AIR 1988 SC 1037; *M.C. Mehta and Others v. Shriram Food and Fertilizer Industries and the Union of India*, AIR 1987 SC 965; cases filed by the Environmental Foundation Ltd. in Sri Lanka: *Mendis v. Dublin de Silva* ([1990] 2 Sri L R 249, Sri Lanka).

Box 12 Public Interest Standing

In *Ms. Shela Zia and Others v. WAPDA*, PLD 1994 SC 693, the Supreme Court of Pakistan held that the right to a clean environment is a fundamental right of all citizens of Pakistan covered by the right to life and the right to dignity in arts. 6 and 14 of the Constitution of 1973. The judgment clarified that public interest litigation could be brought without the necessary of standing to sue or of being directly affected as an "aggrieved person." Following this decision, the Pakistan Chest Foundation and others brought an action against the Government asserting that tobacco advertising should be banned as a violation of the right to health and an endangerment of human rights. Addressing the issue of locus standi, the Lahore High Court held that a public interest litigation can be initiated by any public spirited person who may feel the wrong done to him and others or it may be initiated on or behalf of a voluntary organization or association which has dedicated itself to work for and protect the rights of the people in particular fields. Such persons, bodies or associations cannot be termed as unconnected persons with causes involved in the cases they bring. The court ordered a ban on tobacco advertisements within three years of the date of judgment. See *Pakistan Chest Foundation and Others v. Government of Pakistan*, 1997 CLC 1379.

5.2.2 Subject matter jurisdiction

Some courts have limited subject matter jurisdiction and plaintiffs must demonstrate that the case they seek to bring falls concerns a subject over which the court has jurisdiction. Otherwise the court will be unable to proceed.

5.2.3 Timeliness

Lawsuits for environmental harm are often brought long after some or all of the contaminants initially entered the environment. Thus, statutes of limitations are of great importance. In general, courts apply "discovery" rules where the contamination is present in soils or groundwater and may not be apparent without scientific investigation or actual sampling. A statute of limitations thus ordinarily begins to run on the date plaintiff knew or reasonably should have known that personal injury or property damage was caused by a hazardous substance, pollutant or contaminant. Plaintiffs may also allege that contamination is a continuing nuisance, or an ongoing harm or violation, and that thus the action is current rather than only historical. Where contamination may not be readily abated it may more easily be found to be a continuing or permanent nuisance.

Other issues of timing arise when agency action is being challenged. First, the agency act in question may be one in a series that will lead to environmental harm, but the harm is not yet present. In this scenario, a lawsuit may be held premature if brought before the series of acts is complete. See *National Association of Professional Environmentalists v. AES Nile Power Ltd.* (High Court of Uganda at Kampala, Misc. Case 268/1999) (applicants are not entitled to an order for the preparation of an environmental impact assessment because the "mere signing" of a power project agreement creates no risk of environmental harm).

Many legal systems only allow judicial review of "final" agency action. See, e.g., 42 U.S.C. sec. 7606(b). The question of whether an agency action will be reviewed as final depends upon several factors:

- 1) Is the agency position definitive?
- 2) Does the action have the status of law or affect the rights and duties of the parties?
- 3) Will the action have an immediate impact on the daily operations of the regulated party?
- 4) Are pure questions of law involved?
- 5) Will it be efficient to review the action at this time?

In some cases, plaintiffs attempt to bypass administrative proceedings altogether and go directly to court. Most courts require exhaustion of administrative remedies before permitting a judicial action to go forward. However, where a defendant private party has acted against the statutory or common law rights of the plaintiff, those rights may be directly enforceable and permit the court to enjoin the violation independently of agency action. See *Nairobi Golf Hotels (Kenya) Ltd. v Pelican Engineering and Construction Co. Ltd.* (High Court of

Kenya, Nairobi, Case 706/1997) (although the government could prosecute the defendant for illegally taking water without a permit, riparian owners along a river could also judicially enforce their rights to a reasonable amount of water and apply for an injunction to restrain the defendant without exhausting agency procedures).

5.2.4 *Forum non conveniens*

Forum non conveniens is usually a prudential doctrine allowing a court to dismiss a case when another more convenient forum exists. This issue is most likely to arise in the environmental context when a case concerns transboundary environmental harm.

Numerous factors may weigh into the decision to dismiss a case on this basis. Some courts give considerable deference to plaintiffs' choice of forum and will only dismiss a case for serious hardship to defendants or witnesses. This is especially so when the plaintiff brings the action in his or her domicile where the damage occurred. Evidence and assessment of damage and scope of injury may be more readily available in such a locale, and plaintiff can avoid the additional expense of litigating in another jurisdiction. In the United States federal courts and most state courts, there is a presumption in favor of plaintiff's choice of forum that the defendant must overcome by showing that the chosen forum would be unnecessarily burdensome. *Piper Aircraft Co. v. Reyno*, 454 U.S. 235; *Gulf Oil v. Gilbert*, 330 U.S. 501 (1947); but see *In re Union Carbide Corp. Gas Plant Disaster at Bhopal, India in December 1984*, 809 F.2d 195 (2d Cir. 1987).

Other courts balance among convenience to all sides, including concerns of judicial administration and overburdening of courts, being aware that plaintiffs will often seek to bring cases in jurisdictions that allow punitive or exemplary damages or which have lower standards of proof. Many jurisdictions favor hearing cases in the defendant's domicile where evidence may be more easily brought forward concerning the actions and intentions surrounding the harmful conduct.

Plaintiffs often seek to follow transnational companies to the jurisdiction where they are headquartered or where the parent company may be located. Courts are divided over retaining such cases. Often they are dismissed only if the defendant agrees to submit to jurisdiction in the alternative jurisdiction. A delicate factor is assessing whether an alternative forum exists, in the sense of having a functioning legal system. While judges are reluctant to consider attacks on the integrity or independence of other courts, in some instances it is clear that no possibility exists for a case to be fairly heard in the alternative forum. The inadequacy of an alternative forum may also result from lack of resources or legal representation. See *Lubbe v. Cape PLC*, UK House of Lords, 20 July 2000 (refusing to stay asbestos litigation in England which resulted from activities and products abroad). One judge stated:

I cannot conceive that this court would grant a stay in any case where adequate funding and legal representation of the plaintiff were judged to be necessary to the doing of justice and these were clearly shown to be unavailable in the foreign forum although shown to be available here.

Such cases can also raise difficult questions of corporate law concerning, for example, when a parent corporation can be pursued for the acts of its wholly owned subsidiary.

Two contrasting decisions on *forum non conveniens* illustrate the different views of courts. In *Recherches Internationales Quebec v Cambior Inc. and Home Insurance and Golder Associates Ltd* (Aug 14, 1998), the Superior Court of Quebec dismissed a case against the parent Canadian company of a Guyanese gold mining operation whose effluent treatment plant burst and sent toxics into Guyana's main waterway. The court noted that (a) Guyanese courts had jurisdiction to try the case (2) neither the victims nor their action had any real connection with Quebec, (3) the incident occurred in Guyana (4) all elements of proof were there, and (5) the applicable law was that of Guyana. It held that Guyana is the natural and appropriate forum to try the case.

In *Englebert Nbcobo & Others v. Thor Chemical Holdings Ltd.*, Case No. 1994 N 1212 (U.K.) evidence of Thor Chemical's negligence in England established a nexus with the damage done to workers in another country who were disabled or killed by mercury poisoning. The court found that there was grave danger that the plaintiffs might not receive justice in the other country if their case was dismissed in England, so the suit could proceed. See also: *Doe v. Unocal* (9th Cir. USA 2002) and *Wiwa v Royal Dutch Petroleum*, 226 F.3d 88 (2d Cir. USA, 2000), rejecting motions to dismiss on the ground of *forum non conveniens*.

5.3 PRE-TRIAL ISSUES

5.3.1 Dispute settlement generally

Many legal systems are based on a preference for negotiation, compromise and settlement of disputes. Even where settlement is not formally encouraged, settlements can be seen to further justice, expedite the flow of cases and promote efficiency. Judges can promote settlement either by urging negotiations between the parties or by actively participating in them. In some instances judicial staff members conduct the negotiations and present any settlement reached to the judge for approval. Not only civil, but criminal cases may be resolved without a trial. Even after litigation in court has commenced, a judge may still be able to work with the parties to negotiate a settlement acceptable to all sides. This may be especially important in complex litigation where proof of damages can be difficult.

The case *In re Sause Brothers Ocean Towing Concerning an Oil Spill from the Barge The "Nestucca" off the Coast of British Columbia*, 769 F. Supp. 1147 (D. Oregon, 1991), provides an example. Due to negligence involving an oil tanker being towed by another vessel owned by the same company, the tanker spilled some 850,000 litres of oil off the north Pacific coast, causing damage to the coastline of Canada by killing half a million migratory birds, as well as otters, seals and sea lions. Shellfish and crab fisheries were closed and various sea grasses destroyed. Claims were filed by the Federal government of Canada, the provincial government of British Columbia, and two Native American tribal groups living in Canada. One of the tribal groups claimed Can\$23,656,344 for cleanup and lost opportunity costs, collective food loss and environmental damage to members of the group. The governmental claims were Can\$4,382,000 for cleanup costs and Can\$ 3,349,500 for environmental damage. Three of the four claims settled through negotiations supervised by the District Court; the company agreed to pay the full clean up costs and environmental damage claim to the governments, to be used for purposes of restoration of the environment. The 23 million dollar indigenous claim was settled for Can\$1,205,000, covering environmental claims, commercial fishing claims and cleanup claims. The fourth claim remained to be decided in litigation because the company claimed it was filed too late.

5.3.2 Alternative Dispute Resolution (ADR)

There exist a number of alternative dispute resolution (ADR) options that can provide parties with an efficient way to address problems and at the same time alleviate over-burdened court dockets. The two most common types of ADR are mediation (sometimes also referred to as "conciliation") and arbitration. References to arbitration and mediation appear in the national laws or court rules of many countries. Examples of countries having laws endorsing or requiring the use of ADR include: Colombia, Mexico, Chile, Indonesia, Australia, The United Kingdom, and the United States. Notably, over 130 countries have signed the 1958 United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards, known as the "New York Convention". The Convention facilitates enforcement of arbitral awards in all contracting states.

Mediation is facilitated negotiation in which a skilled, impartial third party seeks to enhance negotiations between parties to a conflict or their representatives by improving communication, identifying interests, and exploring possibilities for a mutually agreeable resolution. The disputants remain responsible for negotiating a settlement, and the mediator lacks power to impose any solution; the mediator's role is to assist the process in ways acceptable to the parties. Typically this involves supervising the bargaining, helping the disputants to find areas of common ground and to understand their alternatives, offering possible solutions, and helping parties draft a final settlement agreement. While mediation typically occurs in the context of a specific dispute involving a limited number of parties, mediative procedures are also used to develop broad policies or regulatory mandates and may involve dozens of participants who represent a variety of interests. Mediation most often is a voluntary process, but in some jurisdictions may be mandated by court order or statute. See, e.g., U.S. Institute for Environmental Conflict Resolution glossary (www.ecr.gov).

Arbitrators play a quasi-judicial role, in that they typically render a decision or outcome with respect to the disputed matter, there are some crucial differences. Arbitration is usually the result of an express, binding agreement between the parties to submit their dispute to a neutral third party whom they select, often from a roster of specialists. The parties determine the scope of the arbitrators' authority and the rules by which they shall proceed. In some legal systems, courts may assign selected civil cases to arbitration as a precondition to or substitute for trial. In general, arbitration is seen as less formal and more rapid than judicial proceedings.

The benefits of ADR can nonetheless be significant. ADR is generally viewed as increasing efficiency in terms of the time and resources needed to resolve disputes. It also frequently reduces the time to reach a final outcome, which in environmental cases can serve to help minimize or contain environmental damage. Finally, ADR encourages constructive approaches to problem-solving and reconciliation around mutually beneficial solutions. It also places the solution process in the hands of the parties themselves, giving them a sense of vested ownership in the outcome.

Additional advantages in using ADR exist for environmental cases. Certain ADR methods such as consensus-building, facilitation, or conflict management dialogues have proven particularly effective in the kind of multi-party litigation that typifies environmental disputes. ADR is also especially effective in environmental disputes where parties have an ongoing relationship, such as neighbors, where parties significantly benefit from improving their interrelationships in the long run. ADR has been effective, for example, in addressing land-use and riparian disputes between neighbors. Moreover, because of the procedural flexibility it affords, ADR allows for retention of subject matter experts as mediators and arbitrators, which in complex environmental cases can assist the process in moving forward.

ADR is also often used in international cases, many of them dealing with environmental or social concerns. In addition to privation mediation and arbitration firms, the International Chamber of Commerce, the International Center for the Settlement of Investment Disputes, the American Arbitration Association, and the London Court of International Arbitration are the best know bodies that provide arbitration services and procedures for international disputes.

Even where cases are settled outside the courtroom through ADR, they often come before judges, either for review, to obtain a consent decree, or for enforcement. Judges may find that they are reviewing the procedures and the substance of the settlement reached.

5.3.3 Case management

Judges manage cases and their flow through the courts through rules and procedures that involve the exercise of considerable judicial discretion. A court might refuse to hear a case if its rules permit or it may appoint experts or decide to accept briefs *amici curiae* to assist in its understanding of a case. In *Rural Litigation and Entitlement Kendera v. Union of India (Doon Valley Limestone Quarrying Case – II)*, AIR 1985 SC 652, for example, the Supreme Court appointed a three person expert committee to evaluate the issue of quarrying in a Himalayan region. Courts also may set time limits for filings with the court or page limits for briefs, and may constrain and allocate the time set aside for oral argument and trial. Counsel may be disciplined for unethical behavior. The exercise of these powers allows the judge to provide fair and expeditious justice to litigants and to maintain decorum and respect for the process.

Moreover, courts have considerable authority in terms of how to manage the litigation before them, and many courts deploy these authorities to desirable ends in environmental cases, which tend to be complex. For example, many courts issue case management orders early in litigation which address such matters as:

- A date for an initial settlement conference with the court to determine whether dispute settlement is possible;
- A deadline for completion of any discovery allowed by local rules;
- A deadline for the filing of motions for summary judgment and other dispositive motions;
- A deadline for the filing of motions *in limine* and other evidentiary motions;
- A deadline for submission of stipulated facts and evidence; and
- A date for trial.

Besides enabling the court to maintain control over the proceeding, such orders may reinforce in the minds of the parties the expense and difficulty of litigation and may thus encourage settlement. Other types of trial management techniques include joining or consolidating similar matters or bifurcating a trial to allow for a decision on the merits and a separate proceeding concerning damages or other remedies. The latter may involve the appointment of experts or using statistical sampling where there are large numbers of claimants. In class actions, issues common to the entire class may be decided first or a test case may be litigated.

5.3.4 Provisional or interim remedial measures

Some cases present urgent issues whose resolution may be frustrated if the judiciary does not issue preliminary orders preserving the status quo during the pendency of a case. One example can be seen in the case of *Sibaji Waiswa v. Kakira Sugar Work Ltd.* (High Court of Uganda at Jinja, Misc. App. 230/2001). The applicant sought a temporary injunction to restrain the defendant from uprooting a protected forest reserve and evicting residents to establish a sugar cane plantation. A prior case was pending but the defendant had begun to take out trees and seed nurseries. The High Court issued a temporary injunction on the basis that the alleged harm could not be remedied by an award of damages alone and on balance the conduct should be restrained until the case could be decided on its merits.

The urgency of some issues means proceedings on provisional measures may be ex parte and judges may have to decide the matter very quickly. In some instances an undertaking or security may be required to insure against possible losses.

5.4 TRIALS

Trials are usually the most time-consuming of judicial activities. In some cases, the disputing parties agree about the interpretation and application of the law but offer differing versions of the facts. A pollution case, for example may turn entirely on whether or not the defendant released the harmful emissions or whether or not the pollutants caused the plaintiff's injury. In other cases, both parties may agree on the relevant facts, but disagree on the application of the law to those facts. It may be contested, for example, whether an environmental statute or regulation applies to the particular conduct in question. Some cases will involve questions of law and of fact.

Trial courts must have the necessary evidence to decide questions of fact in order to resolve disputes. If a trial court misinterprets or misapplies the law, its error can be corrected on appeal, but if it lacks the necessary or relevant facts, the result is harder to correct. In an adversary system, the obligation to present evidence rests on the advocates for each side and it is assumed that they will bring forward all the evidence and legal arguments to support their positions. Nonetheless, judges generally have the authority to appoint experts or to make site visits to obtain the best evidence about the environmental conditions in question. See e.g. *Ramiah and Autard v. Minister of the Environment and Quality of Life* (Mauritius Environment Appeal Tribunal, March 7, 1997) (making a site visit to an area whose character as a sensitive wetland was challenged).

5.4.1 Rules of procedure

The central objective of rules of procedure is to secure a just, speedy and inexpensive determination of every action. Rules can lend transparency and predictability to the judicial process and can facilitate disposition on the merits. Some advocates may attempt to abuse the rules by delay and add to the cost of proceedings. In appropriate cases court rules may specify the imposition of sanctions.

5.4.2 Evidentiary proof and standards of review

In civil liability, as in international state responsibility, plaintiffs ordinarily have the burden of proof, which typically includes the requirement to establish causation, identify the polluter, and prove damage. The link of causality between a culpable act and the damage suffered must be established, and the damage must not be too remote or too speculative. Pollution cases pose specific problems in this regard for several reasons. First, the distance separating the source from the place of damage may be dozens or even hundreds of miles, creating doubts about the causal link even where polluting activities can be identified. Second, the noxious effects of a pollutant may not be experienced until years or decades after the act. Any increase in the rate of cancer as a consequence of radioactive fallout, for example, can be substantially removed in time from the polluting incident. This problem was highlighted by the 1986 Chernobyl accident, which immediately caused twenty-nine deaths, but which directly or indirectly may have produced thousands of cases of cancer over the long term. Intervening influences and contributory causes may play a role as well. Third, some types of damage occur only if the pollution continues over time. This is true of the deterioration of buildings and monuments, for example, or, in certain circumstances, destruction of vegetation.

Even at a short distance, proving the identity of the polluter can pose problems. For example, gas emissions from motor vehicles are harmful, including the fumes of each individual automobile. Yet it is difficult to apply rules of responsibility and demand reparations from each driver because the numbers are too great and the effects produced by each unit are relatively limited. Nonetheless the cumulative effects are significant due to the part played by nitrous oxide (NO₂) and burned hydrocarbons (HC) in the formation of ozone at medium altitudes during sunny periods. Proof of causation is also sometimes made difficult by the fact that some substances cause little harm in isolation but are toxic in combination. Imputing responsibility to one source rather than another can also be difficult.

In some circumstances, modern environmental law has decreased the imperative traditionally associated with establishing causation. For example, in a circumstance in which legislation or sub-legislation has prescribed in some detail both what constitutes an environmental violation and the remedies that flow from that violation, proof of causation in the traditional sense may not need to be shown. To illustrate, if a regulatory regime prohibits surface water discharges except when permitted by a license, then the mere fact that there has been an unpermitted discharge may give rise to liability, and such remedies as an injunction requiring cessation of the discharge or a fine or penalty, without the need for a showing that that discharge caused any particular harm. This being said, causation generally needs to be shown to justify an environmental damages award, and causes of action not based on prescriptive environmental statutes likewise generally continue to require a showing of causation.

As discussed in sec. 3.5, the precautionary principle has led some courts to require the proponent of an activity to prove that it will cause no or little harm rather than demanding that the opponent prove that harm will be caused.

In addition to issues of burden of proof, courts must determine the appropriate standard of proof and, in some instances, the standard of review. Environmental cases will normally involve applying the traditional standards used for civil and criminal litigation, but environmental law may mandate agencies to impose on applicants for permits or exemptions from requirements a particular standard of proof in order to succeed. If the agency decision is appealed, a judge will then face the issue of deciding on the standard of review to apply to the agency decision. *Gray Davis v. U.S. EPA* (9th Cir. July 2003) for example, offers an example of the intersection of standards of proof and standards of review. There, the court reviewed for abuse of discretion the question of whether the EPA was wrong to demand that California “clearly demonstrate” the non-harmful effects of a waiver of air quality standards. Finding the statute silent as to the evidentiary standard the agency should use, the court examined and found “reasonable” the standard of proof imposed by the agency, using the deferential “abuse of discretion” standard of review. Where agencies fail to carry out the statutory commission, courts may set aside agency determinations and return the issue to the agency for proper action. If, for example, the statutory test for a license is “best adapted to a comprehensive plan for improving or developing a waterway,” the agency can only license a project if it compiles a record showing it has thoroughly studied all the relevant factors and possible alternatives to the proposal. See *Scenic Hudson Preservation Conference v Federal Power Commission*, 354 F.2d 608 (1965) (US).

5.4.3 Scientific uncertainty

Scientific uncertainty raises the question of how to protect public health and the environment when conclusive evidence is not available. Evidence may, for example, fall short of demonstrating an irrefutable cause and effect connection between activities and injuries. Sometimes the law permits activities to take place before there has been time or opportunity to test the substances or activities to guarantee that the discharges will not be injurious in some way.

Box 13 Assessing Scientific Evidence

Some factors have been identified as assisting in a determination about the value of scientific evidence:

- 1) Can the scientific theory or technique be tested?
- 2) Has the theory or technique been subject to peer review and publication?
- 3) Is there a known or potential rate of error?
- 4) Has the theory or technique widespread acceptance or only minimum support within the scientific community?
- 5) Is the theory or technique both reliable and credible?

The very term “scientific” implies a grounding in the methods and procedures of science. Knowledge connotes more than speculative belief or unsupported conjecture. The term applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truthful on solid grounds. Scientific testimony need not be known to a certainty, but inferences and assertions should be derived by the scientific method.

Judges are asked to apply rules of evidence where ambiguities exist and experts differ. Evidence should generally assist the trier of fact to understand the issue and should rest upon reliable, scientifically valid principles. The judge may be required to make findings of fact on the reliability of complicated scientific methodologies.

The judge will often need to weigh conflicting testimony by scientific experts. As a practical matter, the issue of expert opinion testimony is most problematic when the experts have been hired and paid by one side or the other. It can give the appearance, and may be the reality, that the expert view is more in the nature of advocacy for the employer than unbiased expert analysis.

In *Anderson v. American Smelting & Refining Co.*, 265 Fed. Rep. 928 (1919), a typical case, the court indicated some of the problems: “It must not be overlooked that witnesses who give opinion evidence are sometimes unconsciously influenced by their environment, and their evidence colored, if not determined, by their point of view. The weight to be given to such evidence must be determined in the light of the knowledge, the training, the power of observation and analysis, and in general the mental equipment, of each witness, assuming. . . that the witnesses of the respective parties were honest and intended to testify to the truth as they perceived it.” The Environmental Appeal Tribunal of Mauritius *Ramiah and Autard* (Mauritius, March 7, 1997) considered the conflicting evidence from two expert witnesses and gave greater weight to the expert who had conducted tests.

In some jurisdictions courts have the authority to appoint their own scientific experts, or undertake an independent inquiry or undertake their own fact-finding to establish disputed facts. Other courts may appoint independent commissions or committees to do so. For examples, see the *Dehra Dun* cases (India); – *Kinkir Devi and another v. State of Himachal Pradesh and Others*, AIR 1998 Himachal Pradesh 4 – *M C Mehta and others v. Shriram Food and Fertiliser Industries and Union of India*, AIR 1987 SC 982 – *General Secretary, West Pakistan Salt Miners Labour Union (CBA) KHWRA, Khelum v. The Director, Industries and Mineral Development, Punjab Lahore*, 1996 SC MR 2061 (Supreme Court of Pakistan).

5.4.4 Choice of law

Choice of law in environmental litigation is predominantly posed in transboundary matters, where the activity takes place in one state and the harm occurs in another. The court with jurisdiction will determine the choice of law. Generally, tribunals apply local law, but preemptive national laws, public policy concerns, and the principle of non-discrimination may affect the choice. The latter contemplates that in no case should the plaintiff's complaint be judged according to rules less favorable than those that would be used to judge the matter in the state where the activities took place. This norm is included in Art. 3(2) the 1974 Nordic Environmental Protection Convention and should lead judges in covered jurisdictions to apply foreign law when its substance is more favorable than local law.

German courts have accepted cases brought by resident victims against non-resident defendants since 1957, when the Sarrebrücken Court of Appeal permitted suit by a German restaurateur located on the German side of the Mosel against a French power station in Lorraine for damage caused by smoke and dust. *Poro v. Houillères du Bassin de Lorraine*, 11 Oberlandesgericht (OLG) Saarbrücken 752 (1958), summarized at 1973 R.C.A.D.I 161. The plaintiff complained that the smoke had destroyed his gardens, made his houses unrentable and rendered his outdoor terrace unusable. The Court applied French law and awarded damages.

Chapter 6

REMEDIES AND ENFORCEMENT

6.1 INTRODUCTION

Courts approach the issue of remedies by applying specified remedies where mandated and invoking inherent powers where not. In either case, actions that are brought based upon harm to the environment require the creation of appropriate remedies. In a sense, it is in the fashioning of remedies that judges work most directly with the principles of sustainable development. It is in this setting, for example, that judges practice prevention and give substance to the polluter pays principle. It is also through the fashioning of remedies that judges reinforce the rule of law in the environmental setting by ensuring that violators do not gain advantage by virtue of their misdeeds.

The remedial challenge presented by a given case will depend on the nature of the case. Because constitutional mandates are typically expressed generally and without remedial guidance, remedies in cases involving constitutional violations may, in particular, require judicial discretion and creativity. Judges may, for example:

- order a halt to unconstitutional conduct,
- direct that specific remedial actions be undertaken,
- compensate for past wrong, and/or
- provide for a complex, prolonged regime of performance.

Far more frequent than constitutional cases are matters that involve the enforcement of statutes or administrative regulations. In this setting, judges are frequently called upon to resolve different interpretations of the law, and the resulting decision can have implications beyond the case at hand. The technical complexity of many environmental laws can lead to statutory ambiguity or a decision by the framers of such laws to settle on broad and general terms that mask disagreement over the detailed substance of the law. Moreover, technological changes may require judges to face unanticipated applications of the law. For example, most intellectual property laws were written without anticipating the emergence of biotechnology and the question of whether or not living organisms can be patented. Judges have been asked to determine whether the broad language of the patent law, intended to reward creativity and invention, should be applied to living organisms. A decision to so extend the law has broad policy consequences.

In addition, the question may arise about whether a judge should imply a remedy when a statute has been violated. Some courts will strictly construe statutes and deny a remedy if one is not expressly provided. Other courts imply remedies for private injuries caused by violations of statutes or regulations. In this setting, the statutes or regulations may establish a standard of care against which wrongdoing is measured and that can lead to liability when the violation causes injury to another party. Administrative procedures may exist for enforcing the standard, but may not provide relief to the injured. In such instances, the court must consider, among other things, whether implying a private remedy furthers the statutory or regulatory purpose or could complicate or interfere with governmental enforcement.

In many circumstances, judicial remedies in environmental cases combine different elements of relief. For example, in *Vellore Citizens Welfare Forum v. Union of India*, the Supreme Court found that tanneries in the State of Tamil Nadu were causing serious pollution. The Court subjected each tannery to a fine. The sums generated by the fines were to be placed in an environmental protection fund to be used to restore the environment and compensate affected persons. The tanneries were also required to set up common effluent treatment plants or individual pollution control devices. Failure to comply would result in closure. No new plants were permitted to open. The Supreme Court delegated authority to monitor compliance to a Special Bench of the Madras High Court, called the "Green Bench." See also *M.C. Mehta v. Union of India and Others*, AIR 1988 SC 1115; *M.C. Mehta v. Union of India and Others*, SC Writ Petition (Civil) No. 860 of 1991.

While remedies are very much case-specific, and turn on the nature of the violation and the prayer for relief in the case, courts tend to give priority to the following kinds of remedies in environmental cases:

1. Injunctive relief to halt the harmful activity;
2. Damages to compensate for harm suffered;
3. Orders of restitution or remediation;
4. Sanctions to punish the wrongdoer and to deter future violations;; and
5. Awards of costs and fees.

Each element of this remedial hierarchy will be discussed in turn.

6.2 INJUNCTIONS

Wherever possible, prevention of harm should be the court's primary objective, especially where there is a constitutional or legislative obligation to protect the environment. The principle of prevention will most likely necessitate injunctive relief where the threat of harm is imminent or harmful activity is on-going.

Injunctive relief is a long-standing remedy that can abate pollution or other environmental harm. Injunctions can be preliminary (immediate), temporary, or permanent, and typically issue according to an evaluation of several factors: irreparable harm, the absence of other remedies, practicability of compliance, threats to public health, financial effect on the defendant. Preliminary or emergency injunctions, which are frequently issued according to expedited procedures, can be particularly appropriate in environmental cases where urgent action is needed.

The decision to issue an injunction and the form of the injunction are left to the trial judge as an exercise of equitable discretion. In some instances, injunctions can be important to securing compliance with the law and requiring affirmative remediation of harmful environmental conditions. Administrative agencies frequently participate in setting out a detailed schedule of required actions designed to cure the violation and remediate the harm.

Injunctive relief is commonly authorized by environmental statutes. It also is typically available at common law. The common law of nuisance, for example, allows an equitable remedy of injunction when harm is threatened and before irreparable harm ensues. It can also abate a continuing nuisance, as necessary. *Mugler v. Kansas*, 123 U.S. 623, 673. The relief of amparo may similarly enjoin polluting activities that violate rights. In *Aurelio Vargas y otros v. Municipalidad de Santiago y otros*, the Supreme Court of Chile ordered an unsanitary garbage dump to be cleaned up or close down in 120 days, because of the serious health problems caused to people who had lived in the area before the dump commenced its poor operations. *Aurelio Vargas y otros v. Municipalidad de Santiago y otros* (The Lo Errazuriz Case) Chile Sup.Ct (27 May 1987).

Mandamus orders are sometimes deployed by common law courts as a means of enjoining or directing government officials to comply with statutory obligations.

Box 14 Mandamus

The Supreme Court of Nepal issued a series of mandatory orders to protect the environment and religious and cultural sites of importance. *Prakash Mani Sharma & Others Pro Public v. HMG, Cabinet Secretariat & Others*, Writ No. 3017 (1995) (SC, Nepal). These orders included mandamus writs issued to

- the Ministry of Youth, Sport, Culture and Archaeological Department, to make proper arrangements for the protection of temples and other archaeologically and historically important places under the Ancient Monument Protection Act 1956;
- the Trust Corporation to keep accounts of ancient cultural assets under the Trust Corporation Act 1977;
- the city of Katmandu to fulfil its obligation to protect the environment and cultural assets under the Municipality Act 1991;
- regional water authorities to establish a treatment plant to purify drainage water; and
- the national authorities to protect religious, cultural and archaeologically important assets and to promote a healthy environment through making the Bagmati River free of pollution.

6.3 DAMAGES

Where the harm has already occurred, indemnities or compensatory damages may be awarded the injured party. The basic function of an award of damages is to compensate for the full losses suffered to the environment and the services it provides as well as the expenses that have been incurred due to the environmental harm. The exact type of award depends upon the nature of the harm, the characteristics of the environment in question, and the technical capacity to repair the damage.

Any award of damages or indemnity requires giving an economic value to the losses suffered. There are many difficulties that arise in this respect when environmental damage occurs.

Not all parts of the environment are easily valued. There are many environmental components that have no market value, because they are not openly traded or they are considered public goods (e.g. clean air), public trusts (beaches) or national patrimony (national parks). Abstract but crucial environmental services such as life-support systems or pollination by bees have not been generally considered in economic terms. In general, however, the economic value of the environment as a whole can be considered as the sum of all the goods (food, lumber, medicinal plants, shelter) and services (life support, recreation, assimilation of contaminants) provided during the time a given activity is taking place. Any diminution in the quality or quantity of the flow of goods and services associated with an alteration of the environment due to the activity can be considered as environmental harm.

The total economic value of environmental harm incorporates both values of use, direct and indirect, and values not based on use or exploitation. Uses can involve consumption (trees, fish) or non-consumptive actions (bird-watching). Indirect uses include, for example, prevention of erosion and flooding by preserving ground-cover and maintenance of plankton as part of the marine food chain. Preservation of options for future services is also a use that is impaired by environmental harm. Non-use values include preserving nature for its intrinsic value and conservation on behalf of future generations.

Various valuation methods can be used. For products derived from environmental components, such as fish or timber, market value can usually be determined for losses sustained. For non-market goods and services, indirect methods must be used. One is the cost of rehabilitation or restoration where this is possible. There may be associated economic costs such as lost earnings or hedonic damages associated with the pleasure derived from recreational or landscape benefits from the harmed environment. All damage awards require determining the base line of evaluation, the pre-harm value.

In the famous *Trail Smelter Arbitration* between the US and Canada over damage caused in the US by air pollution coming from the Canadian smelter, the tribunal considered the problem of assessing damages for environmental harm and the relevant principles of law. The tribunal quoted with approval a national decision that said:

Where the tort itself is of such a nature as to preclude the ascertainment of the amount of damages with certainty, it would be a perversion of fundamental principles of justice to deny all relief to the injured person, and thereby relieve the wrongdoer from making any amend for his acts. In such case, while the damages may not be determined by mere speculation or guess, it will be enough if the evidence shows the extent of the damages as a matter of just and reasonable inference, although the result be only approximate."

Story Parchment Company v. Paterson Parchment Paper Company (1931), 210 U.S. 555. In the Trail Smelter case, the US claimed damages in respect of cleared land and improvements; uncleared land and improvements; livestock damages; and damages to property and businesses. The Tribunal found sufficient evidence to show causation and damages on some but not all of the allegations. Much of the evidence came from scientific experiments conducted with respect to the effects of sulphur dioxide on plant life and crop yields and from associated expert evidence, which was often contradictory. The Tribunal did an independent assessment of the facts and determined that the requisite causal link had been established for most of the claimed damages.

In general, property damages have been recovered for:

- loss of value,
- lost profits,
- other economic loss such as rental value, costs of cleanup, repair or remediation to the property.

Personal injury damages have been assessed for:

- injury,
- disease,
- increased risk of disease,
- emotional distress,
- fear of contracting disease, and
- medical monitoring for early detection.

Perhaps the most difficult area, and one on which courts differ, concerns whether or not a present claim can be presented for suffering based upon exposure to a carcinogenic substance or ingestion of a toxic substance prior to the onset of physical symptoms. One court has imposed a requirement that the plaintiff show exposure to a toxin and more than a 50 percent probability of developing cancer in order to prevail on an anticipatory claim of this kind. Other courts have said that plaintiffs must show more than a generalized fear, or that the fear must be rationally based. Where the risk is particularly high, a plaintiff may be able to presently recover the full value of a future disease by showing a probability of contracting it because of exposure to the defendant's toxic product or other wrongful conduct. This may be the only way to recover where there is a long latency period and short statute of limitations.

6.4 RESTITUTION AND REMEDIATION

In many legal systems, including the international one, restitution is the preferred remedy if it is possible for the injury to be wiped out and the situation restored to its pre-injury state. In environmental cases courts often order environmental harm to be cleaned up or the damaged ecosystem returned to a healthy state. Such orders, which are closely related to injunctions in the sense that they compel action, may substitute for compensation and will often produce a better result for the environment. For example, where the defendant was found to have dumped wastes on a neighbour's property, the High Court of Kenya ordered the wrongdoer to clean up the waste. See *Paul K. Nzangu v. Mbiti Ndili* (High Court of Kenya at Machakos, Case 8/1991).

In deciding on restoration or remediation as the appropriate remedy courts generally take into consideration not only the possibility, but also the cost of remediation. Some jurisdictions limit remediation costs to the fair market value of the property. Other jurisdictions simply order restoration without regard to cost; the Supreme Court of Illinois, for example, upheld a trial court judgment enjoining a public nuisance (a chemical waste disposal site) and ordering defendant to remove all toxic waste along with contaminated soil found at the disposal site and to restore and reclaim the site. *The Village of Wilsonville v SCA Services, Inc.*, 426 N.E.2d 824 (Sup. Ct. Ill. 1981).

6.5 SANCTIONS AND PENALTIES

In addition to enjoining harmful environmental conditions and granting compensation for the damages caused by such conditions, the other critical function performed by judges in fashioning remedies in environmental cases is penalizing environmental wrongdoing. As is the case with all law enforcement, the objective in punishing violators is not so much punishment for punishment's sake. Rather, it is to express community rejection of the conduct and send a message of "deterrence" that discourages similar misconduct in the future.

While in some jurisdictions punitive damages may serve a role in punishing noncompliance, the two principal means of penalizing environmental misdeeds are civil penalties and criminal sanctions, such as criminal fines and incarceration. Other sanctions may include community service and other innovative measures that have a nexus with the wrong.

Several existing international agreements call for penalties adequate to deter violations. *UNCLOS*, the *Paris Convention for the Prevention of Land-Based Pollution*, and the *Basel Convention on Transboundary Movement of Hazardous Wastes* require contracting parties to ensure compliance by taking appropriate measures to not only prevent but to punish conduct in contravention of the provisions of the agreement. The *Bamako Convention on Waste Trade in Africa* goes further in requiring that the penalties be sufficiently high to both punish and deter illegal traffic. The 1994 *Lusaka Agreement on Cooperative Enforcement Operations directed at Illegal Trade in Wild Fauna and Flora* supplements earlier provisions regarding the illegality of such trade by requiring states parties to investigate and prosecute such cases.

The Council of Europe adopted on November 4, 1998, the *Convention on the Protection of the Environment through Criminal Law*, E.T.S. 172. The provisions call for administrative sanctions for less serious offenses, while serious, intentional offenses should result in imprisonment or fines and may call for reinstatement of the environment (Art. 6) or confiscation of profits (Art. 7). The text also calls for criminalizing acts that “endanger” the environment by creating a significant risk of serious harm. Article 2 lists categories of intentional offenses that the states parties must declare criminal both as to the principals and those aiding and abetting the commission of the offenses:

- release of substances or ionizing radiation into air, soil, or water which causes death or serious injury to any person or creates a significant risk of causing death or serious injury;
- unlawful release of substances or ionizing radiation into air, soil, or water which causes or is likely to cause their lasting deterioration or death or serious injury to any person or substantial damage to protected monuments, other protected objects, property, animals, or plants;
- unlawful disposal, treatment, storage, transport, export or import of hazardous waste which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, soil, water, animals, or plants and unlawful operation of a plant in which a dangerous activity is carried out presenting the same risks.
- unlawful manufacture, treatment, storage, use, transport, export, or import of nuclear materials or other hazardous radioactive substances which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of air, soil, water, animals, or plants.

States also should criminalize these offenses when committed with gross negligence. Lesser offenses, defined in Art. 4, include unlawfully discharging less dangerous substances or ionizing radiation, causing noise, disposing of wastes, operation of a plant, handling of radioactive substances or hazardous chemicals, causing detrimental changes to protected areas, and interference with protected wild flora and fauna.

a) Financial sanctions

The considerations that guide assessment of financial sanctions are similar whether the penalty is civil or criminal in nature. Thus, whether a judge is assessing a criminal fine or a civil penalty (in a system which allows for civil penalties), it is valuable for the judge to consider the deterrence value, and measure of consistency in approach, offered by assessing fines and penalties that, at a very minimum, disgorge the economic benefit that a polluter realized by virtue of its noncompliance. There are methodologies for determining the economic benefit of noncompliance that can also be discussed.

This is important in part because technology and processes designed to curb environmental degradation can impose significant short-term costs on polluters. Many polluters opt to violate the law, assuming that they will not be apprehended or if they are caught that the penalties assessed will be less costly than taking the measures required to comply with the law. In order to preserve profits, individuals or companies may be tempted to ignore regulations and legislation mandating anti-pollution measures. Similarly, when products are banned, such as ozone-depleting substances or trade in endangered species, incentives to continue trading increase as the ban becomes effective and scarcity produces rising prices.

In most cases, administrative and judicial penalties may be imposed within a statutory range. Where it is allowed, per diem penalties focus the violator’s attention on the need for immediate cessation of the illegal act and the need for remedial action. Violations of the US Clean Air Act, for example, may be up to \$25,000 per day of violation. Violations that occur over several days may be considered separate daily

violations. Again, at a minimum all economic benefits realized by a violator from noncompliance should be recovered. Penalties should also be large enough to deter further noncompliance, ensure fair and equitable treatment throughout the regulated community, and promote swift resolution of environmental problems and enforcement actions. While it may be tempting to excuse violations of record-keeping or similar requirements absent some clear environmental consequence, statutory or regulatory demands that enterprises maintain records of their operations, their emissions, and their compliance with applicable statutes are essential to the effectiveness of environmental law. Information is powerful knowledge and directly facilitates the government's ability to combat polluters and despoilers of the environment, the very targets of the law. The penalties for non-compliance should be appropriate to ensure that those involved recognize the importance of cooperating with environmental officials to obtain the necessary data to monitor activities that may harm health and the environment.

Civil penalties are less common than criminal sanctions as a general rule, but are a useful tool where available. Usually they are based upon statutory authority. Civil penalties may be imposed alone or, more frequently, in connection with remedial measures to ensure non-repetition of the violation. In *United States v. Icicle Seafoods, Inc.*, (D. Alaska, June 27, 2003), a seafood company settled a Clean Water Act complaint in federal court by agreeing to pay an \$85,000 civil fine and improve its waste handling practices to prevent the build-up of wastes, in part by rendering waste parts into fish meal, substantially reducing the amount of waste discharged. A Norwegian shipping line agreed to pay more than \$2 million in civil sanctions in connection with a fuel oil spill off the coast of South Carolina in January 1999. The company agreed to pay \$1.9 million to a wildlife restoration fund, a \$95,207 penalty to the Department of the Interior, and a \$28,847 penalty to the South Carolina Department of Natural Resources. Other economic sanctions were imposed in a related criminal proceeding, and these amounts were also ordered paid to environmental trusts and conservation funds. *United States v. Billabong II Ans.*, (D.S.C. July 1, 2003).

Increasingly, courts are imposing serious criminal fines for environmental wrongdoing. For example, the Canadian case *R.V. Tioxide Canada Inc.* (Quebec Court, 1993) indicates how motive, damage, and intent play a role in penalties. The company deliberately chose to violate authorizations and continue operating despite having no authorization. Criminal charges were brought against the company and its directors. The directors entered into a plea bargain. The company was assessed the highest Canadian penalty for pollution to that date. It had to pay Can\$1 million as a fine and Can\$3 million into a special account administered by the Ministry of the Environment for fish and fish habitat protection. The court also ordered the section of the company's plant responsible for the pollution to remain closed.

In 2002, Ashland, Inc. was convicted on negligent endangerment charges under the U.S. Clean Air Act and for submitting a false certification to environmental regulators and ordered to \$9.1 million in fines and restitution. Ashland was also ordered to pay an estimated \$4 million for upgrades to sewers, junction boxes and drains at its oil refinery. The violations led to an explosion and fire on May 1997 at the refinery where one worker was severely injured and five others were hurt. As part of the sentence, Ashland is required to pay \$3.5 million to the severely injured man and to pay for medical coverage for man and his family for the rest of their lives. The other five injured workers will receive \$10,000 each in restitution. In addition, Ashland is to pay a \$1.5 million criminal fine and \$50,000 in restitution to each of several local fire departments, and take out full-page notices in two major newspapers concerning this incident and its resolution. Ashland is also required to pay \$3.9 million to the National Park Foundation for environmental projects in the area around the refinery. *United States v. Ashland, Inc.* (Minn. 2002).

It is notable that some courts have imposed financial sanctions on governments for breaching environmental law. In *R. (Environment Canada) v R. (Northwest Territories Canada)* (1993) 12 C.E.L.R. 55, a judge in the Northwest Territories Territorial Court imposed a fine of Can\$49,000 and payment of \$40,000 on the Northwest Territorial Government for illegally discharging raw, untreated sewage into a lagoon on Baffin Island. The parties argued that a government should be excused from financial penalty since a fine would do no more than transfer taxpayers' money from one government fund to another. The judge disagreed, finding it compelling that governments accused of offences should receive no special consideration and, indeed, found that the very fact of governmental action could be taken as an aggravating factor. In the court's view, unlawful government conduct is not to be taken lightly because it is the antithesis of good government and arguably constitutes a breach of the government's trust responsibility to protect species and the environment.

b) Community service for the environment

It may be appropriate to require clean up of a site, or the drafting and implementation of an environmental compliance plan, or performance of community service as alternatives or additions to fines or imprisonment. In *United States v. John T. Frederick* (D. Mich. July 7, 2003), the person convicted of selling a banned pesticide was sentenced to nine months in prison but was also ordered to place advertisements in trade journals and notify customers that he violated the law and that he will no longer sell the banned product.

c) Imprisonment

As a reflection of growing awareness among the judiciary of the seriousness of environmental wrongdoing, laws and courts are increasingly punishing wrongdoers by imprisonment. In South Australia, the Environmental Protection Act of 1993 establishes a sanction of up to 4 years imprisonment and/or a \$250,000 fine for causing serious environmental harm. The Environmental Protection (Water Quality) Policy of 2003 Obligation prohibits discharge or deposit of listed pollutants into water's or onto certain land and has a mandatory sanction for intentional or reckless contravention of \$30,000 &/or 7yrs imprisonment.

Canada's Environmental Protection Act (CEPA) includes penalties of fines or imprisonment or both, court orders to accompany a fine or imprisonment, and court orders governing conditional discharge of the offender. Upon conviction of an offender for a violation of CEPA 1999, enforcement officers recommend that Crown prosecutors request penalties that are proportionate to the nature and gravity of the offence. When making recommendations to prosecutors, enforcement officers apply the criteria found in CEPA 1999. Those criteria include the harm or risk of harm, corrective actions already taken, negligence, and deterring effect of the proposed sentencing. With respect to toxic substances, persons who contravene the act and intentionally or recklessly cause a disaster or show wanton or reckless disregard for the safety of other persons, may be liable to an unlimited fine and up to five years imprisonment under the Criminal Code. If death results from such criminal negligence, the maximum penalty is life imprisonment. Some U.S. laws on environmental crimes are indicated in box 23.

In Australia, a private party found to be wilfully pumping sewage into an adjacent river in violation of environmental laws was convicted and sentenced to 12 months imprisonment. He also had to pay \$250,000 fine and the prosecutor's costs of \$170,000. *Environment Protection Authority v. Charles Gardner*, Land and Environment Court of New South Wales, Matter No. 50072/96 and 50074/96. In *United States v. Hansen*, 262 F.3d 1217 (11th Cir. 2001), the court sentenced two officers and managers of LCP Chemicals of Brunswick, Georgia, to lengthy prison sentences for their environmental crimes. One was sentenced to serve nine years in prison and pay a \$20,000 fine; the other was sentenced to six and one-half years in prison. Both defendants were convicted on one count of conspiring to operate the plant in violation of environmental laws, one count of knowing endangerment under the U.S. hazardous waste laws, and a variety of other environmental offenses. Workers at the Brunswick plant were repeatedly exposed to imminent danger of death and serious bodily injury by working conditions which exposed them to possible chemical burns, electrocution, and poisoning from inhalation of mercury vapors and from other contacts with mercury-contaminated and corrosive wastes.

**Box 15 Environmental Crimes and Punishment
Legislative Examples from the United States**

1. **The River and Harbor Act** of 1899 - protects the navigable waters of the United States from unauthorized obstructions and refuse. A violation of the act is a misdemeanor punishable by up to one year incarceration.
2. **The Clean Air Act** (1963) - is directed to controlling pollutants through the creation of National Ambient Air Quality Standards, National Uniform Emission Standards for Hazardous Air Pollutants, New Source Performance Standards, Acid Deposition Regulations, and Stratospheric Ozone Protection standards set by the Environmental Protection Agency. A knowing violation of the act is punishable by up to five years in prison.
3. **The Endangered Species Act** (1973) - protects the natural habitats of endangered and threatened species by prohibiting their import, export, transportation and sale. A knowing violation of the act is punishable by up to one year incarceration.
4. **The Safe Drinking Water Act** (1974) - regulates the level of harmful contaminants in public drinking water systems, as well as the underground injection of contaminants into groundwater supplying those systems. A wilful violation of the act is punishable by up to three years in prison.
5. **The Resource Conservation and Recovery Act** (1976) - sets standards for the treatment, storage, transportation, and disposal of hundreds of different types of hazardous solid waste. A "knowing" violation of these regulations, proven by evidence that the offender was aware of the potential for harm and that he lacked a permit, is punishable by five years imprisonment. Where a person was knowingly placed in danger of serious injury, the offense is punishable by 15 years in prison.
6. **The Toxic Substances Control Act** (1976) - was designed to slow down the production of toxic substances, and prevent those produced from presenting an unreasonable risk of injury to one's health or to the environment. A knowing or wilful violation of this act is punishable by up to one year imprisonment.
7. **The Clean Water Act** (1977) - prohibits and/or regulates the discharge of various pollutants into U.S. waters. A violation of the act is punishable by up to 15 years imprisonment, depending upon a variety of variables, including whether the violation was negligent or knowing, whether the offense involved the falsification of information, whether the offender was previously convicted of the offense, and whether a person was knowingly endangered by the unlawful action.
8. **The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** (1980) - regulates abandoned and inactive hazardous waste disposal sites. A knowing and wilful violation of certain emergency reporting obligations is punishable by up to five years in prison.
9. **The Federal Insecticide, Fungicide and Rodenticide Act** (1994) - requires the registration of pesticides and prohibits that sale of pesticides not registered. A knowing violation of the act is punishable by up to one year imprisonment.

d) Some guidelines for assessing sanctions in environmental cases

The criteria considered by courts in assessing sanctions in environmental cases typically include the following:

- **Seriousness of the offence.** The potential for harm to the environment and the regulatory scheme, the extent of the damage caused, and the blameworthiness of the defendant should all be considered in assessing penalties. Specific factors for evaluating the seriousness of the offense include the amount by which any emissions exceeded the applicable standard, the toxicity of the pollutant, the sensitivity of the surrounding environment, and the length of time of the violation. In general, how much did the conduct diverge from the required behavior? Whether the defendant has a history of violations or has made a good faith effort to comply is also relevant.

- **Ability to pay.** The penalty should reflect the means available to the defendant. For example, a fine appropriate for an individual or a small company will have little impact on a large enterprise. The latter should suffer a penalty appropriate and substantial enough to have a real economic impact and be greater than the cost of complying with the legal requirements. At the same time, a fine that is too large can take away the financial resources necessary to ensure future compliance or remediate existing contamination. Nonetheless, closure of a company is generally considered an appropriate penalty for repeated, serious offenses.
- **Economic gain.** The profits obtained or costs deferred or avoided through noncomplying actions should be reflected in the penalty. No offender should profit from its misdeeds. Thus, for example, one who has carried on an activity without a required permit or license should have a fine high enough to disgorge such economic benefits as avoided licensing fees, the value of having postponed capital expenditures on needed pollution control equipment (i.e., the investment value to the polluter of money which would have been spent on pollution control equipment had the violator timely complied), and any avoided costs, such as the cost of maintaining pollution control equipment that should have been in place earlier. The Smithfield Foods case discussed in Box 16 addresses this concept.
- **Polluter pays.** The sanction should reflect the value of the overall damage caused by the offender, and the social, environmental and economic impacts. In other words, the sanction should force internalization of environmental and other costs.
- **Abatement costs.** Ensuring payment of the costs of clean up, restoration or remediation should be paramount. Generally, sanctions should be in addition to rather than in lieu of compensatory remedies to ensure the deterrence effect of the overall remedy.

Box 16 Disgorging the Economic Benefit of Noncompliance

In *United States v. Smithfield Foods Inc.*, 191 F.3d 516 (4th Cir. 1999), the defendant was charged with illegally discharging pollutants into a Virginia river. Smithfield and its two pork processing and packing plants were alleged to have committed over 6,000 violations of the U.S. Clean Water Act by exceeding permit limits. Those 6,000 violations included over 5,000 violations involving the discharge of phosphorus, ammonia and other pollutants into Virginia's Pagan River from 1991 to 1997. After a trial, the lower court ruled that Smithfield was liable for 6,982 days of violations and assessed a \$12.6 million civil penalty, of which \$4.2 million represented the economic benefit realized by the defendant as a result of its violations. The decision was upheld on appeal, where the appeals court observed, "economic benefit is assessed to keep violators from gaining an unfair advantage by violating the law. This is accomplished by including as part of the penalty an approximation of the amount of money the violator has saved by failing to comply with its permit. . . . The rationale for including this measure is 'to remove the economic incentive to violate environmental regulations.'"

6.6 ATTORNEYS' FEES AND COSTS

Some legal systems, like those based on English common law, normally award attorneys fees and costs to prevailing parties; in other legal systems, various environmental laws have changed the traditional practice of each side bearing its own costs, and allow the recovery of attorney's fees by any "prevailing or substantially prevailing party." Judges must therefore decide how successful a party must be in order for an award of attorney's fees and costs to be appropriate. Most courts require success on at least one substantive claim or central issue, but do not demand that all or even the majority of arguments be won. Awards are generally not granted for trivial success or purely procedural victories. Reasonable awards of fees tend to enable citizen lawsuits to enforce environmental law, as many citizen litigants cannot afford to sue large companies or other powerful interests unless their costs can be recovered. Where awards are made, the fee is often computed by multiplying the number of hours reasonably expended by a reasonable hourly rate. This may be adjusted up or down to reflect case-specific considerations.

A growing issue is whether or not public interest litigation should be subject to the same rules as private litigation or whether the public is better served by having such cases brought. The concern that fear of

costs may be a disincentive to public interest litigation and establishing a principle that bone fide public interest cases will not bear the costs of litigation will avoid discouraging applicants has led some courts to announce through an early order that no costs will be awarded.

6.7 ENFORCEMENT OF JUDICIAL DECISIONS

Courts have had recourse to innovative oversight mechanisms to ensure compliance with judgments in environmental cases. Those held responsible for violations of environmental laws or causing environmental harm may be directed to return to court with plans for compliance or remediation and targets and timetables for completing the tasks set forth. Courts in India and Pakistan, inter alia, have appointed oversight commissions to monitor compliance and report back to the court on measures needed or adjustments that may be required. Often considerable judicial oversight is needed to ensure fulfilment of structural injunctions. In extreme cases the court may place an environmental resource in receivership.

Box 17 Monitoring judgments

In *General Secretary, West Pakistan Salt Mines Labour Union (CBA) Hkewra, Jhelum v. The Director, Industries and Mineral Development, Punjab, Lahore*, 1994 SCMR 2061, the petitioners sought enforcement of the right to clean and unpolluted water. The mine's operations threatened contamination of the water catchment area, the water course, reservoir and pipelines. The Supreme Court directed the mining company to shift their operations within four months to avoid water pollution and appointed a commission of four persons to oversee compliance. The Commission was given the power of inspection, recording evidence, and examining witnesses and was directed to report back to the court. If compliance was not forthcoming or possible, the Court retained jurisdiction to determine whether the operation of the mine should be completely halted. The court directed the company and all miners operating adjacent to the water catchment area to take such measures to the satisfaction of the commission to prevent pollution of the water source reservoir, stream beds and water catchment area. The Court further ordered administrative authorities to refrain from any issuing any new or renewed licenses for mining in the region without the Court's prior approval.

Judicial authorities on occasion face non-compliance with judgments. When this happens most courts have power to punish acts committed in contempt of court; indeed, just as judicial enforcement of environmental requirements is essential to the integrity of those requirements, judicial enforcement of judgments is fundamental to the integrity of those judgments and to societal respect for the rule of law. The High Court of Justice of Antigua and Barbuda, for example, sentenced defendants to one month in prison for violating an injunction that prohibited their company from mining sand in a designated area. *The Barbuda Council v Attorney General and Others*, High Court of Justice of Antigua and Barbuda, Civil AD 1993. The High Court of Jammu and Kashmir at Srinagar issued a show cause order regarding contempt of court proceedings when the state was found to have permitted logging in violation of a Supreme Court injunction. *M/S Aziz Timber Corp. and Others v. State of Jammu & Kashmir through Chief Secretary and Others*, Continuing Petition No. 51/96.

JUDICIAL HANDBOOK ON ENVIRONMENTAL LAW

PART B

PRINCIPAL AREAS OF ENVIRONMENTAL LAW

Chapter 7

WATER

7.1 INTRODUCTION

The law and science relating to water is vast. This is perhaps unsurprising given that water is critical to life and waters cover over 70% of the earth's surface. Fresh water accounts for only 2.7% of the earth's water and a large proportion of this limited quantity is frozen in glacial ice caps at the two poles and on high mountains. At the same time the demand for water has risen with increasing human population and economic activity.

Many water-stressed areas have been forced to turn to their groundwater reserves, which frequently are pumped faster than they can be replenished. In addition to pressure on water resources from economic development and changes in social consumption patterns, water supply increasingly is constrained by land use changes (for example forest clearance, which tends to increase run-off and reduce water availability) and contamination from human settlements, industry and agriculture.

Water law usually has the objective of restoring and maintaining the chemical, physical and biological integrity of inland and marine waters. It may regulate the discharge of pollutants, activities affecting wetlands, accidental spills, and the use and disposal of wastes. Most enforcement agencies are given powers to assess administrative penalties, issue orders and initiate civil judicial actions. The legal treatment of pollution also is complicated by differences between identifiable "point" sources and "diffuse" sources of pollution. The latter category includes emissions that individually or separately are responsible for possibly insignificant amounts of pollution, such as small, often continuous discharges of wastes and utilization of pesticides and fertilizers in agriculture.

Laws and regulations typically require that any discharges into water require a permit and impose strict liability on those who make discharges without or in violation of the conditions of a permit. Knowledge or intent is frequently irrelevant. See e.g. France, Tribunal administratif de Grenoble, June 8, 1984, *Michallon v. Secrétariat d'Etat à l'Environnement*, R.J.E., 1984/3, 240.

Fresh water and marine environments are undeniably interlinked, but the legal regimes applicable to them differ widely in response to varied geographic, economic, social and political factors. The sea receives a large part of its pollution from rivers, but specific rules are needed to resolve its problems. One-quarter of all freshwater is found under the soil and generally is closely connected with surface waters, but their legal regimes are often distinct. Moreover, even the same type of water source may be regulated differently, according to the use to which the waters are put (e.g., domestic, agricultural and industrial purposes).

Judges in many countries encounter cases concerning water pollution, allocation of water, and the regulation of fishing and other uses of water resources. This chapter looks first at the problems of fresh water and then at marine waters.

7.2 FRESHWATER

Freshwater resources raise not only quantitative but also qualitative problems. In 2004, more than a billion people lack safe drinking water and nearly three times that number lack access to sanitation services. Sewage disposal is a classic use of flowing water and has been linked to epidemics of plague and cholera. The disposal of chemicals and hazardous wastes and the use of pesticides and fertilizers can affect the quality of water. The World Health Organization (WHO) estimates that almost half of the world's population is suffering from debilitating water-borne or water-related diseases, which account for an estimated five million deaths each year, although good progress has been made in reducing the incidence of some diseases.

7.2.1 National law

National water law in some jurisdictions includes a right to water; in others, it contemplates a sophisticated regulatory system for water management.

a) Water rights

The right to water is recognized explicitly by certain national Constitutions (Columbia, Article 366; Ecuador, Articles 20 and 42) or is protected indirectly by including it in the right to food and health (India, Pakistan, Bangladesh). The Pakistani judgment in the case of *Mst. Ameer Bano v. S.E. Highways*, PLD 1996 Lahore 592, demonstrates the way in which some courts have inferred a right to water and provide remedies when the right is violated. The case dealt with overflowing sewerage systems in the city of Bahawalpur. The petitioner alleged that the sewerage system had become totally unserviceable with the result that sewage water had collected in the form of ponds, in some cases entering into houses and onto the roads. Increasing road construction was diverting even more water into residences. The Court found that residents could contract many diseases and their lives would be endangered due to the pollution. Thus, protection to life guaranteed under art. 9 of the Constitution would be denied to large number of citizens. The Court treated the petition as public interest litigation for the enforcement of fundamental rights and due to the urgency involved decided the petition immediately. The court issued directions to protect the citizens from polluted water.

b) Water regulation

In most jurisdictions, water regulatory regimes are based on prevention, precaution and remediation at source as well as the "polluter pays" principle. To this end, states use regulatory instruments such as water quality objectives, discharge standards, the best available technologies and economic instruments compatible with meeting the population's basic needs. Water concessions may be granted for a limited duration and made subject to periodic review.

Underground water resources are typically the subject of special protection, and their use for human consumption is given priority. Pollution of groundwater can be caused by direct discharge, or by indirect percolation of pollutants through the ground or subsoil. Agricultural activities, including the use of fertilizers or pesticides, and dumping of garbage or other wastes containing polluting substances play an important role in this regard. Groundwater can also be polluted by accident, through breakage of pipes, leaking reservoirs or cisterns, or traffic accidents involving vehicles carrying polluting substances. Laws to protect groundwater, whose deterioration is difficult to reverse, often take into account these factors.

Laws and policies may require careful assessment and monitoring of large-scale consumption of water in agricultural or industrial processes to avoid unsustainable utilisation. At each state level -- central, regional and local -- authorities adopt and implement water management plans often based on the catchment basin. Decisions on water also take into account the particular conditions at regional or local level. Specific watercourses or lakes can be protected by prohibiting construction or works in their proximity or submitting such activities to prior authorization. Rivers and lakes situated in zones of ecological protection benefit from the general protection accorded these zones.

Complex regulatory and permitting schemes have been developed to protect water quality. For example, the U.S. Clean Water Act ("CWA"), 33 U.S.C. §§ 1251 et seq., prohibits the discharge of any pollutant from a point source into the nation's waters unless that discharge complies with the Act's specific requirements. 33 U.S.C. §§ 1311(a), 1362(12). A "point source" is "any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged." 33 U.S.C. § 1362(14), and a "pollutant" is defined as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C. § 1362(6). The CWA does not control nonpoint sources of pollution (e.g., agricultural run-off), and leaves decisions on how to control those sources to the various states. See *id.* § 1329. The CWA relies on a permitting system that imposes a combination of technology-based and performance-based standards on regulated facilities. An altogether separate regulatory system protects drinking water sources. See the Safe Drinking Water Act, 42 U.S.C. § 300f, et seq.

National water law frequently uses the techniques of environmental impact assessment, licensing, and prohibitions. The German water legislation provides an example. The Federal Water Act of July 27, 1957, as amended, incorporates provisions on environmental impact assessment, requires that preventable damage be avoided and inputs of waste water kept to a minimum and stipulates that the use of water bodies requires an official permit or license. The introduction and discharge of substances into surface or groundwater constitutes a use of water. A license for wastewater discharges may only be issued if the hazardous load of the waste water is kept at the levels set forth in the Act and as low as best available technology allows. The Waste Water Charges Act of September 13, 1976, as amended, applies the polluter pays principle to increase progressively the charge rate for discharges into water. Further protection is afforded by a Drinking Water Ordinance that lays down special requirements on the quality of drinking water; it includes provisions on the nature of drinking water, the duties of the water-works operators and monitoring by health authorities. It also specifies limits on the amount of water borne harmful substances. The limit values are set so that detrimental effects on health are not to be expected after a lifelong intake. Finally an Environmental Compatibility of Washing and Cleansing Agents of March 5, 1987 provides that washing and cleansing agents shall be put into circulation only in such a form that their use will not have any detrimental effects on the quality of waters.

The procedural approach adopted by the French legislation can also serve as an example. An industrial plant that produces dangerous substances and discharges polluting material into water or air must prepare an impact statement covering all the consequences of its activities on the environment, including the effects on water. The impact statement is submitted to public inquiry before a permit to construct or authorization to function is obtained. The license can be granted on conditions. France, Tribunal administratif de Grenoble, October 24, 1984, *Les Amis de la Terre v. Ministre de l'Environnement*, R.J.E., 1985/2, 205. Particular measures of security can be prescribed if an installation carries with it risk of major accidents. Regular monitoring must be exercised over the functioning of the plant.

Sanctions can be imposed for breach of applicable standards regarding the environment in general or specific norms regarding the protection of water. On civil liability for water pollution, see: France, Tribunal d'instance d'Angers, June 27, 1996, *Fédération départementale de pêche du Maine et Loire v. Transports Jollivet et autre*, R.J.E., 1997/2, 233. On penal responsibility see: France, Cour de cassation, Chambre criminelle, October 25, 1995, Req.no.W 94-82.459PF, R.J.E., 1996/1-2, p.196 and Belgium, Cour de Cassation, November 25, 1997, *Claeys*, text in Luc Lavrysen, *Milieurechtsspraak*, p.517. In *United States v. Smithfield Foods Inc.*, 191 F.3d 516 (4th Cir. 1999), the defendant was charged with illegally discharging pollutants into a Virginia river. Smithfield and its two pork processing and packing plants were alleged to have committed over 6,000 violations of the U.S. Clean Water Act by exceeding permit limits. After a trial, the lower court ruled that Smithfield was liable for 6,982 days of violations and assessed a \$12.6 million civil penalty, of which \$4.2 million represented the economic benefit realized by the defendant as a result of its violations. The decision was upheld on appeal.

c) Water as a public resource or a commodity

The legal status of water as a commodity privately owned by individuals varies between jurisdictions. Some states are increasingly experimenting with privatization of water management functions previously held in the public domain, with some success in attracting investment to improve water infrastructure; etc. In other states (Spain, Greece) waters above and under the ground are placed in the public domain. This means that the government retains authority to grant water-use rights subject to terms and conditions, including modification or revocation of the rights by the government under given circumstances, subject in some jurisdictions to compensation if the modification is not due to the fault of the right-holder. When there are existing or vested water rights, both actual and potential, the government may seek to assert its role as owner or guardian of the resource and regulate its uses on behalf of the public. While any legislature may change the rules of water use, it is widely held that any changes should not cause undue hardship to "existing" users. As is the case with all environmental regulation, retroactive application of the rules may give rise to a claim of compensation for expropriation.

Particularly relevant, in this regard, are the experience of the United Kingdom in switching from a private-property system of surface and underground-water rights to an administrative permit system, and the

experience of Spain in reclassifying all water resources as public domain subject to administrative grant of water rights. Spain's Water Act of 1985 protected vested rights in groundwater by offering relevant holders the option of either recording their rights with the government and preserving them free from government interference for fifty years, or not recording their rights and risking loss of them for competing users. The option was made available only for a limited transition period. The law was challenged in court by vested rights-holders who claimed that they have been substantially deprived of constitutionally protected property rights. The challenge was rejected by Spain's Constitutional Court in a November 1988 judgment, which held that the special regime of vested water rights is a legitimate interference with constitutionally protected property rights, on the grounds of the subordination of rights in natural resources to the general interest enshrined in the Constitution and the reasonableness of the restrictions in light of the general interest.

The transfer of water rights, i.e., their exchanging hands and use through government agency of market mechanisms, is practiced subject to considerable restrictions. The general trend is to allow some flexibility in this domain, subject to prior government approval of a transfer. Far less flexibility exists in the domain of irrigation-water rights, which tend to attach to the land they serve. The issue of water-rights mobility is particularly relevant in arid countries.

d) Water resource management

The management of water resources is more and more generally recognized as a necessity. Generally, effective water management requires legislative action and the use of legal mechanisms as well the existence of adequate administrative and judicial structures for sound short-term and long-term decision-making and for ensuring compliance with such decisions.

In Spain, water-resources planning has a central role in the overall legal framework for the management of the country's water resources. The legislation provides a river-basin plan and national hydrological plan, the contents of the plans, the process of forming, approving and revising the plans and the effects of the approved plans. Water resources planning is to be coordinated with other sectoral planning exercises, most notably in the fields of agriculture, energy and land-use, and such coordination is to be effected at the level of the national hydrological plan. The participation of the general public is expressly provided. In Germany two different kinds of planning instruments, at the river basin or regional level is to guide and orient all governmental decision-making with regard to water-resources management. Co-ordination of water planning with land-use planning and regional-development objectives is mandatory. In the Netherlands, comprehensive legislation for water-resources management provides for the formation of different interrelated water-planning instruments at state, provincial and local levels, covering surface-water-resources management in regard to quantity and quality. Groundwater management plans are provided for by separate legislation. In Italy a river-basin approach provides for river-basin plans, spanning conservation to development, from water allocation to water pollution control, from the control of harmful effects of water to forestry, fisheries and mining development, from coastal zone management to the control of soil contamination. River basin plans must be coordinated with other general development plans and with land-use plans, and have a binding effect. Water pollution control legislation includes mandates for specific plans.

e) Access to water resources

For distribution of water, some countries adopt private rights models. For example, the U.S. leaves water allocation to state law, which largely uses private water rights doctrines to allocate water quantity among competing users. Private rights models may vary depending on the jurisdiction; for example, one scheme may give precedence to the party that first exploits the water resource (first-in-time, first-in-right); others allocate water rights based on geographic location, seeking to balance between the interests of upstream and downstream riparians. Disputes between interests with competing claims to a water resource frequently lead to litigation.

7.2.2 International law: transboundary water resources

The complexity of regulating water resources is accentuated when inland waters are divided by international boundaries. Rivers may constitute the border between two countries, traverse the frontier, or

even combine the two characteristics, as with the Danube, the Rhine and the Rio Grande. Water regulation thus must adapt itself to multiple situations, resulting in a variety of regulatory schemes, both at the national and international levels, often influenced by economic and political factors. See France, Tribunal administratif de Strasbourg, July 27, 1983, *La province de la Hollande septentrionale v. Etat français*, R.J.E., 1983/4, 343.

Early international cooperation concerning rivers and lakes mainly concerned utilization of the watercourses for specific purposes, such as navigation or irrigation, or management of certain risks such as flood. At first, particular water pollution problems were addressed when harmful activities originated in neighboring countries, applying general precedents and norms of transfrontier pollution. Later, the development of international environmental law led to the adoption of rules and principles to govern the conduct of states in respect to the conservation and harmonious utilization of natural resources shared by two or more states.

The 1997 *UN Convention on the Law of the Non-Navigational Uses of International Watercourses* – which has not entered into force -- made an important contribution in this regard by defining a watercourse as a *system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus*.

The Council of Europe, an intergovernmental organization of which 45 European states are members, adopted on October 17, 2001 a *European Charter on Water Resources* stating the main principles that should govern the use and management of such resources. The principles are based on existing and generally accepted norms of diverse origin: international instruments like Chapter 18 of *Agenda 21*, adopted by the 1992 Rio Conference on Environment and Development, and rules and principles included in different international conventions and agreements. The European Water Charter also reflects basic principles expressed in the legislation of different countries. It can be considered as the synthesis of norms governing the use of water resources and the rights and duties of individuals and public authorities in this field. *European Charter on Water Resources, Recommendation REC (2001) 14 of the Committee of Ministers*. On the legal weight of non-mandatory recommendations adopted by international bodies, see: France, Tribunal administratif de Strasbourg, June 11, 1987, *Land de Sarre et autres v. Ministre de l'Industrie*, R.J.E., 1987/4, p.491.

Under the Charter, freshwater resources are to be utilized in keeping with the objectives of sustainable development, with due regard for the needs of present and future generations. Water use must be equitable and reasonable in the public interest. Water policy and law must protect the aquatic ecosystems and wetlands. The Charter contemplates a universal right to a sufficient quantity of water to meet basic needs and a universal obligation to conserve water resources and use them prudently. Public and private partners must manage surface water, groundwater and related water in an integrated manner that respects the environment as a whole, takes regional planning into account, and is socially equitable and economically rational. Integrated management must aim to ensure the protection, conservation and, if necessary, rehabilitation of water resources. Under the Charter, any new deterioration and exhaustion of these resources must be avoided, the recycling of wastewater encouraged and, where appropriate, limitations placed on certain uses.

7.2.3 Water regulation and courts

As noted, in jurisdictions with water regulatory systems, cases can typically be brought to enforce regulatory norms and penalize noncompliance. In addition to government prosecutions, some systems allow for citizen suits.

In common law systems, nuisance, negligence or strict liability actions may frequently be brought at common law for water pollution causing injury. *Ryan v. Great Lakes Council*, [1999] Fed. Ct. of Australia 177, provides an example. The plaintiff sued the Great Lakes Council and others for damages after he contracted hepatitis A from eating contaminated oysters from Wallis Lake. He alleged negligence, arguing that the Council knew of the pollution of the lake and had a duty to warn those using the lake and its resources. The court found that at all material times the Council knew that the waters were used for growing oysters for human consumption and that numerous sewage facilities within the lake catchment

area were potential sources of contamination which could adversely affect human health. The Court held that the Council had failed to take reasonable steps to minimize contamination of the lake and entered judgment for the plaintiff for \$30,000.

While judicial consideration of water issues will primarily derive from national laws, regulations and common law decisions, a range of international treaties and declarations address water issues. For example, the United Nations Economic Commission for Europe adopted a *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (Helsinki, Mar. 17, 1992) that was later complemented by a Protocol on Water and Health (London, June 17, 1999). The Protocol aims to promote the protection of human health and well-being at all appropriate levels, nationally as well as in transboundary and international contexts. Parties agree to take measures to ensure and protect adequate supplies of wholesome drinking water free from dangers to human health and provide sanitation. Access to information and public participation in decision-making are emphasized “in order to enhance the quality and the implementation of the decisions, to build public awareness of issues, to give the public the opportunity to express its concerns and enable public authorities to take due account of such concerns.” Information and participation are to be supplemented by access to justice for review of relevant decisions when appropriate.

7.3 MARINE ECOSYSTEMS

Maritime waters cover over 70% percent of the planet’s surface area and a vast majority of the total volume that is known to sustain life. Human activities everywhere are depleting marine and coastal living resources and degrading ecosystems in sometimes irreversible ways, threatening the economic well-being and health of communities and states throughout the world. The problems emerge in cases before judges concerning liability, licensing, traditional rights and other concerns.

The major threats to the health, productivity, and biodiversity of the marine environment result from human activities that take place on land, in coastal areas, and even further inland, but the marine environment is also under threat because the traditional uses of the sea have intensified and diversified. The vast number and size of ships, often carrying hazardous products, heightens the risk of serious marine pollution. Fishing has been transformed into an industry which today impacts upon biological resources in the farthest and most inhospitable ocean reaches. With annual total catches of many stocks decreasing, it appears that the limits of sustainable exploitation of marine biological resources are close to being reached or in some instances being exceeded. Those fish that are caught are increasingly showing signs of contamination and damage from pollution, including concentrations of carcinogens, tumors, wounds, and malformations, which render them unsuitable for consumption and which threaten their ability to reproduce. Massive utilization of the sea as a dumping ground for waste can involve thousands of tons of matter dumped by a single ship in one voyage.

National and international environmental law is developing in response to this evolution of distinct but converging categories of problems. The first group of tasks focuses on combating intentional or accident marine pollution that originates from many different human activities. The second set of problems involves protecting living marine resources, something clearly linked to the first set of issues. In 1982 the *UN Convention on the Law of the Sea (UNCLOS)* was adopted to create an overall legal framework for the law of the sea. It identifies the different maritime zones and the legal regime appropriate for each of them. Its Part XII codifies the principles respecting the protection and preservation of the marine environment in all maritime zones. Several provisions of the Convention are also related to marine pollution or living resources in the context of specific marine areas.

Nearly all coastal states in the world have become party to UNCLOS and enacted its provisions into law to establish maritime boundaries and regulate activities in the various maritime zones. Judges in such case are thus likely to encounter issues about the lawfulness of activities within the zones, especially in regard to illegal fishing or pollution of coastal waters.

7.3.1 Marine pollution

While the oceans share homogeneous characteristics such as ocean currents, salt, and contiguity, their geophysical situation differs widely among the regions of the world. There are nearly enclosed seas, such

as the Baltic, the Mediterranean and the Black Sea, which do not have the same enormous intermixing of waters from which other seas benefit. They are less able to absorb and diffuse pollution, although these seas have among the highest known densities of maritime traffic and also suffer from exceptionally concentrated population levels along their shores, with all the attendant pollution. The problem of maritime pollution frequently requires measures be taken on the national, regional and the global level, with local variation being resolved through appropriate specific regulations at the same time that universal norms are formulated.

The polluting acts that affect the marine environment vary greatly. Some are intentional, for example the dumping of wastes and the cleaning of oil tanker hulls on the high seas followed by discharge of the residue of oils into the ocean waters. Pollution also can be accidental, resulting from tanker grounding or loss of containers of toxic or dangerous products. Regulatory techniques must take into account these differences. International environmental law places its emphasis on prevention. Numerous standards prohibit certain deliberate or intentional acts or strictly regulate them. To minimize accidental environmental harm, other legal principles must be applied, such as strict rules governing the construction of tankers, navigation, and the training of crews. It is clear that marine environmental pollution due to accidents can only be combated through international cooperation.

As a whole, international instruments concerning marine environmental pollution tend to distinguish four categories of intentional pollution: vessel-based pollution coming from normal utilization of the oceans; deliberate and large, mostly industrial, dumping of wastes; pollution arising from exploration or exploitation of the sea-bed; land-based pollution whether coming from direct discharges into the ocean or carried into it by rivers. National laws implementing the relevant international instruments tend to reflect the organizational thrust and objectives of international instruments themselves. Accordingly, some familiarity with the international framework can be instructive with respect to understanding and applying relevant local laws.

a) Vessel source pollution

Under the international framework, states have the duty to prevent, reduce and control vessel source pollution of the marine environment. Principles stated in UNCLOS are supplemented by a global convention and by several conventions governing regional seas. The general instrument, the *International Convention for the Prevention of Pollution by Ships* (MARPOL), adopted Nov. 2, 1973 and modified several times applies to vessels of any type whatsoever, operating in the marine environment, including hydrofoil boats, air-cushion vehicles, submersibles, floating craft, and fixed or floating platforms. Pollution is not defined, but its elements are found in the definition of "discharge": any release from a ship, whatever its cause, including escape, disposal, spilling, leaking, pumping, emitting or emptying. Dumping of wastes is governed by a different convention. MARPOL does not concern either the release of harmful substances directly arising from the exploration, exploitation and processing of sea-bed mineral resources or legitimate scientific research into pollution abatement or control. The Convention excludes government, non-commercial vessels from its coverage.

The governing scheme of MARPOL is a series of Annexes containing technical prescriptions according to the type of pollutant. They concern pollution by oil, noxious liquid in bulk, harmful substances carried in packaged forms or in containers, portable tanks or road and railtank wagons, sewage and garbage. Special zones are established where particularly strict norms must be applied. Specific rules concern also the construction of oil tankers, the construction of facilities for loading and discharge of oil and the retention of oil on board ships. States parties must give effect to the provisions of the Convention as well as to those of its annexes. See: France: Tribunal de grande instance de Paris, 31^{ème} Chambre, May 22, 1996, *M. Antonios*, R.J.E., 1997/1, 83.

Any violation of the requirements shall be prohibited and sanctioned by legislation enacted by the flag state. This competence is exclusive on the high seas; in other zones, either the flag state or the coastal state (consistent with the law of the sea) may exercise jurisdiction. In case the coastal state chooses not to institute proceedings, it must furnish the flag state with the information and evidence in its possession regarding the violation. In all cases, the sanctions specified by local law shall be adequate in severity to remedy violations of the Convention and equally severe, irrespective of where the violations occur.

MARPOL also reaffirms the police powers of the port state where a ship is found; its authorities can inspect the ship not only to verify its documentation, but also to determine whether the ship discharged harmful substances in violation of the Convention.

b) Dumping of wastes

Dumping means any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or man-made structures at sea. It does not include the disposal of wastes or other matter arising from the normal operations of vessels, aircraft, platforms, or other man-made structures at sea or placement of matter for a purpose other than disposal. UNCLOS provides that states shall adopt laws and regulations to prevent reduce and control pollution of the marine environment by dumping. In particular, no dumping shall take place without the permission of the competent authorities of the state.

International law concerning dumping of wastes at sea was already in place well before the adoption of UNCLOS. *A Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter* was adopted Dec. 29, 1972. The fundamental principles of the Convention are the prohibition of dumping of certain wastes (substances listed in Annex I of the Convention), the requirement of a specific permit prior to dumping others (Annex II) and the demand for a general permit for the rest.

The 1996 Protocol to the Convention forbids the incineration of toxic wastes at sea. Each state must designate one or several authorities competent to issue the required permits in respect of matter intended for dumping and loaded in its territory or flying its flag if the loading occurs in the territory of a state not party to the Convention. The nature and the quantities of all matter to be dumped as well as the location, time and method of dumping must be recorded and communicated to other parties. A series of regional accords address the same problem. The most recent ones fundamentally modified the approach to dumping of wastes, at least in certain regions. The former system permitting the dumping of all but prohibited materials has been reversed and, instead, all dumping is prohibited, except that what is authorized.

c) Exploration and exploitation of the seabed

UNCLOS provides that states should take measures, individually or jointly, to minimize to the fullest possible extent pollution from installations and devices used in exploration and exploitation of the natural resources of the sea-bed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices. All the regional seas treaties reaffirm this principle.

d) Land-based pollution

Land-based pollution is defined as pollution of maritime zones due to discharges by coastal establishments or coming from any other source situated on land or artificial structures, including pollution transported from rivers to the sea. Approximately 70 percent of marine pollution comes directly from land-based sources. Land-based pollution is particularly severe in heavily populated regions such as the Mediterranean and the Baltic Sea coastlines, as well as in regions where seasonal tourism may greatly increase the number of inhabitants.

The diversity of origins of land-based pollution makes it difficult to combat. Applicable rules should in principle include all waters that flow into the sea. UNCLOS provides that states should take the necessary measures tending to limit as much as possible the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping. The 1997 *UN Convention on the Law of the Non-navigational Uses of International Watercourses* confirms that watercourse states shall, individually and, where appropriate, in cooperation with other states, take all measures that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards. On the basis of such principles regional conventions also frequently address land-based pollution.

The Spanish Coastal Law 22/1988 of July 29, 1988 and implementing regulations developed under the law, can be given as an example of national regulation. Spain has almost 8,000 kilometers of coastline and the

coasts are the most densely populated areas of the country. This proportion is considerably increased in summer, particularly on the Mediterranean coast, while the environment of this semi-enclosed sea is particularly fragile. Most basic industries are also located in this area.

The Coastal Law, which mainly concerns the land area, combines coastal planning principles and water quality protection. To ensure efficient protection of the seas, the administration has the power to prohibit, in specific areas, certain industrial processes which can give off waste that risks more than acceptable levels of pollution. Dumping permits can be issued, but they also can be modified when the circumstances change that give rise to their approval. A tax is charged on the dumping of pollutants and is put towards operations for cleaning and improving the quality of waters. Monitoring and control of both illegal and authorized dumping is in principle the responsibility of the Spanish regional government administrations. Unauthorized dumping of sewage in the sea may be sanctioned either under the administrative code or the penal code. The Coastal Law categorizes the unauthorized dumping of sewage as a serious offense. The Coastal Law also imposes an obligation on the polluter to replace and restore things to their previous state, and when this is not possible, those responsible for the violation must pay the compensation set by the administration in accordance with the Law.

7.3.2 Protection of marine living resources

In recent years marine biodiversity has become increasingly threatened due to pollution from land-based and other sources, over-exploitation, the introduction of alien species, coastal development, and global climate change and ozone depletion. More than 44% percent of the world's commercial fish stocks are estimated to have reached their yield limit. The decreasing number of fish has led to conflicts between the approximately seventy coastal states and ten long-range fishing states competing for the resources. In fact, twenty countries account for 80% percent of the world marine catches, nearly all of which occurs in areas under national jurisdiction.

This reality has produced both international agreements and national implementing law. Here again, an understanding of the latter can be informed by familiarity with the former.

The *United Nations Convention on the Law of the Sea (UNCLOS)* contains important provisions relating to conservation of marine living resources. Its general rule affirms coastal state authority to ensure the conservation of biological resources in zones within its jurisdiction, i.e., the territorial sea, the exclusive economic zone (EEZ), and the continental shelf. The exclusive economic zone, because of its size and above all because of its objectives, is of primary importance in conservation of the marine living resources. In this region the coastal state has sovereign rights to explore and exploit, conserve and manage the natural resources, but it also has the duty to ensure, through proper conservation and management, that the maintenance of the living resources is not endangered by over-exploitation. An important innovation reflecting a broad ecological perspective is the requirement that the coastal state take into consideration the effects of its measures on species associated with or dependent upon harvested species, in order to maintain or restore these populations above levels at which their reproduction may become seriously threatened.

The extent of the zones under coastal state jurisdiction creates problems with respect to marine animals that traverse more than one nation's zones. The Convention designates five categories:

- 1) **Stocks of species that occur within the exclusive economic zones of several coastal states** or within the economic zone of one and an area adjacent to that zone, are regulated by conservation measures agreed upon by the concerned states either directly or through appropriate international organizations.
- 2) For **highly migratory species**, such as tuna, whales, and sharks, the coastal state and other states whose nationals fish in the adjacent regions, shall seek agreement on the measures necessary to conserve and develop these species. Art. 64
- 3) **Marine mammals** can be regulated more strictly by the coastal state or a competent international organization. Measures may include prohibition, limitation or regulation of the exploitation of such animals.
- 4) **Anadromous species**, those fish such as salmon, which reproduce in rivers and live in the sea, pose complex legal problems. UNCLOS Art. 66 provides as its basic principle that states in whose rivers these stocks originate have the primary interest in and responsibility for them. They must ensure their

conservation by establishing appropriate regulatory measures for fishing in all waters to the outer limits of the exclusive economic zone. For fishing outside the exclusive economic zone, the states concerned consult in order to establish the terms and conditions of such fishing, giving due regard to the conservation requirements and the needs of the state of origin. In effect, the treaty discourages fishing for these species on the high seas. When the stocks of anadromous species migrate into or through the waters of a state other than the state of origin, both states shall cooperate with regard to conservation and management of the species.

- 5) ***Catadromous species***, such as eels, reproduce in the sea and live in other environments. According to Art. 67, the coastal state in whose waters these species spend the greater part of their life cycle has responsibility for their management and shall ensure their ingress and egress. These species may not be harvested on the high seas and fishing for them within the exclusive economic zone is regulated by the general regulations governing the zone. Where such species migrate through the waters of more than one state, rational management must be assured by agreement between the states.

The Convention calls for coastal states to adopt rules that to ensure the conservation and management of the marine living resources in its exclusive economic zone can be enforced through boarding, inspection, arrest and judicial proceedings. However, the measures cannot include imprisonment or any other form of corporal punishment.(Art. 72.)

On the continental shelf, the Convention considers only the exploration and exploitation of natural resources and does not specifically address their conservation. "Natural resources" include living organisms belonging to sedentary species which are either immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or subsoil.

Conservation of marine living resources may be seen, therefore, as a general obligation, in particular as concerns the high seas. No territorial jurisdiction can be exercised on the high seas because of the freedoms that exist in this area, meaning states can only make national conservation measures applicable to their nationals. In general, measures must be designed, on the best scientific evidence available, to maintain or restore populations at levels which can produce the maximum sustainable yield, qualified by relevant environmental and economic factors. The interdependence of stocks must be taken into consideration in order not to threaten associated or dependent species. (Art. 119) Finally, Art. 120 affirms that measures taken to protect marine mammals in the exclusive economic zone may also apply to the high seas.

a) Fisheries

In 1999, scientists estimated that fish is the primary source of protein for close to 950 million people and is the source of employment for about one quarter of that number. Fish resources are a major component of international trade. In some developing countries fish represent up to 80 percent of the total exports. From 1950 to 1970, fisheries production increased by approximately 6% annually, trebling from 18 to 56 million tons. During the 1970s the rate of increase declined to about 2 percent and in the 1990s fell to zero. Declining catches have led to job losses and higher prices for fish.

A 1995 UN Agreement concerned primarily with stocks that are beyond the limits of national jurisdiction, looks principally to flag states for action, which is understandable given the focus on high seas activities. It requires states parties to ensure that flag ships do not engage in any activity that might undermine the effectiveness of conservation and management measures. States are not to authorize or license high seas fishing unless they can ensure compliance with applicable national, regional and international regulations. The Agreement foresees a system of boarding and inspections within the regional or sub-regional framework followed by sanctions imposed by the flag state. See: Agreement for the Implementation of the Provisions of the *United Nations Convention on the Law of the Sea* of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, adopted August 4, 1995, opened for signature December 14, 1995.

Several legal measures on both global and regional levels attempt to combat large scale pelagic driftnet fishing. At the beginning of the regulatory efforts, more than one thousand fishing vessels used large-scale

pelagic driftnets of up to 48 kilometers (30 miles), nets that were often referred to as “walls of death” because they captured everything in their path. In late 1989, twenty-one countries adopted the *International Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific* (Wellington, November 24, 1989). The Convention requires each party to take measures to prohibit the use of driftnets more than 2.5 kilometers long and the trans-shipment of driftnet catches. Each party may take more stringent measures against driftnet fishing activities, such as prohibiting the landing of driftnet catches within its territory, the processing of driftnet catches in facilities under its jurisdiction, or the importing of fish or fish products caught by means of driftnets. States parties also may restrict port access and port servicing facilities for driftnet fishing vessels and prohibit the possession of driftnets on board any fishing vessel within areas under its fisheries jurisdiction.

In 1991, New Zealand adopted legislation to prohibit driftnet fishing activities in its EEZ and to implement the *Wellington Convention*. The law is more stringent than the Convention, prohibiting driftnets more than one kilometer in length and giving broad powers of search, arrest and seizure to enforcement officers. Persons convicted of an offense under the act are subject to fines. The United States adopted similar legislation, called the High Seas Driftnet Fisheries Enforcement Act, on 2 November 1992. The Act denies port privileges and establishes sanctions for high seas driftnet fishing. The South Pacific Forum Fisheries Agency took similar action when it adopted a Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region at its 23rd session (Niue, July 9, 1992). The Council of Fisheries Ministers of the EC in 1998 agreed to ban driftnet fishing on the high seas by all vessels flying the flags of EU states as of January 1, 2002. Council Regulation 1239/98 of June 8, 1998 amending Regulation 894/97 laying down certain technical measures for the conservation of fishery resources, O.J. L 171 (6/17/98), 1-4.

Several cases before the International Tribunal on the Law of the Sea have concerned illegal fishing and the requirement of prompt release of seized vessels. One of the more important cases, the *Case on the Conservation and Sustainable Exploitation of Swordfish Stocks in the South-Eastern Pacific Ocean (Chile v. EC)* was discontinued after the parties reached agreement. Another, *The Grand Prince Case (Belize v. France)* ended when it was discovered that Belize was not the flag state of the seized ship.

b) Marine species conservation

A series of international treaties intend to ensure the conservation of specified species or groups of species, such as sea turtles, cetaceans, and marine mammals. Some of these are endangered species also protected by CITES. The first group to be protected was whales. The *International Convention for the Regulation of Whaling* (Washington, Dec. 2, 1946) was drafted as a fishing treaty regulating whaling in order to prevent over-exploitation and conserve and develop whale stocks. The goal was to safeguard whales for future generations as a "great natural resource." The Convention applies to all whale catchers including aircraft under the jurisdiction of states parties and to "all waters" in which whaling takes place. Art. 1(2). An annexed Schedule to the Convention contains regulations on whaling.

The Convention and Schedule call for national enforcement and international supervision of the obligations they impose. National inspectors have been required on whalers since 1949 and a scheme of international observers was established in 1971. Strong national measures to implement the Convention have been taken by various states including the United States, which prohibits U.S. nationals or vessels from whaling on the high seas. See: Marine Mammal Prot. Act of 1972 as amended, 16 USC §1361-2, 1371-84, and 1401-07.

The *Washington Convention on International Trade in Endangered Species (CITES)* prohibits trade in certain kinds of whales, such as the blue whale and the narwhale. In addition, the *Bern Convention* establishes strict protection for several kinds of whale.

Like whales, seals were exploited very early and on a massive scale. Several multilateral instruments on this subject followed, including a treaty signed in 1911 between Japan, the United States, the United Kingdom and Russia. These instruments were concerned with conservation of the species for strictly commercial reasons. The Treaty of 1911 was replaced by successive agreements containing modifications, but as a whole the structure of the instrument has remained intact. The objective of this agreement was the

rational exploitation of the fur seals resource. The EEC has adopted a legal instrument specifically concerned with protecting baby seals. The massacre of young seals, in particular by Canadian hunters, was graphically exposed by photographs and provoked a strong movement of public opinion in Europe, demanding governments to act. As a result, the Council of the EEC adopted a resolution on January 5, 1983 followed by a Directive concerning the importation into member states of furs of young seals and derivative products. See, Directive 83/129/EEC, O.J. L. 91 (4/9/83).

It must be recalled that certain kinds of seals are protected by the general multilateral conventions concerned with endangered species, principally CITES and the Bern Convention. Similarly, as a migratory species, seals benefit from the 1979 Bonn Convention and the provisions of UNCLOS. Finally, their habitats can be protected through application of the 1972 *UNESCO World Heritage Convention*. The appendix to the 1972 *London Convention for the Protection of Antarctic Seals* also establishes areas where the parties have agreed to prohibit killing or capturing seals.

7.3.3 Courts and the Marine Environment

Cases concerning the marine environment arise in domestic courts in several contexts:

- Illegal fishing
- Smuggling of endangered marine species, such as coral, tropical fish, whales, and sharks
- Pollution of coastal waters
- Espionage.

These cases often have international ramifications. In February 2002, for example, Australia prosecuted in its courts an alleged pirate fishing vessel. The *Volga* was arrested in a naval operation that cost the Australian government some \$A15 million (\$US7 million). The fishing vessel was taken and returned to Fremantle, Western Australia, and its officers and owners held on charges of illegal fishing. The case also went to The International Tribunal on the Law of the Sea (ITLOS) when Russia contested the bond set by the Australian judge to release the fishing boat and three Spanish officers who were detained. Under UNCLOS, alleged illegal fishing vessels and crew must be promptly released upon payment of a "reasonable" bond. Most of the *Volga's* crew were repatriated to their homelands soon after their arrival in Australia. Ahead of the trial, a bond of \$A3.3 million (\$US1.6 million) was set for the vessel, and \$A845,000 (\$US 420,000) for the three officers. The Australian Government is also holding \$1.9 million (\$US800,000) proceeds from the sale of the *Volga's* catch. In other cases, over the past decade, more than 400 Indonesian fishermen have been imprisoned in Australia for illegal fishing in Australian waters. The Darwin (Australia) Supreme Court imposed on a Thai vessel a \$50,000 fine for intentionally using a foreign boat for fishing in the Australian Fishing Zone (AFZ), while a further \$50,000 penalty was awarded for having the boat equipped for fishing in the AFZ. An additional charge was also filed for failing to allow the boarding of the boat by an officer at the time of apprehension, with the fisher receiving a four-month jail sentence.

The Amoco Cadiz case illustrates the problems that arise in litigation over major marine pollution events. The Amoco Cadiz tanker ran aground off the coast of Brittany on March 16, 1978, due to damage to its navigational equipment. During the following three weeks, nearly all the 219,617 tons of crude oil cargo as well as its fuel, together totalling nearly 230,000 tons of oil, escaped into the sea creating an oil slick eighteen miles wide and eight miles long. Part of the oil evaporated, another part broke down by natural means, but the rest filtered to the seabed or reached the coastline, creating ecological disaster. Three hundred seventy five kilometers of coast was polluted by 50-60,000 tons of oil. Of this, 15-20,000 tons were cleaned up by volunteers and the military. In the affected zone, in the sea and on the coast, a total of 30% of the animal life and 5% of the plant life was destroyed. Approximately 20,000 birds died, the shellfish industry suffered damage, and the fishermen lost 45-60 days of fishing. There was also indirect damage, notably to tourism.

In 1983, multiple lawsuits filed in the United States were consolidated in the United States District Court for the Northern District of Illinois. The claimants included the French government, various French administrative departments, numerous towns, businesses, associations, individuals, and the insurers of the cargo. The defendant Amoco parties included Astilleros Espanoles, the Spanish company that designed and constructed the Amoco Cadiz; Amoco Transport Company, the Liberian company which was the

registered owner of the ship and whose principal place of business was in Bermuda; Standard Oil Company, the owner of Amoco Transport Company, incorporated in Indiana, with its principal office in Illinois; Amoco International Oil Company, also owned by Standard Oil, incorporated in Delaware; Bugsier Reederei und Bergungs A.G., the German salvage tug company that sought to assist the Amoco Cadiz; and the American Bureau of Shipping, which approved the design of the supertanker.

Normally, the pollution victims would have been able to bring an action in French court for damages under an international liability convention, which France had ratified. However, their damages substantially exceeded the limits of 77 million francs that would have been due under the Liability Convention formula then in force. According to estimates prepared at the time, the cleanup alone cost some 450 million francs, the damage caused to fish and shellfish was 140 million, and the losses caused by the reduction in tourism were more than 400 million. In these circumstances the victims sought to escape the limits of the Liability Convention by taking the case to the United States courts because the United States is not a party to the Liability Convention. The complaint sought US\$2.2 billion damages for environmental harm suffered due to the negligence of the companies in the construction, maintenance, and operations of the Amoco Cadiz.

In a judgment of April 18, 1984, the Court determined it had jurisdiction over the action and that United States law would apply. This ruling was sufficient to escape the limits of the Brussels Convention, which would have limited the liability of Amoco to under \$20 million. If the Convention had been applied, the provisions of Art. 9, according to which no claim may be presented except before the tribunal of the state victim of the pollution, would likely have required dismissal of the action. Even if this were not the case, choice of French law including the Liability Convention would have bolstered Amoco's arguments for dismissal on grounds of *forum non conveniens*.

On the merits, the court held liable Standard Oil and its two subsidiaries. Amoco International Oil Company, the American corporation responsible for the organization and administration of transportation for all of Standard Oil, was found negligent in its obligation to maintain the Amoco Cadiz in a state of navigability. In particular, there was a negligent breakdown in the steering mechanism of the tanker that was one of the immediate causes of the grounding of the tanker and the resulting damage. Moreover, the crew of the tanker was not sufficiently trained to maintain, utilize, inspect and repair the steering system, a supplementary cause of the grounding. Finally, the company using the Amoco Cadiz was negligent in leaving the ship without any backup steering system and without any other means of controlling the direction of the ship in case of failure. There was no limitation set on liability for any of the defendants.

Four years later the court examined in detail the question of damages, awarding the plaintiffs \$85.2 million. The court's 435-page opinion, *In re Oil Spill by Amoco Cadiz off the Coast of France on March 16, 1978*, No. MDL376 (N.D.Ill. 1988), 1988 U.S. Dist. LEXIS 16832 addressed the claims made by France, the harmed cities and towns, individuals, farmers, fishermen and environmental protection groups, discussing several categories of damages:

- Cleanup operations by public employees. The court accepted the claim for costs of the cleanup to the extent that public employees, including elected officials and the military, took time from their regular duties or put in overtime to assist. Travel costs incurred in the cleanup were also reimbursed. The time of volunteers was not compensated because their efforts were donated, but the proven costs of transportation, food and lodging could be claimed.
- Gifts made by local communities in money or goods to volunteers or military officials were found to be inappropriate for inclusion in the damage claim, being in the nature of recognition of and gratitude for the services rendered.
- Costs of material and equipment purchased for the cleanup. The court allowed recovery, less the residual value of purchased items, provided the acquisition was reasonable and the equipment was, in fact, used during the cleanup and that a residual value could be proven. As for previously-owned equipment, depending on the evidence the claimants were found entitled to recover either the difference between the value of the equipment before its use commenced and the value thereafter, or a reasonable rental value for the equipment during the term of its use.
- Costs of using public buildings. The damage suffered by buildings during the cleanup operations was compensated and reimbursement was awarded for the extra costs arising from use of the buildings during the cleanup, such as increased water, power, and telephone usage.
- Coastline and harbor restoration. The expenses for these purposes were included.

Lost enjoyment. The court applied French law and rejected this claim, which it viewed as a claim for damage to the quality of life and public services.

- Lost of reputation and public image of the towns. This claim assumed that tourists who would normally have visited the communes for vacation and other recreational purposes went elsewhere due to deterioration of the beaches. The court rejected the claim, finding that it was more precisely covered and measurable in individual claims brought by hotels, restaurants, campgrounds and other businesses.
- Individual claims. The court accepted some of the numerous individual claims, applying as a general rule the loss of income for one year. A claim by the Departmental Union of Family Associations was rejected as tenuous and not grounded in French law.
- Ecological harm. The court did not award damages for injury to the biomass, the totality of life in the sea and on the bottom in the affected zone, deeming the matter complex, attenuated, speculative and based on a chain of assumptions. The court also found it did not have to reach this issue, because the damage was to *res nullius* and no one had standing to claim compensation. French arguments that the state could assert a legal interest in protecting the maritime public domain were found unpersuasive. In addition, the court decided that damage caused to the ecosystems already had been fully recognized in the claims of fishermen and fishing associations, based on the reduction in their catches and their resultant profits. In respect to French governmental programs to restore the ecosystems, the Court allowed only expenses incurred to reintroduce species that suffered from the pollution and its consequences, finding that if the initial experiments were useful, the program should not be financed further by the defendants.

Chapter 8

AIR

8.1 INTRODUCTION

The introduction of pollutants into the atmosphere creates multiple effects, because the air is essentially a place of transit: gases or particles remain there temporarily and manifest many of their impacts only after returning to the soil, plants, marine waters, lakes or rivers. Poisonous air also directly damages living creatures and objects. The two most serious known ecological catastrophes – Bhopal, India, and Chernobyl, Ukraine – produced most of their victims as a result of direct contact with polluting elements in the atmosphere. Pollutants often undergo modifications in their composition once they enter the atmosphere. Finally and significantly, air pollutants move quickly and cover greater distances than do pollutants in watercourses or the marine environment.

There are three major issues concerning air and the atmosphere that have been subject to legal regulation and may arise before judges: air pollution, depletion of the stratospheric ozone layer, and climate change.

8.2 AIR POLLUTION

Air pollution has been defined as the introduction by man, directly or indirectly, of substances or energy into the air, resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property, and impair or interfere with amenities and other legitimate uses of the environment. This definition adapts the general concept of pollution, focusing on risk or harm resulting from changes in the environment.

Atmospheric pollution appears in multiple forms, some only recently understood. Domestic and international regulation has evolved as the impacts of each form of pollution have become known.

- 1) **Sulphuric gas** of industrial origin, in part converted into sulphate in the troposphere and stratospheric base, becomes sulphuric acid. In addition to its impact on fresh-waters, the acid is returned to the soil in rain, where it attacks the roots of trees.
- 2) **Other pollutants**, principally nitrous dioxide (NO₂) and emissions from hydrocarbons (HC) combine with sulphuric gases. They are the source of ground-level ozone (O₃) during sunny periods. Ozone harms the needles of conifers, particularly the membrane which supports photosynthesis. This is the source of serious damage to trees on western and southern hills and mountains at an altitude near 800 meters. Automobile gas emissions are another major source of pollution, which must be added to pollution caused by power stations and industries utilizing fossil fuels.
- 3) **Particulates**, such as ash and heavy metals, corrode buildings, monuments and other objects.
- 4) Most recently, the impact of **persistent organic pollutants** (POPs) in the atmosphere has become a major concern.

8.2.1 National law

Numerous sources emit pollution into the atmosphere, including heating plants, both industrial and domestic, industrial processes, waste incinerators, automobiles and other transport vehicles, and even animal farms. The amount of pollutants varies from one area to another, depending on the type and concentration of human activities and on the measures taken to reduce emissions. See Mauritius, Environmental Appeal Tribunal, Case No.2/94, *Mouvement Social de Petit Camp v. Ministry of Environment & Quality of Life* and Case No 02/98, *Mr.Cadress Chinian Chetty v. Minister of Local Government and Environment*.

The legal norms applied by different states to combat air pollution vary considerably from one country to another, based on local conditions of geography, climate, industrialization, urbanization and other potential sources of harm. Emphasis can be placed on emission controls or on setting air quality standards, on improving particularly polluted zones or those that demand special protection, on priority accorded local pollution, or on medium- and long-distance impacts. The execution of international treaties can have a major influence on national legislation.

One of the most widely adopted legal techniques for combating pollution and nuisances consists in submitting all pollution-causing activities to prior authorization. Existing licensing regimes have played a great role in the prevention of air pollution. Licensing regulations typically list types of activities requiring a license, although variation exists in the criteria of classification, such as the size of the installation, the nature and the quality of the emissions and their effect on the environment, the feasibility of preventing pollution by using an alternative production process, and the likely risk of a major accident. See: Mauritius, Environmental Appeal Tribunal, Case No 02/98, *Mr. Cadress Chinien Chetty v. Minister of Local Government and Environment and D. Mangrabala v. Minister of the Environment, Urban & Rural Development*. Challenges to the grant or denial of an authorization can constitute a significant portion of environmental cases coming before national judges.

Framework laws are frequently used for this subject. They involve a law of general scope, defining the concepts and the fundamental principles of action to be undertaken, as well as designating the areas in which more detailed regulation should be adopted. Framework laws are completed and implemented by laws or decrees of application that detail their specific scope in various fields. Most often, the detailed regulation that completes these texts is elaborated by the executive or by local authorities. Such is the case, generally, with emission standards and air-quality objectives and for establishing special regulations applicable to special zones. This method of legislating streamlines the process of adapting norms in the light of needs that vary according to the place and pollution levels.

Many states have elaborated detailed regulations to limit polluting emissions. They may concern a large series of pollutants, such as sulphur gases, particulates and dust, nitrogen oxide, vinyl chloride, heavy metals (zinc, arsenic, lead, mercury and its compounds, cadmium, beryllium, and fluoride and its compounds). Obligations flowing from international instruments, such as those listed above, have a growing influence in this field. At least one detailed regulatory regime (the U.S. Clean Air Act) gives citizens broad authority to challenge the government's final decisions applying its clean-air regulations, and to initiate court action when the government has failed to perform nondiscretionary duties related to air-pollution regulation. That regime also provides citizens certain rights to participate in the government's decisionmaking process through notice-and-comment proceedings.

Air quality standards establish the maximum allowable limit for substances in the atmosphere, rather than controlling emissions directly. Various techniques are used in conjunction with air quality standards: dispersion of pollutants using high smokestacks – which may contribute to long-range air pollution – or a licensing process by which administrations can impose restrictions on individual industrial installations. The persistence of pollutants in the atmosphere is generally taken into account. In all cases, air-quality standards require the existence of measurement techniques and monitoring procedures to determine air quality.

There are fundamental differences in regulations directed at fixed sources such as industrial plants and those aimed at movable pollution sources, such as trucks and automobiles. Most frequently, fixed sources above a specified size are submitted to authorization or licensing according to precise criteria. They are then regularly monitored. Regulations also often fix emission standards, which can be general or specific; they often may vary for different installations or different types of installations. Such regulations may concern, in particular, gas and particulate emissions, the kind and amount of fuels to be used and the height of chimneys.

A distinction can be made between heating installations on one hand and industrial installations on the other. Other distinctions can be made between pollution coming from domestic heating and other sources, between large and small installations, and between already-existing enterprises and new ones, it being understood that the former should have a specific time period to comply with new pollution controls. Many states will enact specific legislation to overcome local pollution problems.

Motor vehicles using hydrocarbons are the primary movable source of air pollution. Their exhaust fumes contain chemicals that are major contributors to urban and rural air pollution. Specific rules are necessary that differ from those applicable to fixed installations, rules that are easy to identify and monitor. Two methods are in widespread use: the first establishes technical requirements for motor vehicles themselves; the other establishes standards for gasoline. Less direct methods are also used, such as reducing speed

limits because pollution levels rise with increased speed. The utilization of local forms of mass transit as well as access to and use of long-distance trains, are also important measures.

Often, differences in local conditions require that regulatory measures to combat air pollution be taken locally or regionally. These rules can differ considerably from one area to another. Legislative instruments may establish air quality regions or zones. Most often, special zoning laws are passed at the local level that affect the amount and location of polluting activity. The objective is always to adapt standards, as much as possible, to geographic realities. Two common factors are usual:

- 1) The most polluting activities are prohibited or limited in specified zones, such as protected nature sites and densely populated areas.
- 2) In particularly polluted zones, stricter emission standards or air-quality standards may be set. During periods of particularly severe pollution, local authorities have restricted automobile use and taken measures to protect those vulnerable to respiratory ailments.

Legal regulation of other environmental issues can have an impact on air quality. Efforts to clean up water or soil, for example, including the tendency to incinerate wastes, instead of depositing them on the ground or dumping them into the sea or into inland waters, can aggravate air pollution. Similarly, the siting of industrial facilities is important, because as soon as pollutants are emitted into the atmosphere, the amount and direction of their dispersion plays a significant role in determining the extent of damage they cause. Efforts to reduce atmospheric pollution must not only set emission and air quality standards, but should address the use of fuels that are rich in sulphur, lead or other pollutants, and control combustion processes. With sixty to seventy percent of all acid rain estimated to be due to sulphur oxide emissions, with nitrous oxide responsible for the rest, reducing acid rains means reducing the sulphur content of combustion gases, either by using low-sulphur fuels or by removing sulphur before or during the combustion process.

8.2.2 International law

Although air pollution was traditionally considered as a local problem, the leading early case in international environmental law concerns transfrontier air pollution. See *Trail Smelter Arbitration*, 3 U.N.R.I.A.A. 1911, at 1965. See also France: Tribunal administrative de Lyon, Mar. 17, 1983, *Monard v. Commune de Divonne-les-Bains*, R.J.E., 1983/4, p. 358. To combat deterioration in air quality, initial measures sought to disperse industrial pollutants through increasing the height of factory smokestacks. The "solution" created new environmental problems: emissions taken to higher atmospheric levels travelled considerable distances on air currents, causing long-range pollution damage. As a result, air pollution was no longer solely a local phenomenon concerning large cities and industrial zones, but was a matter that affected non-industrial countries and agricultural areas often far from the source of the emissions.

There are few global rules establishing air quality or pollution emissions standards. The first binding international rules on global atmospheric pollution are found, perhaps unexpectedly, in the *UN Convention on the Law of the Sea (UNCLOS)* (Montego Bay, Dec. 10, 1982) According to Article 212, states must adopt laws and regulations to prevent, reduce and control pollution of the marine environment from or through the atmosphere. The laws and regulations should apply to the states' airspace, and to vessels and aircraft flying their flag or under their registry. States also must take other measures as necessary to prevent, reduce and control such pollution. On the international level, they must endeavor to establish global and regional rules and procedures. Within the limits of their jurisdiction, they must enforce the laws and regulations they adopt.

Significant progress in air pollution control has been achieved at the regional level. The *Geneva Convention on Long-Range Transboundary Air Pollution*, adopted on November 13, 1979, is a framework convention open to all European states, the U.S. and Canada. The general obligation of the states parties in Article 2 is to protect humans and the environment against air pollution, and to endeavor to limit and, as far as possible, gradually reduce and prevent it. Long-range transboundary air pollution is defined as air pollution whose physical origin is situated wholly or in part within the area under the national jurisdiction of one State and which has adverse effects in the area under the jurisdiction of another State at such a distance that it is not generally possible to distinguish the contribution of individual emission sources or groups of sources. Obviously, this definition excludes any idea of individual responsibility of the polluter, because that person or entity cannot be identified.

The Convention has been augmented by protocols regulating the emission of different polluting substances: sulphur, nitrogen oxides (NO_x) from fixed or mobile sources, Volatile Organic Compounds (VOC), Persistent Organic Pollutants (POPs), heavy metals, and ground level ozone.

Another source of atmospheric pollution appeared in the closing years of the twentieth century, when forest fires devastated Brunei and Indonesia, producing a heavy haze that polluted the atmosphere and caused serious health problems not only in the originating countries but also in Malaysia, Myanmar, Singapore and Thailand. In 1997, in response to the problem, the Association of Southeast Asian Nations (ASEAN) adopted a Regional Haze Action Plan followed in 2002 by an Agreement on Transboundary Haze Pollution (Kuala Lumpur, June 10, 2003).

The Convention defines haze pollution as smoke resulting from land and/or forest fire which causes deleterious effects of such a nature as to endanger human health, harm living resources, ecosystems and material property, and impair or interfere with amenities and other legitimate uses of the environment. The Agreement aims at preventing and monitoring such pollution, which should be mitigated through concerted national efforts and intensified regional and international cooperation (Art. 2). To that effect, precautionary and preventive measures should be taken, when necessary by developing and implementing international measures aiming at controlling sources of fires, identifying fires, creating monitoring, assessment and early warning systems, exchanging information and technology and providing mutual assistance. The Parties shall take appropriate measures to monitor all fire prone areas, land and/or forest fires, the environmental conditions conducive to such fires and haze pollution arising from them as well as the necessary preventive measures. Technical co-operation should include relevant training, education and awareness raising campaigns, in particular relating to the promotion of zero-burning practices and raising awareness of the impact of haze pollution on human health and the environment. Markets should be developed for the utilization of biomass and appropriate methods to treat agricultural wastes. The Agreement also provides for cooperation and mutual assistance. See also the US-Canada Air Quality Agreement (which addresses acid rain and a range of other transboundary air pollution issues).

8.3 STRATOSPHERIC OZONE DEPLETION

In addition to causing ground-level pollution, the emission of certain substances into the atmosphere leads to the depletion of the stratospheric ozone layer. Ozone is a form of oxygen, containing one more atom than the oxygen breathed in the atmosphere. While ground-level ozone in the form of "smog" produces harmful consequences, stratospheric ozone, whose strongest concentrations are found between twenty and twenty-five kilometres above earth, filters a part of the sun's ultraviolet radiation which otherwise would injure life forms on earth. The absorption of ultraviolet rays by stratospheric ozone is also a source of climatic energy. According to an international study, reduction in stratospheric ozone risks not only an increase in the number of human skin cancers and harm to the eyes but also unforeseen biological effects, because all living beings have evolved under the protection of the ozone layer. See: Asik K. Biswas, *The Ozone Layer* (1979).

By the late 1970s it was clear that chemical emissions into the air were depleting the ozone layer. The main cause has been the utilization of chlorofluorocarbons (CFCs) and similar substances in aerosol sprays, solvents and refrigeration. CFCs were popular because they are non-toxic, non-flammable, non-corrosive and stable, but their very stability is the source of the problem because they migrate over long distances and survive for many years. When they reach the stratosphere intact, solar radiation breaks the molecules apart to free reactive chlorine atoms, catalyzing chain reactions that destroy ozone, primarily above the Polar Regions. Thus, even after phasing out the production and use of ozone depleting substances, the destruction will remain for some time, because of the substances already released.

8.3.1 Ozone measures

UNEP made protection of stratospheric ozone a priority item on its legal action plan. After several years of negotiations, a *Convention for the Protection of the Ozone Layer* was adopted in Vienna, March 22, 1985.

The treaty is a framework convention, providing the basis for systematic cooperation among the states parties respecting protection of ozone above the planetary boundary layer. The general obligation of states

parties is to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities that modify or are likely to modify the ozone layer (Article 2). According to Convention, the Conference of the parties may adopt protocols to the Convention. Two months after the conclusion of the *Vienna Convention*, a British Antarctic Survey team published their findings indicating a forty percent loss of stratospheric ozone over Antarctica. A subsequent meeting of the parties to the Vienna Convention adopted the Montreal Protocol on Substances that Deplete the Ozone Layer on September 16, 1987. The Protocol controls production and consumption of various ozone-depleting substances (ODS), such as chlorofluorocarbons (CFCs) and halons. The parties have increased reductions of these controlled substances, as well as added new substances, over the years that followed. The Protocol also restricts trade of controlled substances between states parties and non-parties.

8.3.2 National law

The discovery that widely-used chemical substances were destroying stratospheric ozone induced a number of countries in the early 1980s to ban the use of CFCs for aerosol sprays. National regulatory approaches to implement Montreal Protocol restrictions and protect the ozone layer may include a) outright bans on manufacture and trade in restricted chemicals; b) taxes imposed on chemicals subject to phase-out; c) management requirements, e.g., on air conditioner servicing for automobiles or homes for recapture and recycling of ozone destroying substances (ODSs).

As the phase-out and ultimate ban in CFCs and other ozone-depleting substances has spread throughout the world, the problem of black-market trafficking has emerged. Judges are thus increasingly sitting on prosecutions based on violation of national bans or other restrictions on trade in such substances. In the mid to late 1990's, as developed countries limited manufacture and approached phase-out of CFCs, CFCs could often be purchased cheaply in developing countries not yet subject to phase-out requirements, and sold at many times the cost in developed countries. The resulting profit margin helped to drive a large black market with involvement of organized crime. While enforcement efforts have begun to put a crimp in this illegal trade, as developing countries proceed with the phase-out of ODSs, there are already signs of black market trading of illegal CFCs in developing countries. Moreover, it is thought that a similar black market could emerge as the next generation of ozone-depleting chemicals, the HCFCs, become subject to phase-out schedules under the Montreal Protocol.

Evidentiary issues for cases involving violation of national bans or restrictions in the commerce of ODS include proving whether a restricted chemical is involved. Often, restricted or banned chemicals are identifiable based on the labelling of their container or canister. In other cases, laboratory analysis may be needed to prove that a restricted chemical is involved.

8.4 GLOBAL CLIMATE CHANGE

The third major problem of the atmosphere is climate change and concern that, directly or indirectly, human activity may be altering the composition of the global atmosphere in a manner that affects climate beyond natural climate variation over time. The potential adverse effects from this change have been characterized as changes in the physical environment or biota which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation or socio-economic systems or on human health and welfare. See *U.N. Framework Convention on Climate Change* (New York, May 9, 1992), Art. 1.

The global average temperature between 1866 and 1996 increased by more than one degree, and the years 1998, 2002 and 2003 had the highest average temperatures on record. The accumulation of gases such as carbon dioxide, nitrous oxide, methane, chlorofluorocarbons and tropospheric ozone is viewed as at least partly responsible for the warming. There is evidence that the carbon dioxide concentration in the atmosphere today is twenty-five to thirty percent higher than what it was in the pre-industrial times. In 1995, the Intergovernmental Panel on Climate Change, a network of more than 2,000 scientists and policy experts advising governments on climate policy, assessed that human activity is contributing to the warming of the earth.

Box 18 Greenhouse Gases

Carbon dioxide is a basic by-product of the combustion of fossil and other natural fuels such as wood, coal, oil and gasoline. Other significant greenhouse gases are chlorofluorocarbons, which also contribute to the depletion of the ozone layer, methane and nitrous oxide. Methane is a metabolic by-product of animals (including humans) and is produced in significant quantities by domestic cattle. Nitrous oxide has various industrial applications as an aerosol propellant, and is used as an anaesthetic gas. The accumulation of these gases acts as an insulating blanket that traps the energy of sunlight and prevents it from radiating back into outer space. The accumulation of solar energy causes a gradual increase in the average temperature of the earth's surface.

The trend towards increasing temperatures is projected to result in rising sea levels from the partial melting of polar ice caps and from the thermal expansion of sea water. The IPCC's 2001 assessment projected global average sea level rise from 1990 to 2100 in the range of 9 centimetres to 88 centimetres. A rise in the world's sea levels of approximately fifty centimetres could wreak havoc with the low-lying coastal areas that are home to a substantial proportion of the world's population. Under some projections, many small islands would be submerged or become unsafe, and huge areas of some countries could become partly uninhabitable.

Climate change also could modify the world's agriculture: some areas might become arid, while other regions that are presently too cold could become able to grow cereals, corn or fruit and other products needing a warmer climate. Increased water temperatures could disrupt aquatic ecosystems and further burden already distressed fisheries. The IPCC's 2001 assessment indicated that while there are uncertainties regarding changes in climate extremes, extreme events such as droughts, floods, and heat waves are projected to increase in frequency and/or severity in some regions during the 21st century. In addition, a slight rise in average annual air temperature could greatly increase the risk of insect outbreaks. Insects represent more than half of the nearly two million species known on earth. Warmer weather speeds up insect metabolism, making them grow more quickly, breed more frequently and migrate sooner and farther. Tropical diseases carried by pests and micro-organisms, including malaria and dengue fever, could become endemic in new areas of the world.

8.4.1 National law

A range of national measures to reduce greenhouse gas emissions is emerging. Some countries have implemented voluntary and incentive-based efforts to mitigate emissions. Some countries are adopting mandatory limits on emissions from certain sectors. Efforts to mitigate greenhouse gas emissions sometimes includes the same type of approaches used to reduce air pollution, such as product and process standards, and required use of best available technology. Some states are promoting or requiring the use of energy sources with little or no greenhouse gas emissions. Other states are promoting or mandating reforestation or limiting deforestation in an effort to increase carbon sinks.

8.4.2 International law

The first signs of international concern over climate change emerged in a series of international conferences between 1985 and 1987. Several resolutions adopted by the UN General Assembly led to calls for a general and effective convention on climate change. The Convention was adopted on May 8, 1992 in New York and opened for signature during the Rio de Janeiro Conference. The *United Nations Framework Convention on Climate Change* is concerned with greenhouse warming. It defines climate change as a modification of the climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, and which is in addition to natural climate variability observed over comparable time periods. The stated objective is to stabilize the concentrations of all greenhouse gases – not only carbon dioxide – in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. In this regard, precautionary measures should be taken to anticipate, prevent, or minimize the causes of climate change and mitigate its adverse effects (Article 3(3)).

The obligations of all parties are mainly contained in Articles 4 and 12: developing, periodically updating, publishing, and making available national inventories of anthropogenic emissions and sinks; formulating and implementing national and regional programs containing measures to mitigate climate change; promoting the application of processes that control emissions including transfer of technologies; promoting sustainable management of sinks and reservoirs of all greenhouse gases; elaborating integrated plans for coastal zone management ; and cooperation in research.

The treaty contemplates that its developed country parties should take the lead in combating climate change and its adverse effects. Annex I to the Convention lists thirty-six countries and the European Community as developed parties; they commit themselves to adopt national and regional policies and take corresponding measures to mitigate climate change by limiting their emissions of greenhouse gases and protecting and enhancing their greenhouse sinks and reservoirs. However, the Convention establishes no obligations concerning specific timetables and targets for limiting such emissions.

The Protocol to the UN Framework Convention adopted in Kyoto on December 11, 1997 specifies different goals and commitments for participating developed and developing countries concerning future emission of greenhouse gases. The main features of the Protocol are the reduction targets accepted by the industrialized countries, without corresponding obligations for developing countries; acknowledgment of the role of sinks of greenhouse gases (seas, forests) and their inclusion in the targets; the possible creation of "bubbles" and trading emissions to allow countries to satisfy together their obligation to reduce their aggregate emissions and to jointly implement the agreement with countries that only emit small amounts of greenhouse gases, in principle developing countries.

Chapter 9

SOIL

9.1 INTRODUCTION

Soil is the part of the Earth between its surface and its bedrock. It contains the nutrients necessary for maintenance of plant life and it acts to filter out pollutants before they reach subterranean water sources or enter the food chain. Soil also helps to avoid flooding by absorbing considerable amounts of water. Nearly all soil constitutes a habitat for flora and fauna and in this way contributes to biological diversity. In addition to its natural roles, soil is a primary resource for construction, physical support for structures and of historical evidence on the origins of plants, humans, animals and the Earth.

Soil naturally erodes and degrades, but it is increasingly threatened by excess demands on all the roles it plays. Overuse of soil depletes its nutrients and leads to erosion and desertification. The principal cause of erosion, in most cases an irreversible process, is incorrect management of forests and agricultural lands, principally through intensive and environmentally unsound cutting and farming methods. Erosion can also diminish the ability of soil to prevent and to absorb flooding. Contamination by heavy metals and organic toxic substances, including fertilizers and pesticides, is a particularly serious problem in many parts of the world. Waste, particularly industrial waste, has likewise become a major source of soil contamination. Finally, the surface space of soil is diminishing as it becomes covered by buildings, industrial facilities, and impermeable roads, airport runways, and other artificial surfaces.

9.2 NATIONAL LAW AND THE COURTS

There is little national law on structural soil protection; some indirect protection appears in forestry laws that are designed to avoid erosion and consequent flooding. A few cases have been decided. One example is from the Environment Appeal Tribunal of Mauritius, Case No. 03/01, *Mrs. Jamamloodeen Dulloo v. Minister of Environment*.

On soil pollution many states now have legislation requiring clean-up and remediation of polluted soil. The U.S. enacted its Resource Conservation and Recovery Act to regulate, among other things, the land disposal of solid and hazardous waste in 1976, and its so-called "Superfund" legislation to clean up polluted soils in 1980. The Netherlands was the first state in Europe to have specific legislation on soil protection, with clean up regulations dating from 1983, after the public became aware of toxic sites in the country. In 1987 the Soil Protection Act was adopted to protect the functions of the soil through conservation and restoration and to regulate pollution sources. Both laws require the establishment of soil quality standards. In 1991 the state adopted a voluntary system to clean up polluted soils on operating industrial sites. Other laws concerning waste disposal, chemical wastes, nuisance, pesticides and nature conservation help protect the soil as well.

National legislation may include provisions on the soil in the general law on the environment or regulate soil functions in separate legislation. Some legislation addressed the solid surface and is concerned primarily with erosion and landslides.

The United Kingdom couples legislative protection of the soil with common law tort actions establishing liability for soil contamination.

Soil contamination actions may arise in courts in connection with sales of property. Few sales of large industrial sites are made today without prior soil investigation, risk analysis, and related conditions being considered or included in the sale contract. Issues of liability for uncorrected conditions frequently arise.

9.3 INTERNATIONAL LAW

Legal protection for the soil is rather recent, although some forestry laws protected trees at least in part to avoid erosion and consequent flooding. Part of the neglect was due to a general perception of soil as an inexhaustible resource.

Owing to the belief that soil degradation did not raise transboundary problems, international legal rules on soil were late in coming and remain relatively rare. After the Council of Europe adopted the *European Soil Charter* in 1972 (Committee of Ministers, Res. (72)19 of May 30, 1972), the UN Food and Agriculture Organization proclaimed a *World Soil Charter* on November 25, 1981. Both documents contain guidelines for action and basic principles, advocating the development of land-use programs tending to the best possible use of the land, ensuring long-term maintenance and improvement of its productivity, and avoiding the loss of productive soil. Agenda 21 devoted five chapters to different aspects of soil conservation respectively related to planning and management of land resources, deforestation, desertification, sustainable mountain development and agriculture and rural development.

9.3.1 Desertification

The U.N. adopted the first international treaty concerning one aspect of soil protection, the problem of desertification, on June 17, 1994. The Convention defines desertification as land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. To combat desertification and mitigate the effects of drought in the affected countries, the Convention advocates effective action programs, i.e., long-term integrated strategies that focus on improved productivity of land and the rehabilitation, conservation and sustainable management of land and water resources.

The participation of populations and local communities in decisions on the design and implementation of programs to combat desertification is also one of the main elements of the Convention. National action programs should be prepared and updated through a continuing participatory process. The instrument overall advocates a new way to confront problems of harmful patterns of land use. It also provides for cooperation at global, national, sub-regional and regional levels and creates mechanisms, both administrative and financial, in order to monitor and ensure compliance. The Convention includes five annexes, each of which concerns a specific geographic region: Africa, Asia, Latin America and the Caribbean, the Northern Mediterranean and Eastern Europe, setting out guidelines for the preparation of action programs and their focus.

9.3.2 Alpine soil treaty

The first treaty exclusively dedicated to soil was adopted Oct. 16, 1998 as a protocol to the Nov. 7, 1991 *Convention Concerning the Protection of the Alps*, 31 I.L.M. 767. The parties recognize that erosion is a problem in the Alpine region because of the topography and as a consequence the concentration of pollutants in the soil can be carried to other ecosystems and present a risk to humans, flora and fauna. The Protocol notes the need for an integrated approach because of the impacts on soil of industrialization, urbanization, mining, tourism, agriculture, forestry, and transport. The functions of the soil, particularly the ecological functions, should be guaranteed and preserved over the long term, both in quantity and in quality. The restoration of degraded soils is encouraged.

The states parties should aim at utilizing soil appropriately according to location, economizing surface use, preventing erosion and structural damage to soil, as well as minimizing the transfer of polluting substances to soil. Special measures should be taken to preserve and promote the diversity of soil typical of the Alpine region and its characteristic places. In this context, prevention includes guaranteeing the functional capacity as well as the possibility of different utilizations of soil by future generations with a view towards sustainable development.

The parties are to take legal and administrative measures necessary to protect soil and to monitor the application of these measures. Where there is a risk of grave and persistent danger to the functional capacity of soil, protection should have priority over utilization as a general rule. Soil should be a factor in delimiting protected areas and in particular that characteristic formations or areas of particular interest for geology and understanding the evolution of the earth should be preserved. It adds the obligation to apply an integrated approach that incorporates soil protection into all aspects of land management. Assignment of responsibility to different levels of governance is encouraged as is international cooperation. The Protocol also calls for including consideration of soil impacts in environmental impact assessments for major projects. The comprehensive obligations contained in the Protocol are supplemented by requirements of permanent observation and monitoring.

Such international provisions can be considered as models for national legislation on soil conservation. In different countries detailed provisions are most often related to pollution sources and activities that degrade the soil such as certain industries, mining, transport or even certain types of farming. Other legal provisions which can be relevant for the protection of soil can be related to the management of industrial and household wastes, the protection of open spaces, including areas that are fragile or unique, urban planning of dedicated uses for different zones. The clean-up of contaminated soils plays a growing role.

Box 19 Soil Protection in Africa

Art. VI, 2003 *African Convention on Conservation of Nature and Natural Resources* (excerpts).

1. The Parties shall take effective measures to prevent land degradation, and to that effect shall develop long-term integrated strategies for the conservation and sustainable management of land resources, including soil, vegetation and related hydrological processes.
2. They shall in particular adopt measures for the conservation and improvement of the soil, to, inter alia, combat its erosion and misuse as well as the deterioration of its physical, chemical and biological or economic properties.
3. To this end:
 - a) they shall establish land-use plans based on scientific investigations as well as local knowledge and experience and, in particular, classification and land-use capability;
 - b) they shall, when implementing agricultural practices and agrarian reforms,
 - i. improve soil conservation and introduce sustainable farming and forestry practices, which ensure long-term productivity of the land,
 - ii. control erosion caused by land misuse and mismanagement which may lead to long-term loss of surface soils and vegetation cover,
 - iii. control pollution caused by agricultural activities, including aquaculture and animal husbandry;
 - c) they shall ensure that non-agricultural forms of land use, including but not limited to public works, mining and the disposal of wastes, do not result in erosion, pollution, or any other form of land degradation;
 - d) they shall, in areas affected by land degradation, plan and implement mitigation and rehabilitation measures.
4. Parties shall develop and implement land tenure policies able to facilitate the above measures, inter alia by taking into account the rights of local communities.

Chapter 10

BIOLOGICAL DIVERSITY AND NATURE CONSERVATION

10.1 INTRODUCTION

Issues concerning biological diversity may come before judges in very different contexts. Criminal prosecutions for illegally killing or capturing protected species are increasingly common, as are cases to stop timber harvesting on protected lands. Forfeiture actions against those illegally trading in ivory or other products derived from endangered species have taken place in many countries. Public interest litigation may seek to enjoin commercial activities in protected areas or ensure enforcement of laws protecting biological diversity. A series of cases in Pakistan, for example, sought judicial orders to stop organized hunts of the protected and endangered great Asian bustard. Intellectual property disputes may arise over medicines derived from traditional knowledge and genetic material of a particular area.

Biological diversity or biodiversity has replaced phrases formerly used, such as nature conservation or wildlife protection. The new term encompasses all genes, species, habitats and ecosystems on earth and is defined in Article 2 of the *Convention on Biological Diversity* (Jun 5, 1992) as:

the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Article 2 of the *Convention on Biological Diversity* (1992)

The Convention distinguishes three levels of biological diversity:

- 1) diversity within species
- 2) diversity between species; and
- 3) diversity of ecosystems.

Diversity within species -- refers to the variability of genetic contents within a single species, which means that apart from certain multiple births no two organisms are genetically identical. The smaller the number of individuals within a species, the less internal the species retains. Inbreeding may result in reduced fertility and increased susceptibility to disease. This may constitute a threat for food security, which rests on a few grain species; some twenty species account for more than ninety percent of the world's food.

Species diversity -- means the diversity between species of living organisms within a specific habitat or ecosystem. The number of species of living organisms is estimated to be at least five to ten million. Vertebrates are the less numerous: about 4,200 mammal species and 9,000 bird species, 6,300 reptile, 23,000 fish, and 4,000 amphibian species have been identified, while the number of identified higher plants is higher than 250,000. Lichens, bacteria and fungi are much more numerous, but they are less well known. Living organisms are unevenly distributed throughout the world, with the highest concentration of terrestrial species in humid tropical zones like Amazonia and the greatest marine diversity in coastal areas and coral reefs.

Ecosystem diversity -- denotes the range of natural habitats, biotic communities and ecological processes within which species variety has evolved and to which they are uniquely adapted. Each species depends upon the surrounding environment (temperature, humidity, water, soil and nutrition) for its survival and reproduction. Ecosystems contain a complex interrelationship of species and functions, governed by natural rules leading towards equilibrium. The diversity of ecosystems is itself an essential part of biological diversity.

The available evidence indicates that human activities are eroding biological resources and greatly reducing the planet's biological diversity. The loss of biodiversity is due above all to economic factors: a UNEP expert panel estimated that food, fibre, ornamental plants and raw materials of biological origin account for roughly half of the world's economy. The direct causes of the extinction of species are the

destruction of habitats, overexploitation, overconsumption, pollution and the wide range of activities that directly impact the environment. Other unintended factors can be added, such as incidental taking of species and the introduction of foreign species into habitats.

Given the projected growth in human population and economic activity, the rate of loss of biodiversity -- which accelerated during the last two centuries -- is likely to continue to increase. Part of the problem is that biodiversity and essential ecological functions such as watershed protection, pollution control, soil conservation, photosynthesis and evolution tend to be undervalued. Still, these resources, and the diversity of systems that support them, are the essential foundation of sustainable development. Biological resources are renewable and with proper management can support human needs. No single nation acting alone, however, can ensure that biological resources are managed to provide sustainable supplies of products; rather, a commitment is required on the part of all states and actors.

10.2 PROTECTING BIODIVERSITY

10.2.1 National law

National and international law have approached the problems raised by the loss of biological diversity in similar ways. Historically, the starting point was legal restrictions enacted to protect forests and certain species of wild fauna and flora. Special authorizations could be delivered to allow cutting trees in a forest, or for hunting or fishing during specific seasons. Later, norms developed to protect the habitat of wild plants and animals. Finally, conservation of species and of their habitat merged into the broader conceptual framework that calls for safeguarding the genetic heritage of the planet, a new, immense problem extending beyond the dimensions of conservation in its usual sense. Progress towards identification, regulation, and management of processes that adversely affect biological diversity represents one aspect of a shift away from sectoral administration towards an integrated approach to protecting ecosystems. Thus, legislation in many countries today (e.g. Austria and Denmark) prohibits the release or introduction of non-native species, or requires special permission to introduce them.

The oldest rules were drafted for regulating hunting and fishing. The laws of many countries distinguish game and non-game animal species and commercially exploited and non-exploited plants. Hunting legislation attempts to maintain or conserve species by setting conditions under which certain species of plants or animals may be taken. See, e.g., Finland's Hunting Act of 1962 and Fishery Act of 1982. The Norwegian Wildlife Act of 1981 seeks to promote the management of wildlife in such a way as to preserve the productivity of nature and diversity of species. Wildlife may be harvested for the benefit of agriculture and outdoor recreation, but the Act's focus is on wildlife protection.

An Act in Portugal is typical of fishing legislation: it provides the time, seasons and hours during which fishing is prohibited; the minimum size for taking the fish of certain species; the prohibited means and methods of fishing, and measures to protect the free circulation of fish. It also prohibits selling, transporting, keeping and consuming the fish of certain species during the period in which fishing is prohibited. The administrative authority can prohibit fishing of endangered species entirely or partially. All the provisions contain penal sanctions and foresee civil liability.

National laws also address prohibited hunting methods: Hungary prohibits poison bait, the Czech Republic adds iron traps, but permits poison gas to reduce the fox population in areas infected with rabies. Many states now prohibit indiscriminate means of taking, such as dynamite fishing or the use of driftnets.

In Germany, the Federal Nature Protection Act (Bundes-Naturschutzgesetz) provides a general protection for all wild animals and plants, as a basic rule, against unreasonable impairments. According to these rules it is prohibited to wilfully disturb wild animals or to catch, injure or kill them without good cause; to remove, without good cause, wild plants from their locations or to use them, cut down their populations or destroy them in any other way or, to damage or destroy, without good cause, the habitats of wild fauna and flora species. Furthermore, the law provides special protection for species listed in federal regulations. Species may be put on these lists if necessary because the survival of stocks of native species is jeopardized by human intervention; the same applies if there is a risk of confusion with such endangered species.

In most countries today national legislation is largely modelled after international commitments. Parties to international conventions on biological diversity have adopted laws and regulations in order to implement the agreements and create adequate institutions in order to ensure compliance with their commitments.

The role of domestic tribunals is important in the development of concepts related to wildlife protection. French courts and tribunals made valuable contributions in defining terms such as “protected species,” “damage” to protected species, and to developing the legal status of migratory birds, hunting and of the duties of hunters. See: Conseil d’Etat, December 9, 1988, *Entreprise de dragage et de travaux publics*, R.J.E., 1989/2, 187 ; Tribunal administratif de Grenoble, April 26, 1996, *Association D.R.A.C., Nature et autres*, R.J.E., 1997/1, 114; Cour administrative de Lyon, February 1, 1994, M. Plan, R.J.E., 1994/2, 263 ; Cour d’appel de Toulouse, October 24, 1994, *Lespinasse*, R.J.E., 1997/1, 47; Tribunal administratif d’Amiens, February 8, 1996, *Association pour la protection des animaux sauvages et du patrimoine naturel v. Préfet de l’Aisne*, R.J.E. 1996/1-2,123 ; Tribunal administratif de Nantes, March 21, 1996, *Association pour la protection des oiseaux sauvages et autre*, R.J.E., 1996/1-2, 126 and Tribunal administratif d’Amiens, December 17, 1996, *Association pour la protection des animaux sauvages et du patrimoine*, R.J.E., 1997/2, 205. Cf . the judgments of the European Court of Justice of April 27, 1988, *Commission v. French Republic*, R.J.E., 1988/4, 455; January 17, 1991, *Commission v. Italy*, R.J.E., 1994/1, 62; Cour de cassation, Chambre criminelle, July 25, 1995, R.J.E., 1996/1-2, 191 and February 21, 1996, R.J.E., 1996/4, 494; Cour de cassation, 1st Chambre civile, November 16, 1982, R.J.E., 1984/3, 225.

10.2.2 International law

The use and protection of wildlife traditionally has been considered part of state sovereignty over natural resources. International regulation first became necessary for fisheries because of conflicts between fishermen of different nationalities. The growing exhaustion of marine living resources has made such regulation critical today, and international conventions on the problem are multiplying.

The *Convention on Biological Diversity* acknowledges the rights of states over genetic resources in animals and plants under their jurisdiction, but creates a complex relationship of rights and duties. On the one hand, authority to determine access to genetic resources rests with the national governments and is subject to national legislation. On the other hand, each party must endeavor to create conditions to facilitate access to genetic resources for environmentally sound uses by other parties and not impose restrictions that run counter to the Convention’s objectives. When access is granted, it should be on mutually agreed terms and be subject to prior informed consent by the party providing the genetic resource, unless that party determines otherwise. Permits may be required; contractual access agreements are an important method by which public and private entities gain access and negotiate a share of the benefits upon a payment of collection fees, royalties or other form of benefit-sharing.

The use of genetic resources raises the problem of intellectual property rights. Institutions in several countries have collected germplasm, mostly of crops, since the 1970s. Gene banks have become a means of protecting the diversity of genetic resources, particularly of plants, but they have provoked issues over safety of the material, ownership, development of national law restricting availability of the germplasm and intellectual property rights over development of new strains. These questions led the United Nations Food and Agriculture Organization to propose a Global System for the Conservation and Utilization of Plant Genetic Resources. The System, in place since 1983, aims to ensure the safe conservation, and promote the unrestricted availability and sustainable utilization of plant genetic resources for present and future generations.

An *International Treaty on Plant Genetic Resources for Food and Agriculture* (Rome, Nov. 3, 2001) recognizes the sovereign rights of states over plant genetic resources. Its objectives are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of benefits arising out of their use, in harmony with the *Convention on Biological Diversity*, for sustainable agriculture and food security. It provides a system of facilitated access to an agreed list of over 60 plant genera, including 35 crops. The list is established on the basis of interdependence and food security. The benefits accruing from the use of the material accessed is to be shared fairly and

equitably through a variety of actions. Anyone who commercializes a product that incorporates material accessed from the Multilateral System is obliged to pay an equitable share of the benefits into a multilateral mechanism for use as part of the funding strategy for benefit sharing. There is an exemption for those who make such products available without restriction to others for further research and breeding, although such individuals shall be encouraged to make a payment.

Another important aspect of the protection of biological diversity is the control of the introduction of alien species, which can destroy native ones. Various international and national laws require states to control strictly the introduction of non-native species. The *UN Convention on the Law of the Non-Navigational Uses of International Watercourses* (New York May 21, 1997) provides that watercourse states shall take all measures necessary to prevent the introduction of species, alien or new, into an international watercourse which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse states. Appropriate penalties for deliberate introduction are to be strictly enforced, due to the potentially disastrous consequences of alien species on an ecosystem.

On the general protection of biological diversity, the *European Convention on the Conservation of European Wildlife and Natural Habitats* (Bern, Sept. 19, 1979) illustrates some of the main approaches to nature conservation. It distinguishes the protection of species from that of habitats, a distinction reflecting international regulation and most national legislation. The general rules for species protection are different for wild flora and wild fauna. Wild flora species specified in an Appendix to the Convention are protected against deliberate picking, cutting or uprooting, and, as appropriate, states may prohibit the possession or sale of these species. Species of wild animals listed in another Appendix are protected against all forms of deliberate capture and keeping and deliberate killing; deliberate damage to or destruction of breeding or resting sites; deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as the disturbance would be significant in relation to the conservation of wild fauna; deliberate destruction or taking of eggs from the wild or keeping these eggs even if empty; and the possession of and trade in these animals, alive or dead, including stuffed animals and any recognizable part of derivative thereof.

10.3 MIGRATORY SPECIES

10.3.1 National law

Many national laws concerned with wildlife generally help protect migratory species. Specific laws may be enacted to protect endangered species or species protected by international agreements. Examples include the U.S. Bald and Golden Eagle Protection Act, the Migratory Bird Treaty and Conservation Acts, 16 U.S.C. 703-712, and 715-715d, (45 Stat. 1222), the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973, 16 U.S. 1531-1544. Australia's Environmental Protection and Biodiversity Conservation Act 1999 similarly covers many migratory species.

10.3.2 International law

Migratory species, including marine mammals and birds, need measures of conservation at the international level. Nineteenth century conflicts among states whose nationals were engaged in hunting seals led to a series of hunting rules helping to preserve seals from extinction. Several multilateral instruments followed, including a treaty signed in 1911 between Japan, the United States, the United Kingdom and Russia concerning seal conservation. Effective measures were taken, in particular a prohibition of pelagic (open sea) hunting during migration and a limitation on the taking of reproducing females. Today numerous treaties protect seals by establishing closed hunting seasons and other restrictions for different areas of the world.

Species protection measures were also adopted at an international level for whales as early as in 1931. In 1946 an *International Convention for the Regulation of Whaling* (Washington, Dec. 2, 1946) created an international Commission, which progressively limited and then in 1985 proclaimed a moratorium on whaling in general and a definitive end to commercial whaling of certain species. Today only a few states and indigenous communities claim the right to continue whaling.

The protection of birds was among the earliest steps taken in the international protection of wild fauna. Indeed, the first major multilateral convention in the field of conservation was that of birds “useful to agriculture”, signed March 19, 1902. A new *International Convention for the Protection of Birds* was adopted in Paris, Oct. 18, 1950. It maintained the protection of nests, eggs and the young as well as the prohibition of using mass destruction or capture of birds, but it also extended the list of prohibited means of capture such as the use of spring traps. The use of motor vehicles during hunting is also prohibited. The parties also agreed to study and adopt the proper means to prevent the destruction of birds by electric cables, lighthouses, insecticides, poisons, waste oil and other water pollution. Finally, each state party agreed to prepare a list of birds that may be killed or captured lawfully on its own territory, provided the conditions established by the Convention are met. This means that any bird species not appearing on the list is protected, which makes the identification of the specimens that may be hunted a far smaller number under the new regime.

Many birds are also protected as migratory species by a convention of global scope, adopted in Bonn on June 23, 1979. It recognizes that the conservation and efficient management of migratory species require concerted action by all states within whose national jurisdiction the species spend part of their lives and through which they transit. The term “migratory species” is defined as *the entire population or any geographically separate part of the population of a species of wild animal that habitually and predictably cross one or more national jurisdictional boundaries*. This obviously includes not only birds, but land and sea mammals, reptiles and fish. The term “endangered” means that the migratory species is in danger of extinction throughout all or a significant portion of its “range” (all the areas of land or water that a migratory species inhabits, stays in temporarily, crosses or flies over at any time on its normal migration route).

Under this framework, parties are to undertake legal measures that broadly address threats to habitats, excessive hunting along migration routes and degradation of feeding sites. Each range state is to adopt strict protection measures for endangered migratory species listed in Appendix I to the Convention. It is also to conclude agreements with other range states for the conservation and management of migratory species listed in Appendix II that have an unfavorable conservation status or would benefit significantly from international cooperation.

Guidelines provided in the Convention address agreements protecting listed migratory species: they should cover the whole of the migratory range and should be open to accession to all range states of that species, whether or not they are parties to the Bonn Convention. The agreement’s contents should identify the concerned species, describe the range and migration route, allow for designation of a national authority to implement the agreement and establish institutional machinery to assist in achieving its objectives and monitor its effectiveness.

States parties are also encouraged to enter into other agreements concerning one or more migratory species that are not listed in the agreement. Any population that periodically crosses one or more national jurisdiction boundaries may be subject to such agreement. In some cases such agreements have been treaties, while others have been adopted in the form of Memoranda of Understanding (MOU). These are not legally binding but are intended to coordinate short term administrative and scientific measures between range states in collaboration with international non-governmental organizations having expertise on the subject. The treaty agreements are the Conventions on the Conservation of Seals in the Wadden Sea (October 16, 1990), on the Conservation of Small Cetaceans of the Baltic and North Seas (March 17, 1992), on the Conservation of African-Eurasian Migratory Waterbirds (June 16, 1995), on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (November 24, 1996) and on the Conservation of Albatrosses and Petrels (June 19, 2001). The MOUs concern Conservation Measures for the Siberian Crane (July 1, 1993), the Slender-Billed Curlew (September 10, 1994), for Marine Turtles of the Atlantic Coast of Africa (May 29, 1999) and for the Bukhara Deer (May 16, 2002).

10.4 TRADE IN ENDANGERED SPECIES

One of the most powerful motives for the exploitation of plant and animal species is income production through trade, especially in poor countries lacking other major resources.

10.4.1 National law

The *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES) was adopted in Washington on March 3, 1973. It aims to ban trade in endangered species and to regulate trade in other commercially-exploited species to ensure sustainable trade and economic benefits for exporting countries. The species to be protected are listed in three appendixes. Most national laws reflect efforts to implement CITES. To this end, states have, for example, taken measures penalizing prohibited trade and providing for confiscation or return to the state of export of any specimens illegally imported, with specified protection for living specimens. Judicial sanctions are critical to the effectiveness of this system. Because trade in endangered species is lucrative for poachers and sanctions are needed that are sufficiently strong to deter violations. In many states substantial fines are accompanied by prison sentences.

Moreover, while CITES regulates trade in endangered species, its effective implementation depends on national systems to not only restrict international trade, but also to restrict the taking of endangered species in the first place. This is often accomplished through permitting systems and the enforcement thereof. Evidentiary issues emerge in this setting, including issues relating to species identification and proof that permit limits have been exceeded. While genetic confirmation may be helpful in cases involving restricted species that closely resemble non-restricted species, expert testimony based on visual inspection may be sufficient for most species. One type of case involving unique evidentiary issues is "species laundering" -- e.g., illegally taken protected wildlife being marketed under false claims of being "farm-bred", or originating from a country in which the restrictions do not apply, or claims that the trade is subject to exemptions such as for experimental or medical use. In these cases, issues of proof may be complicated by the need to prove the animal or product's origin, or to prove intent of downstream purchasers.

Parties to CITES may take measures stricter than those in CITES through domestic legislation or international regulation. In France, the highest administrative jurisdiction, the Conseil d'Etat, held that CITES does not prevent national authorities from adopting stricter rules for protecting endangered species or to regulate the trade of species to which it does not apply. See: June 8, 1990, *Société DACO*, R.J.E., 1991/2, 236.

In India, the primary mechanisms used to protect endangered species are the Wildlife (Protection) Act of 1972, the Customs Act of 1962, and the Import-Export Policy (1993) under the Foreign Trade (Development and Regulation) Act of 1992, which prohibits exports of all forms of wildlife, i.e. plants and animals including parts and products. Exports of cultivated species are allowed, but a "cultivated" certification is required. The Director of Wildlife Conservation is the Management Authority. Import of both animals and plants is allowed on recommendation of the Chief Wildlife Warden of a state government, subject to the provisions of CITES. Permission is essentially limited to zoological and other scientific purposes. Verification of the presence of protected plants and animals can be difficult, and distinguishing species and origins of plants is even more demanding than it is for animals. A community censure often attaches to the killing of animals and some trees and makes the enforcement of the prohibition easier, but it is not activated for plants in general. Though illegal consignments are regularly seized, successful prosecution and punishment of ringleaders are extremely rare, and seized stocks may remain the subject of long battles. Coordination among police, customs, wildlife wardens and at least nine other agencies involved in enforcement is, however, improving. See: Herring, R.J. and Bharuch, E., *Embedded Capacities: India's Compliance with International Environmental Accords*, Emerging Countries, Strengthening Compliance with International Environmental Accords, ed. by Brown Weiss, E. and Jacobson eds. H. K., p. 395 at 400. The MIT Press, 1998.

CITES-based protections are especially important for Brazil, which, because of its rich natural resources and wilderness areas, is particularly vulnerable to poachers, smugglers and others who trade in endangered species. Brazil ratified CITES in 1975, but the regulations provided by the Convention appeared to be less rigorous than the Brazilian legislation already in force, including the forest Code of 1965 and the 1967 Hunting and Fishing Codes. Brazil has fulfilled its procedural obligations under the Convention. After a transitory period, a Brazilian Institute for the Environment and Renewable Resources (IBAMA) was created and administers CITES, but there has been no official coordination

between this body and other agencies involved in implementing and enforcing the obligations contained in the Convention. These agencies are the International Trade Department, which issues permits for exports and imports of CITES species, the Ministry of Agriculture, which inspects plants and animals in ports and airports, the Federal Revenue Service, which collects taxes and supervises import and export documentation and the Federal Police, which is in charge of preventing the smuggling of endangered species. Smugglers who have taken advantage of Brazil's fragile supervisory structure continue to challenge the government's efforts to comply with CITES, a particularly difficult task because of the size of the country and the economic and social disparities among the regions which compose it. Aragão, M. de and Bunker, S., *Brazil, Regional Inequalities and Ecological Diversity in a Federal System*, in Weiss and Jacobson, op.cit., p.475, at 489.

In Hungary, a small European country with few CITES-listed species native to the country, the main issue is stopping the import of endangered animals and plants coming from abroad. Implementing the provisions of CITES is the responsibility of a small staff at the Ministry for Environment's National Authority for Nature Conservation. It relies heavily on the efforts of the customs service. Customs officers notify the Ministry in cases of suspected CITES violations. The Ministry will then investigate and, if necessary, seize and confiscate the items. Local police rarely uncover infractions. Inspections at the border are more systematic. Generally, traffic in live animals is better controlled than trade in prohibited plants or products. Penalties for violations of CITES are not great and they are difficult to enforce, particularly when violators are citizens of another country.

10.4.2 International law

CITES is the principal international expression on this topic. Appendix I of CITES contains species threatened with extinction that are or may be affected by trade, including such well-known animals as the tiger, leopard, whale and many types of parrots. The present number of such species is higher than 1000. These species benefit from particularly strict regulation, and states parties can authorize trade only in exceptional circumstances. The ban extends to any readily recognizable part or derivative of a specimen of a listed plant or animal. The export of any species included in this appendix requires prior grant and presentation of an export permit issued upon satisfaction of strictly defined conditions: a Scientific Authority of the exporting state has advised that the export will not be detrimental to the survival of the species; a Management Authority is satisfied that the specimen was not obtained in contravention of the laws of the state for the protection of fauna and flora and that any living specimen will be prepared and shipped in ways minimizing the risk of injury, damage to health or cruel treatment and that an import permit has been granted for the specimen by the country of destination. The issuance of an import permit may be granted by the state of destination only after a Scientific Authority of that state attests that the importation is not detrimental to the survival of the species. That authority must also be satisfied that the proposed recipient is suitably equipped to house and care for any living specimen. The Management Authority of the importing state must be satisfied that the specimen is not to be used for primarily commercial purposes.

The conditions of trade in Appendix II species are less strict. Their list includes species which are not currently threatened with extinction but which may become so and species upon which they are dependent. Trade also requires a permit based upon an opinion of the Scientific Authority that the export will not be detrimental to the survival of the species, proof of the Management Authority's satisfaction that the specimen was not obtained in violation of the state's law for the protection of fauna and flora, and evidence that the specimen will be properly transported. The Scientific Authority monitors both the granting of permits and the actual exports. It can determine that the export should be limited to maintain the species at a certain level and it advises the Management Authority of suitable measures to take to limit the grant of export permits. The import of an Appendix II specimen requires only prior presentation of either an export permit or a re-export certificate. While for species appearing on Appendix II strict limitations on import do not exist and specimens can be brought in for commercial purposes, the aim of the Convention is to control the latter. Over time, due to modifications of the list, the number of species contained in Appendix II has become extremely high.

Appendix III lists those species that one state party identifies as being subject to regulation within its jurisdiction in order to prevent or restrict exploitation and for which it needs the cooperation of other

parties to control trade. The export of a specimen of any species from a state that listed the species in Appendix III requires the prior grant and presentation of an export permit. Import of a specimen of an Appendix III species requires prior presentation of a certificate of origin and an export permit, if the specimen comes from a state that listed the species. Appendix III thus allows each state to obtain the aid of other states that are potential importers of the specimens that the exporting state seeks to protect and conserve. Canada listed the moose, signalling to other states that it is illegal to import a moose or products made from it without a permit issued by Canadian authorities.

CITES also contains a series of flexible provisions and authorizes exemptions for specimens of certain species that were raised in captivity as household pets or plants artificially propagated for commercial purposes. Exemptions are also granted for non-commercial loans, donations or exchanges of certain plants between scientists or scientific institutions, as well as for the movement of specimens which form part of a zoo, circus, menagerie or exhibition. However, conditions are imposed, principally relating to the humane treatment of the specimens.

10.5 HABITAT PROTECTION (INCLUDING WETLANDS)

The protection of habitats and ecosystems is a necessary complement to the protection of species. Legal measures to protect biological diversity cannot succeed unless coupled with measures to provide appropriate conditions for the survival of the species in the wild. Such measures may include regulating the introduction of noxious substances or structural changes in the habitats of the protected species, or through the creation of protected areas. Land-use regulations can play an important role in this regard.

Wetlands are particularly important; they play a vital role in the water cycle, helping to refill water tables and maintain water quality. They are highly productive ecosystems inhabited by large numbers of plant and animal species. Many marine species depend on coastal wetlands for their reproduction, growth, or nutrition during part or all of their life cycle. During recent decades state-sanctioned or even mandated drainage operations, as well as drought and landfill, have considerably reduced the extent of global wetlands.

10.5.1 National law

All areas typically protected under national legislation share some of the same characteristics: prohibiting or limiting human activities, or even denying human access to remain uninhabited and, as much as possible, undisturbed. In addition, certain activities may be regulated, regardless of the designation of the area where the activity is planned: for example, in some states construction of all ski lifts, buildings, parking lots and depots must have prior permits; garbage may be deposited only in designated places; and tents, trailers, or camping cars may only be placed in camping sites.

There are five common types of protected areas:

- 1) Nature reserves
- 2) National parks
- 3) Game reserves
- 4) Natural monuments
- 5) Wilderness reserves

a) Nature reserves

Nature reserves are generally subject to the strictest regulation. They are placed under state control and their boundaries may not be altered except by legislation. Within such reserves it is strictly forbidden to hunt, fish or exploit any of the resources or perform any act likely to harm or disturb the fauna and flora. It is likewise prohibited to alter the configuration of the soil or pollute the water. All human presence, including overflight, requires prior permission of the competent national authority.

b) National parks

National parks are the oldest form of protected area. They are areas set aside for the propagation, protection, conservation and management of vegetation and wild animals, as well as for the protection

of sites and landscape. National parks can include walking and recreation areas, such as those established under the Recreation Act of Finland. Fishing and hunting can be permitted in some cases. They are placed under state control and in most cases can have their boundaries changed.

c) Game preserves

Game preserves or sanctuaries are established for the conservation, management and propagation of wild animal life and the protection and management of its habitat. Hunting and capturing animals is regulated by the reserve authorities. Other human activities, including settlement, are controlled or prohibited. In France, local authorities may issue for orders for the preservation of areas that are the habitat of listed protected species of animals or plants (arrêtés de protection de biotope). These orders may prohibit or restrict any activity that is liable to affect the habitats concerned.

d) Natural monuments

Natural monuments are zones of particular scenic beauty of historical or cultural value. They may be trees, waterfalls, rock formations, or fossils, designated on both public and private land. Damaging a natural monument is generally prohibited but in the Netherlands private landowners may apply for a permit to conduct prohibited activities.

e) Wilderness reserves

Wilderness reserves are a relatively new designation for certain protected areas. A wilderness may be defined as a large roadless area of undisturbed vegetation where most human activities are prohibited, but which generally remains open for walking and camping, without having developed campsites. Hunting and fishing is permitted in some areas. Permits are usually required for entry or for overnight camping. In Finland, a law of 1991 designated land corresponding to 4.4 percent of the country as wilderness areas, most of it in Lapland. Mining and permanent roads are prohibited, as is the construction of buildings other than for traditional uses by indigenous persons. In Italy, mountains above the 1600-meter line are protected areas from quarrying, building and road construction

Some systems allow for temporary protection of designated areas. The United Kingdom, for example, has a category of "sites of special scientific interest" which may be subject of nature conservation orders to protect them for twelve months. When such sites are identified by the Nature Conservancy Councils, notification is given to the minister competent for the region concerned and to the owner or the occupier of the land, specifying what activities or operations are likely to damage the fauna, the flora or other features sought to be conserved. Any proposed activity needing a permit will require consultations with the Nature Conservancy Council.

Many states have enacted laws to designate and protect wetlands. Despite or perhaps because of this, cases concerning the scope of protection afforded and halting or sanctioning activities incompatible with wetland protection have come before judicial authorities. See: France, Tribunal administratif de Caën, April 9, 1996, *Association Manche-Nature*, R.J.E., 1996/3, 339; Mauritius, Environment Appeal Tribunal, Case Nos 4/95 et 5/95, *Michel C. Ramiah/Marie L. Autard*; France, Cour d'appel de Poitiers, Janvier 9, 1997, R.J.E., 1997/3, 423.

In France, tribunals contributed to clarifying the concept of protected area. Conseil d'Etat, December 2, 1981, *Société d'études touristiques hivernales en France*, R.J.E., 1982/1, 60; Conseil d'Etat, January 29, 1982, *Association « Les amis de la Terre »*, R.J.E., 1983/2, 13 ; Compare the judgment of the European Court of Justice of February 28, 1991, *Commission of the European Communities v. Federal Republic of Germany*, R.J.E., 1992/3,351. The courts also helped clarify which activities are compatible with the status of such areas and which cannot be authorized. Tribunal administratif de Montpellier, May 13, 1988, *Société de protection de la nature de Sète v. Préfet de la région Languedoc-Roussillon et autres*, R.J.E., 1988/4, 516; Tribunal administratif de Strasbourg, December 2, 1982, *AFRPN v. Ministre de l'Industrie*, R.J.E., 1983/2, 117; Tribunal administratif de Rouen, May 14, 1996, *Association pour la protection de la presqu'île d'Anneville*, R.J.E., 1997/1, 99; Tribunal administratif de Grenoble, November 7, 1996, *FRAPNA Isère v. Préfet de la Région Rhône-Alpes*, R.J.E., 1997/2, 243.

In Belgium, protected areas are legal persons and can be represented in litigation tending to their rehabilitation. *Cour correctionnelle de Bruges (Belgique)*, September 16, 1998, *O.M. et Réserves naturelles v. E.R., Luc Lavrysen*, p.571.

10.5.2 International law

Several international conventions provide for habitat conservation, either in part or in whole. The *Ramsar Convention on Wetlands of International Importance* (Feb. 2, 1971) was the first treaty based entirely on the idea that habitat should be the focus of protection. Other treaties followed concerning marine areas. The 1972 UNESCO *Convention Concerning the Protection of the World Cultural and Natural Heritage* also can include the protection of the habitat of wild fauna and flora. Due to the importance of wetlands to the global environment, the Ramsar Convention has a significance that today far transcends its original objective of protecting waterfowl.

The purpose of the Convention is to stop the loss of wetlands and to promote their conservation and wise use. State parties agree to formulate and implement planning to promote as far as possible the wise use of wetlands in their territory. The Convention requires each state party to designate at least one suitable wetland within its territory for inclusion on the Ramsar List of Wetlands of International Importance, which is maintained by the World Conservation Union (IUCN). The criteria of "international importance" provides that a wetland should be considered as a particularly good representative example of natural or near-natural wetland or a wetland that plays a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system or supports an appreciable assemblage of rare, vulnerable or endangered plant or animal species.

Other criteria include the habitat of plants or animals at a critical stage of their biological cycle, or for one or more endemic plant or animal species or communities. Inclusion of a site on the list does not prejudice the sovereign rights of the territorial state, but the state must conserve, manage and use wisely the listed wetland and migratory stock of waterfowl and fish. This includes establishing nature reserves and providing adequately for their wardening. States parties maintain the right to add wetlands to the list and extend the boundaries of those already included. In case of urgent national interests a state may also delete a wetland from the list or restrict its boundaries, but then it should compensate for the loss by creating additional nature reserves for waterfowl either in the same area or elsewhere. A state without a wetland ceases to be a party to the Convention.

Agreements for the protection of regional seas, such as the protocols on specially protected areas and biological diversity in the Mediterranean (June 10, 1985), the East African Region (Nairobi, June 21, 1985), the South-East Pacific (Paipa, Sept. 21, 1989) and for the Wider Caribbean Region (Kingston, Jan. 18, 1990) contain provisions on the establishment of protected areas. The conservation measures required follow the same pattern. Special areas should protect coastal and marine ecosystems of adequate size to ensure their long-term viability and to maintain their biological diversity, habitats which are in danger of disappearing in their natural area of distribution, habitats critical to the survival, reproduction and recovery of endangered, threatened, or endemic species of fauna and flora and of sites of particular importance for their scientific, aesthetic or educational interest. The protective measures include, inter alia, a prohibition of dumping or discharge of wastes and other substances likely to directly or indirectly impair the integrity of the specially protected area, regulation of the passage of ships and any stopping or anchoring, regulation of the introduction of non-indigenous species, regulation or prohibition of the exploration of the soil or the exploration of the subsoil, the regulation of any scientific research activity, of fishing, hunting, taking of animals and harvesting of plant or their destruction. In sum, any activity or act likely to harm or disturb or which might endanger the state of conservation of the ecosystems or species is to be regulated and, if necessary prohibited. The parties shall give appropriate publicity to the establishment of protected areas, their boundaries, applicable regulations, and to the designation of protected species and their habitats. States parties generally are to address reports on the application of the agreements to the international bodies administering the agreements.

10.6 BIO-TECHNOLOGY AND LIVING MODIFIED ORGANISMS

Throughout history, farmers have used selective breeding to alter their livestock and crops for qualities sought by the farmers or consumers. They have also applied biological fermentation to produce new products and increase the period of conserving food. These techniques rely on genetic variation, including mutations, already present in species and populations of flora and fauna. All major crops and farm animals are the product of some degree of human intervention.

Genetic modification or biotechnology differs from the directed but natural processes of selective breeding. Genetic engineering isolates single genes from an organism and transfers one or more to another organism, across populations and across species or phyla. Animal genes may be inserted into plants and vice versa. Once inserted, the genes may be transmitted to subsequent generations.

Genetic engineering has reached the point where living organisms can be adapted and created in the laboratory. Many of these living modified organisms (LMOs) are not intended to stay in the laboratory, however. The introduction of herbicide resistance into virtually all major crops as a means of making it easier to control weeds is expanding. In addition, genetic engineering of micro-organisms has developed as an alternative strategy to improve pest control. Genetically altered corn and soybean seeds are already in use in different countries including the United States, Argentina, and Brazil. The use of biotechnology to raise crop yields has received the most publicity and been the most controversial, including efforts to broaden the germplasm basis from which new genetic combinations can be created and improving and speeding up the propagation of plants. The most widely used and commercially successful application of plant biotechnology is the rapid and large-scale multiplication of plants through clones produced in tissue culture. The technique is currently used to mass-produce ornamental, fruit, vegetable, medicinal plant and tree species. Many scientists see biotechnology as permitting them to pursue plant breeding efforts, with favorable impact on food supplies, the nutritional content of food, international trade in agricultural products, the environment and existing plant resources. The commercial nature of many of these potential benefits is a source of conflict, particularly between developed and developing countries who disagree over access to, control of, and benefits from primary and modified genetic resources.

Aware of possible benefits, a substantial number of scientists nonetheless urge caution in releasing genetically engineered organisms, because of the possibility that such organisms might have an unfavorable impact upon the environment and because considerable scientific uncertainty exists about the scope and degree of the environmental risks. There is fear that the LMOs, as living organisms, could evolve into destructive pathogens. Moreover, genetically altered genes may naturally transfer to wild-grown relatives, with unforeseeable consequences. Thus far, the major negative impact that has been identified and studied is the harm to monarch butterflies caused by the protein used in genetically altered corn to repel certain pests.

Particular concerns arise over the release of LMOs in or close to a center of genetic diversity of that crop. Mass production of identical plant materials may introduce greater danger of genetic destruction because all specimens may become equally vulnerable to a single disease or pest leaving no resistant varieties as alternative sources. The widespread use of cloned crops or artificial seeds to replace sexually reproducing crops may thus increase crop vulnerability. Finally, the release of genetically modified micro-organisms (bacteria and fungi) could pose particular problems. Very little is known about microbial communities; few have been named or studied. However, current research indicates that natural genetic transfer between different micro-organisms is relatively frequent, making it conceivable that engineered species could transfer throughout the microbial world in unpredictable ways.

10.6.1 National law

National and regional-level regulation of LMOs has increased in recent years. In the U.S., for example, LMOs are subject to an increasing number of pre-market and labelling guidelines and requirements administered by the Food and Drug Administration.

The European Community issued directives in 1990 creating lengthy series of control procedures both for laboratory research and for release of LMOs. Directive 90/219/EEC on Contained Use of Genetically Modified Microorganisms (GMM), was amended in 1998 to establish four classes of contained uses and the restrictions that apply to each. Directive 98/81/EC, O.J. L. 330 (12/12/98), amends and substantially revises Directive 90/212/EEC of April 23, 1990 on the Contained Use of Genetically Modified Microorganisms, O.J. L 117 (8/5/90). The directive requires an assessment of the risks to human health and the environment that the contained uses may incur, including the question of waste disposal. The precautionary principle has been incorporated by requiring that *“where there is a doubt as to which class is appropriate for the proposed contained use, the more stringent protective measures shall be applied unless there is sufficient evidence according to the competent authority that less stringent measures are justified.”*

Notification is required for any relevant new information or modifications that could have significant consequences for the risks posed. Users must develop and make available to the public contingency plan for emergencies.

Directive 2001/18/EC, replacing Directive 90/220/EEC of April 23, 1990 (O.J. L 11, May 8, 1990), concerns the voluntary release of genetically modified organisms into the environment. Applicants for release must carry out an environmental risk assessment of the GMO being proposed for authorization. Environmental risk assessment means that “direct or indirect, immediate or delayed risks” shall be evaluated by the national authorities. Assessors may not discount any potential adverse effect on the basis that it is unlikely to occur. The authorization system has a ten year limit and renewal is only permitted if monitoring carried out during the period shows no negative results. Labelling of products is also required.

It is also notable that the 1993 Council of Europe *Convention on Civil Responsibility for Damage Resulting from the Exercise of Activities Dangerous for the Environment* specifically covers damage caused by genetically modified organisms. GMOs are defined in the Convention as an organism in which the genetic material has been altered in a way that does not occur naturally by mating and/or natural combination.

In terms of additional examples of efforts to ensure biological safety, Peru’s Law No. 27104 on the prevention of risks derived from biotechnology requires anyone wanting to introduce into the national territory LMOs to be used for research, production, manipulation, transfer, conservation, commercialization, contained use and release, to submit a formal application to the competent authority. The application is to include all the information necessary for carrying out a risk assessment. When the application is received, an informative summary is published at the national level.

The information contained in the application is subject to confidentiality restrictions that are actionable by the claimant to avoid unfair use. Information that cannot be kept confidential includes: the name of the applicant, the objectives of the activities to be realized, where these will be realized, methods and plans of monitoring, emergency plans and risk assessment methods. Confidentiality also cannot be authorized when the application concerns activities that may cause damage to human health, the environment and biodiversity. Comparable provisions can be found in the legislation of Tunisia, Costa Rica, Cuba, Mexico and Brazil.

Another legal technique often used in this field is the labelling of genetically modified organisms or products derived from them. It is a sub-area of the access to information, used in order to provide consumers with information on GMO or GMO-derived products. Consumers include farmers, mass caterers and individuals. Labelling is premised on the principle that the consumer has a right to know what she or he is purchasing and subsequently using. This should also educate and protect consumers from false, misleading or deceptive practices. Indonesia has one of the most explicit instruments requiring labelling. According to the Food Act, persons who produce food or use foodstuffs, food additives or other auxiliary material in the “production activity or process of food” derived from genetic engineering must have the food examined before it circulated. The joint Australian New Zealand Food Standards Code prohibits the sale and use of foods produced from gene technology or classes of such foods, unless they have been assessed, approved, and listed. This also applies to labelling of food

produced using gene technology. Member states of the European Union are to ensure that labelling and packaging of GMOs placed on the market as or in products include the words “this product contains genetically modified organisms” clearly displayed either on a label or in accompanying documentation.

10.6.2 International law

The 1992 UN *Convention on Biological Diversity* defines biotechnology to mean any technological application that utilizes biological systems, living organisms, or derivations of them, to make or modify products or processes for specific use. Widespread controversy surrounds the question of the potential risks associated with the handling and introduction into the environment of living modified organisms (LMOs) or, as they were first referred to, genetically-modified organisms. The need to promote biosafety has centered on two related issues:

- 1) The handling of LMOs at the laboratory level, in order to protect workers and prevent the accidental liberation of such organisms into the surrounding ecosystem (“contained use”);
- 2) The need for regulatory systems to govern the deliberate release of LMOs into the environment, either for testing or commercial purposes.

Uncertainty surrounding the environmental impacts of LMOs is recognized in the Convention, which does not define the term “living modified organism” but calls on the contracting parties to consider the need for modalities of a protocol setting out procedures for the safe transfer, handling and use of any living modified organism resulting from biotechnology that may have adverse effect on the environment. The Convention itself obligates parties to “provide any available information about the use and safety regulations required by th[e] contracting party in handling such organisms, as well as any available information on the potential adverse impact of the specified organisms concerned” to any party into which those organisms are introduced.

In respect to in situ conservation, the CBD requires the parties to establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking into account the risks to human health. The Convention also calls for implementing the rights of countries of origin of genetic resources or countries providing genetic resources, particularly developing countries, to benefit from the biotechnological development and the commercial utilization of products derived from such resources. Both the CBD and Agenda 21 adopted by the Conference of Rio de Janeiro on Environment and Development encourage such technology in order to increase benefits from biological resources. The Convention encourages parties to develop national legislation that promotes rights associated with intellectual property and informal innovations, including farmer and breeder's rights.

After extensive negotiations, the parties to the Convention on Biological Diversity adopted a *Protocol on Biosafety* on January 29, 2000. The objective of the Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health and specifically focusing on transboundary movements. The Protocol does not apply to the transboundary movement of living modified organisms which are pharmaceuticals for human use and that are addressed by relevant international agreements or organizations.

The Protocol institutes an “advance informed agreement” procedure, which is a kind of prior informed consent procedure before certain transboundary movements of LMOs. Thus, the state of export must notify or require the exporter to notify, in writing, the competent national authority of the state of import prior to the intentional transboundary movement of a living modified organism. Annex I of the Protocol specifies the information that must be transmitted. The importing state has 270 days from the date of notification to make a decision on permitting or denying the importation and must transmit the decision to the notifying party and to a Biosafety Clearing House established by the Protocol. A risk assessment report may be used as part of such a procedure in place of domestic regulatory framework.

States parties agree to take appropriate domestic measures aimed at preventing and, if appropriate penalizing illegal transboundary movements of living modified organisms carried out in contravention

of domestic measures to implement the Protocol. Generally, states parties are to promote and facilitate public awareness, education, consultation and participation, encompassing access to information on living modified organisms that may be imported, but the notifier is permitted to identify information to be treated as confidential. The characterization of precaution became a focus of debate during negotiations for the Biosafety Protocol, especially concerning the extent to which measures could be taken by states to exclude LMOs either on scientific or socio-economic grounds. In the end, it was agreed that parties must undertake a process of scientific risk assessment that conforms to the Protocol's requirements (carried out "in a scientifically sound and transparent manner," on a case by case basis, according to the provisions of Annex III).

Chapter 11

AGRICULTURE AND FORESTRY

11.1 INTRODUCTION

Forests cover about one quarter of the world's land area outside Greenland and Antarctica, and are generally categorized into three groups:

- 1) Tropical forest,
- 2) Temperate forests, and
- 3) Boreal forests

Tropical forests constitute half of the world's forest cover, while temperate and boreal forests together comprise the other half.

Not only are forests home to up to ninety percent of all terrestrial species, but they also serve the important functions of producing oxygen for the planet and of acting as "sinks" for greenhouse gases. Thus, forests are essential for the maintenance of all forms of life. However, forests also function in an economic capacity, which can create a major threat to their existence. In recent years, the demand for forest products has grown rapidly. Production of paper products has caused one of the greatest increases in the use of wood – up five times from its level in 1950. The majority of paper consumption takes place in the industrialized Northern countries, while developing countries use about half of the wood cut worldwide for fulfilling basic needs.

Deforestation occurs for many reasons, including both economic gain and necessity. Tropical forests are especially affected by clearing done for agricultural purposes, such as planting crops or grazing cattle. Driven by the basic human need for food, many peasant farmers chop down a small area of trees and burn the trunks in a process called "slash and burn agriculture." More intensive, modern agriculture also occurs on a larger scale, deforesting up to several miles at a time. In addition, rain forests are replaced by large cattle pastures to grow beef for the world market. Another common form of deforestation is commercial logging, where trees are cut for sale as timber or pulp either by selectively cutting the economically valuable trees or by clear-cutting all trees in an area. Commercial logging cannot only damage those individual trees cut down but also the forest overall through the use of heavy machinery, such as bulldozers, road graders, and log skidders, to remove cut trees and build roads. Urbanization, mining and oil exploitation, and fire can also lead to forest depletion.

Unfortunately, deforestation has profound effects on the global environment. For one thing, loss of forests increases the amount of carbon dioxide (CO₂) and other trace gases in the atmosphere. The plants and soil of tropical forests hold between 460 and 575 billion metric tons of carbon worldwide. Hence, when a forest is cut and burned, the carbon that was stored in the tree trunks joins with oxygen and is released into the atmosphere as CO₂. Deforestation also contributes to global warming by reducing the evaporative cooling that takes place from both soil and plant life. Forest plants and animals can become endangered or extinct due to loss of habitat as well. Moreover, many of the over 200 million indigenous people in the world live in tropical and boreal forests and are particularly affected by environmental harm due to their special relationship with the land, which is often the core of their culture. Thus, deforestation can force forest-dwelling peoples from their traditional homelands and deprive them of their livelihood.

Some of the most well known judgments in environmental law have involved efforts to protect forests against unsustainable logging. See, e.g., *Minors Oposa*, Sup. Ct., Philippines, *Awas Tingni Case*, Inter-Am. Ct. Hum. Rts.

11.2 NATIONAL LAW

An example of legislation at the national level, India's Forest Conservation Act of 1980 (amended 1988) restricts state authorities or any other authority from assigning any forest land or portion thereof to any private person or other entity not owned, managed or controlled by the Government without first receiving

permission from the Central Government. § 2(iii). It further requires Central Government permission for declaring that a forest area is no longer reserved and for using any forestland for non-forest purposes. §§ 2(i) and (ii). Under section 2 of the Act, “non-forest purpose” means breaking up or clearing of any forest land or portion thereof for the cultivation of tea, coffee, spices, rubber, palms, oil-bearing plants, horticultural crops or medicinal plants or any purpose other than reforestation. The Act extends to all Indian states except Jammu and Kashmir. Art. 1(2)

Civil litigation concerning the Forest Conservation Act developed in *Ambica Quarry Works v. State of Gujarat and Others* (India, AIR 1987 Sc1073), when the State Government rejected an application for renewal of a mining lease under section 2 of the Act, which requires permission from the Central Government for using forest areas for non-forest purposes. The appeal centered on the issue of finding the proper balance between the need for exploiting mineral resources lying within forest areas, the preservation of ecological balance, and curbing environmental deterioration. The Supreme Court dismissed the appeal because the rationale underlying the Act was the recognition of the serious consequences of deforestation, including ecological imbalances, with an aim of preventing further deforestation. In this case, the renewal of the mining leases would not help to reclaim the deforested areas and would most likely lead to further deforestation. The Court deemed its primary duty was to the community. Thus, its obligation to society must prevail over its obligation to individuals.

The clashing interests of forests and agriculture set the stage for *Sibaji Waiswa v. Kakira Sugar Work Ltd* (High Court of Uganda, Jinja, No. 6/2001). While the main suit over the Butamira Forest reserve was pending, respondent entered the disputed forest reserve, uprooted trees and routinely destroyed seed nurseries, resulting in an irreparable damage to the environment. Petitioner requested a temporary injunction: (a) restraining the defendant from uprooting the forest to establish a sugar cane plantation; and (b) restraining the defendant's agents from evicting, intimidating, threatening or in anyway interrupting or destroying residents use and occupation of the forest reserve until the disposal of the main suit or until further judicial order. The Court held that an award of damages alone could not adequately compensate for the alleged environmental damage and granted a 6 month injunction while the main suit was pending or until the Government provided a lasting solution, whichever came first.

Some jurisdictions may enact criminal sanctions for the removal of trees without authority. In these circumstances it is important that the criminal court is aware of the full impact of deforestation and loss of trees, plants and other wildlife as well as the impact on the wider world. Box 27 provides an example of judicial action relating to illegal logging.

11.3 INTERNATIONAL LAW

Recognizing the necessity to preserve and protect tropical rain forests, the first International Tropical Timber Agreement was adopted on November 18, 1983, establishing the International Tropical Timber Organization (ITTO) in an effort to achieve sustainable exploitation and maintain the ecological equilibrium of forests. On January 24, 1994, a replacement International Tropical Timber Agreement was adopted in Geneva, recognizing the need to promote and apply comparable and appropriate guidelines and criteria for the management, conservation and sustainable development of all types of timber-producing forests.

While the vast majority of the Agreement is devoted to defining the structures and functions of the ITTO, it also encourages members to develop national policies aimed at sustainable utilization and conservation of timber producing forests and at maintaining the ecological balance in the regions concerned. Members are further encouraged to support and develop industrial tropical timber reforestation and forest management activities as well as rehabilitation of degraded forest land, with due regard for the interests of local communities dependent on forest resources. (Art. 1.)

The first global consensus on forests developed in 1992 with the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (Statement of Forest Principles). It was adopted at the Rio Conference on Environment and Development. The Statement's guiding objective is to contribute to the management, conservation and sustainable development of forests and to provide for their multiple and complementary functions and uses.

While the Statement recognizes that states have the sovereign right to exploit their own resources pursuant to their own environmental policies, it also notes that 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. It further promotes a balance between environment and development, advocating the sustainable management of forest resources and forest lands to meet the social, economic, ecological, cultural and spiritual needs of present and future generations. The Statement calls for integrated and comprehensive environmental protection through scientific research, forest inventories and assessments, the international exchange of information, and the promotion of opportunities for active participation by interested persons. Moreover, members are encouraged to facilitate open and free international trade in forest products by incorporating environmental costs and benefits into market forces and mechanisms and reducing or removing any unilateral measures designed to restrict or ban international trade.

In order to give a higher political profile to the issue and to provide for continued policy development, the UN Forum on Forests was subsequently created in October 2000. By 2005, the UNFF will consider such issues as the parameters of a mandate for developing a legal framework covering all types of forests and the appropriate financial and technology transfer support to enable implementation of sustainable forest management.

Box 20 Illegal Logging and Deforestation

M/S Aziz Timber Corp. & others v State of Jammu & Kashmir through Chief Secretary & others
(India, O.W.P. No. 568-84/96)

Although the Indian Forest Conservation Act does not encompass Jammu and Kashmir, On May 10, 1996, the Supreme Court of India ordered a logging ban within the state. The court also prohibited the removal of any cut trees and directed the Chief Secretary of the State of Jammu and Kashmir to ensure strict and faithful compliance with this order. Moreover, the Court expressly stated that the logging ban superseded any license or permit granted by any authority or any order made by any other court in the country.

In response, the Principal Chief Conservator of Forests of Jammu and Kashmir issued an order prohibiting the movement of timber beyond Jammu and Kashmir unless the source of the timber was 'genuine' and the provisions under the Jammu and Kashmir Forest Act were strictly followed.

Petitioner loggers subsequently challenged the August 9, 1996 order in the High Court of Jammu and Kashmir as depriving them from carrying out their trade. On August 20, 1996 a single judge of the High Court of Jammu and Kashmir stayed the order of August 9, 1996. However, the Supreme Court observed that the August 9, 1996 order was in direct conflict with their earlier May 10, 1996 order, which clearly suspended the petitioners' licenses to log and to move timber out of the state of Jammu and Kashmir.

The Supreme Court overruled the August 9, 1996 order and re-directed the strict compliance with their earlier order. The court further issued an order requiring the concerned state officials to show cause why proceedings should not be initiated against them for contempt of court. Finally, the court decided it was necessary to circulate a copy of the May 10, 1996 order to other subordinate judicial offices for their information and compliance, thus avoiding future contradictory orders and ensuring that the logging ban would be given full effect.

Chapter 12

PROTECTION OF CULTURAL AND NATURAL HERITAGE

12.1 INTRODUCTION

For centuries communities have recognized that it is important to conserve our cultural heritage for future generations. Cultural heritage includes not only the intellectual, artistic and historical record of humans, but also physical objects, whether human-made or natural. During the present period of rapid change it is increasingly recognized that the deterioration or disappearance of any item of the cultural or natural heritage constitutes an impoverishment for the whole of humankind.

Culture is defined as “the totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought” (American Heritage Dictionary). Heritage is something that can be inherited or passed down from preceding generations.

Originally, the term “cultural heritage” was used exclusively as a reference to monumental remains of cultures. However, recently the concept of cultural heritage has expanded to not only encompass images of the past but to reflect living culture as well. To that end, the concept of cultural heritage recognizes both tangible pieces of heritage – palaces, temples, and other historic landmarks – and intangible heritage, including acts of creation, representation and processes of transmission, such as the performing arts, languages, and oral traditions.

A true account of cultural diversity cannot discount the link between human beings and their environment. Natural heritage encompasses the biodiversity of both species and ecological communities, including animals, plants, fungi, and terrestrial and freshwater communities.

The importance of cultural heritage has been expressed by a simple maxim written by an unknown person above the Kabul Museum in Afghanistan: “A nation is alive when its culture is alive.” Cultural heritage not only enables people to understand themselves by recognizing the different influences that have shaped their history and identity but is a gateway for understanding other cultures as well. It allows, even creates a “dialogue” of sorts between different civilizations and can thus contribute to the building of peaceful relations between peoples.

An important starting point in understanding both national law and international law on this topic is the UNESCO *Convention for the Protection of the World Cultural and Natural Heritage* (Paris, Nov. 23, 1972). This Convention is based on a recognition that parts of the cultural or natural heritage of various nations are of outstanding universal interest and need to be preserved as part of the world heritage. It recognizes that items of cultural and natural heritage are increasingly threatened with destruction, not only by traditional causes of decay, but also by changing social and economic conditions. The Convention reflects the level of global interest in the world heritage and calls for the international community to participate in its protection by granting collective assistance to complement individual state action.

Box 21 Types of Heritage

- Historic Cities and Monuments
- Cultural Landscapes
- Natural Sacred Sites
- Environmental Habitats
- Museums
- Handicrafts
- Oral Traditions
- Languages
- Festive Events
- Rites and Beliefs
- Music and Song
- The Performing Arts
- Traditional Medicine
- Literature
- Culinary Traditions
- Traditional Sports and Games

The Convention established an Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, one of the principal tasks of which is the establishment, publication and dissemination of the "World Heritage List". The listed natural sites include Australia's Great Barrier Reef; the Grand Canyon, Yellowstone and the Everglades in the United States; the Galapagos Islands (Ecuador), and the Serengeti Park (Tanzania). In certain cases, like Machu Picchu in Peru, the sites qualify both as natural and as cultural heritage.

The World Heritage Committee also establishes and publishes a "List of World Heritage in Danger" that includes property imminently threatened by proven serious and specific dangers such as the threat of disappearance caused by accelerated deterioration, large-scale public or private projects or rapid urban or tourist development projects, destruction caused by changes in the use or ownership of the land, major alterations due to unknown causes, abandonment, armed conflict, calamities and cataclysms, such as serious fires, earthquakes, landslides, volcanic eruptions, etc.

12.2 NATIONAL LAW

A good deal of national legislation has been developed on this topic. In Brazil most of the cultural sites of the World Heritage List had been regulated by preexisting federal legislation, such as the Capanema Law of 1935 on historic and cultural heritage and the 1961 Law 3.924 relating to archaeological sites. State and municipal regulations were introduced after the listing of Olinda, Brasilia and Salvador. Cameroon, responding to international pressure, elevated in 1971 the Douala-Edéa Reserve in the central coastal area and Korup Reserve on the border with Nigeria to national park status, and designated these two areas as wildlife parks for scientific purposes with the prohibition of wildlife exploitation and the eviction of timber exploiters. Still, none of the sites was put forward as sites under the World Heritage Convention.

India's Constitution provides that "it shall be the duty of every citizen of India...to value and preserve the rich heritage of our composite culture;" World Heritage sites in India receive the same legal and administrative protection as other national parks. In Hungary, both the legal infrastructure and the administrative machinery for implementing the World Heritage Convention were in place before the accord was actually signed, and, as a result, the treaty served as a catalyst for the formal establishment of the Hungarian World Heritage Commission to coordinate nominations and documentation.

In China, the Bureau of Cultural Relics, established in the 1950's, can trace its origins at least to the Republican era (1911-1949), when the destruction of the country's heritage of temples, palaces, tombs, bridges, archaeological sites and artistic works was feared. The Chinese were however, responsive to the suggestions of the international community for making changes in sites that appear to be in danger of noncompliance with the requirements of the Convention. Some Chinese officials have expressed concern that the rapid rate of economic development, the modernization of historic sites, and an ever-increasing number of tourists will continue to exert pressure on and even destroy natural legacies. In Japan, too, nature UNESCO sites are a cause of tensions between groups of local citizens who favor the preservation of the sites and those who expect an economic boom generated by tourism and outside investment

Other states have developed laws relating to cultural and natural heritage sites as well. In Sudan, the Antiquities Ordinance, 1952 Ordinance No. 2, protects any historical monuments, any human or animal remains dated earlier than 1340 A.D., and any objects, whether movable, immovable or a part of the soil, dated earlier than 1821 A.D. It declares all antiquities to be the property of the government and grants the government the power to acquire any historical site and to remove antiquities from any land, whether it owns the land or not.

Sri Lanka also has an Antiquities Ordinance, No. 8 of 1950 as amended 1998, that provides for better preservation of important historical or archaeological sites and buildings through some innovative measures. Development activities that affect the archaeological heritage of Sri Lanka can only be approved after conducting an Archaeological Impact Assessment (AIA) under the supervision of the Director General of Archaeology. Moreover, the Ordinance also allows for specific trees to be declared ancient monuments. Sec. 17(1) In addition, the Sri Lankan National Heritage Wilderness Areas Act, Act No. 3 of 1988, affords protection and preservation to any area of State land which is declared to contain unique eco-systems, genetic resources or any outstanding natural features.

12.3 CULTURAL HERITAGE SITES AND THE COURTS

Individuals have also taken it upon themselves to initiate litigation to protect cultural heritage sites when they feel the government is not taking appropriate measures. In 1984, the Taj Mahal case, discussed in Box 31, was brought by M.C. Mehta to protect India's *Taj Mahal* from air pollution. Sometimes state government actions put cultural heritage at risk. See the Eppawela case in from Sri Lanka in Box 22. At times, it courts remind state governments of their international obligations; see Box 23, *Prakash Mani Sharma and others on behalf of Pro Public v. Honorable Prime Minister Girija Prasad Koirala and others*, Supreme Court of Nepal.

Box 22 Judicial Actions to Protect Heritage Sites

Bulankulama v The Secretary, Ministry of Industrial Development
(the Eppawela Case), Supreme Court, Application No. 884/99 (FR) Sri Lanka.

In the *Eppawela case* in Sri Lanka, the applicants petitioned the Court to stop the Sri Lankan government from entering into an agreement with a company that would manufacture fertilizer using the local Eppawela phosphate deposit, claiming that implementation of the project would destroy their lands and permanently displace about 2,600 families from their homes and lands. Eppawela and the villages that surround it are ancient settlements dating back to Sri Lanka's Anuradhapura Period (3rd century BC to 11th century AD), making every square foot of the land an archaeological site.

The government asserted that the agreement in question was only for exploration and feasibility studies; the Secretary's approval would be required before the construction and mining phases of the project could begin. The Court first noted that exploration, though not as devastating as mining, could still lead to imminent harm to homes and lands. Finding that nothing in the agreement stipulated that it was limited to only exploration and a feasibility study, the Court required a comprehensive Environmental Impact Assessment before the government could enter into the proposed agreement.

12.4 INTERNATIONAL LAW

As noted, the UNESCO Convention recognizes that items of cultural and natural heritage are increasingly threatened with destruction, not only by traditional causes of decay, but also by changing social and economic conditions, and calls for the international community to participate in its protection by granting collective assistance to complement individual state action.

Cultural and natural property that forms part of the world heritage remains subject to the legislation of the state where it is located. These resources continue to belong to public or private establishments or even to individuals as the national law provides. Thus, territorial sovereignty and property rights over the world cultural and natural heritage are respected.

Under the Convention, each state party ensures the identification, protection, conservation, presentation and transmission to future generations of the natural heritage situated in its territory. In the *Commonwealth of Australia v. The State of Tasmania*, No. C6 of 1983, 46 A.L.R. 625, 68 I.L.R. 266, the High Court of Australia considered whether these duties contained legal obligations to protect sites. In a 4-3 ruling, the Court decided the Convention obligations were legal in nature. States parties are also to endeavor, as appropriate, to adopt a general policy to give the heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programs. Other legal, scientific, technical, administrative and financial measures must be taken, including the creation of special services for the protection, conservation and presentation of this heritage, and research and training. States parties periodically submit reports to a specially created committee on the measures that they have taken to implement the Convention.

The process for inclusion of sites on the "World Heritage List" is as follows. Every state party to the Convention must submit an inventory including documentation on the location and significance of property forming part of the cultural and natural heritage situated on its territory and which it considers of outstanding universal value. From this inventory, the state party selects sites that it nominates for inscription on the World Heritage List. The World Heritage Committee considers the nominations of states parties and decides which merit inclusion in the List.

Box 23 Cultural Heritage Sites and International Obligations

Prakash Mani Sharma & others on behalf of Pro Public v Hon. Prime Minister Girija Prasad Koirala & others, Supreme Court of Nepal, 312 NRL 1997.

In *Prakash Mani Sharma & others* petitioners in Nepal sought a court order to stop government construction of a police building on the banks of Rani Pokhari (Queen Pond), while simultaneously seeking orders to demolish any structures already constructed. The Rani Pokhari area, considered a symbol of the beauty of Kathmandu City, is home to temples, statues and other ancient monuments. Petitioners argued the construction destroyed the beauty of an historical and archaeological heritage with cultural and religious value.

After observing that Article 88(2) of the Constitution of the Kingdom of Nepal 1990 entitles every individual to show concern for public property and "public rights," the Court emphasized the obligation of the Nepalese government to give effect to its obligations under the World Heritage Convention. The Court then ordered the government to create a national policy regarding religious, cultural and historical places of importance.

Among its functions, the World Heritage Committee is to receive and study requests for international assistance formulated by states parties to the Convention for protection, conservation, presentation or rehabilitation of any part of the world cultural or natural heritage, i.e., property included or potentially suitable for inclusion on one of the Lists. Requests also may be submitted for purposes of identifying cultural or natural property.

The World Heritage Convention is important in part because it encompasses the idea that certain property found under the sovereignty of a state is of interest beyond territorial frontiers and concerns all humanity, leading to the conclusion that such property should, beyond the conservation interests of the territorial state, be conserved in the name and interest and by the care of the entire international community. As a counterpart to the principal responsibility of the territorial government, it is recognized that the international community itself has obligations and must assist the territorial state in the accomplishment of conservation objectives. The relevant legal concept that emerges is that of common heritage of humankind, a trust or a mandate exercised in the interest of present and future generations. Notwithstanding international concerns for or obligations with respect to World Heritage Sites, the Convention contains no power of sanction, save removal of a site from the World Heritage List if the universal values for which it was listed are no longer preserved. To date no site has ever been withdrawn from the World Heritage List. A series of international treaties tend to protect cultural heritage in general: e.g., conventions on illicit import, export and transfer of ownership of cultural property, on the protection of the underwater cultural heritage, the safeguarding of the intangible cultural heritage (2003) and the stolen or illicitly exported cultural objects. In the event of armed conflict, the 1954 Hague *Convention for the Protection of Cultural Property* (219 UNTS 240) specifically provides for the protection of historic monuments. Its Protocol, also adopted in 1954 (249 UNTS 358) covers the return of movable cultural property taken from occupied territory.

Box 24 The Taj Mahal Case

MC Mehta v Union of India, WP(C) 13381/1984 (the *Taj Mahal* case)

In 1984, the *Taj Mahal* case was brought by MC Mehta, a leading environmental activist, to protect India's Taj Mahal from air pollution, alleging that industrial emissions were causing the white marble to blacken in places and fungus to grow inside the monument. Mehta requested the implementation of anti-pollution measures or the closure of the pollution causing industries. Over the course of litigation, the Supreme Court passed many orders directing the central, state and local authorities to undertake developmental and regulatory measures for the improvement of the environment and the protection of the Taj Mahal.

However, it was not until 1996 that the Court, finding that industries in the area were actively contributing to air pollution, finally ordered 292 coal-based industries to either switch to the use of natural gas or relocate their businesses outside the protected area, with job security or compensatory measures required for employees. While a number of factories complied with the order, many others ignored the order, claiming the cost of such action was prohibitive. Thus, in 1999, the Court ordered 160 factories closed for failure to comply with the order.

Chapter 13

NOISE

13.1 INTRODUCTION

Noise pollution can be described as any unwanted or harmful sound created by human activities. Types of noise pollution range from community noise to occupational noise, with examples including barking dogs, household appliances, security alarms, loud music, road traffic, air traffic, machinery use, and construction activities. Unlike other environmental problems, noise does not lead to chemical or organic pollution of natural resources but instead affects human beings and other animals directly. In recent years, noise has been recognized not only as an annoyance but as a serious health hazard as well. Prolonged or excessive exposure to noise can result in:

- Aggression
- Cardiovascular problems
- Communication disruption
- Despondency
- Disorientation
- Headaches
- Hearing loss or impairment
- Increased accidents
- Increased blood pressure
- Nervousness
- Poor attentiveness or memory
- Sleep disruption
- Stress
- Tension

With an ever-growing world population and rapidly advancing technology, the effects of noise pollution are being felt by greater numbers of people. In fact, as of 1996 an estimated 20 percent of the European Union's population, nearly 80 million people, suffered from noise levels that scientists and health experts deem unacceptable. See: Europa, Noise – the Green Paper (2003).

13.2 NATIONAL LAW

States have aimed to control noise pollution as a public nuisance dating back to ancient Rome, when citizens were so annoyed by the clatter of iron wheels on stone pavements that they enacted legislation to control these disruptions. In medieval Europe, some cities prohibited horse and carriage traffic to protect the sleep of inhabitants. More recently, in 1934 Switzerland introduced nighttime and Sunday bans on heavy goods vehicles to protect the population against noise. See: Swiss Agency for the Environment, Forests and Landscape (SAEFL), Milestones in Noise Abatement.

The United States passed the Noise Control Act of 1972, 42 U.S.C. § 4901(b) “to promote an environment for all Americans free from noise that jeopardizes their health or welfare.” To that end, the statute authorized the establishment of federal noise emission standards for commercial products. Similarly, in 1977 the Philippine Environment Code, Presidential Decree No. 1152 (June 6, 1977) called for the establishment of appropriate standards of community noise levels and of standards for noise-producing machinery, such as construction equipment, transportation equipment, and electronic equipment. The United Kingdom codified noise pollution as a statutory nuisance under the Section 79 of the Environment Protection Act 1990, Section 79, as amended by the Noise and Statutory Nuisance Act 1993, regulating noise emitted from premises or emitted from or caused by a vehicle, machinery or equipment in a street. The statute allows local authorities to serve abatement notices and subjects violators to fines.

The actual task of standard-setting is usually left to government agencies which determine an acceptable level of noise for the protection of public health and welfare, taking into account such factors as the

magnitude and condition of use, the degree of noise reduction achievable through the application of best available technology, the cost of compliance, location, zoning and land use classification. Standards then become codified in regulations, such as Section 5, Standard 1105 of the Canadian Motor Vehicle Safety Regulations, which sets exterior sound level noise emissions standards for motor vehicles – buses, passenger cars, trucks, and motorcycles. Canadian Aviation Regulations set similar standards for airplane noise.

Enforcement of regulations is also left, in the first instance, to the agency. The Philippine Environment Code, sections 8 and 9, grants authority for monitoring, surveillance, and enforcement to the National Pollution Control Commission and the Civil Aeronautics Administration.

13.3 NOISE AND THE COURTS

Courts play an important role in controlling noise pollution, e.g. by judicial review of agency decisions. Also, by demanding compliance with noise pollution standards from violators, courts have served to further strengthen the authority of those standards. Regarding the court's role as a check on agency discretion and action, the Secretary, Ministry of the Environment for Sri Lanka, clarified how an agency should test compliance with noise level regulations in *Appeal Under Section 23E of the National Environmental Act by E.M.S. Niyaz to the Secretary Ministry of Environment, Sri Lanka* (1985). Niyaz appealed against a decision of the Poojapitiya Pradeshiya Sabha (the PS) cancelling the Environmental Protection License (EPL) that covered the discharge of waste and transmission of noise from his saw mill. The Secretary set aside the cancellation of Niyaz's EPL, finding that the PS did not hold a proper inquiry with the participation of Niyaz and any complainants. A proper inquiry includes:

- Hearing neighborhood objections and carrying out appropriate investigations prior to granting an EPL;
- Entertaining, investigating and inquiring into community complaints about EPL or National Environmental Act violations after an EPL is granted; and
- Giving sufficient notice to EPL holders of the case against them so that they can present their defense before the Central Environment Authority (CEA) before an EPL is cancelled or suspended, unless an emergency situation requires immediate suspension. In this case, the PS did not administer step 3, in that it failed to grant Niyaz a hearing or any opportunity to make representations prior to the cancellation of his EPL.

Moreover, courts can suggest alternate forms of relief to parties. In *Appeal of W.I.A.B. Fernando and Others against issue of Environmental Protection Licence to Thaha Plastic Industries Ltd*, Appeal No. 3/95 to the Ministry of Environment, Sri Lanka, neighbors objected to the CEA's grant of an EPL to Thaha Plastic Industries Ltd. The Acting Secretary, Ministry of the Environment, formally dismissed the appeal because section 23E of the National Environmental Act only extended his jurisdiction to appeals from applicants for EPLs; he lacked jurisdiction to entertain a petition from neighbors objecting to the grant of an EPL. However, he referred the appellants to the CEA, with instructions that the noise levels of the industry be checked by an independent body, and he also attached a circular issued by the Inspector-General of Police regarding public nuisance.

Typically, persons aggrieved by noise pollution can bring nuisance actions in court against the party responsible for the nuisance. To be effective in such cases, the court must determine not only if a nuisance exists, but also whether, if abated, the nuisance is likely to recur. The court has the power to secure abatement of the nuisance, prohibit or restrict the nuisance and order payment of damages, if necessary. However, the decision of what, if any, remedy to grant commonly requires the judge to take into consideration public health and welfare, as well as economic efficiency and distributional concerns, such as the cost to society of the nuisance, the possible benefits derived from the act causing the nuisance, and available technology and preventative measures. Sometimes the court may find no judicial action is needed. In *Bangladesh Environmental Lawyers Association v. The Election Commission and Others*, SC of Bangladesh, High Court Div., Writ Petition No. 186 of 1994, Dr. Mohiuddin Farooque, Secretary-General of the Bangladesh Environmental Lawyers Association (BELA), alleged that political candidates were flouting election laws and causing environmental pollution in the city with noise from loudspeakers and unscheduled processions. The Supreme Court noted that "it is desirable to mitigate the environmental pollution as alleged by the Petitioner," but found that the Election Commission and the Dhaka City

Corporation had taken clear steps to stop the alleged pollution. In view of those facts and with the assurance of the Attorney General that the government would take all necessary steps to implement the directions of the Election Commission, the Supreme Court held that further direction was unnecessary.

Other times, consideration of the facts may show a health hazard that warrants judicial mitigation. Concerned over the creation of noise pollution by vehicles, petitioners in *Rabin Mukherjee and others v. State of West Bengal and others*, AIR 1985 Calcutta 222, requested an order directing the enforcement of the provisions of Rule 114(d) of the Bengal Motor Vehicles Rules, containing restrictions against the use of electric and air horns. Referring to studies of noise pollution, the Supreme Court concluded that the noise pollution arising from the use of loud horns was injurious to health and was among the different causes of environmental pollution. The Court directed State Authorities to immediately issue notifications regarding the restrictions contained in the Rule; to direct the removal of electric or air horns which created a loud or shrill sound; and to ensure that no fitness certificate was granted to vehicles not in compliance with the Rule.

However, judicial mandates are only effective if they are well-framed and adhered to by the parties involved in the litigation. Ten years after the BELA case referenced above, BELA brought another lawsuit over provision 114(d) of Bengal Motor Vehicle Rules. In *Dr. Mohiuddin Farooque v. Secretary Ministry of Communication, Government of the People's Republic of Bangladesh and 12 Others*, SC of Bangladesh, High Court Division, Writ Petition No. 300 of 1995, BELA sued the Government of Bangladesh to take all adequate and effective measures to check the use of audible vehicle signalling devices giving unduly harsh, shrill, loud or alarming noise because they were polluting the air of the city. Noting the apparent ineffectiveness of the prior court decision, BELA requested an ad-interim order directing respondents to comply with Rule 114(d). The court granted the request, directing strict compliance with the Rule 114(d) and ordering government agencies to take adequate measures to enforce the restrictions limiting transport vehicles to the use of bulb horns only. The court further directed notice to be issued to all transport vehicles operators about the restrictions provided in Rule 114(d) and required submission of an agency report regarding compliance with the order by October 16, 2001.

13.4 INTERNATIONAL LAW

There is little international law on specific causes or incident of noise, e.g., the *Chicago Convention on International Civil Aviation* 1944, but the International Labor Organization and the European Union have adopted norms to protect worker health and safety from excessive noise. The World Health Organization also has standards. Notably, many of the case before the European Court of Human Rights involving environmental issues concern airport noise. See, e.g. *Hatton v. United Kingdom* (ECHR, 2003).

Chapter 14

TRANSPORTATION

14.1 INTRODUCTION

Transportation – in the form of automobiles, trains and airplanes – is a part of everyday life in modern times. Unfortunately, transportation can adversely affect quality of life by degrading the environment through dirtying the air, contaminating waterways, destroying or disturbing wildlife habitats, contributing to climate change and consuming energy. First and foremost, transportation is a significant source of air pollution. In fact, motor vehicles are responsible for more than two-thirds of the carbon monoxide in the atmosphere, as well as a third of the nitrogen oxides and a quarter of the hydrocarbons. Exposure to air pollution can cause negative impacts on human health by exacerbating such problems as asthma, heart disease and lung and respiratory illnesses. For example, the US EPA attributes the premature deaths of over 64,000 Americans to air pollution annually. Some pollutants emitted by cars and trucks, such as soot, benzene, arsenic compounds, formaldehyde and lead, are also suspected carcinogens. In addition, air pollution in the form of smog and acid rain has been shown to kill or harm agricultural crops and damage buildings.

Transportation also significantly impacts water quality. Runoff from roads, bridges, parking lots and other impervious surfaces deposits road salt, dirt and dust, antifreeze, engine oil, rubber and metal deposits, litter and other pollutants into aquifers, lakes, rivers, streams and oceans - polluting drinking water and degrading habitat quality. Storage and transport of gasoline and oil for motor vehicles also contributes to water contamination. Underground gasoline storage tanks can leak, causing gasoline additives like MTBE, which has been linked to several health concerns, to seep into water sources. Oil spills, like the infamous *Exxon Valdez* spill in Alaska, cause severe and often irreparable damage to marine ecosystems.

Moreover, transportation negatively impacts wildlife through the construction and use of roadways by altering, degrading and destroying wildlife habitat, not to mention the vehicular death of millions of animals every day. Furthermore, the transportation sector is one of the largest sources of carbon dioxide (CO₂), which in turn is the biggest contributor to climate change. Each gallon of gasoline burned by cars and trucks adds 28 pounds of CO₂ into the atmosphere. For more on climate change, see section 9.4. Finally, transportation results in high levels of energy consumption, as over 95 percent of vehicles are dependent on oil.

14.2 NATIONAL LAW

There are various kinds of national legislation focused on transportation-related pollution. In 1998, the US enacted the Transportation Equity Act for the 21st Century (TEA-21), which allocates over \$200 billion to improve the country's transportation infrastructure, enhance economic growth and protect the environment. Under TEA-21, the Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds projects and programs to reduce transportation related emissions of carbon monoxide (CO), ozone and small particulate matter (PM-10).

CMAQ programs include plans for improved public transit; traffic flow improvement programs that achieve emission reductions; programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration; programs for the provision of all forms of high-occupancy, shared-ride services; programs to control extended idling of vehicles; and programs for new construction and major reconstructions of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation. TEA-21 also creates opportunities to improve water quality through the funding of Transportation Enhancements (TEs), which are projects that improve community cultural, aesthetic and environmental qualities including the mitigation of water pollution due to highway runoff. In addition, Wetlands Restoration funds can be used to address wetlands losses caused by past Federal-aid transportation projects.

14.3 TRANSPORTATION AND THE COURTS

National courts have frequently found themselves entangled in transportation-related environmental litigation. For example, in *Farooque v. Secretary, Ministry Of Communication* (Sup. Ct., Sri Lanka), the petitioner filed suit against the Secretaries of the Ministries of Communication, Environment, Health, Home Affairs and Industries, as well as other government authorities, to require performance their statutory duties and mitigate air and noise pollution caused by motor vehicles in the city of Dhaka. Farooque argued that vehicles did not comply with the required fitness standards and emitted smoke that was harmful to humans. He maintained that although the Constitution of Bangladesh contained no specific right to a safe and healthy environment, it was inherent in the "right to life" addressed in Article 32 and in the prohibition of actions detrimental to life, body or property in Article 31. The Court required the Chairman of the Bangladesh Road Transport Authority and the Commissioner of the Dhaka Metropolitan Police to show cause as to why they should not be directed to take effective measures to check air pollution caused by motor vehicle emissions, as provided in the Motor Vehicles Ordinance 1983. See also *Sierra Club v. Coleman and Tiemann*, 14 ILM 1425, where the court examined the environmental impact of the highway construction.

Box 25 Controlling Air Pollution from Transportation

The Supreme Court of Nepal also addressed the issue of air pollution caused by vehicular emissions in *Shrestha v. HMG, Department of Transportation Management*, Supreme Court of Nepal, Writ No. 3109 of 1999. Scientific research found that three wheeler diesel engine transports ("tempos") were the main sources of air pollution in Kathmandu Valley so the government decided to stop the movement of such transports in the Kathmandu Valley and to stop the registration of the tempos outside the Valley. The petitioner filed a writ petition on behalf of a company engaged in importing the tempos, seeking an order to quash the government decisions on the allegation that they precluded the company from carrying on trade or business, as protected under the Motor Vehicle and Transportation Management Act 1993 and Articles 11 and 12 of the Nepalese Constitution. The government contended that the decisions were made to protect the public health, in accordance with sections 24 and 118 of the Act. The Court dismissed the writ petition and upheld the validity of the government decision, holding that the Environment Protection Act 1996 and other regulations were brought into existence to protect and promote a healthy environment as mandated by the principles of the constitution. The Court found that no one is entitled to carry on business or occupation that is harmful to public health, that every individual has an inherent right to live in a healthy environment, and that it is the state's responsibility to respect and protect that right.

14.4 INTERNATIONAL LAW

While not focused exclusively on transportation-related air pollution, several international agreements have significant implications for transportation. The 1979 Geneva *Convention on Long-Range Transboundary Air Pollution* created by UN Economic Commission for Europe was the first international agreement to recognize both the environmental and health affects of the kinds of air pollution associated with transportation sources. The fundamental principles underlying the Convention recognize the need for ongoing research, exchange of information, consultation and monitoring to reduce and prevent air pollution. In addition to the Convention, eight protocols have been adopted, including the 1998 Aarhus Protocol on Persistent Organic Pollutants, which singles out 16 substances according to agreed risk criteria with the objective of eliminating all discharges and emissions.

Additionally, in recognition of the problem posed by global climate change, the World Meteorological Organization (WMO) and UNEP established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The Panel does not conduct new research or monitor climate-related data itself, but rather it is intended to assess, on a comprehensive, objective, open and transparent basis, the scientific, technical and

socio-economic information on climate change that is available around the world. The IPCC is organized into three working groups and a task force on national greenhouse gas inventories, with Working Group I assessing the scientific aspects of the climate system and of climate change, Working Group II addressing the vulnerability of human and natural systems to climate change, and Working Group III assessing options for limiting greenhouse gas emissions and otherwise mitigating climate change. To date, the IPCC has produced three Assessment Reports, which include easy-to-understand summaries of the pertinent environmental issues for policymakers.

Chapter 15

TOURISM

15.1 INTRODUCTION

“Tourism is like fire. It can cook your food or burn your house down.” (Quote by R. Fox on UNEP website). This quote aptly illustrates the complex relationship between the environment and tourism, the world’s biggest industry. On one hand, the quality of the environment is essential to tourism, and tourism itself can contribute to environmental conservation by raising awareness of environmental concerns, financing protection of natural areas and increasing their economic importance. However, tourism also involves many activities that can adversely affect the environment, gradually destroying the environmental resources on which it depends.

The three main environmental effects of tourism are:

- Depletion of natural resources,
- Pollution, and
- Physical impacts.

15.1.1 Depletion of natural resources by tourism

Tourism puts pressure on natural resources by increasing their consumption, which can be particularly problematic in areas where resources are already scarce. Water is one of the critical natural resources that the tourism industry generally overuses, especially for hotels, swimming pools, golf courses and personal use by tourists. For example, an average golf course in a tropical country such as Thailand uses as much water in one year as 60,000 rural villagers. Not only can this result in water shortages and degradation of water supplies, but it can also lead to greater generation of wastewater.

Due to the seasonal nature of tourism, it can place particularly great pressure on local resources like energy, food, and other raw materials during the “high season” when destinations are likely to have ten times more inhabitants, which in turn creates greater extraction and transport of these resources. Furthermore, the use of land, building materials and fuel for the construction and maintenance of tourist facilities directly impacts land resources like minerals, fossil fuels, fertile soil, forests, wetlands and wildlife.

15.1.2 Pollution and tourism

Like any other industry, tourism can cause pollution in the form of air emissions, noise, solid waste and littering, sewage, oil and chemicals, and even architectural or visual affronts. Rising numbers of tourists means increased travel by air, road and rail, contributing to local air and noise pollution – often in unique ways. For example, tour buses frequently leave their motors running for hours so that tourists return from their excursions to a comfortably air-conditioned or heated bus. Noise from recreational vehicles like snowmobiles can cause distress to wildlife and alter their normal activity patterns.

Tourists also generate large amounts of waste, as both solid waste and sewage, which is not always disposed of properly. Environmental degradation results, leading to such nicknames as the “Toilet paper trail” for frequently visited trails in the Peruvian Andes and in Nepal. Lack of land-use planning and building regulations also leads to the construction of sprawling tourist structures that are not integrated, and may even clash, with the natural features and indigenous architectural of the destination.

15.1.3 Physical impacts

Tourism can cause extensive physical impacts to the environment, mainly degradation of ecosystems from tourism development and from tourist activities. Development of tourism encompasses the construction of general infrastructure such as roads and airports, and of tourism facilities, including resorts, hotels, restaurants, shops, golf courses and marinas. Such activities often involve clearing of forested land or draining of wetlands and can lead to loss of wildlife habitats, deterioration of scenery and soil erosion.

Tourist activities can further cause physical impacts to the environment through trampling of vegetation and of soil, anchoring and other marine activities and the general noise and commotion caused by tourists, resulting in loss of biodiversity and alternations in animal behavior and ecosystems. Coral reefs, for example, are particularly fragile ecosystems and are suffering worldwide from reef-based tourism development and marine activities.

15.2 NATIONAL LAW, TOURISM AND THE COURTS

A number of countries have taken action on the national level to address the environmental effects of tourism. For example, Australia developed the 1979 Environmental Planning and Assessment Act to deal with matters of environmental development, such as the construction of tourist facilities. It requires government authorities to take into account the likely environmental impacts on both the natural and built environments, as well as the social and economic impacts in the locality when considering applications for development projects. The Act came to the forefront in *Byron Shire Businesses for the Future Inc. v Byron Council and Holiday Villages (Byron Bay) PTY Ltd.*, concerning a dispute over the construction of a coastal tourist village on land at Byron Bay, Australia. See, Land and Environment Court of New South Wales, (1994) LGERA 434. The case is discussed further in Box 11 above.

15.3 INTERNATIONAL LAW

At the global level, these environmental effects can contribute to loss of biological diversity, depletion of the ozone layer and climate change – problems that led in part to the 1989 Hague Declaration on Tourism. The Hague Declaration recognizes that tourism is now an everyday phenomenon for millions of people and constitutes an activity essential to the lives of human beings and modern society. Moreover, tourism can be an effective instrument for socio-economic growth for all countries, but it requires the development of proper infrastructure and careful consideration of the overall capacity of the natural, physical and cultural environment of tourist destination. (Principle 2). Specifically, a healthy natural, cultural and human environment is a fundamental condition for the development of tourism. (Principle 3). To that end, the Declaration advocates taking effective measures to inform and educate tourists to respect the environment and to promote sustainable development.

Furthering the concept of what constitutes sustainable tourism, in 1995 the World Travel and Tourism Environment Research Centre developed the concept of Integrated Total Quality Tourism Management (ITQT), which is a holistic approach to tourism development and management that comprehensively integrates socio-cultural, environmental and economic aspects. It recognizes that tourism is not necessarily desirable or feasible for every place. Therefore, each community should examine if the project in question is feasible, sustainable and desirable with regard to socio-cultural, environmental and economic aspects, using such methods as Environmental Impact Assessment (EIA), Carrying Capacity Analysis (CCA), Life-Cycle Analysis (LCA), and Environmental Audits (EA). Under ITQT, a genuinely sustainable approach needs to be not only environmentally sustainable and economically viable, but socio-culturally enriching as well, undertaken with integrated long-term planning, management and monitoring.

In the Manila Declaration on Social Impact of Tourism, adopted in the Philippines in May 1997, representatives of governments and private groups from 77 countries and territories committed themselves to ten goals aimed at maximizing the positive aspects and minimizing the negative effects of tourism. The goals of the Manila Declaration aspire to improve people's standard of living through tourism while at the same time ensuring that tourism development preserves the legacy, heritage and integrity of tourism destinations, particularly the social and cultural norms of indigenous communities, and takes into account the environmental costs of tourism. The tenth goal entails working towards the formulation and eventual adoption of a Global Code of Ethics for Tourism.

In fact, the tenth goal was reached on October 1, 1999, when members of the World Tourism Organization established the Global Code of Ethics for Tourism in Santiago, Chile. The aim of the Code is to synthesize the various documents, codes and declarations of the same kind or with comparable aspirations published over the years, and to complement them with new considerations reflecting the development of societies around the world, thus serving as a frame of reference for the stakeholders in

world tourism. The Code operates under the beliefs that tourism contributes to mutual understanding and respect between peoples, and that there is a universal right to tourism as the common heritage of mankind. Moreover, the Code asserts that all stakeholders in tourism development should safeguard the natural environment for both present and future generations by protecting the natural heritage composed of ecosystems and biodiversity, preserving endangered species of wildlife, saving rare and precious resources, and respecting artistic, archaeological and cultural heritage. Suggested methods for accomplishing such objectives include the staggering in time and space of tourist and visitor flows, and using financial resources derived from visits to cultural sites and monuments for the upkeep, safeguard, development and embellishment of this heritage.

Chapter 16

TOXIC AND HAZARDOUS SUBSTANCES AND WASTE

16.1 INTRODUCTION

Human activities introducing hazardous or toxic substances and waste into the environment may cause irreparable harm to natural, cyclical phenomena such as the life cycle, the water cycle or the carbon cycle. Since the end of the 1970s rules increasingly have regulated the substances that produce or can produce harmful environmental consequences. Following the “cradle to grave” approach, such regulations have concerned the production and use, the trade and transport, and the elimination of toxic and hazardous substances and waste.

“Waste” is typically taken to mean anything that can be discarded, although treaties and national laws have particular definitions. Nearly every human activity generates some kind of waste. Households create common garbage or municipal waste. Municipal waste consists of everyday items such as paper, yard trimmings, food, clothing, and product packaging. Industrial and manufacturing sites produce solid and hazardous waste. Industrial waste comes from a broad range of activities and in many shapes and sizes, including process waste, animal waste, radioactive waste, and medical waste.

The state of the economy strongly impacts consumption patterns and waste generation. In other words, as countries become wealthier, they produce more waste. In 2001, the United States produced 229.1 million tons of municipal waste. The UK produces some 400 million tons of waste each year, a quarter of which is from households, commerce and industry, with the remainder made up of construction and demolition wastes, mining and agricultural wastes, sewage sludge and dredged spoils. Most waste currently ends up in landfill sites, disposal facilities designed to permanently contain the waste and prevent the release of harmful pollutants to the environment. Unfortunately, while the amount of waste produced continues to grow exponentially, there is only a finite amount of land in which to dispose of it.

Judges encounter several kinds of cases concerning this topic:

- Consumer protection actions seeking damages for harm
- Enforcement of bans on the sale or import of hazardous substances and waste
- Prosecution for misbranding or mislabelling products.
- Prosecution of violations of hazardous waste management laws
- Suits seeking cleanup of sites contaminated by hazardous substances or reimbursement of costs incurred in cleaning up such sites

This area of law is separable into two fairly discrete subtopics: chemicals and waste.

16.2 CHEMICALS

National law -- At the national level, many countries have set up systems to screen industrial chemicals and pesticides before allowing them to be marketed for use. For example, many countries require a pesticide to be registered before it can be sold or distributed. Decisions on whether to register a pesticide for particular uses often depends on consideration of the risks the pesticide might pose to human health or to the environment, as well as consideration of the benefits associated with use of the pesticide. One tool that can be used to ensure that these decisions are based on solid information is legislation that specifies broad authority on the part of regulatory agencies to require the applicant for registration to submit the necessary scientific data for consideration. Restrictions on the method of application or other aspects of use of the pesticide might be included as conditions of the registration. A similar approach can be taken to screening of industrial chemicals prior to marketing for use.

International law -- At the international level, the production and use of hazardous chemicals is today covered by the *Stockholm Convention on Persistent Organic Pollutants* of May 22, 2001. Such pollutants possess toxic properties, resist decay, bioaccumulate and are transported through air, water and with migratory species. Using the precautionary approach and advocating the polluter pays principle, the

Convention provides that each party shall prohibit and eliminate the production and use and regulate the import and export of substances listed in an Annex, mainly insecticides and PCBs. Each party also shall take measures concerning unintentional production of the chemicals listed in another Annex, primarily PCBs and dioxins. A convention on Safety and Health in Agriculture adopted by the International Labor Organization (ILO) several weeks later, on June 21, 2001, has the aim of preventing accidents and injury by eliminating, minimizing or controlling hazards in the agricultural working environment. Each state is required to take measures to ensure that there is an appropriate system for the importation, classification, packaging and labelling of chemicals used in agriculture and for their banning or restriction. The measures must cover, *inter alia*, the preparation, handling, application, storage and transportation of chemicals, the dispersion of chemicals and the handling of tools and other objects used for chemicals.

The Rotterdam *Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* (entry into force Feb. 24, 2004) also bear note in this regard. This Convention requires exporting states that trade in a list of hazardous substances to obtain the prior informed consent (PIC) of importing states before proceeding with the trade. By providing the tools and information needed to identify potential hazards, the Convention allows importing countries the chance to exclude chemicals they cannot manage safely. Moreover, the Convention promotes the safe use of hazardous chemicals once imported through labelling standards, technical assistance and other forms of support. Notably, the Convention implicitly places the primary duty to provide information on the manufacturer or packager of the export.

16.3 SOLID AND HAZARDOUS WASTE

While waste cannot be eliminated, local governments can reduce its environmental impact through proper management. The four main components of waste management are:

- Source reduction
- Recycling
- Treatment and
- Disposal.

a) Source reduction

Source reduction, or waste prevention, aims at limiting the amount of waste produced. It can encompass any change in the design, manufacture, purchase, or use of materials or products that reduces the amount or toxicity of waste to be disposed. One major area of reduction has been to alter the containers or packaging used for consumer goods. Another type of source reduction is to reuse items in lieu of throwing them away. According to local studies in the US, between 2 and 5 percent of the waste stream is potentially reusable. Ways to reuse items involve: refilling bottles; using durable mugs, glasses, plates, and silverware; and using cloth napkins or towels. Not only does source reduction help to lessen the amount of waste produced, but it also avoids the costs of treatment, disposal and recycling.

b) Recycling

Recycling turns products that would otherwise become waste into new materials or products. First, used materials are collected, cleaned and separated. Then, the materials are manufactured into new products, which can be marketed and sold to consumers. Another form of recycling is composting. Basically, composting is a way to turn organic matter, such as food and yard wastes, into new soil through controlled biological decomposition.

c) Treatment

Another way to make waste less of an environmental threat is through treatment, which can entail any process that changes the physical, chemical, or biological character of waste. Treatment can neutralize waste, recover energy or material resources from waste, or render waste safer to transport, store, or dispose. Municipal waste is often treated by incineration, or burning at high temperatures, rather than being landfilled. Generally, hazardous waste must be treated in some way before it can be disposed.

d) Disposal

Waste that cannot be reused or recycled must be disposed. Landfilling, or placing waste into the land, is the most common method of disposal for both municipal and hazardous waste. Usually landfills are required to have some type of lining system to prevent the contamination of groundwater under the site, and corrective action is required if hazardous pollutants escape. When a landfill is closed, typically a cover must be placed over the landfill to prevent water from entering. Another disposal method, commonly used for hazardous liquid waste, is injection wells, where waste is disposed of in a confined area thousands of feet underground.

When not disposed of properly, waste can cause health problems and damage to the natural environment and animal or plant species. This is especially true of hazardous waste, which due to its toxic, explosive, corrosive, flammable or infectious nature has been linked to adverse effects ranging from cancer to birth defects to death.

16.4 NATIONAL LAW, WASTE AND THE COURTS

The primary responsibility for addressing waste-related problems falls to individual states. Many countries have introduced complex waste legislative frameworks pursuant to which hazardous activities are regulated. These frameworks may include licensing of waste management activities, tax regimes to increase the cost of disposal, and criminal sanctions to punish those unlawfully disposing of waste.

National legislation regulating hazardous waste may include requirements pertaining to the full range of activities involved in waste management, from the “cradle” to the “grave”. For example, requirements may be placed on hazardous waste generators, transporters, and installations that recycle, treat, store or dispose of hazardous wastes.

The precise type of requirement may depend on the activity. Hazardous waste generators may be required to register their activity and report on the quantities of waste generated, stored on-site and shipped off-site. Often, transportation of hazardous waste may trigger tracking requirements, such as a requirement that a hazardous waste manifest accompany a shipment at all times. Permits may be required for entities that treat, store or dispose of hazardous waste. Various performance and technology-based standards may apply to the treatment and disposal of hazardous wastes. For example, the siting of hazardous waste disposal facilities may be subject to location requirements controlling its proximity to populations or water supplies. Technology standards may include requirements for certain types of liners and covers to prevent hazardous waste from leaching into surrounding soil and groundwater. Management standards may include requirements to monitor incoming wastes and ensure that incompatible wastes that may cause chemical reactions or explosions when co-mingled are not stored or disposed in proximity to each other, and monitoring of surrounding soil or aquifers to ensure that the waste has not infiltrated the soil or groundwater.

In addition to laws and regulations that address the active “cradle to grave” management of hazardous waste, many countries have begun to adopt liability schemes that seek to assign or apportion liability among responsible parties for the remediation of improperly disposed or abandoned hazardous wastes or substances. Additionally, some countries have established hazardous waste cleanup funds to finance cleanup of contaminated sites for which no solvent responsible parties can be found.

Some countries have found that stringent regulation of hazardous waste management may drive up costs of legal management, creating a perverse incentive to illegally dispose of hazardous waste on open spaces and farmland, woodland, or other sites, making an effective enforcement program an essential ingredient of any effort to control hazardous waste activity. The courts have a critical role to play in enforcing national laws and regulations in this area. In so doing, courts are often in the position of struggling with a number of complex legal and evidentiary issues. For example, a key element of any case involving hazardous wastes is providing that the material in question is in fact a hazardous waste. In determining whether a waste is hazardous or not, national regulatory schemes may take one of several approaches, or a combination thereof. For example, some national laws establish lists of types of wastes, or wastes generated in particular processes or by particular industries, that are considered to be

hazardous. Other systems determine whether a waste qualifies as hazardous by applying certain testing protocols to determine whether the waste exhibits various characteristics, such as toxicity, corrosivity, or flammability. Some countries include biological and medical wastes as within the ambit of what is a hazardous waste; others exclude them. Some countries are beginning to experiment with different sets of management requirements for different types of wastes, depending on their degree of hazard. An important question for adjudication of a hazardous waste enforcement case is who has the burden of proving whether a waste is hazardous or not, and under what circumstances does the burden shift to the other party.

In addition to statutory bases for liability for clean-up of hazardous waste, the common law may provide remedies for parties claiming to be injured by improperly managed remedies. For example, causes of action may be sustained based on theories of nuisance, trespass, property damage, negligence, or strict liability in tort. An issue for judicial consideration however, is, when a country has adopted a comprehensive statutory scheme for regulating hazardous waste and apportioning liability for cleanup, to what extent does the statutory scheme preempt common law liability theories. The question of pre-emption will, of course, turn on the nuances of the law in each country.

Box 26 The Importance of Enforcing Hazardous Waste Regulatory Requirements

U.S. v. Elias (Idaho 2002)

Elias, the owner and operator of a Idaho fertilizer manufacturing company, ordered his employees to clean a storage tank containing cyanide and did not provide them with warnings or required protective equipment. He also directed them to dump the cyanide sludge removed from the tank onto the ground. He was convicted of knowingly endangering his employees in violation of U.S. hazardous waste laws, illegally disposing of hazardous cyanide sludge, and making false statements to government officials by falsifying and backdating a safety plan. For his crimes, he was sentenced to 17 years in prison, ordered to a victim of cyanide poisoning approximately \$6 million in restitution and EPA over \$300,000 for cleanup costs.

16.5 INTERNATIONAL LAW ON HAZARDOUS WASTE

UNEP estimates that countries worldwide generate over 400 million tons of hazardous waste each year, with OECD countries producing the largest amount of waste at around 300 million tons. Moreover, the cost of waste disposal has risen in many countries due to tighter regulatory controls. In some cases, depending on the proximity of treatment or disposal facilities that are equipped to manage a particularly waste, exporting a waste to a nearby facility may be both more economical and environmentally sound than disposing of it in a domestic facility. However, transfrontier movement of waste has also increased due to the economic advantages of exporting it to poorer countries with less stringent controls and lower public awareness of the issues.

The problem of transboundary movement of waste has been the subject of attention at the international level. Adopted in 1989, the *Basel Convention for the Control of Transboundary Movement of Hazardous Waste* establishes a global framework for controlling transboundary trade in hazardous waste and ensuring sound management of wastes that are exported and imported. In its focus on transboundary shipments, the Basel Convention and national-level implement legislation can be complementary to national laws regulating domestic management of hazardous waste. The three main goals of the Convention are: to reduce transboundary movement of hazardous wastes together, promote environmentally sound management of waste that is moved across borders; to promote treatment and disposal of hazardous waste as close as possible to its source of origin; and to promote reduction of hazardous waste generation at its source.

The Convention also creates obligations between contracting parties, most notably that each party may prohibit the importation of hazardous wastes, and that other parties must ensure that hazardous wastes

are not exported to contracting parties who have prohibited their importation. The Convention therefore sets up a system requiring prior informed consent by the importing country before hazardous waste may be exported. In addition, it requires importing countries to assure the “environmentally sound management” of hazardous wastes it imports. Further, an exporting State may not export to an importing State, even if the importing State has consented, if the first State has reason to believe that the wastes will not be managed in an environmentally sound manner. Additionally, contracting parties are not permitted to export hazardous wastes to, or import hazardous wastes from, any non-party to the Convention, unless there is an appropriate arrangement in place. An amendment to the Convention, the “Basel Ban,” was added in 1995, prohibiting the EU, OECD member states, and Liechtenstein from exporting hazardous wastes for final disposal or recycling to all States. However, the Ban Amendment has yet to enter into force.

Many African states considered the Basel Convention insufficient, and in 1998, the Organization for African Unity adopted the *Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes* within Africa to address specific regional concerns regarding hazardous waste. The provisions of the Bamako Convention generally correspond to those of the Basel Convention, with a few important distinctions. First, the Bamako Convention defines waste in a much broader context, including radioactive wastes that are subject to any international control system. Parties must also strive to apply the precautionary approach in their activities. Most importantly, Parties to the Bamako Convention commit to prohibit and criminalize the importation of all hazardous wastes, for any reason, into Africa from non-contracting parties. Additionally, it bans the dumping of hazardous wastes at sea by contracting parties or in internal waters by non-contracting parties, and it requires Parties to impose strict, unlimited liability, along with joint and several liability, on those parties that generate hazardous waste.

Box 27 Controlling the Importation of Waste

Research Foundation for Sciences, Technology and National Resource Policy v Union of India
Supreme Court of India, Writ Petition No. 657 of 1995.

According to the Additional Solicitor General, about 2,000 tons of hazardous waste was being generated in India each day due to the fact that Indian states were granting permission for the importation, generation and disposal of hazardous waste, even though they did not possess the required safe disposal sites.

Due to inaction by all concerned authorities, and in view of the magnitude of the problem and its impact, the court held that no further hazardous waste could be imported if it was banned by the Central Government or any other authority, or if it was banned under the Basel Convention. Further, the state governments and State Pollution Control Board were required to file reports within 4 weeks stating the steps taken to ensure safe disposal of hazardous waste, particularly while granting any waste import authorisation. They were also required to list any plan of action they had for tackling the problem of hazardous waste, including why any unsafe disposal sites or hazardous waste handling units were not ordered to be shut down.

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