Public purposes

The Permanent Court in the *Certain German Interests in Polish Upper Silesia* case noted that expropriation must be for 'reasons of public utility, judicial liquidation and similar measures'.[316] How far this extends is open to dispute, although it will cover wartime measures.

The issue was raised in the *BP* case,[317] where the reason for the expropriation of the BP property was the Libyan belief that the UK had encouraged Iran to occupy certain Persian Gulf Islands. The arbitrator explained that the taking violated international law, 'as it was made for purely extraneous political reasons and was arbitrary and discriminatory in character'.[318] This is ambiguous as to the public purpose issue, and in the *Liamco* case[319] it was held that 'the public utility principle is not a necessary requisite for the legality of a nationalisation'.[320] It is to be noted, however, that the 1962 General Assembly Resolution on Permanent Sovereignty over Natural Resources mentions this requirement,[321] although the 1974 Charter of Economic Rights and Duties of States does not.[322] The question may thus still be an open one,[323] although later practice suggests that general measures taken on a non-discriminatory basis for the public good would not constitute unlawful expropriation. The

[316] PCIJ, Series A, No. 7, 1926, p. 22. [317] 53 ILR, p. 297. [318] *Ibid.*, p. 329.
[319] 20 ILM, 1981, p. 1; 62 ILR, p. 141. [320] 20 ILM, 1981, pp. 58–9; 62 ILR, p. 194.
[321] Paragraph 4 of the 1962 Resolution provides that '[n]ationalization, expropriation or requisitioning shall be based on grounds or reasons of public utility, security or the national interest which are recognized as overriding purely individual or private interests, both domestic and foreign. In such cases the owner shall be paid appropriate compensation in accordance with the rules in force in the state taking such measures in the exercise of its sovereignty and in accordance with international law. In any case where the question of compensation gives rise to a controversy, the national jurisdiction of the state taking such measures shall be exhausted. However, upon agreement by sovereign states and other parties concerned, settlement of the dispute should be made through arbitration or international adjudication.'
[322] Article 2(2)c of the 1974 Charter provides that every state has the right to 'nationalise, expropriate or transfer ownership of foreign property in which case appropriate compensation should be paid by the state adopting such measures, taking into account its relevant laws and regulations and all circumstances that the state considers pertinent. In any case where the question of compensation gives rise to a controversy, it shall be settled under the domestic law of the nationalising state and by its tribunals, unless it is freely and mutually agreed by all states concerned that other peaceful means be sought on the basis of the sovereign equality of states and in accordance with the principle of free choice of means.'
[323] See also *Agip SpA* v. *The Government of the Popular Republic of the Congo* 67 ILR, pp. 319, 336–9.

Tribunal in *Santa Elena* v. *Costa Rica* took the view that international law permitted expropriation of foreign-owned property *inter alia* for a public purpose and noted that this might include a taking for environmental reasons.[324]

Compensation

The requirement often stipulated is for prompt, adequate and effective compensation, the formula used by US Secretary of State Hull on the occasion of Mexican expropriations.[325] It is the standard maintained in particular by the United States[326] and found in an increasing number of bilateral investment treaties.[327] However, case-law has been less clear. Early cases did not use the Hull formulation[328] and the 1962 Permanent Sovereignty Resolution referred to 'appropriate compensation', a phrase cited with approval by the arbitrator in the *Texaco* case[329] as a rule of customary law in view of the support it achieved. This was underlined in the *Aminoil* case,[330] where the tribunal said that the standard of 'appropriate compensation' in the 1962 resolution 'codifies positive principles'.[331] It was stated that the determination of 'appropriate compensation' was better accomplished by an inquiry into all the circumstances relevant to the particular concrete case than through abstract theoretical discussion.[332] However, while the 'appropriate compensation' formula of the 1962 resolution is linked to both national and international law, the 1974 Charter of Economic Rights and Duties of States links the formula to domestic law and considerations only. The former instrument is accepted as a reflection

[324] 39 ILM, 2000, pp. 1317, 1329. The fact that the taking was for a laudable environmental reason did not affect the duty to pay compensation, *ibid.* See also *Too* v. *Greater Modesto Insurance Associates* 23 Iran–US CTR, p. 378; *Methanex* v. *USA* 44 ILM, 2005, p. 1345 and *Saluka* v. *Czech Republic*, Partial Award, 17 March 2006.

[325] Hackworth, *Digest*, vol. III, 1940–4, p. 662. See also Muchlinski, *Multinational Enterprises*, pp. 496 ff., and E. Lauterpacht, 'Issues of Compensation and Nationality in the Taking of Energy Investments', 8 *Journal of Energy and Natural Resources Law*, 1990, p. 241.

[326] See e.g. DUSPIL, 1976, p. 444, and D. Robinson, 'Expropriation in the Restatement (Revised)', 78 AJIL, 1984, p. 176.

[327] Robinson, 'Expropriation', p. 178. See further below, p. 837.

[328] See e.g. the *Chorzów Factory* case, PCIJ, Series A, No. 17, 1928, p. 46; 4 AD, p. 268 and the *Norwegian Shipowners' Claims* case, 1 RIAA, pp. 307, 339–41 (1922). See also O. Schachter, 'Compensation for Expropriation', 78 AJIL, 1984, p. 121.

[329] 17 ILM, 1978, pp. 3, 29; 53 ILR, pp. 389, 489. See also *Banco Nacional de Cuba* v. *Chase Manhattan Bank* 658 F.2d 875 (1981); 66 ILR, p. 421.

[330] 21 ILM, 1982, p. 976; 66 ILR, p. 519.

[331] 21 ILM, 1982, p. 1032; 66 ILR, p. 601.

[332] 21 ILM, 1982, p. 1033.

of custom, while the latter is not.[333] But in any event, it is unclear whether in practice there would be a substantial difference in result.[334]

It should also be noted that section IV(1) of the World Bank Guidelines on the Treatment of Foreign Direct Investment provides that a state may not expropriate foreign private investment except where this is done in accordance with applicable legal procedures, in pursuance in good faith of a public purpose, without discrimination on the basis of nationality and against the payment of appropriate compensation. Section IV(2) notes that compensation will be deemed to be appropriate where it is adequate, prompt and effective.[335] Article 13 of the European Energy Charter Treaty, 1994 provides that expropriation must be for a purpose which is in the public interest, not discriminatory, carried out under due process of law and accompanied by the payment of prompt, adequate and effective compensation.[336]

In the sensitive process of assessing the extent of compensation, several distinct categories should be noted. There is generally little dispute about according compensation for the physical assets and other assets of the enterprise such as debts or monies due. Although there are differing methods as to how to value such assets in particular cases,[337] the essential

[333] See e.g. the *Texaco* case, 17 ILM, 1978, pp. 1, 29–31; 53 ILR, p. 489. Note that the *Third US Restatement of Foreign Relations Law*, p. 196 (para. 712), refers to the requirement of 'just compensation' and not the Hull formula. This is defined as 'an amount equivalent to the value of the property taken and to be paid at the time of taking or within a reasonable time thereafter with interest from the date of taking and in a form economically usable by the foreign national', *ibid.*, p. 197. See also Schachter, 'Compensation', p. 121.

[334] See generally also R. Dolzer, 'New Foundation of the Law of Expropriation of Alien Property', 75 AJIL, 1981, p. 533, and M. Sornarajah, 'Compensation for Expropriation', 13 *Journal of World Trade Law*, 1979, p. 108, and Sornarajah, *International Law on Foreign Investment.*

[335] 31 ILM, 1992, p. 1382. Note also that article 1110 of the North American Free Trade Agreement, 1992 (NAFTA) provides that no party shall directly or indirectly nationalise or expropriate an investment of an investor of another party in its territory or take a measure tantamount to nationalisation or expropriation except where it is for a public purpose, on a non-discriminatory basis, in accordance with due process of law and upon payment of compensation. The payment of compensation is to be the fair market value of the expropriated investment immediately before the expropriation took place and should not reflect any change in value occurring because the intended expropriation had become known earlier. Valuation criteria shall include going concern value, asset value (including declared tax value of tangible property) and other criteria, as appropriate to determine fair market value. In addition, compensation shall be paid with interest, without delay and be fully realisable. See 32 ILM, 1993, p. 605.

[336] 34 ILM, 1995, p. 391.

[337] See e.g. the *Aminoil* case, 21 ILM, 1982, pp. 976, 1038; 66 ILR, pp. 519, 608–9.

principle is that of fair market value.[338] Interest on the value of such assets will also normally be paid.[339] There is, however, disagreement with regard to the award of compensation for the loss of future profits. In *AMCO* v. *Indonesia*,[340] the Arbitral Tribunal held that:

> the full compensation of prejudice, by awarding to the injured party, the *damnum emergens* [loss suffered] and the *lucrum cessans* [expected profits] is a principle common to the main systems of municipal law, and therefore, a general principle of law which may be considered as a source of international law,

although the compensation that could be awarded would cover only direct and foreseeable prejudice and not more remote damage.[341]

In *Metalclad Corporation* v. *United Mexican States*, the Tribunal noted that normally the fair market value of a going concern which has a history of profitable operation may be based on an estimate of future profits subject to a discounted cash flow analysis,[342] but where the enterprise has not operated for a sufficiently long time to establish a performance record or where it has failed to make a profit, future profits cannot be used so that to determine the fair market value, reference instead to the actual investment made may be appropriate.[343]

However, it has been argued that one may need to take into account whether the expropriation itself was lawful or unlawful. In *INA Corporation* v. *The Islamic Republic of Iran*,[344] the Tribunal suggested that in the case of a large-scale, lawful nationalisation, 'international law has undergone

[338] Fair market value means essentially the amount that a willing buyer would pay a willing seller for the shares of a going concern, ignoring the expropriation situation completely: see e.g. *INA Corporation* v. *The Islamic Republic of Iran* 8 Iran–US CTR, pp. 373, 380; 75 ILR, p. 603.

[339] See the Memorandum of the Foreign and Commonwealth Office on the Practice of International Tribunals in Awarding Interest, UKMIL, 63 BYIL, 1992, p. 768.

[340] 24 ILM, 1985, pp. 1022, 1036–7; 89 ILR, pp. 405, 504. See also the *Chorzów Factory* case, PCIJ, Series A, No. 17, 1928; 4 AD, p. 268; the *Sapphire* case, 35 ILR, p. 136; the *Norwegian Shipowners' Claims* case, 1 RIAA, p. 307 (1922); the *Lighthouses Arbitration* 23 ILR, p. 299, and *Benvenuti and Bonfant* v. *The Government of the Popular Republic of the Congo* 67 ILR pp. 345, 375–9.

[341] 24 ILM, 1985, pp. 1022, 1037; 89 ILR, p. 505. See also *Sola Tiles Inc.* v. *Islamic Republic of Iran* 83 ILR, p. 460.

[342] 119 ILR, pp. 615, 641. See also *Benvenuti and Bonfant* v. *The Government of the Popular Republic of the Congo* 67 ILR, p. 345 and *AGIP SPA* v. *The Government of the Popular Republic of the Congo* 67 ILR, p. 318.

[343] 119 ILR, pp. 641–2. See also *Phelps Dodge Corporation* v. *Iran* 10 Iran–US CTR, 1986, pp. 121, 132–3 and *Biloune* v. *Ghana Investment Centre* 95 ILR, pp. 183, 228–9.

[344] 8 Iran–US CTR, p. 373; 75 ILR, p. 595.

a gradual reappraisal, the effect of which may be to undermine the doctrinal value of any "full" or "adequate" (when used as identical to "full") compensation standard'. However, in a situation involving an investment of a small amount shortly before the nationalisation, international law did allow for compensation in an amount equal to the fair market value of the investment.[345] However, Judge Lagergren noted that the 'fair market value' standard would normally be discounted in cases of lawful large-scale nationalisations in taking account of 'all circumstances'.[346]

In *Amoco International Finance Corporation* v. *The Islamic Republic of Iran*,[347] Chamber Three of the Iran–US Claims Tribunal held that the property in question had been lawfully expropriated and that 'a clear distinction must be made between lawful and unlawful expropriations, since the rules applicable to the compensation to be paid by the expropriating state differ according to the legal characterisation of the taking'.[348] In the case of an unlawful taking, full restitution in kind or its monetary equivalent was required in order to re-establish the situation which would in all probability have existed if the expropriation had not occurred,[349] while in the case of lawful taking, the standard was the payment of the full value of the undertaking at the moment of dispossession. The difference was interpreted by the Tribunal to mean that compensation for lost profits was only available in cases of wrongful expropriation. As far as the actual method of valuation was concerned, the Tribunal rejected the 'discounted cash flow' method, which would involve the estimation of the likely future earnings of the company at the valuation date and discounting such earnings to take account of reasonably foreseeable risks, since it was likely to amount to restitution as well as being too speculative.[350]

Bilateral investment treaties

In practice, many of the situations involving commercial relations between states and private parties fall within the framework of bilateral

[345] 8 Iran–US CTR, p. 378; 75 ILR, p. 602.
[346] 8 Iran–US CTR, p. 390; 75 ILR, p. 614.
[347] 15 Iran–US CTR, pp. 189, 246–52; 83 ILR, p. 500.
[348] 15 Iran–US CTR, p. 246; 83 ILR, p. 565.
[349] See also Judge Lagergren's Separate Opinion in *INA Corporation* v. *The Islamic Republic of Iran* 8 Iran–US CTR, p. 385; 75 ILR, p. 609.
[350] But see e.g. *AIG* v. *The Islamic Republic of Iran* 4 Iran–US CTR, pp. 96, 109–10, where in a case of lawful expropriation lost profits were awarded. See also Brownlie, *Principles*, pp. 508 ff.; Section IV of the World Bank Guidelines, and article 13 of the European Energy Charter Treaty, 1994.

agreements.[351] These arrangements are intended to encourage investment in a way that protects the basic interests of both the capital-exporting and capital-importing states. Indeed, there has been a remarkable expansion in the number of such bilateral investment treaties.[352] The British government, for example, has stated that it is policy to conclude as many such agreements as possible in order to stimulate investment flows. It has also been noted that they are designed to set standards applicable in international law.[353] The provisions of such agreements indeed are remarkably uniform and constitute valuable state practice.[354] While normally great care has to be taken in inferring the existence of a rule of customary international law from a range of bilateral treaties, the very number and uniformity of such agreements make them significant exemplars.

Some of these common features of such treaties may be noted. First, the concept of an investment is invariably broadly defined. In article 1(a) of the important UK–USSR bilateral investment treaty, 1989,[355] for example, it is provided that:

[351] See e.g. Lowenfeld, *International Economic Law*, pp. 554 ff.; E. Denza and D. Brooks, 'Investment Protection Treaties: United Kingdom Experience', 36 ICLQ, 1987, p. 908; A. Akinsanya, 'International Protection of Direct Foreign Investments in the Third World', 36 ICLQ, 1987, p. 58; F. A. Mann, 'British Treaties for the Promotion and Protection of Investments', 52 BYIL, 1981, p. 241; D. Vagts, 'Foreign Investment Risk Reconsidered: The View From the 1980s', 2 *ICSID Review – Foreign Investment Law Journal*, 1987, p. 1; P. B. Gann, 'The US Bilateral Investment Treaties Program', 21 *Stanford Journal of International Law*, 1986, p. 373, and I. Pogany, 'The Regulation of Foreign Investment in Hungary', 4 *ICSID Review – Foreign Investment Law Journal*, 1989, p. 39. See also J. Kokott, 'Interim Report on the Role of Diplomatic Protection in the Field of the Protection of Foreign Investment', International Law Association, Report of the Seventieth Conference, New Delhi, 2002, p. 259, and C. McLachlan, 'Investment Treaties and General International Law', 57 ICLQ, 2008, p. 361.

[352] Kokott estimates that close to 2,000 are in existence, 'Interim Report', p. 263. See, for earlier figures, 35 ILM, 1996, p. 1130; Denza and Brooks, 'Investment Protection Treaties', p. 913, and UKMIL, 58 BYIL, 1987, p. 621. Lowenfeld estimates that as of 2006, some 2,400 to 2,600 bilateral investment treaties were in effect, *International Economic Law*, p. 554.

[353] See the text of the Foreign Office statement in UKMIL, 58 BYIL, 1987, p. 620. Such agreements are in UK practice usually termed investment promotion and protection agreements (IPPAs). In March 2000, it was stated that the UK had entered into ninety-three such treaties, UKMIL, 71 BYIL, 2000, p. 606.

[354] See Kokott, 'Interim Report', p. 263. See also R. Dolzer, 'New Foundations of the Law of Expropriation of Alien Property', 75 AJIL, 1981, pp. 553, 565–6, and B. Kishoiyian, 'The Utility of Bilateral Investment Treaties in the Formulation of Customary International Law', 14 *Netherlands Journal of International Law and Business*, 1994, p. 327.

[355] Text reproduced in 29 ILM, 1989, p. 366.

> the term 'investment' means every kind of asset and in particular, though not exclusively, includes:
>
> (i) movable and immovable property and any other related property rights such as mortgages;
> (ii) shares in, and stocks, bonds and debentures of, and any other form of participation in, a company or business enterprise;
> (iii) claims to money, and claims to performance under contract having a financial value;
> (iv) intellectual property rights, technical processes, know-how and any other benefit or advantage attached to a business;
> (v) rights conferred by law or under contract to undertake any commercial activity, including the search for, or the cultivation, extraction or exploitation of natural resources.[356]

Secondly, both parties undertake to encourage and create favourable conditions for investment, to accord such investments 'fair and equitable treatment' and to refrain from impairing by unreasonable or discriminatory measures the management, maintenance, use, enjoyment or disposal of investments in its territory.[357] Thirdly, investments by the contracting parties are not to be treated less favourably than those of other states.[358] As far as expropriation is concerned, article 5 of the UK–USSR agreement, by way of example, provides that investments of the contracting parties are not to be expropriated:

> except for a purpose which is in the public interest and is not discriminatory and against the payment, without delay, of prompt and effective compensation. Such compensation shall amount to the real value of the investment expropriated immediately before the expropriation or before the impending expropriation became public knowledge, whichever is the earlier, shall be made within two months of the date of expropriation, after which interest at a normal commercial rate shall accrue until the date of payment and shall be effectively realisable and be freely transferable. The investor affected shall have a right under the law of the contracting state making the expropriation, to prompt review, by a judicial or other independent authority of that party, of his or its case and of the valuation of his or its investment in accordance with the principles set out in this paragraph.

[356] See also, for example, the similar provisions in the UK–Philippines Investment Agreement, 1981 and the UK–Hungary Investment Agreement, 1987. See also article 1(6) of the European Energy Charter Treaty, 1994.
[357] See e.g. article 2 of the UK–USSR agreement.
[358] See e.g. article 3 of the UK–USSR agreement.

Such practice confirms the traditional principles dealing with the conditions of a lawful expropriation and compensation, noting also the acceptance of the jurisdiction of the expropriating state over the issues of the legality of the expropriation and the valuation of the property expropriated.[359] An attempt to produce a Multilateral Agreement on Investment commenced in 1995 within the framework of the Organisation of Economic Co-operation and Development, but foundered in 1998.[360]

Lump-sum agreements

Many disputes over expropriation of foreign property have in fact been resolved directly by the states concerned on the basis of lump-sum settlements, usually after protracted negotiations and invariably at valuation below the current value of the assets concerned.[361] For example, the UK–USSR Agreement on the Settlement of Mutual Financial and Property Claims, 1986[362] dealt with UK government claims of the order of £500 million in respect of Russian war debt and private claims of British nationals amounting to some £400 million.[363] In the event, a sum in the region of £45 million was made available to satisfy these claims.[364] The

[359] Note that provisions for compensation for expropriation may also be contained in Treaties of Friendship, Commerce and Navigation as part of a framework arrangement dealing with foreign trade and investment: see e.g. article IV(3) of the Convention of Establishment, 1959 between the US and France, 11 UST 2398.

[360] See e.g. S. J. Canner, 'The Multilateral Agreement on Investment', 31 *Cornell International Law Journal*, 1998, p. 657; A. Böhmer, 'The Struggle for a Multilateral Agreement on Investment – An Assessment of the Negotiation Process in the OECD', 41 German YIL, 1998, p. 267, and T. Waelde, 'Multilateral Investment Agreements (MITs) in the Year 2000' in *Mélanges Philippe Kahn*, Paris, 2000, p. 389. See also www.oecd.org/EN/document/0,,EN-document-92–3-no-6–27308–92,00.html. Discussions on investment continue within the framework of the World Trade Organisation: see www.wto.org/english/tratop_e/invest_e/invest_e.htm.

[361] See e.g. Lillich and Weston, *International Claims: Their Settlement by Lump-Sum Agreements*, and Lillich and Weston, 'Lump-Sum Agreements: Their Continuing Contribution to the Law of International Claims', 82 AJIL, 1988, p. 69. See also D. J. Bederman, 'Interim Report on Lump Sum Agreements and Diplomatic Protection', International Law Association, Report of the Seventieth Conference, New Delhi, 2002, p. 230.

[362] Cm 30. Note that this agreement dealt with claims arising before 1939.

[363] As against these claims, the USSR had made extensive claims in the region of £2 billion in respect of alleged losses caused by British intervention in the USSR between 1918 and 1921: see UKMIL, 57 BYIL, 1986, p. 606.

[364] The British government waived its entitlement to a share in the settlement in respect of its own claims, *ibid.*, p. 608.

Agreement also provided that money held in diplomatic bank accounts in the UK belonging to the pre-revolutionary Russian Embassy, amounting to some £2.65 million, was released to the Soviet authorities. As is usual in such agreements, each government was solely responsible for settling the claims of its nationals.[365] This was accomplished in the UK through the medium of the Foreign Compensation Commission, which acts to distribute settlement sums 'as may seem just and equitable to them having regard to all the circumstances'. A distinction was made as between bond and property claims and principles enunciated with regard to exchange rates at the relevant time.[366]

The question arises thus as to whether such agreements constitute state practice in the context of international customary rules concerning the level of compensation required upon an expropriation of foreign property. A Chamber of the Iran–US Claims Tribunal in *SEDCO* v. *National Iranian Oil Co.*[367] noted that deriving general principles of law from the conduct of states in lump-sum or negotiated settlements in other expropriation cases was difficult because of the 'questionable evidentiary value . . . of much of the practice available'. This was because such settlements were often motivated primarily by non-juridical considerations. The Chamber also held incidentally that bilateral investment treaties were also unreliable evidence of international customary standards of compensation. Views differ as to the value to be attributed to such practice,[368] but caution is required before accepting bilateral investment treaties and lump-sum agreements as evidence of customary law. This is particularly so with regard to the latter since they deal with specific situations rather than laying down a framework for future activity.[369] Nevertheless, it would be equally unwise to disregard them entirely. As with all examples of state practice and behaviour, careful attention must be paid to all the relevant circumstances both of the practice maintained and the principle under consideration.

[365] See also the UK–China Agreement on the Settlement of Property Claims 1987, UKMIL, 58 BYIL, 1987, p. 626.

[366] See, with respect to the UK–USSR agreement, the Foreign Compensation (USSR) (Registration and Determination of Claims) Order 1986, SI 1986/2222 and the Foreign Compensation (USSR) (Distribution) Order 1987.

[367] 10 Iran–US CTR, pp. 180, 185; 80 AJIL, 1986, p. 969.

[368] See e.g. Bowett, 'State Contracts with Aliens', pp. 65–6.

[369] Note the view of the International Court in the *Barcelona Traction* case that such settlements were *sui generis* and provided no guide as to general international practice, ICJ Reports, 1969, pp. 4, 40.

Non-discrimination

It has been argued that non-discrimination is a requirement for a valid and lawful expropriation.[370] Although it is not mentioned in the 1962 resolution, the arbitrator in the *Liamco*[371] case strongly argued that a discriminatory nationalisation would be unlawful.[372] Nevertheless, in that case, it was held that Libya's action against certain oil companies was aimed at preserving its ownership of the oil and was non-discriminatory. Indeed, the arbitrator noted that the political motive itself was not the predominant motive for nationalisation and would not *per se* constitute sufficient proof of a purely discriminatory measure.[373] While the discrimination factor would certainly be a relevant factor to be considered, it would in practice often be extremely difficult to prove in concrete cases.

The Multilateral Investment Guarantee Agency[374]

One approach to the question of foreign investment and the balancing of the interests of the states concerned is provided by the Convention Establishing the Multilateral Investment Guarantee Agency, 1985, which came into force in 1988.[375] This Agency is part of the World Bank group and offers political risk insurance (guarantees) to investors and lenders. Membership is open to all members of the World Bank. Article 2 provides that the purpose of the Agency, which is an affiliate of the World Bank, is to encourage the flow of investment for productive purposes among member countries and, in particular, to developing countries. This is to be achieved in essence by the provision of insurance cover 'against non-commercial risks', such as restrictions on the transfer of currency, measures of expropriation, breaches of government contracts and losses resulting from war or civil disturbances.[376]

[370] See e.g. White, *Nationalisation*, pp. 119 ff. See also A. Maniruzzaman, 'Expropriation of Alien Property and the Principle of Non-Discrimination in the International Law of Foreign Investment', 8 *Journal of Transnational Law and Policy*, 1999, p. 141.

[371] 20 ILM, 1981, p. 1; 62 ILR, p. 141. [372] 20 ILM, 1981, pp. 58–9; 62 ILR, p. 194.

[373] 20 ILM, 1981, p. 60. See also Section IV of the World Bank Guidelines on the Treatment of Foreign Direct Investment, and article 13 of the European Energy Charter Treaty, 1994.

[374] See e.g. S. K. Chatterjee, 'The Convention Establishing the Multilateral Investment Guarantee Agency', 36 ICLQ, 1987, p. 76, and I. Shihata, *The Multilateral Investment Guarantee Agency and Foreign Investment*, Dordrecht, 1987. The Convention came into force on 12 April 1988: see 28 ILM, 1989, p. 1233 and see also www.miga.org/.

[375] See e.g. the UK Multilateral Investment Guarantee Agency Act 1988.

[376] Article 11.

It is also intended that the Agency would positively encourage investment by means of research and the dissemination of information on investment opportunities. It may very well be that this initiative could in the long term reduce the sensitive nature of the expropriation mechanism.

Suggestions for further reading

I. Brownlie, *System of the Law of Nations: State Responsibility, Part I*, Oxford, 1983

J. Crawford, *The International Law Commission's Articles on State Responsibility*, Cambridge, 2002

W. K. Geck, 'Diplomatic Protection' in *Encyclopedia of Public International Law* (ed. R. Bernhardt), Amsterdam, 1992, vol. X, p. 1053

C. Gray, *Judicial Remedies in International Law*, Oxford, 1987

International Responsibility Today: Essays in Memory of Oscar Schachter (ed. M. Ragazzi), The Hague, 2005

'Symposium: The ILC's State Responsibility Articles', 96 AJIL, 2002, p. 773

15

International environmental law

Recent years have seen an appreciable growth in the level of understanding of the dangers facing the international environment[1] and an extensive range of environmental problems is now the subject of serious international concern.[2] These include atmospheric pollution, marine pollution,

[1] See generally P. Birnie and A. Boyle, *International Law and the Environment*, 2nd edn, Oxford, 2002; C. Redgwell, *Intergenerational Trusts and Environmental Protection*, Manchester, 1999; P. Sands, *Principles of International Environmental Law*, Manchester, 2nd edn, 2003; E. Benvenisti, *Sharing Transboundary Resources*, Cambridge, 2002; M. Bothe and P. Sand, *La Politique de l'Environnement: De la Réglementation aux Instruments Économique*, The Hague, 2003; *The Oxford Handbook of International Environmental Law* (eds. D. Bodansky, J. Brunee and E. Hay), Oxford, 2007; R. Romi, *Droit International et Européen de l'Environnement*, Paris, 2005; R. Wolfrum and N. Matz, *Conflicts in International Environmental Law*, Berlin, 2003; A. Kiss and J.-P. Beurier, *Droit International de l'Environnement*, 3rd edn, Paris, 2004; A. Kiss and D. Shelton, *A Guide to International Environmental Law*, The Hague, 2007, and Kiss, 'International Protection of the Environment' in *The Structure and Process of International Law* (eds. R. St J. Macdonald and D. Johnston), The Hague, 1983, p. 1069; J. Barros and D. M. Johnston, *The International Law of Pollution*, New York, 1974; *International Environmental Law* (eds. L. Teclaff and A. Utton), New York, 1974; *Trends in Environmental Policy and Law* (ed. M. Bothe), Gland, 1980; Hague Academy of International Law Colloque 1973, *The Protection of the Environment and International Law* (ed. A. Kiss); *ibid.*, Colloque 1984, *The Future of the International Law of the Environment* (ed. R. J. Dupuy); J. Schneider, *World Public Order of the Environment*, Toronto, 1979; *International Environmental Law* (eds. C. D. Gurumatry, G. W. R. Palmer and B. Weston), St Paul, 1994; E. Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony and Intergenerational Equity*, Dobbs Ferry, 1989; A. Boyle, 'Nuclear Energy and International Law: An Environmental Perspective', 60 BYIL, 1989, p. 257, and Nguyen Quoc Dinh, P. Daillier and A. Pellet, *Droit International Public*, 7th edn, Paris, 2002, p. 1269. See also *Selected Multilateral Treaties in the Field of the Environment*, Cambridge, 2 vols., 1991; A. O. Adede, *International Environmental Law Digest*, Amsterdam, 1993, and P. Sands and P. Galizzi, *Documents in International Environmental Law*, Manchester, 2nd edn, 2003.

[2] This may be measured by the fact that in July 1993, the International Court of Justice established a special Chamber to deal with environmental questions. It has as yet heard no cases. See R. Ranjeva, 'L'Environnement, La Cour Internationale de Justice et sa Chambre Spéciale pour les Questions d'Environnement', AFDI, 1994, p. 433. Note also the Environmental Annex (Annex IV) to the Israel–Jordan Peace Treaty, 1995 and article 18 of the Treaty, 34 ILM, 1995, p. 43. See also Annex II on Water Related Matters.

global warming and ozone depletion, the dangers of nuclear and other extra-hazardous substances and threatened wildlife species.[3] Such problems have an international dimension in two obvious respects. First, pollution generated from within a particular state often has a serious impact upon other countries. The prime example would be acid rain, whereby chemicals emitted from factories rise in the atmosphere and react with water and sunlight to form acids. These are carried in the wind and fall eventually to earth in the rain, often thousands of miles away from the initial polluting event. Secondly, it is now apparent that environmental problems cannot be resolved by states acting individually. Accordingly, co-operation between the polluting and the polluted state is necessitated. However, the issue becomes more complicated in those cases where it is quite impossible to determine from which country a particular form of environmental pollution has emanated. This would be the case, for example, with ozone depletion. In other words, the international nature of pollution, both with regard to its creation and the damage caused, is now accepted as requiring an international response.

The initial conceptual problem posed for international law lies in the state-oriented nature of the discipline. Traditionally, a state would only be responsible in the international legal sense for damage caused where it could be clearly demonstrated that this resulted from its own unlawful activity.[4] This has proved to be an inadequate framework for dealing with environmental issues for a variety of reasons, ranging from difficulties of proof to liability for lawful activities and the particular question of responsibility of non-state offenders. Accordingly, the international community has slowly been moving away from the classic state responsibility approach to damage caused towards a regime of international co-operation.

A broad range of international participants are concerned with developments in this field. States, of course, as the dominant subjects of the international legal system are deeply involved, as are an increasing number of international organisations, whether at the global, regional or bilateral level. The United Nations General Assembly has adopted a

[3] See, as to endangered species, e.g. M. Carwardine, *The WWF Environment Handbook*, London, 1990, and S. Lyster, *International Wildlife Law*, Cambridge, 1985. See also the Convention on International Trade in Endangered Species, 1973 covering animals and plants, and the Convention on Biological Diversity, 1992, which *inter alia* calls upon parties to promote priority access on a fair and equitable basis by all parties, especially developing countries, to the results and benefits arising from biotechnologies based upon genetic resources provided by contracting parties.

[4] See further above, chapter 14.

number of resolutions concerning the environment,[5] and the UN Environment Programme was established after the Stockholm Conference of 1972. This has proved a particularly important organisation in the evolution of conventions and instruments in the field of environmental protection. It is based in Nairobi and consists of a Governing Council of fifty-eight members elected by the General Assembly. UNEP has been responsible for the development of a number of initiatives, including the 1985 Vienna Convention for the Protection of the Ozone Layer and the 1987 Montreal Protocol and the 1992 Convention on Biodiversity.[6] An Inter-Agency Committee on Sustainable Development was set up in 1992 to improve co-operation between the various UN bodies concerned with this topic. In the same year, the UN Commission on Sustainable Development was established by the General Assembly and the Economic and Social Council of the UN (ECOSOC). It consists of fifty-three states elected by ECOSOC for three-year terms and it exists in order to follow up the UN Conference on Environment and Development 1992.[7] The techniques of supervision utilised in international bodies include reporting,[8] inspection[9] and standard-setting through the adoption of conventions, regulations, guidelines and so forth. In 1994 it was agreed to transform the Global Environment Facility from a three-year pilot programme[10] into a permanent financial mechanism to award grants and concessional funds to developing countries for global environmental protection projects.[11] The Facility focuses upon climate change, the destruction of biological diversity, the pollution of international waters and ozone depletion. Issues of land-degradation[12] also fall within this framework.[13] In addition, a wide range of non-governmental organisations are also concerned with environmental issues.

[5] See e.g. resolutions 2398 (XXII); 2997 (XXVII); 34/188; 35/8; 37/137; 37/250; 42/187; 44/244; 44/228; 45/212 and 47/188.

[6] See generally www.unep.org/.

[7] See generally www.un.org/esa/sustdev/csd.htm.

[8] As e.g. under the Prevention of Marine Pollution from Land-Based Sources Convention, 1974 and the Basle Convention on the Control of Transboundary Movements of Hazardous Wastes, 1989.

[9] See e.g. the Antarctic Treaty, 1959 and the Protocol on Environmental Protection, 1991. See, with regard to the International Whaling Commission, P. Birnie, *International Regulation of Whaling*, New York, 1985, p. 199.

[10] See 30 ILM, 1991, p. 1735.

[11] See 33 ILM, 1994, p. 1273.

[12] See also the UN Convention to Combat Desertification, 1994, *ibid.*, p. 1328.

[13] See generally www.gefweb.org/.

It has been argued that there now exists an international human right to a clean environment.[14] There are, of course, a range of general human rights provisions that may have a relevance in the field of environmental protection, such as the right to life, right to an adequate standard of living, right to health, right to food and so forth, but specific references to a human right to a clean environment have tended to be few and ambiguous. The preamble to the seminal Stockholm Declaration of the UN Conference on the Human Environment 1972 noted that the environment was 'essential to . . . the enjoyment of basic human rights – even the right to life itself', while Principle 1 stated that 'Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being.' Article 24 of the African Charter of Human and Peoples' Rights, 1981 provided that 'all people shall have the right to a general satisfactory environment favourable to their development', while article 11 of the Additional Protocol to the American Convention on Human Rights, 1988 declared that 'everyone shall have the right to live in a healthy environment' and that 'the states parties shall promote the protection, preservation and improvement of the environment'. Article 29 of the Convention on the Rights of the Child, 1989 explicitly referred to the need for the education of the child to be directed *inter alia* to 'the development of respect for the natural environment'.

The final text of the Conference on Security and Co-operation in Europe (CSCE) meeting on the environment in Sofia in 1989 reaffirmed respect for the right of individuals, groups and organisations concerned with the environment to express freely their views, to associate with others and assemble peacefully, to obtain and distribute relevant information and to participate in public debates on environmental issues.[15] It should also be noted that the Convention on Environmental Impact Assessment in a Transboundary Context, 1991 calls for the 'establishment

[14] See, for example, M. Pallemaerts, 'International Environmental Law from Stockholm to Rio: Back to the Future?' in *Greening International Law* (ed. P. Sands), London, 1993, pp. 1, 8; *Environnement et Droits de l'Homme* (ed. P. Kromarek), Paris, 1987; G. Alfredsson and A. Ovsiouk, 'Human Rights and the Environment', 60 *Nordic Journal of International Law*, 1991, p. 19; W. P. Gormley, *Human Rights and Environment*, Leiden, 1976; *Human Rights and Environmental Protection* (ed. A. Cançado Trindade), 1992; D. Shelton, 'Whatever Happened in Rio to Human Rights?', 3 *Yearbook of International Environmental Law*, 1992, p. 75; Birnie and Boyle, *International Law and the Environment*, pp. 252 ff., and *Human Rights Approaches to Environmental Protection* (eds. M. Anderson and A. E. Boyle), Oxford, 1996. See also M. Déjeant-Pons and M. Pallemaerts, *Human Rights and the Environment*, Council of Europe, 2002.

[15] CSCE/SEM.36. See also EC Directive 90/313, 1990.

of an environmental impact assessment procedure that permits public participation' in certain circumstances.

However, the references to human rights in the Rio Declaration on Environment and Development adopted at the UN Conference on Environment and Development in 1992[16] are rather sparse. Principle 1 declares that human beings are 'at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.' Beyond this tangential reference, human rights concerns were not, it is fair to say, at the centre of the documentation produced by the 1992 conference. In fact, it is fair to say that the focus of the conference was rather upon states and their sovereign rights than upon individuals and their rights.

Nevertheless, moves to associate the two areas of international law are progressing cautiously. In 1994, the final report on Human Rights and the Environment was delivered to the UN Sub-Commission on Prevention of Discrimination and Protection of Minorities (as it was then called).[17] The Report contains a set of Draft Principles on Human Rights and the Environment, which includes the notion that 'human rights, an ecologically sound environment, sustainable development and peace are interdependent and indivisible' and that 'all persons have the right to a secure, healthy and ecologically sound environment. This right and other human rights, including civil, cultural, economic, political and social rights, are universal, interdependent and indivisible.' It remains to be seen whether this initiative will bear fruit.[18] The Institut de Droit International, a private but influential association, adopted a resolution on the environment at its Strasbourg Session in September 1997. Article 2 of this noted that 'Every human being has the right to live in a healthy environment'.[19]

An important stage has been reached with the adoption of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998,[20] which

[16] See generally, as to the Rio Conference, S. Johnson, *The Earth Summit*, Dordrecht, 1993.

[17] E/CN.4/Sub.2/1994/9.

[18] Note also the European Charter on Environment and Health, 1989 and the Dublin Declaration on the Environmental Imperative adopted by the European Council, 1990.

[19] See also L. Loucaides, 'Environmental Protection through the Jurisprudence of the European Convention on Human Rights', 75 BYIL, 2004, p. 249.

[20] Adopted through the United Nations Economic Commission for Europe. The Convention came into force on 30 October 2001, see generally www.unece.org/env/pp/, and the first meeting of states parties took place in October 2002. Note that governments accepted in January 2003 a Protocol which obliges companies to register annually their releases into

explicitly links human rights and the environment and recognises that 'adequate protection of the environment is essential to human well-being and the enjoyment of basic human rights, including the right to life itself'. Article 1 provides that each contracting party 'shall guarantee the rights of access to information, public participation in decision-making and access to justice in environmental matters' and thereby marks the acceptance by parties of obligations towards their own citizens. Article 9 stipulates that parties should establish a review procedure before a court of law or other independent and impartial body for any persons who consider that their request for information has not been properly addressed, and article 15 provides that 'optional arrangements of a non-confrontational, non-judicial and consultative status' should be established for reviewing compliance with the Convention. Such arrangements are to allow for appropriate public involvement 'and may include the option of considering communications from members of the public on matters relating to this Convention'. Decision 1/7 adopted on 30 October 2002 set up an eight-member Compliance Committee to consider submissions made with regard to allegations of non-compliance with the Convention by one party against another or by members of the public against any contracting party unless that party has opted out of the procedure within one year of becoming a party. The Committee may also prepare a report on compliance with or implementation of the provisions of the Convention and monitor, assess and facilitate the implementation of and compliance with the reporting requirements made under article 10, paragraph 2, of the Convention and specified in Decision 1/8.[21]

The question of the relationship between the protection of the environment and the need for economic development is another factor underpinning the evolution of environmental law. States that are currently attempting to industrialise face the problem that to do so in an environmentally safe way is very expensive and the resources that can be devoted to this are extremely limited. The Stockholm Declaration of the United Nations Conference on the Human Environment 1972 emphasised in Principle 8 that 'economic and social development is essential for ensuring a favourable living and working environment for man and for creating

the environment and transfer to other companies of certain pollutants. This information will then appear in the Pollutant Release and Transfer Register.

[21] See generally R. R. Churchill and G. Uffstein, 'Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law', 94 AJIL, 2000, p. 623.

conditions on earth that are necessary for the improvement of the quality of life', while the sovereign right of states to exploit their own resources was also stressed.[22] Principle 2 of the Rio Declaration, adopted at the United Nations Conference on Environment and Development 1992, noted that states have 'the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies', while Principle 3 stated that 'the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations'. The correct balance between development and environmental protection is now one of the main challenges facing the international community and reflects the competing interests posed by the principle of state sovereignty on the one hand and the need for international co-operation on the other. It also raises the issue as to how far one takes into account the legacy for future generations of activities conducted at the present time or currently planned. Many developmental activities, such as the creation of nuclear power plants for example, may have significant repercussions for many generations to come.[23] The Energy Charter Treaty[24] signed at Lisbon in 1994 by OECD and Eastern European and CIS states refers to environmental issues in the context of energy concerns in a rather less than robust fashion. Article 19 notes that contracting parties 'shall strive to minimise in an economically efficient manner harmful environmental impacts'. In so doing, parties are to act 'in a cost-effective manner'. Parties are to 'strive to take precautionary measures to prevent or minimise environmental degradation' and agree that the polluter should 'in principle, bear the cost of pollution, including transboundary pollution, with due regard to the public interest and without distorting investment in the energy cycle or international trade'.

[22] Principle 21. See also S. P. Subedi, 'Balancing International Trade with Environmental Protection', 25 *Brooklyn Journal of International Law*, 1999, p. 373; T. Schoenbaum, 'International Trade and Protection of the Environment', 91 AJIL, 1997, p. 268, and N. Bernasconi-Osterwalder, D. Magraw, M. J. Oliva, M. Orellana and E. Tuerk, *Environment and Trade: A Guide to WTO Jurisprudence*, London, 2006. Note the OECD Declaration on Integrating Climate Change Adaptation into Development Cooperation, 2006.

[23] See e.g. A. D'Amato, 'Do We Owe a Duty to Future Generations to Preserve the Global Environment?', 84 AJIL, 1990, p. 190; Sands, *Principles*, p. 199; E. Weiss, 'Our Rights and Obligations to Future Generations for the Environment', 84 AJIL, 1990, p. 198, and Weiss, *Intergenerational Equity.* See also *Minors Oposa* v. *Secretary of the Department of Environment and Natural Resources*, Supreme Court of the Philippines, 33 ILM, 1994, pp. 173, 185, and Judge Weeramantry's Dissenting Opinion in the *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Nuclear Tests Case*, ICJ Reports, 1995, pp. 288, 341; 106 ILR, pp. 1, 63.

[24] 33 ILM, 1995, p. 360.

One potentially innovative method for linking economic underdevelopment and protection of the environment is the 'debt for nature swaps' arrangement, whereby debts owed abroad may be converted into an obligation upon the debtor state to spend the amount of the debt upon local environment projects.[25]

State responsibility and the environment[26]

The basic duty of states

The principles of state responsibility[27] dictate that states are accountable for breaches of international law. Such breaches of treaty or customary international law enable the injured state to maintain a claim against the violating state, whether by way of diplomatic action or by way of recourse to international mechanisms where such are in place with regard to the subject matter at issue. Recourse to international arbitration or to the International Court of Justice is also possible provided the necessary jurisdictional basis has been established. Customary international law imposes several important fundamental obligations upon states in the area of environmental protection. The view that international law supports an approach predicated upon absolute territorial sovereignty, so that a state could do as it liked irrespective of the consequences upon other states, has long been discredited. The basic duty upon states is not so to act as to injure the rights of other states.[28] This duty has evolved partly out of the regime concerned with international waterways. In the *International Commission on the River Oder* case,[29] for example, the Permanent Court of International Justice noted that 'this community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian states in the use of the whole course of the river and the exclusion of any preferential privileges

[25] See e.g. F. G. Minujin, 'Debt-for-Nature Swops: A Financial Mechanism to Reduce Debt and Preserve the Environment', 21 *Environmental Policy and Law*, 1991, p. 146, and S. George, *The Debt Boomerang*, London, 1992, pp. 30–1.

[26] See e.g. B. D. Smith, *State Responsibility and the Marine Environment*, Oxford, 1988. See also R. Lefeber, *Transboundary Environmental Interference and the Origin of State Liability*, Dordrecht, 1996.

[27] See further above, chapter 14.

[28] See the doctrine expressed by Judson Harmon, Attorney-General of the United States in 1895, 21 *Op. Att'y. Gen.* 274, 283 (1895), cited in V. P. Nanda, *International Environmental Law and Policy*, New York, 1995, pp. 155–6.

[29] PCIJ, Series A, No. 23 (1929); 5 AD, p. 83.

of any riparian state in relation to others'.[30] But the principle is of far wider application. It was held in the *Island of Palmas* case[31] that the concept of territorial sovereignty incorporated an obligation to protect within the territory the rights of other states.

In the *Trail Smelter* arbitration,[32] the Tribunal was concerned with a dispute between Canada and the United States over sulphur dioxide pollution from a Canadian smelter, built in a valley shared by British Columbia and the state of Washington, which damaged trees and crops on the American side of the border. The Tribunal noted that:

> under principles of international law, as well as the law of the United States, no state has the right to use or permit the use of 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.[33]

The International Court reinforced this approach, by emphasising in the *Corfu Channel* case[34] that it was the obligation of every state 'not to allow knowingly its territory to be used for acts contrary to the rights of other states'.[35] The Court also noted in the *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Nuclear Tests Case 1974* case in 1995, that its conclusion with regard to French nuclear testing in the Pacific was 'without prejudice to the obligations of states to respect and protect the environment'.[36] In addition, in its Advisory Opinion to the UN General Assembly on the *Legality of the Threat or Use of Nuclear Weapons*, the Court declared that 'the existence of the general obligation of states to ensure that activities within their jurisdiction and control respect

[30] PCIJ, Series A, No. 23 (1929), p. 27; 5 AD, p. 84. See also the case concerning the *Auditing of Accounts between the Netherlands and France*, arbitral award of 12 March 2004, para. 97.

[31] 2 RIAA, pp. 829, 839 (1928).

[32] See 33 AJIL, 1939, p. 182 and 35 AJIL, 1941, p. 684; 9 AD, p. 315. See also J. E. Read, 'The Trail Smelter Arbitration', 1 Canadian YIL, 1963, p. 213; R. Kirgis, 'Technological Challenge of the Shared Environment: US Practice', 66 AJIL, 1974, p. 291, and L. Goldie, 'A General View of International Environmental Law – A Survey of Capabilities, Trends and Limits' in *Hague Colloque 1973*, pp. 26, 66–9.

[33] 35 AJIL, 1941, p. 716; 9 AD, p. 317. Canada invoked the *Trail Smelter* principle against the United States when an oil spill at Cherry Point, Washington, resulted in contamination of beaches in British Columbia: see 11 Canadian YIL, 1973, p. 333.

[34] ICJ Reports, 1949, pp. 4, 22; 16 AD, pp. 155, 158.

[35] See also the Dissenting Opinion of Judge de Castro in the *Nuclear Tests* case, ICJ Reports, 1974, pp. 253, 388; 57 ILR, pp. 350, 533, and the *Lac Lanoux* case, 24 ILR, p. 101.

[36] ICJ Reports, 1995, pp. 288, 306; 106 ILR, pp. 1, 28.

the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment'.[37]

This judicial approach has now been widely reaffirmed in international instruments. Article 192 of the Law of the Sea Convention, 1982 provides that 'states have the obligation to protect and preserve the marine environment', while article 194 notes that 'states shall take all measures necessary to ensure that activities under their jurisdiction and control are so conducted as not to cause damage by pollution to other states and their environment'.[38] The shift of focus from the state alone to a wider perspective including the high seas, deep seabed and outer space is a noticeable development.[39]

It is, however, Principle 21 of the Stockholm Declaration of 1972 that is of especial significance. It stipulates that, in addition to the sovereign right to exploit their own resources pursuant to their own environmental policies, 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'. Although a relatively modest formulation repeated in Principle 2 of the Rio Declaration 1992 (with the addition of a reference to developmental policies), it has been seen as an important turning-point in the development of international environmental law.[40] Several issues of importance are raised in the formulation contained in Principle 21 and to those we now turn.

The appropriate standard

It is sometimes argued that the appropriate standard for the conduct of states in this field is that of strict liability. In other words, states are under an absolute obligation to prevent pollution and are thus liable for its effects irrespective of fault.[41] While the advantage of this is the increased

[37] ICJ Reports, 1996, para. 29; 35 ILM, 1996, pp. 809, 821. See also the *Gabčíkovo–Nagymaros Project* case, ICJ Reports, 1997, pp. 6, 67; 116 ILR, p. 1.

[38] See also Principle 3 of the UN Environment Programme Principles of Conduct in the Field of the Environment concerning Resources Shared by Two or More States, 1978; the Charter of Economic Rights and Duties of States adopted in General Assembly resolution 1974 3281 (XXIX) and General Assembly resolution 34/186 (1979).

[39] See Boyle, 'Nuclear Energy', p. 271.

[40] See e.g. Sands, *Principles*, pp. 235–6, terming it the 'cornerstone of international environmental law'. See also the preamble to the Convention on Long-Range Transboundary Air Pollution, 1979 and the *Legality of the Threat or Use of Nuclear Weapons* advisory opinion, ICJ Reports, 1996, pp. 226, 241; 110 ILR, pp. 163, 191.

[41] See e.g. Goldie, 'General View', pp. 73–85, and Schneider, *World Public Order*, chapter 6. See also G. Handl, 'State Liability for Accidental Transnational Environmental Damage

responsibility placed upon the state, it is doubtful whether international law has in fact accepted such a general principle.[42] The leading cases are inconclusive. In the *Trail Smelter* case[43] Canada's responsibility was accepted from the start, the case focusing upon the compensation due and the terms of the future operation of the smelter,[44] while the strict theory was not apparently accepted in the *Corfu Channel* case.[45] In the *Nuclear Tests* case[46] the Court did not discuss the substance of the claims concerning nuclear testing in view of France's decision to end its programme.

It is also worth considering the *Gut Dam* arbitration between the US and Canada.[47] This concerned the construction of a dam by the Canadian authorities, with US approval, straddling the territory of the two states, in order to facilitate navigation in the St Lawrence River, prior to the existence of the Seaway. The dam affected the flow of water in the river basin and caused an increase in the level of water in the river and in Lake Ontario. This, together with the incidence of severe storms, resulted in heavy flooding on the shores of the river and lake and the US government claimed damages. The tribunal awarded a lump sum payment to the US, without considering whether Canada had been in any way negligent or at fault with regard to the construction of the dam. However, one must be cautious in regarding this case as an example of a strict liability approach, since the US gave its approval to the construction of the dam on the condition that US citizens be indemnified for any damage or detriment incurred as a result of the construction or operation of the dam in question.[48]

Treaty practice is variable. The Convention on International Liability for Damage Caused by Space Objects, 1972 provides for absolute liability for damage caused by space objects on the surface of the earth or to aircraft in flight (article II), but for fault liability for damage caused elsewhere or to persons or property on board a space object (article III).[49] Most treaties, however, take the form of requiring the exercise of diligent

by Private Persons', 74 AJIL, 1980, p. 525; Birnie and Boyle, *International Law and the Environment*, pp. 182 ff., and Sands, *Principles*, pp. 881 ff.

[42] See e.g. Boyle, 'Nuclear Energy', pp. 289–97, and Handl, 'State Liability', pp. 535–53.

[43] 33 AJIL, 1939, p. 182 and 35 AJIL, 1941, p. 681; 9 AD, p. 315.

[44] See Boyle, 'Nuclear Energy', p. 292, and G. Handl, 'Balancing of Interests and International Liability for the Pollution of International Watercourses: Customary Principles of Law Revisited', 13 Canadian YIL, 1975, pp. 156, 167–8.

[45] ICJ Reports, 1949, pp. 4, 22–3; 16 AD, pp. 155, 158.

[46] ICJ Reports, 1974, p. 253; 57 ILR, p. 350. [47] 8 ILM, 1969, p. 118.

[48] See Schneider, *World Public Order*, p. 165. Cf. Handl, 'State Liability', pp. 525, 538 ff.

[49] See e.g. the Canadian claim in the Cosmos 954 incident, 18 ILM, 1992, p. 907.

control of sources of harm, so that responsibility is engaged for breaches of obligations specified in the particular instruments.[50]

The test of due diligence is in fact the standard that is accepted generally as the most appropriate one.[51] Article 194 of the Convention on the Law of the Sea, 1982, for example, provides that states are to take 'all measures . . . that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities'. Accordingly, states in general are not automatically liable for damage caused irrespective of all other factors. However, it is rather less clear what is actually meant by due diligence. In specific cases, such as the Convention on the Law of the Sea, 1982, for example, particular measures are specified and references made to other relevant treaties. In other cases, the issue remains rather more ambiguous.[52] The test of due diligence undoubtedly imports an element of flexibility into the equation and must be tested in the light of the circumstances of the case in question. States will be required, for example, to take all necessary steps to prevent substantial pollution and to demonstrate the kind of behaviour expected of 'good government',[53] while such behaviour would probably require the establishment of systems of consultation and notification.[54] It is also important to note that elements of remoteness and foreseeability are part of the framework of the liability of states. The damage that occurs must have been caused by the pollution under consideration. The tribunal in

[50] See e.g. article 1 of the London Convention on the Prevention of Marine Pollution by Dumping of Wastes, 1972; article 2 of the Convention on Long-Range Transboundary Air Pollution, 1979; article 2 of the Vienna Convention for the Protection of the Ozone Layer, 1985 and articles 139, 194 and 235 of the Convention on the Law of the Sea, 1982; articles 7 and 8 of the Convention for the Regulation of Antarctic Mineral Resources Activities, 1988 and article 2 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992. See also the Commentary by the International Law Commission to article 7 of the Draft Articles on the Law of the Non-Navigational Uses of International Watercourses, Report of the International Law Commission, 46th Session, 1994, pp. 236 ff.

[51] This is the view taken by the ILC in its Commentary on the Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, 2001, Report of the ILC on its 53rd Session, A/56/10, p. 392. See also e.g. Handl, 'State Liability', pp. 539–40; Boyle, 'Nuclear Energy', p. 272, and Birnie and Boyle, *International Law and the Environment*, pp. 112 ff.

[52] See e.g. the Long-Range Transboundary Air Pollution Convention, 1979.

[53] I.e. the standard of conduct expected from a government mindful of its international obligations: see R. J. Dupuy, 'International Liability for Transfrontier Pollution', in Bothe, *Trends in Environmental Policy and Law*, pp. 363, 369.

[54] See *Responsibility and Liability of States in Relation to Transfrontier Pollution*, an OECD Report by the Environment Committee, 1984, p. 4.

the *Trail Smelter* case[55] emphasised the need to establish the injury 'by clear and convincing evidence'.

Damage caused

The first issue is whether indeed any damage must actually have been caused before international responsibility becomes relevant. Can there be liability for risk of damage? It appears that at this stage international law in general does not recognise such a liability,[56] certainly outside of the category of ultra-hazardous activities.[57] This is for reasons both of state reluctance in general and with regard to practical difficulties in particular. It would be difficult, although not impossible, both to assess the risk involved and to determine the compensation that might be due.

However, it should be noted that article 1(4) of the Convention on the Law of the Sea, 1982 defines pollution of the marine environment as 'the introduction by man, directly or indirectly, of substances or energy into the marine environment . . . which results or is likely to result in . . . deleterious effects'. In other words, actual damage is not necessary in this context. It is indeed possible that customary international law may develop in this direction, but it is too early to conclude that this has already occurred. Most general definitions of pollution rely upon damage or harm having been caused before liability is engaged.[58]

The next issue is to determine whether a certain threshold of damage must have been caused. In the *Trail Smelter* case,[59] the Tribunal focused on the need to show that the matter was of 'serious consequence', while article 1 of the Convention on Long-Range Transboundary Air Pollution, 1979 provides that the pollution concerned must result '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'.[60] Article 3 of the ILA

[55] 35 AJIL, 1941, p. 716; 9 AD, p. 317.

[56] See e.g. Kiss, 'International Protection', p. 1076. [57] See below, p. 887.

[58] See also the commentary to the Montreal Rules adopted by the ILA in 1982, Report of the Sixtieth Conference, p. 159. Note, however, that the International Law Commission's Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, adopted in 2001, concern activities not prohibited by international law which involve a 'risk of causing significant transboundary harm', Report of the ILC on its 53rd Session, p. 380.

[59] 35 AJIL, 1941, p. 716; 9 AD, p. 317.

[60] Note also that General Assembly resolution 2995 (XXVII) refers to 'significant harmful results'. See also article 1 of the ILC's Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, Report of the ILC on its 53rd Session, p. 380.

Montreal Rules 1982 stipulates that states are under an obligation to prevent, abate and control transfrontier pollution to such an extent that no substantial injury is caused in the territory of another state.[61] Such formulations do present definitional problems and the qualification as to the threshold of injury required is by no means present in all relevant instruments.[62] The issue of relativity and the importance of the circumstances of the particular case remain significant factors, but less support can be detected at this stage for linkage to a concept of reasonable and equitable use of its territory by a state occasioning liability for use beyond this.[63]

As far as the range of interests injured by pollution is concerned, the *Trail Smelter* case[64] focused upon loss of property. Later definitions of pollution in international instruments have broadened the range to include harm to living resources or ecosystems, interference with amenities and other legitimate uses of the environment or the sea. Article 1(4) of the Convention on the Law of the Sea, 1982, for example, includes impairment of quality for use of sea water and reduction of amenities. Article 1(2) of the Vienna Convention on the Ozone Layer, 1985 defines adverse effects upon the ozone layer as changes in the physical environment including climatic changes 'which have significant deleterious effects on human health or on the composition, resilience and productivity of natural and managed ecosystems or on materials useful to mankind',[65] while the Climate Change Convention, 1992 defines adverse effects of climate change as 'changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare'.[66]

[61] Note the formulation by L. Oppenheim, *International Law*, 8th edn, London, 1955, vol. I, p. 291, that the interference complained of must be 'unduly injurious to the inhabitants of the neighbouring state'.

[62] See e.g. Principle 21 of the Stockholm Declaration and article 194 of the Convention on the Law of the Sea, 1982.

[63] See the views of e.g. R. Quentin-Baxter, *Yearbook of the ILC*, 1981, vol. II, part 1, pp. 112–19, and S. McCaffrey, *ibid.*, 1986, vol. II, part 1, pp. 133–4. See also Boyle, 'Nuclear Energy', p. 275, and 'Chernobyl and the Development of International Environmental Law' in *Perestroika and International Law* (ed. W. Butler), London, 1990, pp. 203, 206.

[64] 35 AJIL, 1941, p. 684; 9 AD, p. 315. See also A. Rubin, 'Pollution by Analogy: The Trail Smelter Arbitration', 50 *Oregon Law Review*, 1971, p. 259.

[65] See also the OECD Recommendation of Equal Right of Access in Relation to Transfrontier Pollution, 1977 and article 1(15) of the Convention on the Regulation of Antarctic Mineral Resource Activities, 1988.

[66] Article 1(1).

The Convention on Regulation of Antarctic Mineral Resources, 1988[67] defines damage to the environment and ecosystem of that polar region as 'any impact on the living or non-living components of that environment or those ecosystems, including harm to atmospheric, marine or terrestrial life, beyond that which is negligible or which has been assessed and judged to be acceptable pursuant to [the] Convention'.[68] The Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992 defines 'transboundary impact', which is the subject of provision, in terms of 'any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity'.[69] The Council of Europe's Convention on Civil Liability for Environmental Damage, 1993 defines damage to include loss or damage by 'impairment of the environment',[70] while the environment itself is taken to include natural resources both abiotic and biotic, property forming part of the cultural heritage and 'the characteristic aspects of the landscape'.[71] The type of harm that is relevant clearly now extends beyond damage to property,[72] but problems do remain with regard to general environmental injury that cannot be defined in material form.[73]

Liability for damage caused by private persons

A particular problem relates to the situation where the environmental injury is caused not by the state itself but by a private party.[74] A state is,

[67] See generally on Antarctica, C. Redgwell, 'Environmental Protection in Antarctica: The 1991 Protocol', 43 ICLQ, 1994, p. 599, and above, chapter 10, p. 534. Note Annex VI to the Protocol on Environmental Protection to the Antarctic Treaty, Liability Arising from Environmental Emergencies, 2005. See also, with regard to the Arctic, D. R. Rothwell, 'International Law and the Protection of the Arctic Environment', 44 ICLQ, 1995, p. 280.

[68] Article 1(15). See also article 2 of the Convention on Environmental Impact Assessment in a Transboundary Context, 1991 and article 1 of the Code of Conduct on Accidental Pollution of Transboundary Inland Waters, 1990.

[69] Article 1(2). [70] Article 2(7)c.

[71] Article 2(10). See also article 1 of the ILC's Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities, 2006, A/61/10, pp. 110, 121.

[72] Note that the Canadian claim for clean-up costs consequential upon the crash of a Soviet nuclear-powered satellite was settled: see 18 ILM, 1979, p. 902.

[73] Note that Security Council resolution 687 (1991) declared that Iraq was liable under international law *inter alia* 'for any direct loss, damage, including environmental damage and the depletion of natural resources' occurring as a result of the unlawful invasion and occupation of Kuwait.

[74] See e.g. Handl, 'State Liability', and G. Doeker and T. Gehring, 'Private or International Liability for Transnational Environmental Damage – The Precedent of Conventional Liability Regimes', 2 *Journal of Environmental Law*, 1990, p. 1.

of course, responsible for unlawful acts of its officials causing injury to nationals of foreign states[75] and retains a general territorial competence under international law. In general, states must ensure that their international obligations are respected on their territory. Many treaties require states parties to legislate with regard to particular issues, in order to ensure the implementation of specific obligations. Where an international agreement requires, for example, that certain limits be placed upon emissions of a particular substance, the state would be responsible for any activity that exceeded the limit, even if it were carried out by a private party, since the state had undertaken a binding commitment.[76] Similarly where the state has undertaken to impose a prior authorisation procedure upon a particular activity, a failure so to act which resulted in pollution violating international law would occasion the responsibility of the state.

In some cases, an international agreement might specifically provide for the liability of the state for the acts of non-state entities. Article 6 of the Outer Space Treaty, 1967, for example, stipulates that states parties bear international responsibility for 'national activities in outer space . . . whether such activities are carried out by governmental agencies or by non-governmental agencies'.[77]

Prevention of transboundary harm from hazardous activities[78]

The International Law Commission started considering in 1978 the topic of 'International Liability for the Injurious Consequences of Acts Not Prohibited by International Law'[79] and the main focus of the work of

[75] See above, chapter 14. [76] See below, p. 873.

[77] See also article I of the Convention on International Liability for Damage Caused by Space Objects, 1972 and article XIV of the Moon Treaty, 1979. See further below, p. 893, with regard to civil liability schemes.

[78] See e.g. J. Barboza, 'International Liability for the Injurious Consequences of Acts not Prohibited by International Law and Protection of the Environment', 247 HR, 1994 III, p. 291; A. Boyle, 'State Responsibility and International Liability for Injurious Consequences of Acts not Prohibited by International Law: A Necessary Distinction?', 39 ICLQ, 1990, p. 1; M. Akehurst, 'International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law', 16 Netherlands YIL, 1985, p. 3; D. B. Magraw, 'Transboundary Harm: The International Law Commission's Study of International Liability', 80 AJIL, 1986, p. 305, and C. Tomuschat, 'International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law: The Work of the International Law Commission' in *International Responsibility for Environmental Harm* (eds. F. Francioni and T. Scovazzi), London, 1991, p. 37. See also Birnie and Boyle, *International Law and the Environment*, p. 105, and Sands, *Principles*, pp. 901 ff.

[79] See *Yearbook of the ILC*, 1978, vol. II, part 2, p. 149.

the Commission was on environmental harm.[80] It was argued that international liability differed from state responsibility in that the latter is dependent upon a prior breach of international law,[81] while the former constitutes an attempt to develop a branch of law in which a state may be liable internationally with regard to the harmful consequences of an activity which is in itself not contrary to international law. This was a controversial approach. The theoretical basis and separation from state responsibility were questioned.[82] The ILC revised its work and eventually adopted Draft Articles on Prevention of Transboundary Harm from Hazardous Activities in 2001.[83]

Article 1 of the Draft provides that the articles are to apply to activities not prohibited by international law which involve a 'risk of causing significant transboundary harm through their physical consequences'. The Commentary to the Draft Articles specifies that the notion of risk is to be taken objectively 'as denoting an appreciation of possible harm resulting from an activity which a properly informed observer had or ought to have had'.[84] Members of the Commission had in the past been divided as to whether the focus of the topic should be upon risk or upon harm;[85] this now appears settled. Article 2 of the Draft provides that 'risk of causing significant transboundary harm' is to be defined as including 'a high probability of causing significant transboundary harm and a low probability of causing disastrous transboundary harm'.[86] In other words, the relevant threshold is established by a combination of risk and harm and this threshold must reach a level deemed 'significant'.[87] The International Law Commission has taken the view that this term, while factually based, means something more than 'detectable', but need not reach the level of 'serious' or 'substantial'.[88] The state of origin (i.e. where the activities are taking place or are to take place) 'shall take all appropriate measures to

[80] See e.g. Quentin-Baxter's preliminary report, *Yearbook of the ILC*, 1980, vol. II, part 1, p. 24.
[81] See above, chapter 14.
[82] See e.g. Boyle, 'State Responsibility', p. 3, and I. Brownlie, *System of the Law of Nations: State Responsibility, Part I*, Oxford, 1983, p. 50.
[83] Report of the ILC on its 53rd Session, p. 379.
[84] *Ibid*., p. 385.
[85] See e.g. S. McCaffrey, 'The Fortieth Session of the International Law Commission', 83 AJIL, 1989, pp. 153, 170, and McCaffrey, 'The Forty-First Session of the International Law Commission', 83 AJIL, 1989, pp. 937, 944.
[86] Report of the ILC on its 53rd Session, p. 386.
[87] *Ibid.*, p. 387. See also article 1 of the Code of Conduct on Accidental Pollution of Transboundary Inland Waters adopted by the Economic Commission for Europe in 1990.
[88] Report of ILC on its 53rd Session, p. 388.

prevent significant transboundary harm or at any event to minimise the risk thereof'.[89] The relevant test is that of due diligence, this being that which is generally considered to be appropriate and proportional to the degree of risk of transboundary harm in the particular instance and this test requires the state to keep up to date with technological and scientific developments.[90]

States are to co-operate in good faith in trying to prevent such activities from causing significant transboundary injury and in minimising the effects of the risk, and they are to seek the assistance as necessary of competent international organisations.[91] The state is to take legislative, administrative and other action, including the establishment of suitable monitoring mechanisms to implement the provisions in the draft articles,[92] and is to require prior authorisation for any activities within the scope of the article.[93] In deciding upon such authorisation, the state must base its answer on an assessment of the possible transboundary harm, including any environmental impact assessment.[94] If a risk is indeed indicated by such an assessment, timely notification must be made to the state likely to be affected[95] and information provided,[96] while the states concerned are to enter into consultation with a view to achieving acceptable solutions regarding measures to be adopted in order to prevent or minimise the risk of causing significant transboundary harm or to minimise the risk thereof. Such solutions must be based on an equitable balance of interests.[97]

Article 10 of the Draft lays down a series of relevant factors and circumstances in achieving this 'equitable balance of interests'. These include the degree of risk of significant transboundary harm and the availability of means of preventing or minimising such risk or of repairing the harm; the importance of the activity, taking into account its overall advantages of a social, economic and technical character for the state of origin in relation to the potential harm for the states likely to be affected; the risk of significant harm to the environment and the availability of means of preventing or minimising such risk or restoring the environment; the economic viability of the activity in relation to the costs of prevention demanded by the states likely to be affected and to the possibility of carrying out the activity elsewhere or by other means or replacing it with an alternative activity; the degree to which the states likely to be affected

[89] Article 3. [90] Report of the ILC on its 53rd Session, p. 394.
[91] Article 4. [92] Article 5. [93] Article 6. [94] Article 7.
[95] Articles 8 and 17. [96] Article 8. See also articles 12, 13 and 14. [97] Article 9.

are prepared to contribute to the costs of prevention; and the standards of protection which the states likely to be affected apply to the same or comparable activities and the standards applied in comparable regional or international practice.[98]

In 2006, the ILC adopted the Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities,[99] the purpose of which is to ensure prompt and adequate compensation to victims of transboundary damage and to preserve and protect the environment. States are to take all necessary measures to ensure such compensation is available, including the imposition of liability upon operators without requiring proof of fault.[100]

The problems of the state responsibility approach

The application of the classical international law approach, founded upon state responsibility for breaches of international obligations and the requirement to make reparation for such breaches, to environmental problems is particularly problematic. The need to demonstrate that particular damage has been caused to one state by the actions of another state means that this model can only with difficulty be applied to more than a small proportion of environmental problems. In many cases it is simply impossible to prove that particular damage has been caused by one particular source, while this bilateral focus cannot really come to terms with the fact that the protection of the environment of the earth is truly a global problem requiring a global or pan-state response and one that cannot be successfully tackled in such an arbitrary and piecemeal fashion. Accordingly, the approach to dealing with environmental matters has shifted from the bilateral state responsibility paradigm to establishment and strengthening of international co-operation.

International co-operation

A developing theme of international environmental law, founded upon general principles, relates to the requirement for states to co-operate in dealing with transboundary pollution issues. Principle 24 of the Stockholm Declaration 1972 noted that 'international matters concerning the

[98] This article draws upon article 6 of the Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997.

[99] A/61/10, p. 110. [100] Principles 3 and 4.

protection and improvement of the environment should be handled in a co-operative spirit', while Principle 7 of the Rio Declaration 1992 emphasised that 'states shall co-operate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem'. Principle 13 of the Rio Declaration refers both to national and international activities in this field by stating that:

> states shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also co-operate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.[101]

The *Corfu Channel* case[102] established the principle that states are not knowingly to allow their territory to be used for acts contrary to the rights of other states and from this can be deduced a duty to inform other states of known environmental hazards. A large number of international agreements reflect this proposition. Article 198 of the Convention on the Law of the Sea, 1982, for example, provides that 'when a state becomes aware of cases in which the marine environment is in imminent danger of being damaged or had been damaged by pollution, it shall immediately notify other states it deems likely to be affected by such damage, as well as the competent international authorities'.[103] Article 13 of the Basle Convention on the Control of Transboundary Movement of Hazardous Wastes, 1989 provides that states parties shall, whenever it comes to their knowledge, ensure that in the case of an accident occurring during the transboundary movement of hazardous wastes which are likely to present risks to human health and the environment in other states, those states are immediately informed.[104]

It is also to be noted that in 1974 the OECD (the Organisation for Economic Co-operation and Development) adopted a Recommendation that prior to the initiation of works or undertakings that might create a risk of significant transfrontier pollution, early information should be

[101] See also Principle 27. [102] ICJ Reports, 1949, pp. 4, 22; 16 AD, pp. 155, 158.

[103] See also article 211(7).

[104] See also e.g. article 8 of the International Convention for the Prevention of Pollution from Ships, 1973; Annex 6 of the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea, 1974 and article 9 of the Barcelona Convention for the Protection of the Mediterranean Sea, Protocol of Co-operation in Case of Emergency, 1976.

provided to states that are or may be affected.[105] In 1988, the OECD adopted a Council Decision in which it is provided that states must provide information for the prevention of and the response to accidents at hazardous installations and transmit to exposed countries the results of their studies on proposed installations. A duty to exchange emergency plans is stipulated, as well as a duty to transmit immediate warning to exposed countries where an accident is an imminent threat.[106] The point is also emphasised in the Rio Declaration of 1992. Principle 18 provides that states shall immediately notify other states of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those states, while Principle 19 stipulates that states shall provide prior and timely notification and relevant information to potentially affected states on activities that may have a significant adverse transboundary environmental effect and shall consult with those states at an early stage and in good faith.[107]

One may also point to a requirement of prior consultation. Article 5 of the ILA Montreal Rules provides that states planning to carry out activities which might entail a significant risk of transfrontier pollution shall give early notice to states likely to be affected. This provision builds upon, for example, the *Lac Lanoux* arbitration between France and Spain,[108] which concerned the proposed diversion of a shared watercourse. The arbitral tribunal noted in particular the obligation to negotiate in such circumstances.[109] Some treaties establish a duty of prior notification, one early example being the Nordic Convention on the Protection of the Environment, 1974. Article 5 of the Long-Range Transboundary Air Pollution Convention, 1979 provides that consultations shall be held, upon request, at an early stage between the state within whose jurisdiction the activity is to be conducted and states which are actually affected by or exposed to a significant risk of long-range transboundary air pollution.[110] The

[105] Title E, para. 6. See also the OECD Recommendation for the Implementation of a Regime of Equal Right of Access and Non-Discrimination in Relation to Transfrontier Pollution, 1977, Title C, para. 8.

[106] C(88)84.

[107] See also article 3 of the Convention on Environmental Impact Assessment in a Transboundary Context, 1991 and Principle 5 of the ILC Draft Principles on the Allocation of Loss, 2006, A/61/10, p. 166.

[108] 24 ILR, p. 101.

[109] *Ibid.*, p. 119. See also the *North Sea Continental Shelf* cases, ICJ Reports, 1969, pp. 3, 46–7; 41 ILR, pp. 29, 76.

[110] Note also that article 8(b) calls for the exchange of information *inter alia* on major changes in national policies and in general industrial development and on their potential

increasing range of state practice[111] has led the International Law Association to conclude that 'a rule of international customary law has emerged that in principle a state is obliged to render information on new or increasing pollution to a potential victim state'.[112] Article 8 of the ILC's Draft Articles on Prevention of Transboundary Harm from Hazardous Activities 2001 provides that where an assessment indicates a risk of causing significant transboundary harm, the state of origin is to inform the state likely to be affected with timely notification and information and may not take any decision on authorisation within six months of the response of the state likely to be affected.[113]

The evolution of a duty to inform states that might be affected by the creation of a source of new or increasing pollution has been accompanied by consideration of an obligation to make environmental impact assessments.[114] This requirement is included in several treaties.[115] Article 204 of the Convention on the Law of the Sea, 1982 provides that states should 'observe, measure, evaluate and analyse by recognised scientific methods, the risks or effects of pollution on the marine environment' and in particular 'shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment'. Reports are to be published, while under article 206, when states have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of, or significant and harmful changes

impact, which would be likely to cause significant changes in long-range transboundary air pollution.

111 See ILA, Report of the Sixtieth Conference, 1982, pp. 172–3.

112 *Ibid.*, p. 173. See also Institut de Droit International, Resolution on Transboundary Air Pollution, 1987, but cf. Sands, *Principles*, pp. 321–2. Note also e.g. the UNEP Recommendation concerning the Environment Related to Offshore Drilling and Mining within the Limits of National Jurisdiction, 1981 and the Canada–Denmark Agreement for Co-operation Relating to the Marine Environment, 1983.

113 Report of the ILC on its 53rd Session, p. 406. See also Principle 19 of the Rio Declaration, article 3 of the Convention on Environmental Impact Assessment in a Transboundary Context, 1991 and the Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997, below, p. 883.

114 See e.g. the UNEP Principles of Environmental Impact Assessment, 1987. See also Sands, *Principles*, pp. 799 ff.

115 See e.g. the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, 1978, article XI; the Nordic Environmental Protection Convention, 1974, article 6, and the Protocol on Environmental Protection to the Antarctica Treaty, 1991, article 8. See also article 7 of the Draft Articles on Prevention of Transboundary Harm from Hazardous Activities 2001, Report of the ILC on its 53rd Session, p. 402.

to, the marine environment, 'they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of such assessments'.[116]

The EEC Council Directive 85/337 provides that member states shall adopt all necessary measures to ensure that, before consent is given, projects likely to have significant effects on the environment are made subject to an assessment with regard to their effects,[117] while the issue was taken further in the Convention on Environmental Impact Assessment in a Transboundary Context, 1991. Under this Convention, states parties are to take the necessary legal, administrative and other measures to ensure that prior to a decision to authorise or undertake a proposed activity listed in Appendix I[118] that is likely to cause a significant adverse transboundary impact, an environmental impact assessment is carried out. The party of origin must notify any party which may be affected of the proposed activity, providing full information. Once the affected party decides to participate in the environmental impact assessment procedure under the provisions of the Convention, it must supply information to the party of origin of the proposed activity at its request relating to the potentially affected environment under its jurisdiction.[119] The documentation to be submitted to the competent authority of the party of origin is detailed in Appendix III and it is comprehensive. Consultations must take place between the party of origin and the affected parties concerning the potential transboundary impact and the measures to reduce or eliminate the impact,[120] and in taking the final decision on the proposed activity the parties

[116] A similar process is underway with regard to the siting of nuclear power installations: see e.g. the agreements between Spain and Portugal, 1980; the Netherlands and the Federal Republic of Germany, 1977; Belgium and France, 1966; and Switzerland and the Federal Republic of Germany, 1982. See also Boyle, 'Chernobyl', at p. 212.

[117] See also Directive 2004/35/EC, 21 April 2004, of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage, as amended by Directive 2006/21/EC.

[118] These activities include crude oil and certain other refineries; thermal power stations and other combustion installations with a certain minimum power output and nuclear installations; nuclear facilities; major cast iron and steel installations; asbestos plants; integrated chemical installations; construction of motorways, long-distance railway lines and long airport runways; pipelines; large trading ports; toxic and dangerous waste installations; large dams and reservoirs; major mining; offshore hydrocarbon production; major oil and chemical storage facilities; deforestation of large areas.

[119] If it decides not so to participate, the environmental impact assessment procedure will continue or not according to the domestic law and practice of the state of origin, article 3(4).

[120] Article 5.

shall ensure that due account is taken of the outcome of the environmental impact assessment and consultations held.[121] Post-project analyses may also be carried out under article 7.[122] Other instruments provide for such environmental impact assessments[123] and some international organisations have developed their own assessment requirements.[124] The question of environmental impact assessments was raised by Judge Weeramantry in his Dissenting Opinion in the *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment in the 1974 Nuclear Tests Case*.[125] It was noted that the magnitude of the issue brought by New Zealand before the Court (the underground testing by France in the South Pacific of nuclear devices) was such as to make the principle of environmental impact assessments applicable. The Judge declared that 'when a matter is brought before it which raises serious environmental issues of global importance, and a prima facie case is made out of the possibility of environmental damage, the Court is entitled to take into account the Environmental Impact Assessment principle in determining its preliminary approach'.[126]

Other principles of international co-operation in the field of environmental protection are beginning to emerge and inform the development of legal norms. Principle 15 of the Rio Declaration states that '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.' This marks a step away from the traditional approach, which required states to act on the basis of scientific knowledge and constitutes a recognition that in certain circumstances to await formal scientific proof may prevent urgent action being taken in time. The Vienna Convention for the Protection of the Ozone Layer, 1985 and the 1987 Montreal Protocol to that Convention both referred in their respective preambles to 'precautionary measures',[127] while the Bergen Ministerial Declaration on Sustainable Development, 1990 noted that in order to

[121] Article 6(1). Account must also be taken of concerns expressed by the public of the affected party in the areas likely to be affected under article 3(8).
[122] See also Appendix V.
[123] See e.g. the Antarctic Environment Protocol, 1991.
[124] See e.g. the World Bank under its Operational Directive 4.00 of 1989.
[125] ICJ Reports, 1995, pp. 288, 344; 106 ILR, p. 1. [126] ICJ Reports, 1995, p. 345.
[127] See also the preamble to the 1994 Oslo Protocol to the 1979 Long-Range Transboundary Air Pollution Convention and EC Regulation 178/2002 (with regard to food).

achieve sustainable development, policies must be based on the precautionary principle. It was emphasised that 'environmental measures must anticipate, prevent and attack the causes of environmental degradation' and part of Principle 15 of the Rio Declaration was repeated. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992 provides in article 2(5)a that the parties would be guided by 'the precautionary principle, by virtue of which action to avoid the potential transboundary impact of the release of hazardous substances shall not be postponed on the ground that scientific research has not fully proved a causal link between these substances, on the one hand and the potential transboundary impact, on the other'. References to the precautionary principle appear also in the Convention on Biodiversity, 1992[128] and in the Convention on Climate Change, 1992.[129] The principle was described by Judge Weeramantry as one gaining increasing support as part of the international law of the environment.[130]

Recognition has also emerged of the special responsibility of developed states in the process of environmental protection.[131] Principle 7 of the Rio Declaration stipulates that 'states have common but differentiated responsibilities'. In particular, it is emphasised that 'the developed

[128] Although the reference in the Preamble does not expressly invoke the term. See generally *International Law and the Conservation of Biological Diversity* (eds. M. Bowman and C. Redgwell), Dordrecht, 1995.

[129] Article 3(3). See also article 174 (ex article 130r(2)) of the EC Treaty and article 4(3) of the OAU Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991. Note also articles 5 and 6 of the Straddling Fish Stocks and Highly Migratory Fish Stocks Agreement, 1995.

[130] In his Dissenting Opinion in the *Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court's Judgment in the 1974 Nuclear Tests Case*, ICJ Reports, 1995, pp. 288, 342; 106 ILR, pp. 1, 64. See *The Precautionary Principle and International Law* (eds. D. Freestone and E. Hey), Dordrecht, 1996; P. Martin-Bidou, 'Le Principe de Précaution en Droit International de l'Environnement', 103 RGDIP, 1999, p. 631, and *Le Principe de Précaution, Signification et Conséquences* (eds. E. Zaccai and J. N. Missa), Brussels, 2000; Birnie and Boyle, *International Law and the Environment*, pp. 115 ff.; Sands, *Principles*, pp. 266 ff.; *Le Principe de Précaution: Aspects de Droit International et Communautaire* (ed. C. Leben), Paris, 2002, and A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law*, The Hague, 2002. See also the Commentary to the ILC Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, 2001, Report of the ILC on its 53rd Session, p. 414 and the Guidelines for Applying the Precautionary Principle to Biodiversity Conservation and Natural Resource Management adopted by the International Union for the Conservation of Nature in May 2007.

[131] See e.g. D. French, 'Developing States and International Environmental Law: The Importance of Differentiated Responsibilities', 49 ICLQ, 2000, p. 35.

countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command'. Article 3(1) of the Convention on Climate Change provides that the parties should act to protect the climate system 'on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities' so that the developed countries would take the lead in combating climate change.[132]

In addition, the concept of sustainable development has been evolving in a way that circumscribes the competence of states to direct their own development.[133] The International Court in the *Gabčíkovo–Nagymaros Project* case referred specifically to the concept of sustainable development,[134] while Principle 3 of the Rio Declaration notes that the right to development must be fulfilled so as to 'equitably meet developmental and environmental needs of present and future generations'[135] and Principle 4 states that in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process.[136] Principle 27 called for co-operation in the further development of

[132] See also articles 4 and 12. Note that the 1990 amendment to the 1987 Montreal Protocol on the Ozone Depleting Substances provides that the capacity of developing countries to comply with their substantive obligations will depend upon the implementation by the developed countries of their financial obligations.

[133] See e.g. *Sustainable Development and International Law* (ed. W. Lang), Dordrecht, 1995; *Sustainable Development and Good Governance* (eds. K. Ginther, E. Denters and P. de Waart), Dordrecht, 1995; Sands, *Principles*, pp. 252 ff., and Sands, 'International Law in the Field of Sustainable Development', 65 BYIL, 1994, p. 303; M.-C. Cordonier Segger and C. G. Weeramantry, *Sustainable Justice: Reconciling Economic, Social and Environmental Law*, Leiden, 2005; P. S. Elder, 'Sustainability', 36 *McGill Law Journal*, 1991, p. 832; D. McGoldrick, 'Sustainable Development and Human Rights: An Integrated Conception', 45 ICLQ, 1996, p. 796; *International Law and Sustainable Development* (eds. A. Boyle and D. Freestone), Oxford, 1999; *Environmental Law, the Economy and Sustainable Development* (eds. R. Revesz, P. Sands and R. Stewart), Cambridge, 2000; Birnie and Boyle, *International Law and the Environment*, p. 84, and X. Fuentes, 'Sustainable Development and the Equitable Utilisation of International Watercourses', 69 BYIL, 1998, p. 119. See also the Report of the ILA Committee on Legal Aspects of Sustainable Development, ILA, Report of the Sixty-sixth Conference, 1994, p. 111 and Report of the Seventieth Conference, 2002, p. 308.

[134] ICJ Reports, 1997, pp. 7, 78; 116 ILR, p. 1. See also the *Shrimp/Turtle* case, WTO Appellate Body, 38 ILM, 1999, p. 121, para. 129.

[135] See also Principle 1 of the Stockholm Declaration 1972.

[136] Note that article 2(1)vii of the Agreement Establishing the European Bank for Reconstruction and Development, 1990 calls upon the Bank to promote 'environmentally sound and sustainable development'.

international law in the field of sustainable development.[137] The Climate Change Convention declares in article 3(4) that 'the parties have a right to, and should, promote sustainable development', while the Biodiversity Convention refers on several occasions to the notion of 'sustainable use'.[138] Quite what is meant by sustainable development is somewhat unclear and it may refer to a range of economic, environmental and social factors.[139] Clearly, however, some form of balance between these factors will be necessitated.[140]

Another emerging principle, more widely accepted in some countries and regions than others, is the notion that the costs of pollution should be paid by the polluter.[141] Principle 16 of the Rio Declaration notes that 'the polluter should, in principle, bear the costs of pollution, with due regard to the public interests and without distorting international trade and investment'. The principle has been particularly applied with regard to civil liability for damage resulting from hazardous activities[142] and has particularly been adopted by the Organisation for Economic Co-operation and Development[143] and the European Community.[144] The polluter-pays principle has been referred to both in the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 and in the Convention on the Transboundary Effects of Industrial Accidents, 1992

[137] See also Agenda 21, adopted at the Rio Conference on Environment and Development, 1992, paras. 8 and 39.

[138] See e.g. the Preamble and articles 1, 8, 11, 12, 16, 17 and 18. See also the Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, adopted at the Rio Conference, 1992.

[139] See e.g. M. Redclift, 'Reflections on the "Sustainable Development" Debate', 1 *International Journal of Sustainable Development and World Ecology*, 1994, p. 3. Note that the Report of the GATT Panel on the United States Restrictions on the Import of Tuna declares that the objective of sustainable development, which includes the protection and preservation of the environment, has been widely recognised by the contracting parties to the General Agreement on Tariffs and Trade, 33 ILM, 1994, p. 839.

[140] Note that the General Assembly established the Commission on Sustainable Development in resolution 47/191 in order to ensure an effective follow-up to the 1992 Conference on Environment and Development as well as generally to work for the integration of environment and development issues and to examine the progress of the implementation of Agenda 21 (the programme of action adopted by the Conference) in order to achieve sustainable development.

[141] See e.g. Sands, *Principles*, pp. 279 ff., and A. Boyle, 'Making the Polluter Pay? Alternatives to State Responsibility in the Allocation of Transboundary Environmental Costs' in Francioni and Scovazzi, *International Responsibility for Environmental Harm*, p. 363.

[142] See further below, p. 893.

[143] See e.g. the OECD Council Recommendations C(74)223 (1974) and C(89)88 (1989).

[144] See Article 174 of the EC Treaty.

as 'a general principle of international environmental law'.[145] Again, quite how far this principle actually applies is uncertain. It is, in particular, unclear whether all the costs of an environmental clean-up would be covered. State practice appears to demonstrate that such costs should be apportioned between the parties.[146]

Atmospheric pollution[147]

Perhaps the earliest perceived form of pollution relates to the pollution of the air. The burning of fossil fuels releases into the atmosphere sulphur dioxide and nitrogen oxides which change into acids and are carried by natural elements and fall as rain or snow or solid particles. Such acids have the effect of killing living creatures in lakes and streams and of damaging soils and forests.[148] While the airspace above the territorial domain of a state forms part of that state,[149] the imprecise notion of the atmosphere would combine elements of this territorial sovereignty with areas not so defined. The legal characterisation of the atmosphere, therefore, is confused and uncertain, but one attractive possibility is to refer to it as a shared resource or area of common concern.[150]

The question of how one defines the term 'pollution' has been addressed in several international instruments. In a Recommendation adopted in 1974 by the Organisation for Economic Co-operation and Development,[151] pollution is broadly defined as 'the introduction by man, directly or indirectly, of substances or energy into the environment resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems, and impair or interfere with amenities and other legitimate uses of the environment'.[152] This definition was substantially reproduced in the Geneva Convention on Long-Range

[145] See also article 2(5)b of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992 and Principle 4 of the ILC Draft Principles on the Allocation of Loss, 2006, A/61/10, p. 151.

[146] See e.g. Boyle, 'Making the Polluter Pay?', p. 365, and Birnie and Boyle, *International Law and the Environment*, p. 92.

[147] See Sands, *Principles*, pp. 317 ff., and Birnie and Boyle, *International Law and the Environment*, chapter 10.

[148] See *Keesing's Record of World Events*, pp. 36782 ff. (1989).

[149] See above, chapter 10, p. 541.

[150] See e.g. Birnie and Boyle, *International Law and the Environment*, p. 503.

[151] OECD Doc.C(74)224, cited in P. Sands, *Chernobyl: Law and Communication*, Cambridge, 1988, p. 150.

[152] *Ibid.*, Title A.

Transboundary Air Pollution, 1979[153] and in the Montreal Rules of International Law Applicable to Transfrontier Pollution adopted by the International Law Association in 1982.[154] Several points ought to be noted at this stage. First, actual damage must have been caused. Pollution likely to result as a consequence of certain activities is not included. Secondly, the harm caused must be of a certain level of intensity, and thirdly, the question of interference with legitimate uses of the environment requires further investigation.

The core obligation in customary international law with regard to atmospheric pollution was laid down in the *Trail Smelter* case,[155] which provided that no state had 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 state or to persons or property therein, where the case was of serious consequence and the injury established by clear and convincing evidence.[156]

In 1979, on the initiative of the Scandinavian countries and under the auspices of the UN Economic Commission for Europe, the Geneva Convention on Long-Range Transboundary Air Pollution was signed.[157] The definition of pollution is reasonably broad,[158] while article 1(b) defines long-range transboundary air pollution 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

[153] The major difference being the substitution of 'air' for 'environment' in view of the focus of the Convention.

[154] Note that the term 'air' was replaced by 'environment'. See also article 1 of the Paris Convention for the Prevention of Marine Pollution from Land-Based Sources, 1974 and article 2 of the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, 1976. The Institut de Droit International, in a draft resolution accompanying its final report on Air Pollution Across National Frontiers, defines pollution as 'any physical, chemical or biological alteration in the composition or quality of the atmosphere which results directly or indirectly from human action or omission and produces injurious or deleterious effects across national frontiers', 62 I *Annuaire de l'Institut de Droit International*, 1987, p. 266.

[155] 35 AJIL, 1941, p. 716; 9 AD, p. 317.

[156] Note also the adoption in 1963 of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, Outer Space and Under Water.

[157] See e.g. A. Rosencranz, 'The ECE Convention of 1979 on Long-Range Transboundary Air Pollution', 75 AJIL, 1981, p. 975; L. Tollan, 'The Convention on Long-Range Transboundary Air Pollution', 19 *Journal of World Trade Law*, 1985, p. 615, and A. Kiss, 'La Convention sur la Pollution Atmosphérique Transfrontière à Longue Distance', *Revue Juridique de l'Environnement*, 1981, p. 30. See also P. Okowa, *State Responsibility for Transboundary Air Pollution*, Oxford, 2000. See generally www.unece.org/env/lrtap/.

[158] See above, p. 871.

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.

The obligations undertaken under the Convention, however, are modest. States 'shall endeavour to limit and, as far as possible, gradually reduce and prevent air pollution, including long-range transboundary air pollution'.[159] The question of state liability for damage resulting from such pollution is not addressed. The Convention provides that states are to develop policies and strategies by means of exchanges of information and consultation[160] and to exchange information to combat generally the discharge of air pollutants.[161] Consultations are to be held upon request at an early stage between contracting parties actually affected by or exposed to a significant risk of long-range transboundary air pollution and contracting parties within which and subject to whose jurisdiction a significant contribution to such pollution originates or could originate, in connection with activities carried on or contemplated therein.[162]

The parties also undertook to develop the existing 'Co-operative programme for the monitoring and evaluation of the long-range transmission of air pollutants in Europe' (EMEP) and in 1984 a Protocol was adopted dealing with the long-term financing of the project. Further Protocols to the Convention have been adopted. In 1985, the Helsinki Protocol was signed, dealing with the reduction of sulphur emissions or their transboundary fluxes by at least 30 per cent as soon as possible and at the latest by 1993, using 1980 levels as the basis for the calculation of reductions. This Protocol requires parties to report annually to the Executive Body of the Convention.[163] The Sophia Protocol was adopted in 1988 and concerned the control of emissions of nitrogen oxides or their transboundary fluxes. Under this Protocol the contracting parties undertook to reduce their national annual emissions of nitrogen oxides or their transboundary fluxes so that by the end of 1994 these would not exceed those of 1987. Negotiations for further reductions in national annual emissions were provided for, as was the exchange of technology in relevant areas and of information. In 1991, the Protocol concerning the control of emissions of volatile organic compounds and their transboundary fluxes was adopted.

[159] Article 2.

[160] Article 3. Note that under article 6, states undertake to develop the best policies and strategies using the 'best available technology which is economically feasible'.

[161] Article 4. See also article 8.

[162] Article 5. See also article 8(b).

[163] As to EU obligations concerning the curbing of emissions of sulphur dioxide and nitrogen dioxide, see e.g. Directive 99/30/EC and Sands, *Principles*, pp. 761 ff.

Specific targets and timetables are established. However, the Protocol provides for a choice of at least three ways to meet the requirements, to be determined by the parties upon signature and dependent upon the level of volatile organic compounds emissions. In 1994, the Oslo Protocol on Further Reduction of Sulphur Emissions was adopted,[164] specifying sulphur emission ceilings for parties for the years 2000, 2005 and 2010, and accompanied by a reporting requirement to the Executive Body on a periodic basis.[165] An Implementation Committee was provided for in order to review the implementation of the Protocol and compliance by the parties with their obligations.[166] In 1998 two further protocols were concluded, one on persistent organic pollutants and the other on heavy metals. A Protocol of 1999 is intended to abate acidification, eutrophication and ground-level ozone. In 1997 a revised Implementation Committee was established and this has the responsibility to review compliance with all the Protocols of the Convention under a common procedure. It considers questions of non-compliance with a view to finding a 'constructive solution' and reports to the Executive Board.[167]

In 2001, the Stockholm Convention on Persistent Organic Pollutants was signed. The Convention provides for the control of the production, trade in, disposal and use of twelve named persistent organic pollutants (although there is a health exception temporarily for DDT). There is a procedure to add other such pollutants to the list and an interim financial mechanism with the Global Environmental Facility (GEF)[168] was established as the principal entity to help developing countries.[169] In May 2005, a conference of states parties established a subsidiary body, the Persistent Organic Pollutants Review Committee,[170] in order to assist in implementation activities.

[164] See 33 ILM, 1994, p. 1540. [165] Article 5. [166] Article 7.

[167] See Executive Board Decision 1997/2, annex, as amended in 2001, ECE/EB.AIR/75, annex V. The Executive Board may take decisions concerning the compliance of parties: see e.g. Decision 2002/8 criticising Spain. See, for the Board's decisions, www.unece.org/env/lrtap/conv/report/eb_decis.htm, and see the Committee's Ninth Report, 2006, ECE/EB.AIR/2006/3 and Adds. 1 and 2.

[168] The Global Environmental Facility was itself set up in 1991 to aid developing countries to fund projects and programmes protecting the global environment. In particular, the Facility supports projects related to biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants: see www.gefweb.org/interior.aspx?id=50. See also the Beijing Declaration of the Second Global Environmental Facility 2003, 44 ILM, 2005, p. 1004.

[169] See the Convention website, www.pops.int/.

[170] www.pops.int/documents/meetings/poprc/meeting_docs/reports/report_E.pdf.

In 1986 a Protocol to the Paris Convention for the Prevention of Marine Pollution from Land-Based Sources[171] extended that agreement to atmospheric emissions of pollutants.[172] Article 212 of the Law of the Sea Convention, 1982 requires states to adopt laws and regulations to prevent, reduce and control atmospheric pollution of the marine environment, although no specific standards are set.[173]

Ozone depletion and global warming[174]

The problem of global warming and the expected increase in the temperature of the earth in the decades to come has focused attention on the issues particularly of the consumption of fossil fuels and deforestation. In addition, the depletion of the stratospheric ozone layer, which has the effect of letting excessive ultraviolet radiation through to the surface of the earth, is a source of considerable concern. The problem of the legal characterisation of the ozone layer is a significant one. Article 1(1) of the Vienna Convention for the Protection of the Ozone Layer, 1985 defines this area as 'the layer of atmospheric ozone above the planetary boundary layer'. This area would thus appear, particularly in the light of the global challenge posed by ozone depletion and climate change, to constitute a distinct unit with an identity of its own irrespective of national sovereignty or shared resources claims. UN General Assembly resolution

[171] See below, p. 898.

[172] Note also that in 1987 the Second International Conference on the Protection of the North Sea urged states to ratify the Protocol: see 27 ILM, 1988, p. 835; while in 1990 North Sea states agreed to achieve by 1999 a reduction of 50 per cent or more in atmospheric and river-borne emissions of hazardous substances, provided that best available technology permitted this: see IMO Doc. MEPC 29/INF.26.

[173] Note that the Canada–United States Air Quality Agreement, 1991 required the reduction of sulphur dioxide and nitrogen oxide emissions from the two states to agreed levels by the year 2000. Compliance monitoring by continuous emission monitoring systems was provided for.

[174] See e.g. *International Law and Global Climate Change* (eds. R. Churchill and D. Freestone), Dordrecht, 1991; *Implementing the Climate Regime. International Compliance* (eds. O. S. Stokke, J. Hovi and G. Ulfstein), London, 2005; P. Lawrence, 'International Legal Regulation for Protection of the Ozone Layer: Some Problems of Implementation', 2 *Journal of Environmental Law*, 1990, p. 17; T. Stoel, 'Fluorocarbon: Mobilising Concern and Action' in *Environmental Protection, The International Dimension* (eds. D. A. Kay and H. K. Jacobson), 1983, p. 45; Engelmann, 'A Look at Some Issues Before an Ozone Convention', 8 *Environmental Policy and Law*, 1982, p. 49; Heimsoeth, 'The Protection of the Ozone Layer', 10 *Environmental Policy and Law*, 1983, p. 34, and Birnie and Boyle, *International Law and the Environment*, p. 516. See also www.unep.org/ozone/index-en.shtml.

43/53, for example, states that global climate change is 'the common concern of mankind'.[175] Whatever the precise legal status of this area, what is important is the growing recognition that the scale of the challenge posed can only really be tackled upon a truly international or global basis.

In the first serious effort to tackle the problem of ozone depletion, the Vienna Convention for the Protection of the Ozone Layer was adopted in 1985, entering into force three years later. This Convention is a framework agreement, providing the institutional structure for the elaboration of Protocols laying down specific standards concerning the production of chlorofluorocarbons (CFCs), the agents which cause the destruction of the ozone layer. Under the Convention, contracting parties agree to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer.[176] The parties also agree to co-operate in the collection of relevant material and in the formulation of agreed measures, and to take appropriate legislative or administrative action to control, limit, reduce or prevent human activities under their jurisdiction or control 'should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer'.[177] A secretariat and disputes settlement mechanism were established.[178] However, overall the Convention is little more than a framework within which further action could be taken.

In 1987 the Montreal Protocol on Substances that Deplete the Ozone Layer was adopted and this called for a phased reduction of CFCs and a freeze on the use of halons.[179] The control measures of the Protocol are

[175] See also the Noordwijk Declaration of the Conference on Atmospheric Pollution and Climate Change, 1989. See e.g. C. A. Fleischer, 'The International Concern for the Environment: The Concept of Common Heritage' in Bothe, *Trends in Environmental Law and Policy*, p. 321.

[176] Article 2(1). 'Adverse effects' is defined in article 1(2) to mean 'changes in the physical environment or biota, including changes in climate, which have significant deleterious effects on human health or on the composition, resilience and productivity of natural and managed ecosystems or on materials useful to mankind'.

[177] Article 2.

[178] Articles 7 and 11. See also the UN Environment Programme, *Handbook for the Vienna Convention for the Protection of the Ozone Layer*, 7th edn, Nairobi, 2006.

[179] See 26 ILM, 1987, p. 1541 and 28 ILM, 1989, p. 1301. See also R. Benedick, *Ozone Diplomacy*, Cambridge, MA, 1991, and A. C. Aman, 'The Montreal Protocol on Substances that Deplete the Ozone Layer: Providing Prospective Remedial Relief for Potential Damage to the Environmental Commons' in Francioni and Scovazzi, *International Responsibility for Environmental Harm*, p. 185. See also UN Environment Programme, *Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer*, 7th edn, Nairobi, 2006.

based on the regulation of the production of 'controlled substances'[180] by the freezing of their consumption[181] at 1986 levels followed by a progressive reduction, so that by mid-1998 consumption was to be reduced by 20 per cent in comparison with the 1986 figure. From mid-1998 onwards consumption was to be reduced to 50 per cent of the 1986 level.[182] However, this was subsequently felt to have been insufficient and, in 1989, the parties to the Convention and Protocol adopted the Helsinki Declaration on the Protection of the Ozone Layer in which the parties agreed to phase out the production and consumption of CFCs controlled by the Protocol as soon as possible, but not later than the year 2000, and to phase out halons and control and reduce other substances which contribute significantly to ozone depletion as soon as feasible. An Implementation Committee was established under the Montreal Protocol together with a non-compliance procedure, whereby a party querying the carrying out of obligations by another party can submit its concerns in writing to the secretariat. The secretariat with the party complained against will examine the complaint and the matter will then be passed to the Implementation Committee, which will try and secure a friendly settlement and make a report to the meeting of the parties, which can take further measures to ensure compliance with the Protocol.

The parties to the Protocol made a series of Adjustments and Amendments to the Protocol in June 1990,[183] the main ones being that 1992 consumption and production levels were not to exceed 1986 levels, while 1995 levels were not to exceed 50 per cent with 10 per cent exception to satisfy basic domestic needs; 1997 levels were not to exceed 15 per cent, with 10 per cent exception permitted, and 2000 levels were not to exceed 0 per cent with 15 per cent exception permitted. Broadly similar consumption and production targets have also been laid down with regard to halons. The 1990 Amendments made specific reference to the requirement to take into account the developmental needs of developing countries and the need for the transfer of alternative technologies, and a Multilateral Fund was established. Further Adjustments were made in Copenhagen

[180] I.e. ozone-depleting substances listed in Annex A.

[181] This is defined to constitute production plus imports minus exports of controlled substances: see articles 1(5) and (6) and 3.

[182] There are two exceptions, however, first for the purposes of 'industrial rationalisation between parties' and secondly with regard to certain developing countries: see article 5.

[183] See 30 ILM, 1991, p. 537.

in 1992,[184] introducing changes to the timetable for the phasing out of various substances, listing new controlled substances and adopting new reporting requirements. The Implementation Committee was enlarged and the Multilateral Fund adopted on a permanent basis.[185]

Action with regard to the phenomenon of global warming has been a lot slower. General Assembly resolutions 43/53 (1988) and 44/207 (1989) recognised that climate change was a common concern of mankind and determined that necessary and timely action should be taken to deal with this issue. The General Assembly also called for the convening of a conference on world climate change, as did the UNEP Governing Council Decision on Global Climate Change of 25 May 1989. In addition, the Hague Declaration on the Environment 1989, signed by twenty-four states, called for the establishment of new institutional authority under the auspices of the UN to combat any further global warming and for the negotiation of the necessary legal instruments. The UN Framework Convention on Climate Change was adopted in 1992.[186]

The objective of the Convention is to achieve stabilisation of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system and such level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure food production is not threatened and to enable economic development to proceed in a sustainable manner.[187] The states parties undertake *inter alia* to develop, update and publish national inventories of anthropogenic emissions by sources and removals by sinks[188] of all greenhouse gases not covered by the Montreal Protocol; to formulate, implement and update national and, where appropriate, regional programmes containing measures to mitigate climate

[184] See 32 ILM, 1993, p. 874. Further amendments were made in Montreal, 1997, and Beijing, 1999, increasing the substances covered: see www.unep.ch/ozone/treaties.shtml. See also the Montreal Adjustment on the Production and Consumption of HCFCs 2007.

[185] See also EC Regulation 91/594 of 4 March 1991, providing that after 30 June 1997 there should be no production of CFCs unless the European Commission had determined that such production was essential.

[186] 31 ILM, 1992, p. 849. See e.g. J. Werksman, 'Designing a Compliance System for the UN Framework Convention on Climate Change' in *Improving Compliance with International Environmental Agreements* (eds. J. Cameron, J. Werksman, P. Rodinck *et al.*), London, 1996, p. 85. See also Birnie and Boyle, *International Law and the Environment*, p. 523, and Sands, *Principles*, pp. 357 ff. See also http://unfccc.int/.

[187] Article 2.

[188] Defined as any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere, article 1(8).

changes; to promote and co-operate in the development, application and transfer of technologies and processes to control, reduce or prevent such anthropogenic emissions; to promote sustainable management and conservation of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol; to take climate change considerations into account to the extent feasible in their relevant social, economic and environmental policies; and to promote and co-operate in research, exchange of information and education in the field of climate change.[189] Developed country parties, and certain other parties listed in Annex I,[190] commit themselves to take the lead in modifying longer-term trends in anthropogenic emissions and particularly to adopt national policies and take corresponding measures on the mitigation of climate change by limiting anthropogenic emissions of greenhouse gases and protecting and enhancing greenhouse gas sinks and reservoirs.[191] Developed country and other Annex I parties must submit within six months of the Convention coming into force and periodically thereafter, detailed information on such matters with the aim of returning anthropogenic emissions to their 1990 levels. This information provided is to be reviewed by the Conference of the parties on a periodic basis.[192] In addition, developed country parties and other developed parties included in Annex II[193] are to provide the financial resources to enable the developing country parties to meet their obligations under the Convention and generally to assist them in coping with the adverse effects of climate change. The parties agree to give full consideration to actions necessary to assist developing country parties that may be, for example, small island countries, countries with low-lying coastal areas, countries prone to natural disasters, drought and desertification and landlocked and transit states.[194]

The Conference of the parties is established as the supreme body of the Convention and has the function *inter alia* to review the implementation of the Convention, periodically examine the obligations of the parties and the institutional arrangements established, promote the exchange of information, facilitate at the request of two or more parties the co-ordination of measures taken to address climate change, promote and

[189] Article 4(1).

[190] For example, former European Soviet Republics such as Belarus, the Ukraine and the Baltic states.

[191] Article 4(2)a. [192] Article 4(2)b.

[193] Essentially European Union countries, the US, Australia, Canada, New Zealand, Iceland, Japan, Switzerland and Turkey.

[194] Article 4(8).

guide the development of comparable methodologies for the preparation of inventories, assess the implementation of the Convention by the parties, consider and adopt regular reports on implementation and make recommendations on any matters necessary for the implementation of the Convention.[195] In addition, the Convention provides for a secretariat to be established, together with a subsidiary body for scientific and technological advice and a subsidiary body for implementation.[196] The Convention as a whole is a complex document and the range of commitments entered into, particularly by developed country parties, is not wholly clear.

The Convention entered into force in 1994 and the following year the first session of the Conference was held in Berlin.[197] It was agreed that the pledges by the developed country parties to reduce emissions by 2000 to 1990 levels were not adequate and preparations were commenced to draft a further legal instrument by 1997. It was also agreed not to establish new commitments for developing country parties, but rather to assist the implementation of existing commitments. The parties decided to initiate a pilot phase for joint implementation projects, providing for investment from one party in greenhouse gas emissions reduction opportunities in another party. In addition, it was decided to establish a permanent secretariat in Bonn and two subsidiary advisory bodies.

The 1997 Kyoto Protocol[198] commits developed country parties to individual, legally binding targets to limit or reduce their greenhouse gas emissions, adding up to a total cut of at least 5 per cent from 1990 levels in the 'commitment period' of 2008–2012. Developing countries are obliged simply to meet existing commitments. Certain activities since 1990 which have the effect of removing greenhouse gases, such as forestry schemes (so-called 'carbon sinks'), may be offset against emission targets. The Protocol also allows states to aggregate their emissions, thus allowing, for example, European Union members if they wish to be counted together permitting less developed members to increase emissions on the account of other members. In addition, states may receive credits for supporting emission-reducing projects in other developed states ('joint implementation') and in certain circumstances in developing states ('the clean development mechanism'), and the possibility has been provided for trading emission permits, so that some countries

[195] Article 7. [196] Articles 8–10. [197] See 34 ILM, 1995, p. 1671.
[198] This came into force on 16 February 2005. See D. Freestone and C. Streck, *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, Oxford, 2005.

may purchase the unused emission quotas of other countries ('emissions trading').[199]

The Conference of the Parties meets regularly to review the Convention and Protocol. There are two supplementary bodies, one on scientific and technological advice and one on implementation. The financial mechanism of the Convention is operated by the Global Environment Facility, established by the World Bank, UN Environment Programme and UN Development Programme in 1991, while advice is received from the Intergovernmental Panel on Climate Change, established by the World Meteorological Organisation and the UN Environmental Programme.[200] Annex 1 countries (essentially the developed states) must provide annual inventory reports on greenhouse gas emissions to the secretariat, which are subject to in-depth and technical review.[201] Developing countries are subject to weaker reporting requirements. There is a Compliance Committee with facilitative and enforcement branches for parties to the Kyoto Protocol (as amended by the Marrakesh Accords 2001).[202]

Outer space[203]

The Outer Space Treaty, 1967 provides that the exploration and use of outer space is to be carried out for the benefit and in the interests of all states.[204] The harmful contamination of space or celestial bodies is to be avoided, as are adverse changes in the environment of the earth resulting from the introduction of extraterrestrial matter.[205] Nuclear weapons and other weapons of mass destruction are not to be placed in orbit around the earth, installed on celestial bodies or stationed in outer space, and the moon and other celestial bodies are to be used exclusively for peaceful purposes.[206] The Agreement Governing the Activities of States on the

[199] Further advances were made at meetings in Buenos Aires 1998, Bonn 2001 and Marrakesh 2001: see unfccc.int/issues/mechanisms.html.

[200] See www.ipcc.ch/.

[201] The requirements are more stringent with regard to the Kyoto Protocol parties.

[202] Note the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007, which analysed the dangers of human-induced climate change. It was endorsed by governments by consensus: see www.ipcc.ch.

[203] See further above, chapter 10, p. 541. See also Birnie and Boyle, *International Law and the Enviroment*, p. 534, and Sands, *Principles*, pp. 382 ff.

[204] Article 1. [205] Article 9.

[206] Article 4. See also the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, adopted by the UN General Assembly in resolution 47/68 (1992). Goals for radioactive protection and safety are stipulated.

Moon and Other Celestial Bodies, 1979 provides that the moon and its natural resources are the 'common heritage of mankind' and are to be used exclusively for peaceful purposes.[207] Article VII stipulates that in exploring and using the moon, states parties are to take measures to prevent the disruption of the existing balance of its environment whether by introducing adverse changes in that environment or by its harmful contamination through the introduction of extra-environmental matter or otherwise.

There is, in particular, a growing problem with regard to debris located in outer space. Such debris, consisting of millions of objects of varying size in space,[208] constitutes a major hazard to spacecraft. While liability for damage caused by objects launched into space is absolute,[209] the specific problem of space debris has been addressed in the Buenos Aires International Instrument on the Protection of the Environment from Damage Caused by Space Debris, adopted by the International Law Association at its 1994 Conference.[210] The draft emphasises the obligations to co-operate in the prevention of damage to the environment, in promoting the development and exchange of technology to prevent, reduce and control space debris and in the flow and exchange of information, and to hold consultations when there is reason to believe that activities may produce space debris likely to cause damage to the environment or to persons or objects or significant risks thereto. The principle proclaimed by the draft is that each state or international organisation party to the instrument that launches or procures the launching of a space object is internationally liable for damage arising therefrom to another party to the instrument as a consequence of space debris produced by any such object.[211]

[207] See articles III and XI.

[208] Such debris may result from pollution from spacecraft, abandoned satellites, orbital explosions and satellite break-ups or hardware released during space launches and other normal manoeuvres. See e.g. L. Roberts, 'Addressing the Problem of Orbital Space Debris: Combining International Regulatory and Liability Regimes', 15 *Boston College International and Comparative Law Review*, 1992, p. 53. See also S. Gorove, 'Towards a Clarification of the Term "Space Objects" – An International Legal and Policy Imperative?', 21 *Journal of Space Law*, 1993, p. 10.

[209] See e.g. B. Hurwitz, *Space Liability for Outer Space Activities*, Dordrecht, 1992, and see further above, chapter 10, p. 546.

[210] Report of the Sixty-sixth Conference, Buenos Aires, 1994, pp. 317 ff. This, of course, is not a binding treaty, but a suggested draft from an influential private organisation.

[211] Article 8 of the draft.