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INTERNATIONAL ENVIRONMENTAL CRIME: The Nature and Control of Environmental Black Markets

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Introduction

This paper is designed to provide a brief background and introduction to the subjects to be discussed at the Royal Institute of International Affairs' expert-level workshop on 'International Environmental Crime: the Nature and Control of Environmental Black Markets'.

The paper is not a definitive exploration of the subject, but will nevertheless, we hope, prove of value in setting the context for the discussions. As much as possible during the workshop sessions, we want to avoid spending too much time on simple description, and concentrate on analysis and on suggestions for action: why do environmental black markets develop and how can they be dealt with? – throughout, making comparisons with and drawing lessons from experiences of tackling international environmental crime in each of the five main areas under consideration: illegal trade in wildlife, illegal fishing, illegal logging, illegal trade in ozone-depleting substances and illegal trade in hazardous waste. This paper is therefore designed to provide the basic background.

A full report of the discussions at the workshop will be circulated to all participants and placed on the RIIA website as soon as possible after the workshop. The discussions will also feed into a larger publication being written by the authors of this paper and planned for publication in 2003. This paper itself draws on previous work by the same authors, including the background paper for a UNEP workshop on 'Enforcement of and Compliance with MEAs: The Experiences of CITES, Montreal Protocol and Basel Convention' held in July 1999.¹

1 The growth of international environmental crime

Over the last three decades the protection of the natural environment has climbed steadily up the ladder of public and governmental concern. Countries have adopted laws and taxes, and established policy, regulatory and enforcement institutions to deal with the problems of pollution, resource depletion and destruction of biodiversity.

At the international level, almost 250 environmental treaties ('multilateral environmental agreements', or MEAs) now exist, and several more are currently under negotiation or have been agreed but are yet to enter into force. All of them place specific or general obligations upon their signatory countries, and many of them establish particular bodies to deal with their implementation and enforcement. A number of international institutions deal with environmental protection, including most notably the United Nations Environment Programme, UNEP.

Needless to say, the more extensive is the framework of national and international legislation, the more opportunities there are to evade it. Deliberate evasion of environmental laws and regulations by individuals and companies in the pursuit of personal financial benefit can be termed 'environmental

¹ A shorter version of this paper, covering only some of the topics, will be published in Sara Oldfield (ed.), *Regulation, Enforcement and the International Trade in Wildlife* (Earthscan, 2002, forthcoming).

crime'. Where these activities involve movements across national boundaries, or impacts upon the world as a whole, they can be termed 'international environmental crime'.²

Areas of concern

The most commonly known examples of this type of criminal activity fall under four major categories.

In the area of *biodiversity*, illegal trade in endangered species of wild flora and fauna and their products: – evasion of the controls instituted under the 1973 Convention on International Trade in Endangered Species (CITES) – is probably the best known instance of international environmental crime, and is considered extensively throughout this book. Other examples include illegal whaling, in breach of the controls instituted by the International Whaling Commission, and biopiracy, the illegal use of genetic resources or information – for example for development and commercialisation as pharmaceutical products – removed from indigenous habitats without permission or licensing. There is also the future possibility of illegal trade in genetically modified products, in breach of the provisions of the 2000 Cartagena Protocol to the Biodiversity Convention (agreed but not yet in force), which establishes a system for regulating such trade.

Natural resources-related crime covers two main areas. Illegal fishing – for example, banned driftnet catches, or fishing beyond quota – is a relatively recent phenomenon. As 60% of the ocean fisheries are currently being exploited at or beyond their sustainable yield, it is also a matter of growing concern. Illegal logging and trade in timber and timber products is widespread and represents not only a threat to biodiversity (and in some cases a breach of CITES controls), but also a major loss of revenue to many developing economies. These two examples could fit into the first category, of 'biodiversity-related' crime, but they are slightly different in that each is an example of activities that could be legal if restrained to a particular level but are being carried out at an unsustainable level, in breach of various controls and regulations.

In the areas of *wastes*, the illegal movement of hazardous wastes – in breach of the 1989 Basel Convention – is probably the newest area of international environmental crime. Rising standards of waste disposal in many industrialised countries are leading to rising costs and hence a growing incentive for illegal disposal. The illegal disposal of nuclear waste is a closely related topic; regulation is the responsibility of the International Atomic Energy Authority. And the dumping of waste oil at sea, in breach of the International Maritime Organisation's Marine Pollution (Marpol) Convention, is a matter of concern to many countries with long coastlines.

Environmental crime related to *banned substances* currently has one example, the illegal production of and trade in ozone-depleting substances (ODS), in breach of the controls required by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. There are in addition, however, possible future candidates, including evasion of the controls of the 1998 Rotterdam Convention on chemicals and pesticides, and the 2001 Stockholm Convention on persistent organic pollutants (POPs convention), which have both been agreed but are not yet in force.

² Definitions used in UNEP, *Enforcement of and Compliance with MEAs: The Experiences of CITES, Montreal Protocol and Basel Convention* (Nairobi: UNEP, 1999), Vol. I, p. 24.

The drivers behind black markets

There are several reasons, or drivers, behind the emergence of international environmental crime and environmental black markets:

- **Differential costs or values:** where illegal activities are driven by regulations creating cost differentials between legal and illegal products, by differential compliance costs, or different consumer prices, in different countries, by demand for scarce products for which substitutes are not available or accepted and by a lack of concern for or valuation of the environment. Examples include wildlife, logging, whaling, ODS and wastes.
- **Regulatory failure:** where illegal activities result from a lack of appropriate regulation, including failures to determine and/or protect property rights (open access problems). Examples include wildlife, logging, fishing and wastes.
- **Enforcement failure:** where illegal activities exist because of problems with enforcement, including suitability of regulation/enforcement methodology and costs of compliance, regulatory capture, lack of resources and infrastructure, political will and/or expertise, corruption, and political and economic disruption. Examples include wildlife, logging, ODS, and wastes.

The reported incidence of illegal environmental activities has undoubtedly grown in recent years, partly because the implementation of new multilateral environmental agreements (MEAs) has provided new opportunities for evasion, and partly because greater public and governmental awareness has led to more investigation into the issues. Other contributory factors include the general trend towards trade liberalisation and deregulation, which makes border controls more difficult; the growth of transnational corporations and activities, amongst whom regulations are often difficult to enforce; the transformation of the Comecon bloc, and the difficulties of environmental law-making and law enforcement, and the rise of organised crime, in many transition economies; and the growing involvement of developing countries in MEAs, but – in many of them – a lack of adequate resources to implement their provisions effectively. For all these reasons, it seems very likely that international environmental crime will continue to expand in the coming decades.

The rest of this paper looks at five of these areas in more depth: illegal trade in wildlife, illegal fishing, illegal logging, illegal trade in ozone-depleting substances and illegal trade in hazardous waste. We end by drawing some general conclusions about the growth and control of international environmental crime, and suggesting some broad recommendations for action.

2 Illegal trade in wildlife

Criminal activities: scale, sources and methods

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was agreed in Washington in 1973 and came into force in 1975. It currently has 158 parties, and is generally regarded as one of the most successful of the international conservation treaties.

The illegal trade in wildlife, in contravention of the controls established by CITES, is perhaps the highest-profile area of international environmental crime. The poaching and smuggling of

commodities such as ivory, rhino horn, tiger bones, sturgeon eggs, bear galls, wild-caught parrots and other luckless wildlife with a high commercial value on its head directly threatens some or all of the populations of these species in the wild. Unfettered trade in derivatives from hundreds of other less charismatic species also serves to further deplete wild populations subject to many other pressures. Because of its diverse origins, multiplicity of products, broad consumer base and innately clandestine, high value/low volume nature, it may also be one of the hardest to control. Conversely, it is also the area where enforcement authorities have learnt to cooperate with the most success.

The wildlife trade flows predominantly from less developed to more developed countries (i.e. South to North) and reflects consumption patterns ranging from the medical need through to the frivolous. Major sources of demand are the exotic pet and flower trade, ingredients for traditional East Asian medicine, cultural materials (such as ivory for personal *hanko* seals in Japan and rhino horns for dagger handles in the Yemen) and exotic curios and accessories. The clandestine nature of the trade means that live specimens are frequently transported in terrible conditions and many die *en route*. For example, mortality levels of 80% were associated with the wild-caught bird trade from Africa to Europe in the late 1980s.

CITES lays out agreed procedures for controlling export and import procedures for some 34,000 species of wildlife; it does not seek to regulate habitat protection or control harvesting operations within countries. The degree of protection afforded to a given species depends on the Convention's Appendices. Over 800 species are listed on Appendix I, as they are 'threatened with extinction' and 'are or may be threatened by trade' (Article II). Examples include the great apes, the great whales, spotted cats, the Asian elephant and most African elephant populations, rhinoceroses, crocodilians, boa constrictors and pythons, many of the more exotic birds of prey, parrots and cockatoos and certain orchids and cacti. Commercial trade in Appendix I species is banned, although innovations such as the use of hunting quotas and ranching have been introduced to allow limited revenue generation for protection programmes. Species listed on Appendix II are less closely regulated but trade must be authorised by a certificate issued by the Management Authority of the exporting country, attesting that exports do not pose a threat to wild populations.

The most obvious mechanism to circumvent CITES' trade control is direct poaching and smuggling. Fraudulent application for genuine CITES permits, faked certificates, making false declarations to customs or laundering illegal specimens as captive-bred³ or as pre-Convention stockpiles have also been used to aid and abet illegal traffic.

Compiling data from various sources, the total global commercial exchange of wildlife has been estimated at between US\$10–20bn, of which some \$5bn may be in contravention of CITES.⁴ A much-cited comparison places traffic in wildlife contraband as second only to narcotics smuggling in terms of illegal profits; however, several other illegal markets such as arms and software piracy also claim this distinction. Certainly, smuggling precious commodities such as ivory, rhino horn, tiger bones, sturgeon eggs, bear galls, wild-caught parrots or orchids can be fairly lucrative. An African grey parrot exported from the Ivory Coast may be worth US\$20 at the time of capture, US\$100 at the point

³ Captive bred species are not subject to the same restrictions as wild-caught animals.

⁴ This best-guess is ubiquitous, although nobody seems certain of its origin. One of its first 'official' uses was in a UNEP press release after the 1994 CITES Conference of the Parties in Fort Lauderdale, USA. The figure may have been an extrapolation to the total commercial value of the wildlife trade based on earlier reports that one quarter of all the trade in parrots across the US–Mexican border was illegal.

of export, US\$600 to an importer in the US or Europe and over US\$1100 to a specialist retailer. Musk pods from the Siberian musk deer (*Moschus moschiferus*) may be worth some US\$2–3/g to a hunter, US\$7–8/g to a Russian middle-man, US\$12–14/g to a European or South Korean trader and over US\$50/g to the European perfume industry; value in the chain increases some twenty-five times. Despite the financial value of trafficking in prestigious endangered species, the bulk of wildlife crime is made up of less charismatic species like reptiles, which are traded in far larger volumes.

More meaningful estimates of illegal traffic may be found by looking at particular countries or particular sectors of the trade. At the height of the illegal ivory trade in the 1980s during the collapse of the CITES-imposed Ivory Export Quota System, a review group estimated that some 80–95% of ivory traded was illegal. Even when a legal trade in rhino horn existed, unlicensed imports into consuming countries were four to twelve times larger than licensed commerce to avoid taxes. A report by Colombia's Environment Ministry estimated that seven million specimens of reptiles, birds, monkeys, spiders and other species – worth about US\$40 million on the black market – were smuggled out of the country each year; some 80% of which died *en route* to their destinations.

Methods of control

As noted above, wildlife crime is the area with which enforcement agencies, including wildlife protection, police and customs, and NGOs around the world have the most experience. A wide variety of strategies and techniques have been employed with varying degrees of success.

Reducing demand

Public education in reducing demand for endangered species and their products is one potential route to reducing illegal trade. There are some possibilities here: in comparison with the other MEAs, CITES, and the protection of endangered species in general (particularly of the 'megafauna' – elephants, rhinos, big cats, etc.) already has a relatively high public profile and support, and greater numbers of NGOs active in the area, both in range states and in consuming states. The largely successful campaign against fur-wearing in many developed countries (though this was largely on grounds of animal welfare rather than species protection) in recent decades, and the general spread of 'ethical' business practices, are further encouraging signs. On the other hand, it is difficult (though not impossible) to reduce demand for products for traditional purposes, particularly, for example, for medicines, and the extinction of the species in question may well occur before this could be achieved. Also, NGOs in particular have tended to focus on the more 'glamorous' angle of non-compliance and crime rather than more basic public information, which can nevertheless reap significant rewards.

Affecting supply

If species can be protected more effectively in the range states, then the danger of extinction from illegal trade becomes accordingly less of a concern. The best examples of this are the rhino, where 'intensive protection zones' have worked effectively, and the African elephant, where successful conservation strategies in southern Africa have increased numbers to the point where they are actually above the carrying capacity of most of the countries in question. Habitat protection policies could often be better coordinated with CITES enforcement, particularly where only small numbers of the species are present. For many species, however, habitat protection is a difficult strategy, competing for land and resources with many other priorities. The other major possibility in the area of supply is to increase farming, ranching and captive breeding programmes – 'sustainable use' policies, making

market access conditional on good husbandry – increasing the supply of some products, and helping to move the species further away from extinction.

Controlling illegal trade

At the international level, the CITES Secretariat's enforcement assistance staff maintain close links with Interpol and the World Customs Organisation, and intelligence relating to illegal trade is disseminated between the three organisations. They also engage in joint projects, training and help raise awareness of CITES issues amongst national police and customs personnel. The Interpol Working Party on Environmental Crime was set up in 1993, with a subgroup on wildlife crime, with the aim of improving information exchange and analysis. Two intelligence analysis projects (on live reptiles, and primates) have been undertaken, a Practical Guide on CITES Management Authority – Interpol cooperation published, regional working groups of law enforcement officers have been supported and 'training for trainers' courses on environmental criminal investigations (including wildlife crime) begun. The WCO signed a memorandum of understanding with the CITES Secretariat in 1996, providing for information exchange, cooperation between CITES Management Authorities and customs officials at national level, and training and awareness-raising exercises.

At the national level, countries have varying degrees of experience with implementing CITES provisions. Despite the almost thirty years since its negotiation, many parties still lack effective implementing legislation, and in recent years CITES has concentrated on working with parties to improve the quality of their domestic regulations. Equally, the regime has proved willing to apply trade controls against non-complying parties (and against non-parties) on many occasions, with a good record of success.⁵ Specific missions may be carried out to countries experiencing implementation problems; in 2000 the Tiger Enforcement Task Force, coordinated by the Secretariat's Enforcement Assistance Unit and comprising law enforcement and customs officers from consumer and range states, was established to target illicit trade in tigers and tiger parts and derivatives. It provides technical assistance on wildlife crime and illicit trade, and intelligence support to parties, with country representatives being responsible for operations within their territory, may provide training, and liaises with Interpol, the WCO and appropriate regional law enforcement groups.

Many countries have good records of enforcing CITES and acting against illegal trade in wildlife. The South African Endangered Species Protection Unit, for example, is an excellent model of a unit with specialised knowledge of wildlife crime and enforcement, gathering intelligence and coordinating action. The UK's CITES team of customs officers, based at Heathrow Airport, is generally regarded as a good model in enforcing controls at the border, and, also in the UK, the Partnership for Action on Wildlife Crime (PAW), which includes NGOs as well as enforcement agencies, has provided intelligence and effective action inside national borders.

⁵ For a full description of the CITES non-compliance mechanism, see Ros Reeve, *Policing International Trade in Endangered Species: The CITES Treaty and Compliance* (RIIA/Earthscan, 2002, forthcoming).

3 Illegal fishing

Criminal activities: scale, sources and methods

Illegal fishing is a relatively recent phenomenon. As most of the world's major fishing grounds are now facing over-exploitation, it is also a matter of growing concern, both in terms of the threats posed to species survival (including other species caught alongside the fish, such as sea turtles, or albatrosses), but also the economic costs of exhaustion of fish stocks. Studies suggest that over two-thirds of global fish stocks are now being exploited at or above their maximum sustainable yield, and a 30-50% reduction in fishing world-wide is required to return fisheries to a sustainable level.

Key global fishing fleets are heavily subsidised – though much less so than in the 1970s and '80s – so even entirely legal fishing is posing a substantial threat to the survival of fish stocks. However, the problem is significantly exacerbated by various forms of 'illegal, unregulated and unreported' (IUU) fishing. In UN terminology, illegal fishing takes place where the fishery is against the law; unreported fishing takes place where legal instruments are in place to control the fishery, but no requirements for reporting, or penalties for non-reporting, exist; and unregulated fishing occurs where legal instruments are not required, not applied, or not adequate.

There is no global estimate of the extent of IUU fishing, but there is evidence from particular fisheries and regions. One of the best known examples is that of the Patagonian toothfish, a large, long-lived and slow-growing deepwater fish increasingly in demand as a replacement for over-exploited whitefish such as cod. Systematic commercial exploitation started only in the late 1980s, but has already exhausted stocks off Argentina and South Africa. In 1996–97, authorised catches under the Convention on Conservation of Antarctic Marine Living Resources amounted to 10,370 tonnes (with an additional 22,386 tonnes in catches in exclusive economic zones), but estimates from port landings and trade data suggested that an additional 42,8000 tonnes was caught illegally. The price of the toothfish fell drastically, and illegal fishing in 1997–98 was estimated to have reached the lower figure of 33,500 tonnes.

Two main types of poaching operation can be identified. The so-called 'Vikings' are mostly Norwegian and Faroese nationals working from relatively new, high technology boats often equipped with modern blast freezers. The majority of these boats operate out of Mauritius, which is not a member of the Convention; fifteen such vessels, almost all those known, were recorded landing 10,000 tonnes of toothfish at Port Louis at the end of the illegal season in 1997, earning between \$30–35m. In contrast, the so-called 'Spanish Armada' consists of a large number of somewhat older Chilean, Argentinean and Spanish boats. With less capital at risk and fishing in less deep waters, they seem to accept a higher risk of arrest and tend to fish illegally in exclusive economic zones around sub-Antarctic islands. Almost 100 of these longliners have been involved in IUU fishing over the last two years. As Convention member states have gradually closed their ports to unlicensed landings, the pirate ships have switched to transshipping their haul directly to freighters at sea; the catch is then processed on land, passing in most cases through the Punta Arenas free trade zone in Chile or Montevideo in Uruguay. China and South Korea are more recent landing points.

The example of the Patagonian toothfish demonstrates many of the problems connected with controlling IUU fishing: non-signatory states to the relevant convention, ships flying flags of convenience to escape domestic controls, and the enormous difficulty of tracking illegal activities across a huge area of ocean. These problems have been demonstrated in many other cases. Even in comparatively well-regulated European waters, illegal fishing is rife, created largely by the shrinking

quotas (including those set under the EU's Common Fisheries Policy) for commercially valuable human consumption stocks. Misreporting of catches and retention of undersized fish or fish caught over the allowed quotas is common; recent estimates suggest that up to 40% of the total catch of the Scottish fleet, for example, may be illegal. Financial and contractual pressure from retailers (usually supermarket chains) to supply regular quantities of fresh fish often force the processors to buy from the black market, which in turn undercuts legitimate sales.

No single global agreement governs fisheries management. The UN Convention on the Law of the Sea (UNCLOS), which entered into force in 1992, establishes 200-mile exclusive economic zones (EEZs) as the sovereign territory of the coastal nation. This covers some 40% of the world's oceans, including an estimated 95% of the total marine fish catch. Although enforcement of fishing regulations within EEZs is by no means straightforward, it is at least slightly easier than control of IUU fishing on the high seas and amongst straddling, or migratory, stocks. The 1995 UNCLOS Straddling Stocks Agreement, when it enters into force, will require states to belong to a regional management organisation or agreed management arrangement before they can have access to areas where conservation and management efforts are being applied. The FAO Compliance Agreement, adopted in 1993, will require flag states to keep registers of vessels authorised to fish on the high seas, and to exchange them with other signatories; it also charges parties to assume enforcement responsibilities. Although the agreement is not yet in force, its provisions have already been incorporated into international agreements and decisions of parties to conventions. The FAO is also currently drawing up an IUU plan of action.

A number of important regional fisheries agreements are now in force. These include the Convention on Conservation of Antarctic Marine Living Resources (CCAMLR), which specifies quotas for species such as the toothfish; the International Convention for the Conservation of Atlantic Tunas (ICCAT), the Convention for the Conservation of Southern Bluefin Tuna, the Convention on the Prohibition of Fishing with Long Driftnets in the South Pacific, and several others. Both CCAMLR and ICCAT have agreed to prohibit landings and transshipments of the relevant fish and products from non-parties and non-complying parties, with some effect. CCAMLR has also recently adopted a catch documentation scheme to better regulate activities. But all these agreements must rely on gunboat enforcement by their member states, which is impracticable on a large scale.

Methods of control

Of all the areas of international environmental crime, IUU fishing is probably the most difficult to prevent. Added to the familiar problems of lack of enforcement capability and the difficulties in detection of illegal material (i.e. distinguishing it from legally caught fish) there is the problem of detection of the illegal activity in the first place.

Reducing demand

As with illegal logging, reducing the demand for illegally caught fish requires some means of identification of the products along the 'chain of custody'. Again as with timber, no such system yet exists, though the Marine Stewardship Council, an independent organisation established by WWF and Unilever, operates a labelling scheme identifying *sustainability* of production, which should imply legality as well. Coverage of world fisheries is tiny, but growing. The FAO is reportedly also considering a certification scheme.

Reducing supply

Again as with illegal logging, some of the pressure behind IUU fishing stems from government subsidies for the fishing industry resulting in over-capacity of fishing vessels and equipment. In 1989 total government support for the fishing industry world-wide came to \$92 billion (compared with a total catch value of only \$70 billion). This fell steadily throughout the 1990s, along with the general deregulatory drive in many Western economies, and the collapse of the Soviet economy, previously one of the biggest source of subsidies – down to \$54 billion in 1992 and possibly as low as \$14 billion in 1997. There are obvious political problems involved in reducing subsidies for an industry which is often the main employer in some coastal communities, but further downwards pressure on subsidies would help reduce excessive capacity.

Controlling the illegal trade

World-wide, nearly 100 million tonnes of fish catches are reported and regulated to some degree. Enforcing regulations over a significant fraction of these operations demands very substantial resources; for example, the total value of UK fish landings is only £550 million annually, and government expenditure on regulation comes to £45 million. Even with this level of spending (and the UK level is relatively high compared to other EU countries), inspections of individual boats are necessarily limited. EU enforcement authorities carried out a total of 20,357 inspections in 1990; given 50,000 fishing vessels, the average chance of inspection was then once every two years. The EU fleet made nearly 2.5 million recorded trips that year, whilst the number of offences detected was 2,393. Inspection is never entirely random and some boats commit more than one offence but, in general, some 10% of vessels inspected were found guilty of an infringement. Across the entire fleet, there may be approximately 250,000 infringements per year, or five infringements per boat per year

4 Illegal logging

Criminal activities: scale, sources and methods

Of all the different varieties of international environmental crime, illegal logging and the illegal trade in timber and timber products is almost certainly the most economically significant. Some estimates suggest that the illegal timber trade may comprise over a tenth of a global business worth over US\$150bn a year. It seems likely that at least half of all the logging activities in particularly vulnerable regions – the Amazon Basin, Central Africa, Southeast Asia and the Russian Federation – is illegal.⁶

Illegal logging takes place when timber is harvested, transported, bought or sold in violation of national laws. The harvesting procedure itself may be illegal, including corrupt means to gain access to forests, extraction without permission or from a protected area, cutting of protected species or

⁶ For further details on illegal logging, see Duncan Brack and Gavin Hayman, *Intergovernmental Actions on Illegal Logging* (Royal Institute of International Affairs, March 2001) and Duncan Brack, Gavin Hayman and Kevin Gray, *Controlling the International Trade in Illegally Logged Timber and Wood Products* (Royal Institute of International Affairs, February 2002); both available from www.riia.org.

extraction of timber in excess of agreed limits. Illegalities may also occur during transport, including illegal processing and export, misdeclaration to customs, and avoidance of taxes and other charges.

Illegal logging is not confined to developing countries, but the problems there are much worse, as resources are limited, international companies which offer investment are proportionately more powerful, and civil society is weaker. Allocation of timber concessions has often been used as a mechanism of mobilising wealth to reward allies and engender patronage. Protected by powerful patrons, timber companies may evade national regulations with relative impunity. State forestry institutions may be subject to regulatory capture, becoming clients of concession-holding industrial interests of the ruling elite, exercising their powers as a form of private property rather than as a public service.

As in other areas, the clandestine nature of the illegal trade makes its scale and value difficult to estimate, but it is true to say that extensive unlawful operations have been uncovered whenever and wherever authorities have tried to find them. As the World Bank's 1999 review of its global forest policy observed, 'countries with tropical moist forest have continued to log on a massive scale, often illegally and unsustainably. In many countries, illegal logging is similar in size to legal production. In others, it exceeds legal logging by a substantial margin ... poor governance, corruption, and political alliances between parts of the private sector and ruling elites combined with minimal enforcement capacity at local and regional levels, all played a part.'⁷

To give a few examples, a joint UK-Indonesia study of the timber industry in Indonesia in 1998 suggested that about 40% of throughput was illegal, with a value in excess of US\$365 million; more recent estimates suggest over 70% of logging in the country is illegal in some way. Similarly, over 80% of logging in the Amazon may not be compliant with government controls. A World Resources Institute comparison of import and export data for Myanmar in 1997 revealed substantial under-declaration, accounting for foregone revenue of US\$86 million, equivalent to almost half of official timber export revenues. Studies in Cambodia – the 'green lung of Asia' – in 1997 by Global Witness and the World Bank suggested illegal extraction may be over 4 million m³, at least ten times the size of the legal harvest, worth between US\$0.5–1bn. If this level of extraction continues, the country would be logged out in just ten years from when the industry officially began.

The scale of illegal logging represents a major loss of revenue to many developing economies and can lead to widespread associated environmental damage; it is also a threat to biodiversity, and in some cases a breach of CITES controls. A Senate Committee in the Philippines estimated that the country lost as much as \$1.8 billion per year from illegal logging during the 1980s. The substantial revenues from illegal logging sometimes fund and thereby exacerbate national and regional conflict, the strongest recent example being Cambodia, where Khmer Rouge forces were sustained primarily by logging revenues for several years in the mid 1990s.

The illegal trade may also distort the entire global marketplace for a number of key timber products, making it difficult for sustainable management – which has to endure additional costs from good husbandry and proper tax declaration – to survive. As the World Bank reported, 'widespread illegal extraction makes it pointless to invest in improved logging [practices]. This is a classic case of concurrent government and market failure.'

⁷ World Bank, *Forest Sector Review* (New York: World Bank, 1999), p. xii.

Methods of control

Unlike the case of ozone-depleting substances, there is no global MEA on forestry; an attempt was made to agree one at the Rio ‘Earth Summit’ in 1992, but most developing countries regarded it as an infringement of their national sovereignty. A series of generally ineffective international bodies has been created to act as a forum for debate; the latest incarnation, the UN Forum on Forests, came into being in 2001. This lack of an overall framework for international enforcement means that even the rather poor levels of international action achieved on ODS have not generally been managed on timber.

In the last few years, however, several countries have displayed a growing interest in tackling the issue, and in September 2001, countries from East Asia and other regions participated in the Forest Law Enforcement and Governance ministerial conference in Indonesia, an important initiative designed to establish a framework through which producer country governments could work together with each other and with governments of consumer countries to tackle illegal activities. Further such conferences are planned for other regions with significant forest resources, starting with central Africa, provisionally in January 2003 (with a pre-meeting taking place in Brazzaville in June 2002).

Reducing demand

Reducing the demand for illegal logs essentially requires replacing it with a demand for legally produced material – which in turn requires some means of identification all along the ‘chain of custody’. No such system yet exists (though there is growing interest in one), though schemes established to identify *sustainability* of production – such as the Forest Stewardship Council certification scheme – generally imply legality of production as well. There are several international forums under which such a system could be developed, including the UNFF, CITES, the International Tropical Timber Organisation, and the OECD Anti-Bribery Convention, but it may also be possible to introduce them through bilateral agreements between individual producer/exporter and consumer/importer nations; an agreement signed in April 2002 between the governments of the UK and Indonesia contains a commitment to do just that. Government procurement policy, which in some countries (including the UK) is increasingly being targeted on sustainably sourced timber, is a potentially important tool.

Reducing supply

Much illegal logging stems from over-allocation of logging concessions and processing licenses; frequently associated with corruption. Reform of the systems therefore usually requires thorough-going reform of legislation (which is often outdated and inadequate) and of the administrative systems which implement it. The reform of taxation systems, which are currently often volume-based, thereby encouraging maximum exploitation of concessions, is also a valuable route to follow.

Controlling the illegal trade

There are a number of points along the chain of production and supply at which enforcement efforts can be aimed. In producer countries, specialised enforcement units – such as the Malaysian task force set up by the police, Anti-Corruption Agency, Forestry Department and the army – bypassing local bureaucracies have been used with some success. Private industrial surveillance companies can also be used; the Swiss firm SGS, for example, has been called in to monitor customs departments, and increase revenue collection, in a number of countries including Cameroon, Ghana, Indonesia and Malaysia. Close cooperation with local communities is helpful, both because they are good sources of

intelligence and because the provision of alternative employment opportunities is usually necessary to end small-scale illegal activity.

In consumer/importer countries, as noted, any action by customs and other enforcement agencies depends on the development of a mechanism for detecting illegal products, and, in many countries, new legislation making it illegal for products produced illegally overseas to be imported or put on sale. Greater cooperation between different agencies, and between agencies for different countries, is a prerequisite for success.

5 Illegal trade in ozone-depleting substances

Criminal activities: scale, sources and methods

The emergence of illegal trade in ozone-depleting substances (ODS) is a good example of a problem springing directly from the negotiation and implementation of an international treaty. With hindsight, it could have been foreseen, and if it had been, the agreement would have written slightly differently.⁸

The Montreal Protocol on Substances that Deplete the Ozone Layer was agreed in 1987. It was designed to eliminate the production and consumption of a family of industrial chemicals, including chlorofluorocarbons (CFCs), widely used, because of their cheapness, lack of toxicity and effectiveness, in refrigeration, air conditioning, foam blowing and aerosols. CFCs, along with other ozone-depleting substances (ODS) damage the Earth's stratospheric ozone layer, letting through increased amounts of ultraviolet light to the planet's surface, with an accompanying impact on human, animal and plant health, such as an increased incidence of skin cancer and eye damage.

The Montreal Protocol has turned out to be one of the most effective – if not *the* most effective – multilateral environmental agreement (MEA) in existence, with its phase-out schedules being accelerated on no less than five occasions. With a few exceptions, production and consumption of the main categories of ODS came to an end in the industrialised world at the end of 1995, and will do so in developing countries by the end of 2010.

One of the remaining threats to the success of the ozone regime, however, has been the emergence, since the mid 1990s, of illegal trade in ODS, primarily in the US and EU, but now also in developing countries. In 1994–95, CFCs were the second most valuable contraband smuggled through Miami, after cocaine. Precise figures are of course impossible to come by, but government and industry estimates suggest global totals of 16,000 – 38,000 tonnes in the probable peak year, 1995. The higher figure is equivalent to 15% of consumption world-wide, worth more than \$0.5 billion. CFC smuggling appears to have declined since then, particularly in the US and probably in the EU, and in general CFCs seem to be in shorter supply, as they should be in the absence of illegal material. Many developing countries, however, are now experiencing illicit trade as they steadily move towards phase-out.

⁸ For further information on ODS crime, see UNEP DTIE, *Illegal Trade in Ozone-Depleting Substances: Is There a Hole in the Montreal Protocol?* OzonAction Newsletter Special Supplement No. 6 (Paris: UNEP DTIE, 2001); and UNEP Ozone Secretariat, *Monitoring of International Trade and Prevention of Illegal Trade in Ozone-Depleting Substances*, report to the 2002 meeting of the parties of the Montreal Protocol (forthcoming).

The incentive for illegal use arises not from the higher cost of the ODS alternatives – they have often proved to be cheaper and more effective than the ODS they replaced – but from the cost of adaptation or replacement of the machinery in question, which can be relatively high. Since most refrigeration and air-conditioning equipment has relatively long lifetimes, this implies a continued incentive for illegal use in the short- and medium-term.

There are two main sources of the material. As noted above, developing countries do not have to phase out CFCs until 2010; the main source of the illegal material now entering the EU appears to be China, and for the US, probably China and Mexico. Second, the Russian Federation continued to produce in breach of its commitments after 1995, though Russian production should have ceased by the end of 2000. It is also possible that some ODS illegally entering the EU and US may in fact have been legally produced there, exported and then clandestinely re-imported. There is little evidence for the involvement of organised crime; possibly the business is too specialised for this to occur.

There are five major methods of illegal trade:

- Mislabelling of containers (for example, as HFCs or hydrocarbons or as recycled ODS) and of accompanying documentation (including the use of false customs codes); ODS are colourless, odourless gases at room temperature, and chemical analysis is needed to determine precisely what substances are present.
- Concealment of material, for example by constructing cylinders with hidden compartments containing illegal material (the equivalent of the traditional smuggler's false-bottomed suitcase, on an industrial scale – many such cylinders have been detected in Taiwan), or, more simply, by concealing cylinders in the midst of legitimate cargo.
- Disguise: virgin CFCs can be deliberately contaminated, for example with water vapour, to make them appear as recycled material.
- Diversion of material destined for legal markets in developing countries into domestic markets in non-developing countries, with false documentation. This was a common problem in the US, with Miami an important source as a major trans-shipment port.
- Diversion of material from legal uses (feedstock, essential use exemptions, etc) into illegal uses. This is probably the least likely of the five routes examined here, particularly for essential use exemptions, where purity requirements imply strict monitoring.

Methods of control

Reducing demand

Unlike many other instances of international environmental crime, the problem of illegal trade in ODS will, in due course, solve itself, as all ODS-using equipment is eventually replaced by new machinery using replacements – though not, at current rates, before causing further damage to the ozone layer. The replacement process can be accelerated, however, by applying use controls in particular sectors, and instituting ODS sales bans, stockpile bans, and/or import bans (for recycled and/or virgin material) in industrialised countries. This implies additional costs to industry as equipment is retired before the end of its working life, but is probably the easiest option to implement and enforce.

Reducing supply

Again unlike most other forms of international environmental crime, this method of control is feasible and, indeed, is possibly the most cost-effective option. A special World Bank initiative raised funding to phase out Russian production by the end of 2000. Six developing countries produce CFCs, of which the largest are China (40%) and India (20%); China also accounts for 90% of developing country halon production. So far, production sector phase-out plans have been agreed with China and India, and could possibly be accelerated if more funding was available through the Protocol's financial mechanism.

Controlling the illegal trade

Enforcement action directed against the illegal trade in ODS was initially slow to develop. The US was the first to take action, and national inter-agency cooperation (involving the Environmental Protection Agency (EPA), Internal Revenue Service (IRS), Customs Service and Departments of Commerce and Justice), concentrating on tracking imports and licences, and on border checks, has proved effective. The existence of the US excise tax on ODS, designed to accelerate phase-out, provided an additional incentive for illegal trade (tax evasion) but also, importantly, helped spur enforcement action.

EU authorities were slower to react, with customs agencies in general being disinclined to accept, or to investigate, the scale of the problem. The absence of border controls within the EU also acts to undercut individual agencies' efforts. Coordination, mainly through an ad hoc working group of the European Commission (comprising representatives of member states' environment departments and customs agencies, and of industry) has now improved.

At the international scale, the third major amendment to the Protocol, agreed in Montreal in 1997, requires parties to the treaty to establish a system of import and export licences for trade in the various categories of ODS. This was introduced primarily to control illegal trade, and with the benefit of hindsight should have been written into the treaty from the beginning. Somewhat belatedly, the parties to the Protocol agreed, in late 2000, to commission a study of the options for controlling illegal trade; the conclusions of that study will be considered at the meeting of the parties in Rome in November 2002.

6 Illegal trade in hazardous wastes

Criminal activities: scale, sources and methods

The problem of the illegal movement of hazardous wastes has been compounded by the still-evolving nature of the relevant MEA, the 1989 Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and Other Wastes and their Disposal. Even the definitions of 'hazardous' and 'wastes' are not yet entirely agreed at an international level, and major waste-producing countries, including the US, have not yet ratified the Convention.⁹

⁹ For an overview of the Basel Convention and the international trade in wastes, see Jonathan Krueger, *International Trade and the Basel Convention* (RIIA/Earthscan, 1999).

In reverse of the usual ‘environmental crime’ problem, the focus of international concern has been the flow of material from North to South and developing countries have been the driving force behind negotiating the Convention, spurred on by a series of dramatic cases that helped illustrate their vulnerability to dumping. In August 1986, for example, incinerator ash from Philadelphia contaminated with lead, cadmium and other heavy metals was loaded onto the infamous ‘toxic waste’ ship, the *Khian Sea*, which subsequently dumped its contents across the globe, leaving 4,000 tonnes of ash on a beach near Gonaives in Haiti, and disposing of another 10,000 tonnes between the Suez Canal and Singapore.

More generally, the mid- to late-1980s saw a dramatic increase in North–South trade. Large amounts of waste were being generated in the North and domestic opposition to new treatment plants and the legal liabilities of existing facilities were also increasing. As legislation became more stringent, handling charges increased, disposal capacity decreased and the price differential with transnational disposal became increasingly attractive. In the early 1990s, the average cost of disposal of one tonne of hazardous waste in an OECD country was estimated at the time to be between US\$100–2000, whilst in Africa it was estimated to be between US\$2–50.

Article 9 of the Basel Convention states that a transboundary waste movement shall be deemed illegal if it takes place: resulting in the deliberate dumping of wastes in contravention of the Convention; without notification pursuant to the provisions of the Convention; without the consent of the state concerned; by consent obtained through falsification, misrepresentation or fraud; or without conforming to relevant documentation. The scale of impacts and environmental harm from hazardous waste crimes are difficult to quantify and, of course, depend on the waste type involved.

So far, there has been little consistency in smuggling case histories other than in some broad operational observations. A list of international dumping incidents published by Greenpeace in 1998 put the US at the top of dumping incidents followed by Australia, the Netherlands, Germany and Canada. Intelligence exercises, where available, have helped to clarify the extent of demand for illegal services: as the least specialist environmental crime, it is the most insidious. In one New York police sting in 1992, ‘when undercover detectives, posing as illegal dumpers, went into the business of disposing of toxic waste from small businesses for \$40 a barrel, they found the competition so fierce that they had to lower their price ... One business asked for a payment plan; another insisted that it was accustomed to receiving a forged disposal manifest from other illegal dumpers’.¹⁰ The cost of legal disposal of wastes handled averaged \$568 per barrel, providing an idea of the extent to which costs can be saved.

One widely used trick is to upgrade the value of a waste shipment to avoid the implication that the material is an international liability to be got rid of as soon as possible. Customs inspectors understandably assume the waste-type material with a high secondary value is destined for recycling and therefore is not that hazardous. Agents and brokers often describe the shipment in the broadest terms possible to avoid attracting regulatory attention; words implying that the shipment is ‘waste’ are replaced by those having more affinity with raw materials. So-called ‘sham recycling’ often provides a convenient cover for dumping waste. Alternatively, hazardous materials may be laundered as commercial products. The largest incident uncovered so far involved 1,288 tons of chemical waste - a mix of a highly corrosive chemical sludge and polluted water, labelled as ‘other fuel oil’ – that was discovered at the port of Nanjin in China in September 1993. The shipment turned out to be only the

¹⁰ *New York Times*, 13 May 1992.

first of a contract between a Chinese importer and a Macao-based concern to import a massive 200,000 tonnes of these materials.

Methods of control

This area of international environmental crime has probably been the least studied of those considered in this paper. Nevertheless, there are some lessons that can be learnt from existing control strategies.

Reducing demand

This option has limited application in this case. In some instances, there are no end users for the wastes in question – they are simply dumped; therefore, there is no ‘demand’ to reduce. In other cases, however, there is effective demand because of the lower costs of disposal in some countries compared to others. A gradual increase in the standards of waste disposal and of enforcement of regulations will help to reduce this cost differential to some extent, but there will always be other differences – population density, land and labour prices, air quality – which will maintain some level of differential, and the normal operation of the market will then lead to trade. Only far-reaching measures, such as the Basel ‘Ban Amendment’ (which will prohibit all export of hazardous wastes destined for final disposal from Annex VII countries (OECD, EC and Liechtenstein) to non-Annex VII countries), or regional instruments such as the Bamako Convention, will change this state of affairs. The amendment, when ratified, may therefore increase the incentive for illegal trade, though at the same time, by reducing overall volumes, it should make concealment more difficult and detection easier.

Reducing supply

The introduction of clean production and waste minimisation techniques on a wide scale is probably the most effective option available. Although many of these developments will not happen quickly, less sophisticated techniques (e.g. household separation of waste) are available and can have a substantial impact on immediate reductions of waste volumes. Particular types of hazardous waste – e.g. chlorinated solvents – can be targeted for rapid reduction (note the success of the Montreal Protocol). Given the rapid growth in overall volumes of waste, this is an area which undoubtedly requires greater attention.

Controlling the illegal trade

A 1997 questionnaire to parties to the Basel Convention revealed that there was still some way to go in implementing its provisions. Two-thirds of the responding parties had enacted national legislation, but less than half had legislation on the prevention and punishment of illegal trade. A majority of respondents had no or inadequate procedures for returning illegal shipments, and non-existent or insufficient inter-ministerial coordination aimed at preventing illegal trade. The most frequent enforcement measures applied were border controls, transport controls and sanctions. The main obstacles encountered were a lack of training, facilities for testing and sampling, and a general lack of resources.

Parties replying to the questionnaire indicated a series of actions which could be taken to improve the situation: further development and updating of national legislation; improved monitoring systems; improved facilities for testing and sampling; better hazard characterisation and hazardous waste identification and classification; training of personnel dealing with hazardous waste, including

customs officers, managers, environmental inspectors, police officers, etc; and effective enforcement procedures and programmes.

7 Areas for action

Serious though all these problems are, they are at least beginning to be addressed. Some effective enforcement has taken place in several countries, including control of the illegal trade in wildlife and wildlife products (the oldest problem), and of smuggling of ODS. These experiences provide useful lessons to be learned for the control of such activities more widely.

G8 summits have, since 1996, called for more effective and better coordinated action to combat international environmental crime. The first meeting of the G8 Nations' Lyon Group Law Enforcement Project on Environmental Crime took place in July 1999, aiming to improve information exchange, data analysis and investigative cooperation among law enforcement agencies, regulators and international organisations. Options for the control of illegal logging are being considered under the G8 Forestry Initiative, due to report in mid 2002. Interpol, the World Customs Organisation and UNEP have all begun to work on the issue, and are establishing cooperate frameworks between themselves and MEA secretariats. And the 1990s also saw the creation of the International Network for Environmental Compliance and Enforcement (INECE) and the European Network on the Implementation and Enforcement of Environmental Law (IMPEL); a number of other similar networks of enforcement agencies are also being established.

There are many policy options available for combating international environmental crime in the areas considered here. Rather than list them all, we concentrate on the broad cross-cutting solutions applicable to all, or most, areas.

Reducing demand

ODS crime is the exception here, as the one area in which demand will eventually disappear of its open accord. In all other areas, two factors are necessary if the demand for the illegal products is to be successfully curtailed.

First, there must be some means of identifying illegal material, probably through some kinds of licensing or certification systems. The growth of certification systems based on sustainability criteria offer one possibility for an identification method for legality of production, though it may be easier in some cases simply to identify legality. This requires effective means both of issuing and verifying the licences or certificates, implying separate systems for administration and monitoring, and also a legal framework which allows material lacking a valid licence to be seized at the border, or when put on sale. This is a particular problem for areas of criminal activity where a global MEA is not in existence (such as fishing or logging), and there may be a case for the negotiation of global agreements on illegal activity (possibly starting at a smaller, regional, scale). There are also possible complications with WTO regulations which could usefully be discussed.

Second, consumers, retailers and importers of the products need to be educated to look for and demand the licence or certificate, and to refuse products which lack it. Often ignored in many discussions of enforcing environmental crime, public awareness campaigns have proved of value in

some cases (e.g. in enforcement of CITES) and could usefully be extended. Central and local government procurement programmes can also play an important role.

Reducing supply

Strategies aimed to reduce the supply of illegal materials need to concentrate on the underlying economic, social and political drivers behind the illegal activity – and are accordingly difficult and complex to implement. Once again, ODS crime is the ‘easy’ area, where supply will be phased out in any case under the Montreal Protocol. In other areas, including fishing and logging, policy options include reform of the systems for granting exploitation rights, taxes, subsidies and regulation, and the involvement of local communities and the availability of alternative forms of employment and economic activity.

Controlling the illegal trade

Most discussions of controlling international environmental crime tend to concentrate, not unnaturally, on improving enforcement, and there is indeed a wide range of policy options available. They include:

- Greater cooperation between environment and enforcement agencies at the international, regional and national levels. Intelligence-gathering, information exchange, guidance (such as codes of best practice) and training can all be coordinated and delivered effectively at international or regional level. In some cases there may be a need for new legal instruments such as MEAs. At national level there is a strong case for establishing environmental crime units or working parties, as recommended by Interpol, involving all relevant agencies, NGOs, and industry. Some harmonisation of relevant legislation (for example, in terms of penalties) would be helpful.
- Enhanced means of tracking and identification of the illegal trade, including more research and effort in collecting data; the development of independent verification of data reported under MEAs; possible extension of the WCO’s Harmonised System of customs codes; greater investment in tracking mechanisms, identification of country/factory/area of origin, requirements for export and import licences, preshipment inspections, certification systems, etc; the establishment of registers of licensed traders; and the greater use of new technology in tracking movements.
- The allocation of greater resources, in terms of finance and personnel, to tackling the problem. This includes a higher priority for environmental issues within police and customs agencies (which is often about awareness-raising as much as anything else); greater resources devoted to implementing and monitoring MEAs; and financial, technical and capacity-building assistance for developing countries and transition economies. As many cases of environmental crime may involve unpaid taxes or charges, however, investment here can reap financial as well as environmental dividends.

Conclusions

The growth of environmental crime is a serious side-effect of the development of policies aimed at protecting the environment. Unlike most other kinds of crime, it harms not just individual victims, but society as a whole. *International* environmental crime potentially damages the *global* environment.

The total value of the illegal activities involved in international environmental crime may be in the order of \$20–40 billion a year, about 5–10% of the size of the global drugs trade. Compared to the ‘war on drugs’, however, the resources and political will devoted to tackling international environmental crime are derisory - yet the problem threatens every citizen of the world, and undermines several key environmental treaties.

There is no shortage of policy options available for improving the enforcement of environmental regulations and controlling illegal activity. What is still lacking is political will and resources.