ODS TRACKING

Feasibility study on developing a system for monitoring the transboundary movement of controlled ozone-depleting substances between the Parties

Report produced according to the terms of reference of Decision XVII/16

CHATHAM HOUSE

Environmental Investigation Agency
eia

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The authors would like to extend their warmest thanks to:

- All the interviewees (identified in Annex Two).
- Donata Rugarabamu and Nelson Sabogal (Basel Convention Secretariat), Sheila Logan (Rotterdam Convention Secretariat), Maria Cristina Cardenas (Stockholm Convention Secretariat) and Ivan Carvalho (International Coffee Organisation) for help with Chapter Four and Annex Three.
- The reviewers of successive drafts of this report – Atul Bagai, Nick Campbell, Ingrid Kokeritz, Janusz Kozakiewicz, Iain McGlinchy, Liu Ning, Bruce Pasfield and Izaak Wind – for a substantial input of valuable comments and ideas.
- Staff at the Ozone Secretariat for help with answering queries and providing data.

Contents

Abbreviations

ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CFCs	chlorofluorocarbons
CITES	Convention on International Trade in Endangered Species
EIA	Environmental Investigation Agency
EAN	Export Authorisation Number
EPA	Environmental Protection Agency
FLEGT	Forest Law Enforcement, Governance and Trade
HBFCs	hydrobromofluorocarbons
HCFCs	hydrochlorofluorocarbons
HFCs	hydrofluorocarbons
HS	Harmonised System (of customs codes)
ISO	International Organisation for Standardisation
MSDS	material safety data sheet
MT	metric tonnes
NOO	National Ozone Officer
NOU	National Ozone Unit
ODP	ozone-depleting potential
ODPT	ODP-tonnes
ODS	ozone-depleting substance(s)
PFCs	perfluorocarbons
PIC	prior informed consent
RILO	Regional Intelligence Liaison Office (of the WCO)
TEAP	Technology and Economic Assessment Panel
TRIPS Agreement	(WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP DTIE	UNEP Division of Technology, Industry and Economics
UNIDO	United Nations Industrial Development Organisation
WCMC	World Conservation Monitoring Centre
WCO	World Customs Organisation
WTO	World Trade Organisation

Summary

This report presents a feasibility study for developing systems for monitoring transboundary movements of controlled ozone-depleting substances (ODS) between the Parties to the Montreal Protocol. It has been produced according to the terms of reference agreed by the Parties in Decision XVII/16. The bulk of the work of the study has been a series of in-depth interviews with government officials and industry personnel, designed to analyse the systems they currently use and to understand their views on potential workable options.

Background (Chapter Two)

The main purpose of the study is to propose options for monitoring systems that would be useful in reducing illegal trade in ODS. Concern over such illegal trade, mainly in CFCs and in mixtures and products containing CFCs, has been growing since it was first detected in the mid 1990s. Originally a problem only in non-Article 5 countries as they neared total phase-out of CFCs, illegal trade is now widespread throughout the developing world. Estimates suggest that illegal trade is currently of the magnitude of 10–20 per cent of legitimate trade. This represents an illegal trade in CFCs of approximately 7,000–14,000 tonnes a year, with an approximate value of between US$25 million – 60 million.

Quite apart from the problem of illegal trade, tracking the movement of goods in legitimate trade often proves difficult enough. Yet the monitoring of trade is essential to ensure compliance with the Montreal Protocol, which defines 'consumption' as 'production plus imports minus exports'. Accurate figures for imports and exports are therefore necessary for a Party to know whether or not it is adhering to its phase-out schedules.

The scale of trade is an important factor in developing any system for monitoring it. Using trade data from 2004, for CFCs, of the 132 countries that reported consumption of these chemicals (and do not produce), it is estimated that on average sixteen containers per year would be expected to be imported. Almost fifty countries received less than one container of CFCs a year, and around 100 countries received less than one container of CFCs a month on average. Only four countries (Indonesia, Nigeria, Iran and Brazil), which together account for more than 35 per cent of global consumption, received more than 100 containers of CFCs a year.

Monitoring systems and where they fail (Chapters Three and Four)

There are many possible components and variations of 'systems for monitoring transboundary movement' or 'tracking mechanisms'. Import and export licensing schemes (national or international), information exchange systems, labelling and marking regulations, and customs codes, all have important roles to play in making possible the monitoring of movements of ODS across national boundaries. All can also fail to perform adequately, because of problems with their design or implementation, leading to unregulated, unreported or misreported trade; other weaknesses are connected to the general problems of monitoring international trade.

Data reporting is essential to the effective functioning of the Montreal Protocol. Yet there are question marks over the quality of the original data collected by Parties and reported to the Ozone Secretariat. In 2004, for example, the TEAP's Basic Domestic Needs Task Force report identified

significant weaknesses in data reporting by Parties. A cross-checking exercise, in 2004, of the import and export data reported to the Secretariat, revealed discrepancies between aggregate imports and exports of an average of 5 per cent, but varying up to 74 per cent in one case; CFCs, on average, varied by almost 13 per cent.

Naming and labelling practices for ODS in international trade can vary widely, so customs officers and ozone officers may find it difficult to identify exactly what is being imported into their country. The scope for deliberate mislabelling is also extensive. Similarly, **customs codes** applying to ODS, and particularly to mixtures, are complex and subject to mistakes in identifying and recording imports and exports. Analysis of import data shows instances of repeated misdescriptions and incorrect coding of imports.

National **licensing systems** are the key instrument used by Parties to the Montreal Protocol in regulating exports and imports, yet very little assessment has ever been made of the *effectiveness* of these systems, and whether they are operating as intended. The only analyses which have been carried out of export and import data for pairs of countries indicate major discrepancies between import and export figures – for example, discrepancies of up to 2,000 tonnes of CFCs a year between trading partners in the Asia–Pacific region. There are many reasons why licensing systems may fail to perform as intended:

- Licensing systems vary considerably between countries; there is no uniform system, as there is in some other international agreements. Some categories of ODS may often be omitted entirely, despite the requirements of the Montreal Amendment.
- Many countries lack export licensing systems, also despite the requirements of the Montreal Amendment.
- The operation of the systems may be hindered by poor communication between agencies, primarily those responsible for regulating ODS and customs.
- Communication between agencies in different countries is even more difficult; in particular, customs departments rarely, if ever, check whether what they record as imports from a given country is the same as is recorded as exports by the same country.

Regulating **transit trade** may also cause difficulties; unlike some international agreements, the Montreal Protocol does not control transit trade. Although trans-shipment (which need not be reported) should be treated differently from import and re-export (which should be reported as two separate trades), the evidence suggests that often the two are confused. Free trade zones may also provide a route for ODS to be traded outside any form of monitoring or regulation. The status of overseas territories of non-Article 5 Parties, which are sometimes major transit points, is also often confusing.

Since all these problems can be exhibited even during normal, legal, trade, where there is no effort to mislead the authorities, it is hardly surprising that similar procedures can be employed as part of **illegal trade**. Five main sets of methods can be used to move products illegally: evasion, mislabelling, concealment, disguise, and diversion. All have been observed in various locations in recent years.

Lessons from other international systems (Chapter Five)

The monitoring and control of transboundary movements is an issue faced by many other international agreements and systems. Nine agreements, and one set of industry voluntary measures, are analysed here, and lessons drawn for the Montreal Protocol:

- Effective licensing systems. Most of the agreements analysed operate licensing systems that work effectively with relatively low levels of bureaucracy, even though they may cover substantially greater numbers of shipments than does the Montreal Protocol.
- Uniform licensing system. Most agreements operate a single system amongst all their Parties, with, usually, a uniform design of the license or permit.
- Monitoring and recording of exports. The Montreal Protocol is unusual amongst international agreements with licensing systems in not always monitoring exports.
- Requirements for transit licenses. Some agreements require countries of transit to require the presence of permits or certificates.
- Cross-checking. Cross-checking of import and export licenses and data against each other is an important part of verifying that the system is working properly, and some agreements carry this out systematically.
- Central role of secretariat. A number of the agreements' secretariats, or related bodies, play a central coordinating role in collecting copies of all of the permits or licenses issued and used. This facilitates the transfer of information between countries, and offers at least the potential for central analysis and cross-checking of data.
- Independent verification. Some agreements have built in external means of data or license verification.
- Review processes. Some agreements incorporate a regular review process of the adequacy and operation of national regulations, in order to ensure that the system performs robustly.
- PIC systems. Several of the agreements analysed here explicitly require some kind of prior informed consent to the transboundary movement of controlled products. These systems appear to work well in practice.
- Role of industry. Industry sometimes has a role to play as an integral part of the licensing regime, or in running voluntary certification systems alongside government measures.

Effective collaboration with customs authorities is essential to the effective monitoring of transboundary movements of ODS. The WCO's Regional Intelligence Liaison Offices (RILOs) have a key role to play in monitoring transboundary trade and investigating illegal trade. The RILO Asia–Pacific's 'Project Sky-Hole-Patching', which aims at establishing a monitoring and notification system to keep track of the movement of suspicious shipments of ODS in the Asia–Pacific region, is an important initiative and should serve as a valuable model for other regions.

Options (Chapters Six and Seven)

These final two chapters set out possible options which could be adopted by the Parties to the Montreal Protocol. Chapter Six contains individual components, most of which could be adopted individually. Chapter Seven considers how a number of them can be put together into coherent packages and implemented over the short, medium and long term. They are summarised below.

Immediate actions

This first set of activities includes those that can be carried out in the very short term, largely using existing structures and without any need for significant increases in resources or amendments of the Protocol. It includes some steps that are already beginning to be taken.

- Full implementation of the new reporting requirement for destinations for all exports of all ODS; analysis of problems this reveals, and consideration of the best way in which to relay the information between Parties (for example, batched, or shipment by shipment). (Section 6.1.2.)
- Better provision of information on names, codes and labelling systems, particularly for mixtures containing ODS. (Section 6.2.1.)
- Encouragement for the development of internal (company-specific) tracking systems, for example for cylinders. (Section 6.2.1.)
- Full implementation of the Montreal Amendment requirement for licensing systems to cover all categories of ODS, including mixtures and used ODS. (Section 6.3.1.)
- Full implementation of the Montreal Amendment requirement for the inclusion of export licenses in all licensing systems. (Section 6.3.2.)
- Development of systems for cross-checking all export and import data per country and per shipment – effectively, full implementation of the terms of Decision IX/8. (Section 6.3.3.)
- Greater use of regional ozone officer and customs networks to raise awareness and spread examples of best practice in licensing systems. (Section 6.3.4.)
- Effective communication at national level in operating licensing systems, including promotion of memorandums of understanding between key agencies. (Section 6.3.5.)
- The adoption of clear definitions of the terms ‘trans-shipment’ and ‘re-export’. (Section 6.4.1.)
- Clarification of the status of free trade zones. (Section 6.4.2.)

Medium-term options

This second set of activities includes those that can be carried out in the slightly longer term – though whose implementation could start soon. It would require some expenditure of additional resources, primarily in staff time within the larger trading countries and the Secretariat. It builds on and develops from all the activities set out above.

- Review of data collection and data reporting systems, aiming to identify and eliminate discrepancies and to provide better reporting in particular of ODS in mixtures. This includes in-depth studies of data reporting in particular high-risk regions. (Section 6.1.1.)
- Encouragement for customs investigations of illegal trade hotspots and supply chains, based on the ‘Operation Sky-Hole Patching’ model. (Section 6.1.1.)
- Further development of systems for cross-checking all export and import data per country and per shipment, using a central clearing-house mechanism. (Sections 6.1.2 and 6.3.3.)
- Encouragement for sharing of industry trade data with the Secretariat or other responsible bodies, subject to protection of commercially sensitive information. (Section 6.1.3.)

- Feasibility study on the costs and implications of a new centralised trade data collection and analysis system, drawing on multiple sources and allowing more targeted analysis of trade flows. (Section 6.1.4.)
- Encouragement for standardisation of industry naming and labelling conventions on cylinders. (See Section 6.2.1.)
- Encouragement for national bans on disposable canisters in regions where this option is appropriate (i.e. densely populated areas with good transport networks). (Section 6.2.2.)
- Encouragement for systems designed to 'blacklist' companies known to be trading illegally, and/or 'whitelist' companies known to be trading legally and responsibly. (Section 6.2.2.)
- Encouragement for the elaboration of detailed customs codes sub-headings at national levels, and collection of information on the extent to which this actually happens. (Section 6.2.3.)
- Clarification of the essential minimum elements of licensing systems, endorsed by Parties through a decision, plus enhanced promotion of best practice in comprehensive licensing systems and training. (Section 6.3.4.)
- Evaluation of how licensing systems are actually working, identifying and attempting to eliminate major data discrepancies. (Section 6.3.6.)
- Analysis of the extent of transit trade (trans-shipment and import/re-export) in high-risk regions. (Section 6.4.1.)
- Analysis of the extent to which overseas territories of non-Article 5 Parties in regions predominantly composed of Article 5 Parties affect trade in ODS. (Section 6.4.3.)
- Encouragement for an 'informal' PIC system in high-risk regions such as South and South-East Asia, and/or focused on the largest producers and consuming countries. (Section 6.5.1.)

Long-term options

This final set of activities includes those that could only be carried out in the longer term, over a period of a few years. (They are not, therefore, particularly relevant to CFCs, because of the 2010 phase-out date.) They would require decisions of the Parties and in one case an amendment to the Protocol, and, probably additional national legislation. In most cases they are dependent on effective implementation of the steps outlined above in the previous two sections; a PIC system, for example, cannot work unless effective licensing systems are already in place.

- Further efforts to improve data collection and reporting, including independent verification of data in the most severe cases of discrepancies. (Section 6.1.1.)
- Implementation of a new centralised trade data collection and analysis system, drawing on multiple sources and allowing more targeted analysis of trade flows. (Section 6.1.4.)
- Inclusion of transit movements (trans-shipments) in licensing systems, possibly through amending Article 4B of the Protocol. (Section 6.4.1.)
- Adoption of a formal PIC system (which would require amendment of the Protocol), which must therefore include export and transit licenses, and ideally a uniform licensing system, and effective communications between countries. This would also imply enhancement of the Secretariat in playing a central clearing-house role. (Sections 6.5.2 and 6.3.4.)

1 Introduction

1. This report presents a feasibility study for developing systems for monitoring transboundary movements of controlled ozone-depleting substances (ODS) between the Parties to the Montreal Protocol. It has been produced according to the terms of reference agreed by the Parties in Decision XVII/16 (see Annex One). In summary, these require:

- A description of the stages involved in production and export of ODS (paragraph 1).
- A description of the potential components of a system for monitoring transboundary movements (paragraphs 2 and 3).
- An analysis of any existing national or international systems that already monitor such movements, and of systems for the exchange of information on trade between Parties (paragraph 4).
- An analysis of other international agreements which monitor transboundary trade which may provide useful models for the Montreal Protocol, together with an examination of the potential for using trade statistics databases (paragraph 5).
- A description of the information and administrative requirements needed to enable an ODS tracking system to be useful in reducing illegal trade (paragraph 6).
- A presentation of two or three workable options for monitoring systems, including their likely costs (paragraph 8).

In addition, paragraph 7 of the terms of reference sets out the requirements for communicating with governments and industry, in producing, exporting, importing and transit countries, in the process of drawing up the draft.

2. The terms of reference do not define the expressions ‘system for monitoring transboundary movement’ or ‘tracking mechanism’, which are both used. In fact, as consultations with government and industry personnel during the course of the study made clear, there are many possible components and variations of such systems. Import and export licensing schemes (national or international), information exchange systems, labelling and marking regulations, and customs codes, for example, all have important roles to play in making possible the monitoring of movements of ODS across national boundaries.

3. The structure of the report does not follow precisely the structure of the terms of reference, since this includes a mixture of study components and instructions for consultation, because some of its paragraphs overlap with each other. Nevertheless, every part of the terms of reference is considered. The report has six main sections:

- Chapter Two sets out the background to the study: the growth and extent of illegal trade, and the scale of, and trends in, transboundary movements of legitimate ODS. This is important for the later analysis of the potential costs of policy options.
- Chapter Three reviews, stage by stage, the supply chain of ODS, either produced or imported, and highlights the main points at which data can be reported to governments. It looks at the main mechanism which Parties to the Montreal Protocol have adopted to regulate imports and exports – national licensing schemes – and examines how these operate in a number of Parties. (This chapter contains material covering paragraphs 1 and 4 of the terms of reference.)

- Chapter Four examines the points at which these monitoring systems can and do fail, in terms of allowing unregulated, unreported or misreported trade – for an analysis of system failures is necessary to the consideration of any new options. (This chapter contains material covering paragraphs 1 and 4 of the terms of reference.)
- Chapter Five examines how other international agreements and institutions have dealt with similar issues of monitoring and reporting cross-border trade and problems of illegal trade. The bulk of the description and analysis is contained in Annex Three, with short comparisons and conclusions set out in the chapter text. The chapter also examines which other agreements may cover ODS, and the potential for international customs collaboration, and the use of international trade databases. (This chapter contains material covering paragraphs 4 and 5 of the terms of reference.)
- Chapter Six describes a range of options for policies and measures which the Parties may wish to consider to tackle the problems identified in Chapter Four, drawing on examples examined in Chapter Five and incorporating the opinions of interviewees whose experience of measures to combat illegal trade, or whose views on the feasibility of options to control trade, are relevant. Estimates of additional costs are given where it is possible to derive them. (This chapter contains material covering paragraphs 2, 3 and 6 of the terms of reference.)
- Chapter Seven then takes the individual options considered in Chapter Six and considers which of them could best work together. It presents three potentially workable packages for monitoring systems, at different levels of cost and complexity. (This chapter contains material covering paragraph 8 of the terms of reference.)

4. The terms of reference only refer to 'substances' (including mixtures or blends of chemicals containing ODS). Trade in products containing ODS and in equipment designed to use ODS is not, therefore, considered in this report – though it should be recognised that it is of importance to a comprehensive scheme for monitoring transboundary movements of ODS, and is also of growing concern in several countries.

1.1 Consultations

5. The bulk of the work of the study has been a series of in-depth interviews with government officials and industry personnel, designed to analyse the systems they currently use and to understand their views on potential workable options. The interviews were supplemented by questionnaires, developed to allow comparisons between responses. Interviews were conducted by using the questionnaires as a starting point and allowing for more in-depth responses and discussion of new issues and concerns brought up by the interviewees. Largely due to the varying circumstances among countries (in, for example, volumes of ODS traded, or characteristics of licensing systems), analysis has focused on countries' responses as a whole rather than a summary analysis across responses.

6. The interviews are summarised in Annex Two, and extracts from them are used throughout the paper to illustrate real-world problems and interviewees' views on options. Table 1.1 lists the interviews which were carried out, and the questionnaires received, together with the categories specified in the terms of reference (countries of import, export, transit and re-export; industry, including producers and distributors, etc.).

Table 1.1: Interviews and questionnaires	
Interviews (* including in-country visits and regional workshops)	
Argentina* (production, import, export, re-export)	NOU, Customs, Industry (producers and distributors)
Antigua and Barbuda* (import, re-export)	NOU
Bahamas* (import, transit)	NOU
China* (production, export, import, re-export, transit)	State Environment Protection Agency
EU* (production, export, import, re-export, transit)	European Commission, Industry (producers and distributors)
India* (production, export, import, re-export)	NOU, Customs, Industry (producers and distributors)
Jamaica* (import)	NOU
Japan (import, export)	NOU
Mauritius (import, export)	NOU
Mexico* (production, import, export, re-export)	NOU, Customs, Industry (producers and distributors)
Multilateral Fund Secretariat	Senior Evaluation Officer
Netherlands* (transit, re-export)	Customs, Harbour Police, Ministry of Environment
Singapore* (re-export)	NOU
South Africa* (import, export, transit)	NOU, Trade Administration Commision, Industry (distributors)
St. Lucia* (import)	NOU
St. Martin* (import)	NOU
St. Kitts and Nevis* (import)	NOU
Suriname* (import)	NOU
Trinidad and Tobago* (import, transit)	NOU
UK* (production, import, export)	Environment Department, Customs
UNEP DTIE	OzonAction Programme
US* (production, import, export)	EPA, Industry (producers and distributors)
Questionnaire only	
Afghanistan (import)	NOU
Belize (import)	NOU
Bangladesh (import, transit)	NOU and Customs
Fiji (import, export)	NOU and Customs
Indonesia (import)	NOU
Japan (import, export)	Industry (producers and distributors)
Malaysia (import, transit)	NOU and Customs
Mongolia (import)	NOU
Nepal (import)	NOU
Pakistan (import)	NOU
Sri Lanka (import)	NOU and Customs
Vietnam (import)	NOU and Customs

Notes:

1. 'Re-export' involves declared exports of material that has been previously imported (as opposed to produced). Transit is used here to refer to both transit and transhipment.
2. Interviews covered all questions included on the questionnaires together with more in-depth conversations about ideas and options for tracking ODS.
3. Customs and/or NOU personnel from the following countries were approached but did not complete questionnaires and/or agree to interviews: Afghanistan (customs), Bhutan (customs and NOU), Brunei (customs), Dubai (NOU), Korea (NOU), Laos (customs), Myanmar (customs and NOU), Nepal (customs), Nigeria (NOU), Thailand (customs). Questionnaires were also circulated to the following companies, but not returned: Honeywell, Carrier, Trane, York, Refron.

2 Background

7. The main purpose of the study, as paragraph 8 of the terms of reference makes clear, is to propose options for monitoring systems 'that would be useful in reducing illegal trade in controlled ODS' – i.e. trade in ODS conducted in breach of the national laws and regulations of the importing and/or exporting countries.

2.1 The growth and scale of illegal trade

8. Concern over such illegal trade, mainly in chlorofluorocarbons (CFCs) and in mixtures and products containing CFCs, has been growing since it was first detected in the mid 1990s. Originally a problem only in non-Article 5 countries as they neared total phase-out of CFCs, illegal trade is now widespread throughout the developing world, as Article 5 countries proceed through their own phase-out schedules.[1] Illegal trade, besides depriving governments and legitimate industry of revenue, undermines the ability of governments to phase out the use of harmful ODS, reduces the incentives for industry to introduce replacement substitutes and technologies, and counteracts the efforts of the Multilateral Fund and its implementing agencies to assist with phase-out. It retards the recovery of the Earth's stratospheric ozone layer and thereby contributes to human ill-health, as well as detrimentally affecting ecosystems, fisheries and agriculture.

9. Illegal trade in ODS first came to light in the mid-1990s, and at first caught enforcement agencies off guard, especially in Europe, where action against this activity lagged behind the more concerted efforts seen in the US. The possibility of a black market was certainly not foreseen by enforcement agencies or the legislators who framed the Montreal Protocol and its early amendments, and by the time the Protocol was amended to require the implementation of licensing systems in 1997, ODS smuggling had become entrenched in many countries.

10. In the mid-1990s the illegal trade in ODS was estimated at up to 20,000 tonnes per year, with an approximate value of US$150 million – 300 million, equivalent to over 12 per cent of global ODS production.[2] Other estimates at the time stated that around 20 per cent of all ODS traded in the mid-1990s came from illegal sources.

11. As the 1990s drew to a close, Europe and the US witnessed a decline in the level of smuggling, due primarily to improved enforcement and tighter regulations controlling the trade and use of ODS, together with falling demand. However it was soon apparent that the illegal trade in ODS was growing in the markets of Article 5 countries, where the first CFC phase-out target (the 1999 freeze) was beginning to take hold. In the following years, instances of illegal trade began to appear in many developing countries around the world, particularly in the Asia–Pacific region which accounts for more than 80 per cent of the world's CFC production and consumption, and where in general demand for CFCs, particularly in the servicing sector, remains high. This region has seen a dramatic increase in cases of smuggled CFCs in recent years.

[1] See UNEP DTIE, *Illegal Trade in Ozone-Depleting Substances* (OzonAction Newsletter Special Supplement Number 6, 2001) for a good overview. For more up-to-date and detailed coverage, the series of reports produced by the Environmental Investigation Agency is available at http://www.eia-international.org/campaigns/global_environment/reports/.

[2] See calculations in Duncan Brack, 'The Growth and Control of Illegal Trade in Ozone-Depleting Substances', paper for 1997 Taipei International Conference on Ozone Layer Protection, and UNEP, 'Monitoring of International Trade and Prevention of Illegal Trade in ODS, Mixtures and Products Containing ODS' (UNEP/OzL.Pro/WG.1/22/4, 23 April 2002.)

12. Notwithstanding the difficulties in providing any estimate for the scale of illegal activities, much evidence points to an illegal trade in ODS of a significant magnitude. In some countries where concerted effort has been made in enforcement activities, quantities of seizures of ODS and intelligence from market surveys have indicated that the scale of the smuggling problem is of the order of 10–20 per cent of the legitimate trade. For example, in the Philippines, authorities estimate that about 15–20 per cent of CFCs shipped to the country in 2002 arrived without permits through mislabelling or fraudulent paperwork.[3]

13. A similar level of smuggling is indicated by seizures and intelligence in India. In a twelve-month period between 1999 and 2000, approximately 900 tonnes of ODS was smuggled into India, representing approximately 20 per cent of national consumption.[4] In some cases there are indications of unregulated trade in larger quantities; for example, a single Indonesian CFC smuggler revealed to the Environmental Investigation Agency (EIA) that his company alone imported around 1,000 tonnes of CFC-12 and 800 tonnes of CFC-11 a year from China, avoiding customs controls in Indonesia.[5] This quantity represented 65 per cent of Indonesia's declared CFC consumption for the year.

14. Discrepancies in trade data of significant magnitude are indicated from the results of a recent desk study, carried out by the United Nations Environment Programme (UNEP), which analysed transboundary movements of CFCs.[6] The study documented discrepancies in reported CFC trade data of up to 2,000 tonnes a year between particular importing and exporting countries in the Asia–Pacific region. In some cases these discrepancies indicated unreported imports of CFCs of more than 70 per cent of countries' national consumption of these chemicals. This may be the result of illegal trade, but it could also be due to failures in data recording and reporting.

15. The estimate that the illegal trade in ODS is likely to represent around 10–20 per cent of legitimate trade is also supported by estimates derived from discussions with chemical dealers involved in illegal trade. An EIA undercover investigation carried out in 2005 revealed the activities of a number of unscrupulous chemical dealers in China who engaged in illegally shipping CFCs to countries around the world, successfully avoiding controls by mislabelling and misdeclaring shipments as alternative chemicals. Based on the quantities of CFCs offered to undercover investigators and on discussions of other illicit trading carried out by these dealers, an estimate was derived from this data indicating that from the seven companies visited, more than 8,000 tonnes of CFCs were exported illegally per year, equal to around 30 per cent of China's legal exports.[7]

16. Smuggling of this magnitude (10–20 per cent of legitimate trade) would represent an illegal trade in CFCs of approximately 7,000–14,000 tonnes a year, with an approximate value of between US$25 million – 60 million a year (assuming a market price of $4/kg).

Scale of illegal trade

UNEP DTIE, while admitting it was difficult to give an estimate of the amount of ozone-depleting chemicals smuggled in developing nations, said there were 'indications of a high incidence of illegal trade', with shipments seized in China, India, the Philippines and Indonesia. This was dramatically illustrated with the

[3] 'Philippines Customs acts against illegal trade of ODS', *Asia Pulse*, 14 February 2003.

[4] Pers comm. Suresh Wadhwa, REGMA.

[5] Environmental Investigation Agency, *Under the Counter* (EIA, 2005).

[6] Analysis of Transboundary Movement of ODS, UNEP DTIE/Government of Sweden, presented to the 3rd Joint SEAP-SA Customs-ODS officers cooperation workshop, Beijing China, April 2005.

[7] The export figure is based on 2004 data of production minus consumption = 7,364 tonnes, although the illegal export figures were based on discussions in 2005.

example of Thailand where seizures of ozone-depleting substances by authorities rose from 7,000 kilograms in 2004 to over 88,000 tonnes in 2005, representing a rise of more than thirteen-fold.

17. Illegal trade in ODS other than CFCs can be expected to become an increasing problem in the future as successive phase-outs are implemented. Industry is currently expressing strong concerns that illegal hydrochlorofluorocarbons (HCFCs) may already be being imported into the United States and India. Anecdotal evidence of illegalities in methyl bromide trade has been collected in southern Africa and Central and South America.[8]

2.2 Transboundary movements: scale and trends

18. Quite apart from the problem of illegal trade, tracking the movement of goods in legitimate trade often proves difficult enough, given the steady growth in world trade, the general trend towards trade liberalisation and regional economic integration (which both tend to involve the removal of border controls), and the increasing tendency towards containerisation in maritime freight transport. Yet the monitoring of trade is essential to ensure compliance with the Montreal Protocol, which defines 'consumption' as 'production plus imports minus exports'. Accurate figures for imports and exports are therefore necessary for a party to know whether or not it is adhering to its phase-out schedules.

19. Table 2.1 shows trends in imports, exports, production and consumption for the main groups of ODS from 1997 to 2004, in metric tonnes (MT).[9]

Table 2.1 Production, consumption, export and import data 1997–2004

Year	*Total imports for all uses (MT)*	*Total exports for all uses (MT)*	*Calculated production (MT)*	*Calculated consumption (MT)*
CFCs (Annex A Group I)				
1997	88094	89301	160433	174576
1998	79325	73726	148123	164271
1999	74642	91913	148252	150619
2000	74022	79704	134545	148117
2001	63217	67639	101905	110729
2002	53198	60494	94745	92480
2003	48021	53971	83562	78340
2004	37415	49484	70078	66264
Halons (Annex A Group II)				
1997	1496	1574	13391	13296
1998	1490	978	8658	9160
1999	1068	996	6809	6878
2000	1006	411	5010	5612
2001	981	368	3641	4270
2002	699	387	2790	3110
2003	313	234	1806	2349
2004	288	293	921	118

[8] Various sources, pers. comms.

[9] Source: Ozone Secretariat, August 2006. 'Calculated production' and 'calculated consumption' means that exempted uses such as feedstock, QPS and destruction have been subtracted.

Table 2.1 Production, consumption, export and import data 1997–2004				
Year	*Total imports for all uses (MT)*	*Total exports for all uses (MT)*	*Calculated production (MT)*	*Calculated consumption (MT)*
Carbon tetrachloride (Annex B Group II)				
1997	100219	112936	3884	-24096
1998	87681	113401	59110	61923
1999	109741	100700	26755	8418
2000	82037	75458	21422	20912
2001	48248	54677	39258	15900
2002	34773	34640	15240	4353
2003	48522	56191	33702	32873
2004	59173	50389	11216	13657
Methyl chloroform (Annex B Group III)				
1997	24922	22677	18563	22854
1998	22111	23083	14893	17322
1999	27754	25375	16951	21509
2000	30182	26233	14058	21194
2001	20239	23006	10418	13225
2002	23233	44283	13728	-5993
2003	17077	14855	7275	13302
2004	17622	13255	3288	8104
HCFCs (Annex C Group I)				
1997	122336	158192	432365	430713
1998	137736	147093	474911	467947
1999	174903	191580	520058	526818
2000	174389	191294	549948	544185
2001	184527	212337	500249	510309
2002	203724	241976	501361	489955
2003	217516	243251	465875	452074
2004	223929	302900	497727	472428
Methyl bromide (Annex E)				
1997	41459	39057	61375	62980
1998	38328	41639	61745	60570
1999	36879	36848	48578	48091
2000	43528	34128	45876	45334
2001	30564	25413	34400	41001
2002	25619	23623	28356	30102
2003	24006	21890	25526	26197
2004	22809	22150	24174	28936

20. How does this translate into numbers of shipments that may have to be monitored by environment and enforcement personnel? Using the 2004 data from Table 2.1, and the production and consumption data reported under Article 7 of the Protocol, and by making a number of assumptions to simplify the calculations, such as assuming that full container-loads of ODS are traded, and that producing countries do not import the ODS they produce in any significant quantities,[10] it is possible to calculate the approximate numbers of shipments that would be received in each country.

[10] Of producing countries, only the US appeared to import in 2004, consuming around 700 ODP-tonnes more than it produced.

21. It is assumed for the sake of these estimates that shipping of CFCs normally occurs in 13.6kg disposable cylinders packed in standard (20-foot) containers.[11] When such a container is fully loaded it would typically contain around 1,100 cylinders. Together with the assumption that the average ODP for the CFCs shipped is 1.0 (which it is for CFC-11, -12 and -114), it is possible to derive from this an estimate of numbers of expected shipments from the reported consumption data. In the case of CFCs, of the 132 countries that reported consumption of these chemicals in 2004 (and do not produce), it is estimated that on average sixteen containers per year would be expected to be imported.

22. This is an average figure, and of course the real figure will vary substantially between countries. Estimated imports in 2004 ranged from 5kg a year in the Marshall Islands to 260 containers a year in Indonesia (almost 4,000 ODP-tonnes). Almost fifty countries received less than one container of CFCs a year, and around 100 countries received less than one container of CFCs a month on average. Only four countries (Indonesia, Nigeria, Iran and Brazil), which together account for more than 35 per cent of global consumption, received more than 100 containers of CFCs a year. Table 2.2 summarises the ranges for the 189 countries who were Parties to the Montreal Protocol in 2004, including those which reported zero consumption and six producers who, it was assumed, do not import.

Table 2.2 Estimated number of containers of CFCs imported

Expected number of containers of CFCs imported per year (based on 2004 data)	*Number of countries*	*Percentage*
More than 100	4	2.1%
70–99	5	2.6%
40–69	6	3.2%
10–39	21	11.1%
1–9	96	50.8%
No shipments	57	30.2%

23. It is also possible to estimate total (global) numbers of shipments for the other groups of chemicals controlled under the Montreal Protocol. The total quantity of imports of CFCs in 2004 was around 37,000 metric tonnes, which would translate into around 2,500 shipments according to the assumptions made above. In the same year the total quantity of imports of HCFCs was almost 224,000 metric tonnes, which is estimated to equate to almost 15,000 shipments – nearly six times as many. A greater proportion of HCFCs was consumed in developed countries (compared to CFCs), but the majority – about 62 per cent – was consumed by Article 5 Parties. Table 2.3 provides a summary of estimated numbers of shipments.

Table 2.3 Total global imports of the main groups of chemicals controlled under the Montreal Protocol and estimates of numbers of shipments of these, based on calculations from 2004 data

	Total global imports for all uses (MT)	*Estimated number of shipments*
CFCs (Annex I Group I)	37415	2501
Halons	288	19
Carbon tetrachloride	59173	3955
Methyl chloroform	17622	1178
HCFCs	223929	14968
Methyl bromide	22809	1525

[11] It is understood that 13.6 kg cylinders may not the most common packing for all the above chemicals, but this has been chosen to give an upper limit to the calculations. Shipments of chemicals in bulk, for example in isotanks, would naturally reduce the expected numbers of shipments.

2.3 Origins of the study

24. The Parties to the Montreal Protocol have discussed these and related issues on many occasions. In 2001, the thirteenth meeting of the Parties commissioned a study[12] on 'Monitoring of International Trade and Prevention of Illegal Trade in ODS, Mixtures and Products Containing ODS'. The study was published in April 2002[13] and discussed by the Parties during the year; it eventually led to Decision XIV/7 (reproduced in full in Annex One), which encouraged all Parties to, *inter alia*, 'consider means and continued efforts to monitor international transit trade', to increase the number of classifications of ODS in their customs codes and to 'exchange information and intensify joint efforts to improve means of identification of ODS and prevention of illegal ODS traffic'. It also focused on the activities of the regional networks and requested the Executive Committee of the Multilateral Fund to consider making an evaluation of customs officers training and licensing systems projects a priority.

25. The issue of illegal trade continued, however, to be raised at every subsequent meeting of the Parties. At the fifteenth meeting, in 2003, a draft decision was introduced requesting the Secretariat to carry out a study into the feasibility of the development of a system of tracking and securing trans-shipment, re-export and transit trade in ODS, further to Decision XIV/7. Discussion on the issue was deferred until the following year, when the suggestion was taken up again against the background of a longer debate on the implementation of Decision XIV/7. The outcome was Decision XVI/33 (see Annex One), which called for a further study of the feasibility of a system for tracking trade in ODS and for improving communications between exporting and importing countries.

26. Following further discussions the following year, the Seventeenth Meeting of the Parties adopted Decision XVII/16 (see Annex One). This encouraged Parties to adopt a series of activities designed to more closely monitor international trade in ODS, exchange information between themselves about exports and imports, and in general take actions designed to combat illegal trade; it also agreed the terms of reference for the study envisaged in the previous year's decision – which is this report.

[12] In Decision XIII/12, following on from the earlier Decision XII/10.
[13] UNEP/OzL.Pro/WG.1/22/4, 23 April 2002.

3 Monitoring trade in ODS

27. This chapter is designed to examine typical supply chains for ODS and the stages at which data is reported and at which their transboundary movement can most practically be monitored, together with existing means of identification, including labelling systems and customs codes. The chapter also examines the main current means of tracking movements of ODS – national licensing schemes – and summarises existing systems in a number of Parties. This chapter simply outlines how these systems are supposed to work; the next chapter looks at where they can fail.

3.1 ODS supply chains and data reporting

28. This section lists the stages through which ODS is produced, exported and imported, and the various points at which data could be (and is) reported to governments. All Parties to the Montreal Protocol must, of course, report production and consumption data to the Ozone Secretariat each year:

- 'Production' is defined as total production minus any amounts used as chemical feedstock and any amounts destroyed.
- 'Consumption' is defined as production plus imports minus exports.
- Trade in used ODS is not included in the calculation of production, in order to encourage recovery, reclamation and recycling.[14]

All Parties must, therefore, have the capacity to collect data on all of these aspects of the ODS supply chain, in order to remain in compliance with the Protocol.

29. At the global scale, reported production and consumption data are in general broadly equal (although see Section 4.1 for questions over the quality of data reported). The widespread nature of illegal trade (see above in Section 2.1), therefore, suggests either that there is a degree of illegal production that is not being reported, or that legal production is being diverted to illegal uses, or an element of each. In either case, a data reporting system that accounts for a number of critical points along a supply chain could help to better identify the legal movement and use of substances, with a view to identifying illegal operators more effectively.

30. Whatever data reporting is ultimately required, suspected weaknesses in current data suggests that effective verification for both correctness and completeness is absolutely central to the value of the final product.

3.1.1 Company-level data

31. The original source of data on the production of ODS is, of course, the commercial enterprises that produce the substances. The integrity of data collected at this stage is particularly important as it represents a baseline against which other data can be checked. A series of potential data-reporting points exist in the production chain:

[14] 'Recovered' ODS are used substances recovered from equipment; 'recycled' are recovered ODS subjected to a basic cleaning process such as filtering and drying; 'reclaimed' ODS are used substances treated to restore the substances to a specified standard of performance; see Decision IV/24 of the Parties to the Montreal Protocol.

- Measurement of the volume of the raw material from which the ODS is produced (whether it itself is also produced, or imported) could represent a baseline figure against which to cross-reference company or national production figures for ODS.
- Production machinery and facilities automatically generate production data such as conversion levels and total output, in order for plant managers to judge whether the machines are running efficiently. Companies could, therefore, provide this sort of automated data, which should be difficult to recreate fraudulently or tamper with.
- In addition to production reports, companies could report total packaging used: how many containers of what size were bought, filled with ODS and transported.
- Total sales of particular ODS from any given company will be reported for the purposes of tax collection, and could be used to cross-reference other data.

32. All Parties to the Montreal Protocol of course collect data at some point along this chain for the purpose of calculating 'production'. In Article 5 countries which are producers, data collection is assisted by implementing agencies, which in most cases conduct a detailed annual audit, providing an additional and important source of information.

Views on company reporting

Quimobasicos, Mexico: Records that the government creates for production, export and domestic sales are [the] best and easiest way [to record trade] because there is no need for extensive laws to implement this … producers are obliged to report annually and this does not present a problem.

33. Parties must also collect data on reclamation, recovery and recycling, and on destruction (which is usually by incineration). Some of these are relatively high-tech processes, so companies involved in them should have the capacity to report on volumes recovered and then either destroyed or recycled or reclaimed and then sold or reused in specific products. Often recycling equipment collects this information automatically. However, some recovery and recycling is conducted by small and medium-sized enterprises from which it may be difficult to collect data reliably.

34. Collection of data from the enterprises which import and process ODS are generally required for the purposes of licensing systems. Once imported, consignment batches are generally broken down and repackaged for onward sale to retailers or manufacturers. Where this process happens, it may be possible for the authorities to collect and compare information about incoming ODS consignments and those that are sold or transported further on down the supply chain; discrepancies may indicate the presence of illegal imports.

35. Data could also be provided by the companies supplying the freight transport services (shipping, rail or road) to producers and retailers trading in ODS. In Argentina, for example, importers have sixty days from the date of their initial request for a license to bring official copies of the bills of lading to the National Ozone Unit (NOU) for each shipment of ODS that is authorised.

36. Issues of commercial confidentiality are often a matter of concern. Companies may not always be willing to release all the levels of information discussed in this section – releasing details of levels of conversion efficiency, for example, could be helpful to competitors – and the authorities may not possess the legal powers to require them to do so. This is further considered in Section 6.1.

3.1.2 Imports and exports: government data

37. Data on the movement of ODS across national borders are recorded by customs authorities (or their equivalents), which collect import and export volumes and values. Customs codes systems – particularly the World Customs Organisation's Harmonised System (HS), which is now almost universal – are used to record data. Partly because of the way in which customs codes are allocated (see further below in Section 3.2), however, and partly because of the substantial volume of goods in international trade, the data collected by customs are in general highly aggregated. Furthermore, some countries do not monitor exports (even though they are required to under the Montreal Protocol) and others do not monitor them to the same degree as they do imports, aggregating data even further.

38. Given these constraints, the main source of data on imports and exports for most Parties to the Montreal Protocol is the licensing scheme they use to record specific data on ODS (see Section 3.3). The way in which a selection of licensing schemes work in practice to relay data between industries, customs agencies and the government departments authorised to issue licenses is described below in Section 3.4.

39. It is necessary, of course, for customs to know which shipments, of the huge number in trade which they monitor, contain ODS. If their national licensing system has been designed properly and is working effectively, this step should not pose any major problems. Other means of identification, though, including labelling and marking systems, are also likely to be of importance; see further below in Section 3.2.

40. 'Transit' trade, a non-specific term encompassing 'trans-shipment' (it should not be confused with 're-export', though it often is), refers to goods passing through one country (the transit country) destined for final sale or consumption in another. Transit trade can represent a serious loophole in the international monitoring of trade in ODS; in many countries there is no legal requirement to report information on goods brought across international borders other than for free circulation within the country. This is further considered in more detail below in Section 4.3.

3.1.3 Data reporting to the Ozone Secretariat

41. All Parties, of course, are under an obligation to report the data they collect to the Ozone Secretariat every year. Article 7 of the Protocol describes Parties' obligations in this regard, including the provision of base year and (for developing countries) baseline data for each category of ODS, and annual data on production, feedstock use, destruction, imports and exports, enabling the calculations of 'production' and 'consumption', as defined in the Protocol, to be made.

42. Data reporting forms have been revised on a number of occasions, and have steadily improved the quality of the data-collection process, but it is difficult to judge the quality of the original data collected. This is further considered below in Section 4.1.

43. Import and export data are not reported publicly to the same degree as production and consumption. Imports are reported by Parties in aggregate by substance – i.e. the countries of origin of the imported substances are not identified.

44. According to Decision VII/9, adopted in 1995, exports should be reported to the Secretariat by destination as well as by substance. Even though many Parties did report all the destination countries for their exports, significant levels of exports were nevertheless reported without identifying the

destination; a variety of reasons were given, including the unavailability of the information[15] (as noted above, export data is not always collected to the same degree of precision as is import data).

45. In recognition of the importance of accurate export data, Decision XVII/16, adopted in 2005 (the same decision that authorised this study; see Annex One) requested the Secretariat to 'revise the reporting format resulting from Decision VII/9 to cover exports (including re-exports) of all controlled ozone-depleting substances, including mixtures containing them'.[16] Trade data reports from 2005 onwards, therefore, should, at least in theory, reveal more information on countries of destination for all ODS.

3.1.4 Conclusion: what are the best points at which to collect data?

46. The logical points in the supply chain at which to collect data are largely those at which the data is already collected: original production by the company concerned, import and export (together with auxiliary data collection, such as volumes for destruction, etc.). The section above indicates a number of additional points at which data could be collected, but of course this would involve additional costs, and in some countries may raise issues of commercial confidentiality. The more important points for this study are the quality and accuracy of the data collected at these points in the supply chain, and what is done with the data; these questions are considered below in Chapter Four.

47. There may, however, be a case for more careful study in cases of suspected illegal trade. If a small number of supply chains can be audited in depth, cross-referencing transport data and other relevant sources with customs trade data, it may be possible to identify more clearly the points at which illegal products may enter or leave the formal ODS system in different situations. This may provide evidence to demonstrate how legal supply chains function and reduce the cover for illegal routes and activities. (See further in Section 6.1.1.)

3.2 Identification

48. There are a number of different ways in which to identify ODS in trade, including through their chemical and trade names, the labelling and marking on their containers, and through customs codes.

3.2.1 Naming and labelling systems

49. ODS themselves can be identified by their complete chemical names or a shortened version of this, by trade names, CAS number (US Chemical Abstracts Service registry number), UN SIN (substance identification number) and ASHRAE (American Society of Heating, Refrigeration and Air-Conditioning Engineers) number. CFC-12, for example, may be identified as dichlorodifluoromethane (or difluorodichloromethane), CF_2Cl_2 (its chemical formula), ASHRAE no. R-12, CAS no. 75-71-8 and UN SIN 1028. It has had a wide number of trade names, depending on manufacturer, including Algofrene 12, Arcton 12, Asahifron R-12, Daiflon 12, Forane 12, Freon-12, Frigen 12, G12, Genetron 12, and Taisoton 12.

50. ODS are stored and transported in a variety of containers, from isotanks containing twenty tonnes or more, down through one-tonne or smaller reusable cylinders, to the more common 50lb

[15] Ozone Secretariat, pers. comm.
[16] Decision XVII/16, para. 4.

(22.7kg) reusable or 30lb (13.6kg) disposable cylinders (disposables are now banned in many developed countries) to 1lb (450g) or even smaller canisters. The smaller containers may be colour-coded; a common, though not universal, system is the ARI (American Refrigeration Institute) scheme, which depends on ASHRAE numbers; CFC-12, for example, is usually contained in cylinders painted white. Containers are also often marked with symbols specifying safety information (toxicity, flammability, etc.).

51. A number of countries have developed additional systems. Japan, for example, in 1997 introduced a system of colour-coding methyl bromide cylinders depending on use (including quarantine and pre-shipment applications and critical-use exemptions for soil fumigation and for the treatment of chestnuts). As a result, it has become easy to define the appropriate usage and to prevent improper use by producers, distributors, and users such as farmers and pest controllers. It has also become easier to check the amount of production and shipment in any given period.

52. The companies producing and shipping ODS often use additional identification systems on the cylinders containing the substances. Stencils and barcodes can be used to indicate company name and address, product name, HS code and a unique serial number, assisting tracking systems.

Systems for tracking cylinders

Quimobasicos, Mexico: Quimobasicos stencils batch and lot numbers on each of the cylinders the company produces as well as on the outside of the box that the cylinder is shipped in. The company's General Exportation Manager noted that the cylinder companies also engrave a serial number on each cylinder. It was felt that if the serial number was made into a barcode by the cylinder producer, Quimobasicos could input each cylinder's barcode into an internal inventory system to track the batch and lot numbers associated with each cylinder filled by the company. It was felt that a system reliant on barcode labelling would not be a problem for the company to implement.

Other producers in Argentina and Mexico also have systems in place for tracking batch numbers of ODS.

South African producer A-Gas has a tracking system in place for its reusable cylinders. When returnable cylinders are sold to the customer, a deposit is charged for the cylinder to encourage the customer to return it. Cylinders are labelled with company name, unique serial number, product name, company address and HS code. There is no significant cost associated with labelling; however, the cost of tracking could be significant, and for a large company may result in the implementation of asset-tracking software and possibly the employment of an additional member of staff.

Chemicals produced by Indian companies have the company name stamped on them, along with a unique per-cylinder serial number (stamped by the cylinder manufacturer). Cylinders may also have a partial address for the company. Cylinders also carry the HS code of the contents, plus the ASHRAE number, and any safety/hazard information required by law (on a material safety data sheet (MSDS)).

3.2.2 Customs codes

53. The most common way of identifying goods for customs officers is through customs codes, which are designed and applied primarily to facilitate international trade and for the collection, comparison and analysis of trade statistics. This is the main way in which customs officers will be able to identify imports of ODS, and is therefore of significant importance to any system for monitoring transboundary movements, including licensing schemes.

54. The vast majority of countries now use the Harmonised Commodity Description and Coding System (Harmonised System, or HS, for short) administered by the World Customs Organisation (WCO). A code containing six digits is assigned to each product or group of products subject to trade;

more than 5,000 codes are currently provided in ninety-six chapters. The HS is subject to regular review and revision over a five- or six-year cycle. The last review cycle was completed in 2004 and the new codes will be implemented from 1 January 2007. There is no change to the treatment of pure ODS in the new codes, but mixtures containing ODS are treated slightly differently (see below).

55. In addition to the six-digit international codes, countries may use further digits (based on the original six) to further subdivide the groups of products if they so wish. For example, in Argentina, the NOU worked with Customs to implement national-level HS codes for each ODS, for example 2903.49.15.100Z (HCFC-141b). Given the long time period between HS revisions, this can offer a faster way of introducing more detail into the system if it is felt necessary, and the WCO periodically issues recommendations for the insertion of such sub-headings at the national level.

56. Pure ODS are listed in Chapter 29 of the HS ('organic chemicals'). Separate HS codes are assigned to the more common ODS: CFC-11, for example, is coded as 2903.41, CFC-12 as 2903.42 and carbon tetrachloride as 2903.14. Many others, however, are included in codes describing a group of ODS: all the halons (Annex A Group II ODS), for example, fall under 2903.46, and all the substances listed in Annex C (HCFCs, hydrobromofluorocarbons (HBFCs) and bromochloromethane) fall under 2903.49.

57. In response to proposals by the Montreal Protocol Expert Group on Customs Codes, the WCO has issued a number of recommendations for further national subdivisions, of which the one currently in operation was agreed on 28 June 2003. This includes recommending separate codes for methyl chloroform, methyl bromide, the 'other CFCs' in Annex B Group I, and the most frequently used HCFCs (HCFC-22, -123, -124, -141/141b, -142/142b and -225/225ca/225cb). On 1 January 2007 this will be replaced by a further recommendation, agreed on 1 July 2006 (and not yet published), which takes into account the HS 2007 amendments on mixtures (see below).

58. Mixtures containing ODS are usually classified according to their function (such as 'pesticides') rather than their composition, across a wide range of headings within Chapters 30–38 of the HS. If there is no separate description of their specific use, mixtures fall within the description 'other chemical products and preparations of the chemical or allied industries, not elsewhere specified or included' within code 38.24.

59. Many ODS mixtures, however, match the description of a use listed higher up in the HS hierarchy (i.e. having a lower HS number) and can therefore be, quite correctly, declared under that code where they are mixed with other chemicals used for the same application. Halon-containing mixtures, for example, might be traded under heading 38.13 (chemicals used in the preparation of fire extinguishers). Methyl bromide, when mixed with other chemicals for use as a pesticide, will be classified under one of the codes for pesticides (3808.10 – 3808.90), alongside other pesticides containing no ODS. Mixtures containing CFCs and halons not classified by a function code have been given a special sub-heading under 38.24, namely 38.24.70 – this covers, e.g., the refrigerant R502 – but all other ODS mixtures, including the widely used HCFC refrigerant mixtures, belong to the 'everything else' sub-heading 38.24.90, along with all other types of chemicals.

60. The WCO's recommendations for national sub-headings also cover mixtures. The current recommendation includes codes identifying any of these mixtures of chemicals that contain specific ODS (including CFCs, HCFCs, methyl chloroform and methyl bromide) under the three headings 38.08 (pesticides), 38.13 (preparation for fire extinguishers) and 38.14 (some solvents).

61. The new international HS codes to be introduced in 2007 will detach all ODS mixtures that are not classified by function from the general 38.24.90 category by rewording the sub-heading 38.24.70. The new 38.24.70 will differentiate the ODS mixtures by their ODS group, with separate codes for each one of the main ODS groups (CFCs, halons, HCFCs , etc.). This amendment to the existing system will be important for mixtures of refrigerants, foam-blowing agents and some solvents. The new 38.24.70 contains in addition an HS code for mixtures containing only hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), through which the widely used HFC refrigerant mixtures will also be broken out from the 'everything else' sub-heading, 38.24.90.

3.3 Licensing systems under the Montreal Protocol

62. As noted above, the main existing systems for monitoring transboundary trade in ODS are the national export and import licensing systems established under the Montreal Protocol.

3.3.1 Export and import licensing

63. Since the first days of the Protocol, Parties have had to possess some form of monitoring and controlling trade in ODS, as 'consumption' is calculated as 'production plus imports minus exports'. In practice, many Parties established import (and sometimes export) licensing systems to ensure that they met their consumption phase-out targets. The emergence of illegal trade also stimulated the establishment of such systems; the US, for example, introduced its petition system partly in response to this. As concern with illegal trade grew, in 1997 the Protocol itself was amended (through the Montreal Amendment) to introduce a requirement for export and import licenses for all categories of ODS. If the problem of illegal trade had been foreseen when the Protocol was negotiated, it is likely that the requirement for licensing systems would have been in place from the beginning.

64. Entering into force in November 1999, the amendment requires those Parties that ratify it to 'establish and implement a system for licensing the import and export of new, used, recycled and reclaimed controlled substances'.[17] Article 5 Parties were permitted to delay taking these actions for Annex C ODS (HCFCs, HBFCs and bromochloromethane) until 2005 and Annex E ODS (methyl bromide) until 2002. By December 2005, 137 Parties had ratified the Amendment, though only 107 of them had actually established licensing systems; on the other hand, a further 37 Parties to the Protocol who were not Parties to the Amendment had also established such systems.

65. Unlike some other multilateral environmental agreements (see Section 5.1), the Protocol does not specify a single uniform scheme for these licensing systems, or even define what it means by a 'licensing system'. As a result, systems developed by different Parties can vary quite significantly.

66. The general concept behind all such licensing systems, however, is that all international movements of ODS must be approved in advance. Before any ODS can be moved into or out of a country, importers or exporters must apply to the country's government for a permit that specifies the quantity of ODS, the countries involved in the transaction, what the chemicals will be used for and other relevant information. At least in theory, this enables the authorities to obtain what simple reliance on customs codes cannot provide: a complete picture of exports and imports, disaggregated by substance, and thereby a means of controlling them. (The extent to which licensing systems actually do help to provide this picture depends on their design, and is discussed below in Section 4.3.)

[17] Montreal Protocol Article 4B (1).

67. Licensing systems also generally contain quotas, in order to provide a means to limit consumption to the levels required by the Protocol: licenses will be awarded for specific volumes over specific periods. As most Parties are importers, their import licensing and quota systems are usually the main mechanisms available to them to fulfil their obligations. Licences can also be designed to provide information on end uses, and to require all applicants for licences to register with the authorities, though these characteristics are not common.

68. These licensing systems are similar in principle to systems established under other multilateral environment agreements, including the Basel Convention on hazardous wastes, the Convention on International Trade in Endangered Species (CITES) and others. (The use of quotas is less common in these other agreements, which do not generally place limits on consumption in the same way as the Montreal Protocol; CITES permits, however, sometimes specify quotas.) Section 5.1 looks at a selection of tracking mechanisms, together with possible lessons that can be drawn from their operation for the Montreal Protocol.

69. The Ozone Secretariat is instructed periodically to prepare and circulate a list of those Parties that have reported to it on their licensing systems; as noted, at the end of 2005 144 Parties had licensing systems in place. Surveys of regulations in operation in 1995/96, updated in 2000,[18] showed that of fifty-nine countries surveyed, forty possessed requirements for permits or notification for imports, and nineteen (all Article 5 Parties) did not.

70. Parties to the Montreal Protocol have stressed repeatedly the need to implement export and import licensing systems – and, indeed, the control of illegal trade is almost impossible without them (the import of ODS into countries lacking such licensing systems is unlikely even to *be* illegal). Technical and financial assistance is provided through UNEP for the revision of regulations, the introduction of licensing systems, and training of customs and other officials in their operation.[19]

71. The presence of an import and export licensing system provides the basic underpinning of any system to monitor transboundary trade. Yet it is only as effective as its operators; customs officials must know that a licence is required for any particular shipment, and must be able to check with the relevant authority (usually the environment ministry or agency) whether a particular shipment has one. This requires some knowledge of the materials that may be traded, including substances and mixtures, including customs codes and other forms of labelling. Effective contact networks between different agencies within the countries is also of value. Further details of licensing systems in operation are given below in Section 3.4.

3.3.2 Controlling exports for basic domestic needs

72. Decision XVII/12 (reproduced in full in Annex One), which was adopted in 2005 and includes a recommendation aimed at limiting the production of CFCs in developed countries for export to meet the 'basic domestic needs' of developing countries, introduced a new concept into the Montreal Protocol regime, similar in effect to the prior informed consent (PIC) system of the Rotterdam Convention and other international agreements (see Section 5.1).

[18] UNEP DTIE and Stockholm Environment Institute, *Regulations to Control Ozone-Depleting Substances: a Guidebook* (Paris: UNEP/SEI, 2000).

[19] See, for example, UNEP IE, *ODS Import/Export Licensing Systems: Resource Module* (Paris: UNEP, 1998); and UNEP DTIE, *Planning, Designing and Implementing Policies to Control Ozone Depleting Substances under the Montreal Protocol: A Handbook of Policy-Setting at the National Level* (Paris: UNEP, 2003).

73. This recommendation urges Parties exporting CFCs for basic domestic needs to ensure that such production is genuinely required by 'requesting a written affirmation from the prospective importing party' both that the CFCs are required and that their import would not place the importing party in a state of non-compliance. Copies of the written affirmations are to be included along with the data reports on production for basic domestic needs to the Secretariat, and these affirmations are to be reported to the meeting of the Parties.

74. Experience so far with this system has been limited. Companies in the EU have tried to acquire such written affirmations when exporting CFCs; the main problem encountered is a lack of response from the importing country. EU companies have adopted an informal system whereby two attempts to elicit a response are made, and if there is no response after these then the shipment is sent anyway. One other complexity is added by the fact that the original producing company may often sell the CFCs on to other companies within the EU which then export them; so the movement of CFCs for export for basic domestic needs to be monitored throughout their 'chain of custody'.

75. In the US, the government has decided not to try and implement this decision, pointing to the complete lack of response experienced after an earlier decision of the Parties (Decision V/25), which requested Article 5 Parties requiring the import of ODS for basic domestic needs to provide a letter to the exporting country specifying the volumes required. For this reason, and because the US is now exporting only very small quantities of CFCs for basic domestic needs, it decided not to follow the recommendation of Decision XVII/12; the government believed that further reducing the level of allowed domestic production for basic domestic needs was a better use of its limited resources.[20]

3.4 National tracking systems

76. As noted above, national tracking systems vary a good deal in their design. Key characteristics include:

- The number of substances covered.
- Whether or not they cover used ODS.
- The range of activities which they cover, including production and use as well as trade.
- Whether or not they control exports (including re-exports) as well as imports.
- The extent to which they cover transit trade ('trans-shipment' – see further below), and whether they apply to free trade zones.
- Whether they include quotas limiting trade in ODS.
- The period of time, or the activity, for which licenses are granted – some governments may grant licenses for an entire year, for example, whereas others may license each shipment (export or import) individually.
- Whether the quantity of the substance, and the countries of origin and destination, must be specified in the licence.
- The information that is collected on the extent to which licenses are actually used.
- Whether they rely on electronic or paper-based systems.

[20] Tom Land, US EPA, pers. comm..

77. The remainder of this section summarises existing licensing systems in the EU, India, China and Argentina; the information is drawn from the interviews conducted as part of this study. It should be emphasised that these are all reasonably sophisticated systems, and many Parties to the Montreal Protocol possess much more basic variants. Nevertheless, these examples demonstrate what is possible.

EU ODS tracking system

The European Union ODS electronic licensing system was developed in 2002 to meet the requirements of the Montreal Protocol and EU Regulation 2037/2000. The latter is more onerous in certain areas, particularly on trade controls for products and equipment.

The system allows for instant electronic production of import licenses in accordance with annual quotas set by the European Commission. It also enables information to be collected on the export of ODS, together with real-time collation and analysis of all relevant trade data. It has the capacity to, for example, compare total EU exports with a given importer's annual quota and restrict permits for exports that will take the importing country into non-compliance (it should be noted that this only includes exports from the EU; additional supplies from producers outside the EU are, naturally, not available for comparison).

Individual companies can access their annual import quota online and request licenses up to the capacity of the quota. Licenses are currently sent by post for security reasons, although the system has the capacity to issue them electronically. License details are then used to ensure automatic clearance through EU customs.

There are no quotas for export from EU territories but all exporters require an Export Authorisation Number (EAN) for customs clearance. Producing and repackaging companies are required to comply with Article 12 of Regulation 2037/2000 and the control measures and decisions of the Montreal Protocol by only exporting to countries that are Parties to the Protocol, and to make an annual electronic report of substance volumes to be exported in the following year. The database supports compliance by only offering EANs for countries to which exports are allowed; however no checks are made on actual destinations. Based on this report, EANs can be automatically requested from the system. Reported volumes and EANs requested are not currently cross-referenced by the system, but total exported volumes are reported at the end of the year in line with Montreal Protocol requirements.

Individual shipment licenses or EANs are available for all CFCs traded across EU borders; carbon tetrachloride for basic domestic needs in Article 5 countries; halons for critical uses, and inward processing relief.

Methyl bromide and HCFCs are not currently included in the shipment-based system due to the relatively large quantities currently traded, requiring instead an annual certificate and electronic registration for companies wishing to deal in them; both are automatically available from the database.

The database on which the system rests is accessible online to all the relevant European Commission officers, member states' competent and customs authorities, registered importing and exporting companies, and guest users such as consultants and tax inspectors. However, all data contained in it is not available to all Parties in different member states, preventing the possibility of verifying licenses if a particular shipment is brought into the EU through a country that did not issue its license.

In the future the system may be integrated with management systems for other Conventions such as Rotterdam, and with the EU electronic customs project, *Single Window*.

Further information is available at http://europa.eu.int/comm/environment/ozone/ods.htm

India's licensing system

Licenses for trading in all ODS are required in India and are awarded to companies on an annual basis. Applications for bulk export licenses are made to the Director General of Foreign Trade within the Ministry of Commerce.

Each ODS shipment exported is recorded by customs and the details communicated to the NOU on an 'almost real-time' basis. Every quarter producers file their returns, listing the quantities of ODS exported. India is currently in the process of improving the communication system between customs and the NOU in order to facilitate the spotlighting of discrepancies between producer reported exports and customs export data. The NOU uses the producers' records and the customs reports to ensure that the amounts do not exceed the bulk quota by the end of the year.

According to the Indian producers coalition, REGMA, usually exporting companies in India pre-check prior to export that the foreign company requesting the import has an import quota; this is largely to protect them from loss of trade and wasting time on returned shipments.

China's licensing/tracking system

In early 2006 the State Environment Protection Authority of China announced significant changes to the operation of China's licensing system for ODS. China has pledged a range of initiatives to combat illegal trade, including:

- Reducing the number of registered exporters of ODS from over thirteen to five. These five companies are all producers and China now prohibits the export of ODs through trading companies.
- Increasing customs' examination rate of ODS shipments.
- Participating in the South-East Asia–Pacific / South Asia region's informal PIC system (see Section 5.5.1).
- Introduction (in progress, expected within two years) of legislation incorporating high penalties for illegal trade activities.
- Introduction of a licensing system for eight mixtures, effective from March 2006.
- Reduction of total country export quota in 2006 to 400 ODP-tonnes.
- Various investigative, training and capacity-building initiatives to improve identification of illegal trade by Chinese authorities.

Licenses are issued to the five companies on a per-shipment basis and are valid for nine months. The licenses require detailed information including destination port name and company name. In order to qualify for a shipment license exporters are mandated to provide evidence that their trading partner company is legally able to accept the import from China. One of the five registered companies, Zhejiang Juhua Co Ltd., labels its ODS with company name details, and uses a special tamper-proof identifying sealing cap.

Argentina's licensing system

The licensing system covers imports and exports of all ODS controlled under the Montreal Protocol, including new, used, and mixed material. The licenses are issued on a per-shipment basis. It is mandatory to have an ODS import/export license before customs authorises a release of a shipment of ODS. The licenses are valid for one shipment only and have a period of validity of twenty days.

Importers and exporters are required to register before receiving quotas. For import licenses for ODS under a phase-out schedule (such as CFCs) the importer must either obtain a quota or can apply for imports under a special procedure for 'new or contingent' importers, which acts as a safety measure for unforeseen needs by industry.

In addition to being registered with the NOU, the requester must provide the following information in order to receive a license:

- Country of origin.
- Exporting country.
- Value in US$.
- Shipment by air, land or sea.
- Final intended use.
- Where it will be stored until it is collected.
- Estimated pick-up date.
- Signature, verifying that the information is correct.

Argentina has established the maximum import quantity of each group of ODS until 2010, and the amounts are distributed amongst the users. Ninety per cent of the total is for quotas given to companies, four per cent for new importers and unforeseen needs, one per cent for emergencies, and five per cent for a safety margin for potential differences in final weights.

All licensing system procedures are computerised. The interaction among users is made via internet and e-mail notifications. Customs, industry and NOU users have passwords to access registration and licenses data. The system also has special features to manage critical uses (in the future), quarantine and pre-shipment and risk profiles.

As a result of including all ODS on a per-shipment basis, the system is able to produce extremely detailed real-time data (e.g. number of shipments to date to a particular country/importer). The system is also designed to achieve 'information closure', meaning that once permits are issued, it requires confirmation as to how they were used. If an import permit is not used within thirty days, the system alerts the NOU.

Argentina's system has received high praise from industry: the producer and two main importers all stated in interviews that there were minimal added costs for them as a result of the system and that they were satisfied with the turnover of permit requests.

4 Where monitoring systems can fail

78. If the monitoring and data collection and reporting systems established under the Montreal Protocol functioned perfectly, collecting, reporting and disseminating all data with complete accuracy and timeliness, there would be little need for this study. Unfortunately, however, there are many opportunities for the monitoring systems in place in various countries to fail to perform adequately, because of problems with their design or implementation, leading to unregulated, unreported or misreported trade.

79. Other weaknesses are connected to the general problems of monitoring international trade. It is generally difficult, if not impossible, to monitor closely the substantial volume of goods moving in international trade, and some aspects in particular – including exports and transit trade – are not recorded very precisely. Finally, there may also be deliberate attempts to evade existing monitoring systems – i.e., illegal trade.

80. This chapter examines these problems, thereby setting the background to the options described in Chapters Six and Seven.

4.1 Data reporting

4.1.1 Data reliability

81. The entire structure of the Montreal Protocol rests on the reporting of accurate data on production and consumption, including exports and imports. Yet as observed in Section 3.1, it is difficult to judge the quality of the original data collected by Parties and reported to the Ozone Secretariat. As a comprehensive survey of the data reporting system in 2001 concluded, 'there is generally little information available on the methods used by Parties in collecting data. For example, Parties could rely on either information provided by producers, importers and exporters; information generated through a licensing system; customs data; or estimates … Such different methods might result in very divergent figures of varying accuracy.'[21]

82. Perhaps more importantly, 'no review mechanism is available to check the accuracy of the data submitted. Doubts exist about the reliability of a number of figures provided by governments.'[22] There is no formal procedure for verifying the accuracy of submitted data, though in practice governments of developing countries receiving financial assistance from the Multilateral Fund will work together with the implementing agencies (UNEP, UNDP, UNIDO and the World Bank) in collecting and reporting data, thereby providing some external monitoring, often through annual audits under national phase-out plans.

83. Scientific measurements of atmospheric concentrations offer an overall check on total volumes emitted into the atmosphere (though not, of course, on individual countries' data) and do provide some reassurance. The latest (2002) Science Assessment Report concluded that 'the observed abundance of CFCs, HCFCs, and methyl chloroform in the lower atmosphere continue to be consistent with reported

[21] Sebastian Oberthür, *Production and Consumption of Ozone-Depleting Substances 1986–1999: The Data Reporting System of the Montreal Protocol* (GTZ, 2001), p. 19.
[22] Ibid.

production and estimated emissions'.[23] The 2001 survey mentioned above concluded that 'the quality of data submitted by the Parties to the Montreal Protocol has been improving over recent years … in general, the coverage of the Secretariat data with regard to the main producers and consumers of controlled substances is quite comprehensive'. Overall, 'despite the inadequacies regarding the Parties' data submissions, the overall quality of the Secretariat data appears to be sufficient as a basis for political decision-making, at least with respect to the major ODS'.[24]

84. This was contradicted, however, by a more recent report of the Protocol's Technology and Economic Assessment Panel (TEAP). In 2004 the Panel's Basic Domestic Needs Task Force report, produced in response to Decision XV/2, identified weaknesses in data reporting by Parties which prevented the task force from making any firm conclusions as to what the production of CFCs for basic domestic needs would be for the period 2004–10.[25]

85. In every year from 1994 to 2002, total reported production was significantly lower than total reported consumption; in 1995, for example, the deficit for CFCs was 27,000 ODP-tonnes, about 10 per cent of global consumption. But in none of these years were shortages of CFCs or price increases observed in the market – in fact, CFC prices reached their lowest levels in this period. TEAP concluded that: 'This then raises questions regarding the quality of data reporting, whether there is systematic over-reporting of consumption or systematic under-reporting of production.'[26]

86. These problems with data reporting were not limited to CFC production and consumption data, but also emerged with carbon tetrachloride data (both for emissive uses and for feedstock), and with data on imports and exports of recycled substances. TEAP concluded that this issue needed further investigation, noting that: 'further monitoring and reporting back to Parties will be needed and that data submission processes need to be improved'.[27]

87. Although the data-reporting formats have been revised on several occasions, there may still be some particular problems, particularly over reporting of ODS contained in mixtures. The instructions for data reporting include an illustrative list of mixtures, together with the percentages of ODS contained within them, to enable those filling out the forms to calculate the equivalent volumes of pure ODS. Yet new mixtures are constantly being developed and it is possible for both the illustrative list and UNEP DTIE's database of substances and mixtures (see Section 4.2.1) to become rapidly out of date.

4.1.2 Export and import data

88. As described in Section 3.1, import and export data are not reported publicly to the same degree as are production and consumption, though reporting formats have recently been revised, in response to Decision XVII/16, to cover exports of all controlled ODS, including mixtures containing them.

[23] 'Synthesis of the 2002 Reports of the Scientific, Environmental Effects and Technology and Economic Assessment Panels of the Montreal Protocol', UNEP/OzL.Pro/WG.1/23/3, 25 February 2003, para 14. For a discussion of the other ODS for which measurements are more difficult, or where discrepancies do appear to exist (mainly carbon tetrachloride), see the full Scientific Assessment Panel report, available at www.unep.org/ozone/sap2002.shtml.
[24] Oberthür, *Production and Consumption of Ozone-Depleting Substances 1986–1999,* p. 19.
[25] UNEP, *Report of the TEAP Basic Domestic Needs Task Force* (October 2004), available at http://ozone.unep.org/teap/Reports/Other_Task_Force/Teap-BDN.pdf
[26] Ibid., p. 43.
[27] Ibid., p. 3, para 17.

89. No cross-checking of the import and export data reported to the Secretariat took place until an aggregated cross-checking exercise was conducted in 2004, with the intention of discovering whether or not global import and export data corresponded to each other.[28] The results are shown below in Table 4.1. Except for 2002, the total imports reported in metric tonnes always exceeded the total exports reported, the difference averaging about 5 per cent over the last six years. Inclusion of imports and exports to non-Parties made little difference. ODP-weighted totals exhibited a much bigger divergence between imports and exports, however, which the Secretariat considered could be an indication of a mismatch between reporting of substances, namely that a party that exported one substance could result in the importer reporting a different substance.

Table 4.1 Total imports and exports reported between 1997 and 2002

Year	*Imports MT*	*Exports MT*	*Difference*	*Imports ODPT*	*Exports ODPT*	*Difference*
1997	367,332	358,054	-2.5%	233,149	217,622	6.7%
1998	361,534	361,291	-0.1%	215,343	205,296	4.7%
1999	415,999	370,538	-10.9%	229,282	191,421	16.5%
2000	385,471	341,753	-11.3%	195,811	159,368	18.6%
2001	347,063	314,557	-9.4%	154,778	122,410	20.9%
2002	342,261	355,919	4.0%	127,905	114,900	10.2%
Totals	*2,219,659*	*2,102,111*	*-5.3%*	*1,156,267*	*1,011,017*	*12.6%*

MT = metric tonnes; ODPT = ozone-depleting potential-tonnes

90. A more detailed analysis, broken down by annex group, is shown in Table 4.2. As can be seen, the divergences exhibit a larger variation when compared to those in Table 4.1, indicating possible difficulties faced by Parties in reporting substances accurately. Most discrepancies involve imports exceeding exports, though the most significant discrepancy is that of methyl chloroform in 2002, where total reported exports exceeded total reported imports by 74 per cent.

Table 4.2 Total imports and exports reported between 1997 and 2002 (MT)

	AI – CFCs			**BIII – methyl chloroform**		
Year	*New imports*	*New exports*	*Difference*	*New imports*	*New exports*	*Difference*
1997	88,044	74,121	-15.8%	24,926	22,677	-9.0%
1998	79,736	63,289	-20.6%	22,494	21,247	-5.5%
1999	74,488	70,783	-5.0%	28,149	23,149	-17.8%
2000	73,917	62,571	-15.3%	30,540	23,604	-22.7%
2001	63,208	52,624	-16.7%	20,239	19,881	-1.8%
2002	53,196	54,166	1.8%	23,233	40,495	74.3%
Totals	432,587	377,554	-12.7%	149,583	151,052	1.0%
	BII – carbon tetrachloride			**CI – HCFCs**		
Year	*New imports*	*New exports*	*Difference*	*New imports*	*New exports*	*Difference*
1997	91,480	91,513	0.0%	118,769	129,092	8.7%
1998	83,280	91,267	9.6%	135,107	143,572	6.3%
1999	101,934	74,846	-26.6%	172,226	164,992	-4.2%

[28] See 'Information provided by the Parties in accordance with Article 7 of the Montreal Protocol on Substances that Deplete the Ozone Layer' (UNEP/OzL.Pro.16/4, 18 October 2004), paras. 52–54.

2000	72,921	56,852	-22.0%	171,788	165,306	-3.8%
2001	48,131	36,455	-24.3%	183,450	181,101	-1.3%
2002	34,773	24,515	-29.5%	203,645	213,471	4.8%
Totals	432,519	375,448	-13.2%	984,984	997,534	1.3%
	EI – methyl bromide			**All – halons**		
Year	*New imports*	*New exports*	*Difference*	*New imports*	*New exports*	*Difference*
1997	42,361	39,057	-7.8%	1,496	1,574	-5.2%
1998	39,019	40,645	4.2%	1,491	978	34.4%
1999	38,078	35,772	-6.1%	1,068	996	6.8%
2000	35,213	33,009	-6.3%	1,006	411	59.1%
2001	31,039	24,127	-22.3%	981	368	62.5%
2002	26,227	22,885	-12.7%	699	387	44.6%
Totals	211,937	195,495	-7.8%	6,742	4,714	30.1%

91. The reasons behind these discrepancies are not known. Some differences are always likely to appear (reasons for errors in trade data are listed in Section 5.4), but these should not usually be major. Combined with the conclusions from the 2004 TEAP study, and from trade data discrepancies described in more detail below, these figures do place some question marks over the accuracy of the data reported to the Secretariat and presented to the meetings of the Parties.

4.2 Identification

4.2.1 Naming and labelling systems

92. Section 3.2 outlined the wide range of ways in which ODS can be described in international trade. Given all these possibilities, and the variations in companies' labelling practices, it is not surprising that customs officers and ozone officers may find it difficult to identify exactly what is being imported into their country. The scope for deliberate mislabelling is also extensive (see Section 4.5).

93. UNEP DTIE maintains a database of trade names and ASHRAE numbers,[29] but this does not cover all of the different ways in which the chemicals may be labelled. It also appears to be some years out of date. The highest ASHRAE number listed, for example, is R415, yet ASHRAE has approved R426A. Similarly it does not list any 500 series numbers after R503. The omission of R507, a common non-ODS refrigerant, is of particular concern.

Problems with labelling

Trinidad & Tobago: Complications with imports of the mixture 415b resulted from the NOU finding it very difficult to access information. As more 415b began to arrive, there was much uncertainty about safety and flammability, which was exacerbated by inconsistent and suspect labelling. In some cases, 'flammable' labels were removed to make the new gas more attractive on the market. When the Chinese exporters

[29] Available at http://www.uneptie.org/ozonaction/information/tradenames/. As at late August 2006, this covered 894 products manufactured by 172 companies located in 30 countries. (It is worth noting, particularly in light of the discussion over possible confusion over the term 'products' in Section 4.2.2, that this database itself misuses the term – it is in fact a database of substances, including mixtures and alternatives, and not 'products' in the strict Protocol sense.

were contacted to request information about the specifics of their exported material, the Chinese respondent 'hung up the phone'. Other NOUs echoed the concern over misleading and inconsistent labelling of these cylinders, noting that they look exactly the same as the 134a cylinders, keeping the 134a label and simply adding the word 'replacement'. The influx caught the NOU by surprise because they were not given prior warning or notification of such shipments.

India: Notes that some Chinese companies produce blends of R12 that contain only a tiny proportion of R12. Some unscrupulous producer/traders offer the option to have cylinders containing this mixture labelled as though they were pure R12, increasing the market value, and there are no controls to stop this mislabelling.

Mongolia: The NOU felt that labelling in Chinese characters makes it difficult to identify ODS.

4.2.2 Customs codes

94. Similarly, the HS codes applying to ODS, and particularly to mixtures, are complex and subject to mistakes in identifying and recording imports and exports. Analysis of original import data from a major CFC importer in 2004, for example, showed repeated misdescriptions and incorrect coding of imports; see Table 4.3.[30]

Table 4.3 Miscodings

Declared HS code	*Declared commodity*	*Actual commodity described by this HS code*
290330	FORANE 22	Fluorinated etc derivatives of acyclic hydrocarbons
290342	ARCTON 22	CFC-12
290344	FREON R22	CFC-114/115
290342	REFRIGERANT 22	CFC-12

95. National elaborations of the international HS codes might help address this problem, providing more accurate ways in which to describe the goods being traded. However, their implementation is patchy, despite encouragement from meetings of the Parties (such as Decision XIV/7 – see Annex One). By 2006, only eight out of fifty-three customs administrations had reported to the WCO that they had implemented the 2003 recommendation, for example; the remaining forty-five were applying earlier recommendations.[31] There will always, however, be a limit to the extent to which the system can be elaborated, as it is, after all, designed primarily to facilitate trade, and not to provide highly detailed information on the goods traded.

96. One specific problem is sometimes caused by the classification of mixtures containing ODS according to their function. In some cases they can be falsely (either accidentally or deliberately) considered 'products' under the Montreal Protocol definition. Under Article 4 and Annex D of the Protocol, products are items such as refrigeration or air-conditioning units which contain ODS; they are not subject to the controls applying to substances.

97. Two decisions of meetings of the Parties (I/12A and XIV/7) have attempted to clarify the difference between ODS and ODS-containing products; the more recent, Decision XIV/7, specifies that no matter which customs code is allocated to a controlled substance (or mixture), it should be considered to be a 'controlled substance' (not a product) and thus subject to the phase-out schedules; it draws attention in particular to substances classified under customs codes related to their functions. If the licensing system has been properly designed taking into account this clarification, customs should be aware of the need to monitor ODS and ODS-containing mixtures even if they are coded according

[30] Source: EIA Briefing, *Controlling the ODS Trade*, November 2004 update.
[31] Izaak Wind, WCO, pers. comm..

to their use, not the chemicals. It seems highly likely, however, that misinterpretation is still occurring in some places.

4.3 Licensing systems

98. Each year since the fourteenth meeting, in 2002, the annual meeting of the Parties to the Montreal Protocol has recorded how many Parties possess licensing systems, and has encouraged those Parties lacking them to introduce them. While the figures have shown steady increases, from 115 in 2002 to 144 in 2005, in fact very little assessment has ever been made of the *effectiveness* of these systems, and whether they are operating as intended.

99. Decision XIV/7 requested the Executive Committee of the Multilateral Fund to carry out an evaluation of 'customs officers training and licensing systems projects', and a report was presented to the Open-Ended Working Group in June 2005.[32] It included an analysis of licensing systems in nine Article 5 countries, selected by region and level of consumption. It contained several recommendations, but it did not analyse the extent to which the licensing systems themselves were accurately recording imports and exports.

100. The only analyses which have been carried out of export and import data have indicated major discrepancies between import and export figures. A joint project of UNEP and the Government of Sweden was designed to improve monitoring and control of ODS in the Southeast Asia–Pacific and South Asia regions. Under the auspices of this initiative, a desk study analysing the transboundary movements of CFCs was undertaken, providing intelligence on discrepancies in CFC data (reported by the Parties and also using data recorded in *Global Trade Atlas*[33]). Discrepancies of up to 2,000 tonnes a year between importing and exporting countries in the Asia–Pacific region were identified in the study.

101. Table 4.4 shows data obtained from the *Global Trade Atlas* for trade between pairs of countries in East and South-East Asia:[34]

Table 4.4 Import–export data discrepancies (selected cases) (tonnes CFCs)

Year	*Exporting country*	*Exports*	*Importing country*	*Imports*
2004	China	1529	Indonesia	248
2003	China	1288	Malaysia	414
2001	China	308	Thailand	1653
2003	China	622	Philippines	412
2004	India	561	Philippines	235
2001	India	3472	Thailand	877
2004	Singapore	801	Malaysia	124

102. It is not known why such substantial discrepancies exist or whether they are typical of other regions and other substances. It does signal, however, that import and export licensing systems may

[32] 'Report on the Evaluation of Customs Officers Training and Licensing System Projects' (UNEP/OzL.Pro.WG.1/25/6, 16 May 2005).

[33] Global Trade Atlas, Global Information Services.

[34] UNEP Regional Office for Asia and the Pacific, *Illegal Trade in Ozone-Depleting Substances in the Asia and Pacific Region* (2006). The data are selected to highlight the discrepancies, and were in general lower for other years reported on. In no year and for no pair of countries did they match. Also see EIA Briefing, *Controlling the ODS Trade: The Need to Strengthen Licensing Systems* (July 2004, updated November 2004).

not be accurately recording the trade that is undertaken. The remainder of this section suggests some possible reasons.

103. Since export and import figures are used in calculating the total consumption figures reported to the Ozone Secretariat to enable an assessment of each party's state of compliance, and the overall success of the Montreal Protocol, it is at least possible that these weaknesses in licensing systems are undermining the entire data reporting system of the Protocol. As has also been seen, the data reported annually to the Secretariat does not contain enough detail for cross-checking of imports and exports to be carried out. Unlike some other international agreements (see Section 5.1), the Montreal Protocol has no system for independent verification of the data reported by its Parties.

4.3.1 Licensing system design

104. As is evident from the examples given in Section 3.4, licensing systems vary considerably between countries; there is no uniform system, as there is in some other international agreements (see further in Section 5.1).

105. Some national systems (including that of the EU (for imports) and Japan) require permits for individual shipments, whereas in others, permits are issued to companies for periods of time (such as up to a year in some cases). Individual shipment licenses increase the burden on industry and customs, but allow more precise monitoring of movements. Even individual shipment licenses, however, may not describe accurately what is contained in the shipment. Few, if any, countries include in their licensing regulations a requirement for full and accurate labelling of the contents of each cylinder in each consignment, or a requirement for licenses to be accompanied by declarations certifying the accuracy of the information, either of which would help to raise the deterrence threshold against illegal shipments.

106. Licensing systems also vary in their coverage of ODS; the 2005 report for the Executive Committee report found that in general only CFCs were covered comprehensively.[35] Despite the requirements of the Montreal Amendment, in some countries the licensing systems cover only pure substances, excluding mixtures, or only a list of selected individual substances or mixtures.

4.3.2 Regulation of exports

107. In most countries more effort has been devoted to establishing import licensing systems than to export licences (since far more countries are importers than exporters). The Executive Committee study found that only three of the nine countries studied had any system of export licensing.[36]

108. However, the Montreal Amendment requires export as well as import licensing, and this is obviously an important means – if implemented properly – of monitoring transboundary trade. A failure to regulate exports means that data reported to the Secretariat may be inaccurate, and shipments may be easy to divert to illicit markets. However, as noted above, many countries do not regulate exports of any goods as closely as they monitor imports, if at all. In the interviews for this study, China expressed the belief that the emphasis should be on the importer to ensure that the trade is legal and does not put them in non-compliance.

[35] 'Report on the Evaluation of Customs Officers Training and Licensing System Projects' para. 53.
[36] Ibid., para 46 and Table 4.

109. Nevertheless, as noted above, Decision XVII/16 requested the Secretariat to revise the data reporting format to require the reporting of the destinations of all exports (including re-exports) of all controlled substances. This should, if implemented, provide a stimulus for the introduction of export licensing.

110. Even where means of regulating exports exist, they may not operate effectively to fulfil the aims of the licensing system. EIA research in 2004, for example, showed that the only check made by Indian exporters was whether the country of import was a party to the Montreal Protocol; no information was sought on whether the importing enterprise possessed a license or whether the shipment was within quota limits,[37] although more recently exporting companies in India report they do pre-check the existence of an import quota prior to export. Chinese exports were treated similarly, illustrated by the fact that China reported exports to a large number of Indonesian companies despite the fact that the Indonesian government had only licensed one company for import (China has since pledged to issue licenses for trade with Indonesia only to their one registered company). As seen above, however, the EU system does now at least have the capacity to assess, albeit informally at this stage, EU exports against the control limits allowed for a given country.

4.3.3 Implementation

111. As the report for the Executive Committee observed, 'the effectiveness of import licensing and prevention of illegal imports of ODS is highly dependent on the ability of customs officers to apply the regulations in force and to identify illegal shipments of refrigerants. For this the training of customs officers is crucial.' The report concluded that although the training delivered to date had been valuable, the implementation of licensing systems could be further improved, in particular by:

- Improving the involvement of customs, including the higher levels of hierarchy, in the ODS phase-out.
- Amending and upgrading the legislation framework in those Article 5 countries where it is incomplete, and improving enforcement and regional cooperation.
- Accelerating and assisting implementation of customs training, including regional activities, where appropriate.
- Amending training materials and contents and putting information materials and identifiers to effective use.[38]

112. Another aspect highlighted by the report, and by many of the individuals interviewed, was the need for good communication between different government agencies, primarily those responsible for regulating ODS (usually environment or industry departments) and the customs agencies who check imports and exports. Customs officers, responsible for monitoring trade in a huge variety of products, of which ODS will only ever form a tiny proportion, will not and cannot be expected to have an exhaustive knowledge of the topic – which means that communication and exchange of information with the responsible departments is crucial. In many cases, however, these communications systems do not exist, or are cumbersome and ineffective. Customs authorities also often prove reluctant to release import data to environment agencies (sometimes for reasons of commercial confidentiality) or may only release it several months later.

[37] See EIA Briefing, *Controlling the ODS Trade.*
[38] 'Report on the Evaluation of Customs Officers Training and Licensing System Projects' para. 27.

Problems with licensing systems

Indonesia: There is only one registered importer in Indonesia and its capacity is not sufficient to cover ODS demand, hence many CFCs are found on the markets that are thought to have been illegally imported. Prior informed consent not yet fully implemented to verify the ODS import volume, and to ensure that the transaction has been conducted with a registered exporter.

4.3.4 Cross-checking import and export data

113. If communication between government agencies within a country is difficult, communication between agencies in different countries is even more so. In particular, customs departments rarely, if ever, check whether what they record as imports from a given country is the same (in terms of products, volume, value, etc.) as is recorded as exports by the same country. This is despite Decision IX/8 of the 1997 meeting of the Parties (see Annex One), which also adopted the Montreal Amendment, stating that the licensing system should:

> Assist Parties in the prevention of illegal traffic of controlled substances, including, as appropriate, through notification and/or regular reporting by exporting countries to importing countries and/or by allowing cross-checking of information between exporting and importing countries.[39]

114. In reality this cross-checking almost never takes place. The survey of data discrepancies in East and South-East Asia discussed above, however, did help to provide the impetus for bilateral collaboration aimed to understand the causes of the discrepancy and tackle illegal trade where this proved to be the cause. A series of bi- and multilateral arrangements have since emerged in the Asia-Pacific region, including India–Nepal, India–Bangladesh–Nepal, China–Indonesia, and China–Thailand.

115. These arrangements are designed to improve contacts and collaboration between countries. In 2003, for example, UNEP organised the 'Nepal Dialogue' among Nepal, China, and India in Kathmandu, where the three countries agreed to share information on smuggling and production, including details of producers and registered exporters, importers issued import licenses, and labelling and packaging on goods in trade. They also agreed to hold regular meetings between customs officers working at Nepal's borders with China and India.

4.4 Unreported trade

4.4.1 Transit, trans-shipment, import and re-export

116. The control of 'transit trade' has been much discussed at meetings of the Parties to the Montreal Protocol. In fact the term tends to be used fairly loosely to cover a variety of types of movements of goods. For the purposes of the Montreal Protocol, 'transit' means 'trans-shipment', where goods are only shipped through a third (transit) country, without leaving the port, or designated bonded warehouse or store, or railway wagon, on their way from the country of origin of the goods to the country of final destination.

[39] Decision IX/8, para 1(b).

117. In contrast, cases of 're-export' are not transit. Re-export occurs when goods are imported into the territory of a country which is declared as their final destination in the import documentation, but then exported to another country of final destination. In the interim period they may be simply be stored for some time, or perhaps processed in some way (such as by repackaging) before re-export (in the EU, this latter procedure is known as 'inward processing').

118. In 1992, the meeting of the Parties, in Decision IV/14, made it clear that the two are not the same, and should not be treated, for the purposes of data reporting, as the same:

> The *Fourth Meeting of the Parties* decided in *Dec. IV/14* to clarify Article 7 of the amended Protocol so that it is understood to mean that, in cases of trans-shipment of controlled substances through a third country (as opposed to imports and subsequent re-exports), the country of origin of the controlled substances shall be regarded as the exporter and the country of final destination shall be regarded as the importer. In such cases, the responsibility for reporting data shall lie with the country of origin as the exporter and the country of final destination as the importer. Cases of import and re-export should be treated as two separate transactions; the country of origin would report shipment to the country of intermediate destination, which would subsequently report the import from the country of origin and export to the country of final destination, while the country of final destination would report the import.

119. Thus in cases of trans-shipment, the intermediate country has no requirement to record or report any data. In cases of import and re-export, the intermediate country must record and report the movement of the goods as imports and exports – as the decision says, these are two separate trades.

120. However, definitions of these and similar terms do vary by country. In some cases, customs regulations further differentiate between 'trans-shipment', where the goods simply move from ship to ship in port, and 'transit', where they enter and move through the territory on their way to a final destination country. It is not known to what extent any of these distinctions are observed in practice; it seems likely that often they are not, and that in particular, cases of re-export and import are sometimes treated as trans-shipments and not recorded or reported by the country of 'transit'.

121. It is generally impossible to know from published data the extent to which re-export and import is taking place. For a number of years, for example, Singapore (a major transit port) has reported low consumption of CFCs; for example, in 2004 consumption was reported as 6.6 ODP-tonnes. Analysis of customs trade data in the same year, however, reveals imports of 2,008 metric tonnes and exports of 2,043 metric tonnes of CFC-12 (not including trade with Indonesia). Since, like many countries, Singapore does not record data on trans-shipments, these figures are presumably separate imports and exports which more or less cancel each other out, resulting in the very low consumption figure. The problem is that the very small net consumption figure is masking the very large volume of trade. Publication of trade data could usefully be disaggregated, helping to highlight major countries of transit.

122. As a consequence of this confusion over 'transit trade', which seems likely to be widespread, the origin of the ODS in trade can be lost or confused, making data recording less accurate. Illegal trade can be facilitated by deliberately confusing the trail of the material when it moves through transit countries. Unlike some other international agreements (see Section 5.1), the Montreal Protocol has no specific requirement for transit licenses covering trans-shipment, and even if it did this can be a difficult undertaking; as noted, countries frequently do not collect data on trans-shipment and often have no powers to inspect goods moving through (but not into) their territories. Import, processing and

subsequent re-export should be captured by the normal import and export licensing systems, but, particularly as many countries do not possess requirements for export licenses, this system also sometimes fails to record data properly.

Views on transit trade

Mauritius has no control over its transit trade. In 2005 around 50 tonnes of R22 were imported into the country which was subsequently exported but authorities were unable to ascertain the destination port. Mauritian legislation does not enable the inspection of transit shipments. Mauritius and South Africa both believe that transit trade is likely to be the single biggest cause of illegal trade in CFCs.

Singapore authorities do not monitor transit trade of ODS (or ODS in their free trade zone) at all. Customs and NOU officials respond to tip-offs of suspicious illegal trade for hazardous waste (because under the Basel Convention transit trade is controlled), but as the Montreal Protocol does not stipulate control of transit trade there would be no legislative power to inspect ODS in transit.

Netherlands: For transit trade in ODS no licences are required, as under EU regulations only import and export is under permit. This contrasts to endangered species, hazardous waste or nuclear material, where a licence is required for goods in transit. Goods declared as 'in transit' can be moved around between containers, and the containers can move between ports (Rotterdam and Ostend, for example) whilst still in transit. There is a general policy in the Port of Rotterdam to facilitate trade and not to carry out routine inspections of goods in transit by customs officers. Customs, however, can act in specific circumstances where there is definite suspicion regarding goods in transit. Inspectors from the Environment Ministry are able to carry out routine inspections of goods in transit.

4.4.2 Free trade zones

123. Free trade zones, or export processing zones, are special areas where some normal trade barriers, such as import or export tariffs, do not apply, bureaucracy is minimised (often by outsourcing it to the zone operator), and corporations setting up in the zone may be given tax breaks as an additional incentive. Most are located in developing countries, often in particularly underdeveloped localities, in order to attract employers and thus reduce unemployment and poverty.

124. The reduction in bureaucracy offered in free trade zones may often involve the non-application, or non-enforcement, of environmental regulations. Like transit countries, free trade zones may thus often provide a route for ODS to be traded outside any form of monitoring or regulation. Also as in the case of transit trade, this is a general problem affecting trade in all commodities; however, it should be noted that the Montreal Protocol provides no latitude for exempting parts of a Party's territory, such as a free trade zone, from any of its requirements.

Views on free trade zones

Malaysia: Free trade zone is deemed to be outside the country of Malaysia. The prohibition order doesn't apply to goods in the free trade zone, but the enforcement unit can intervene if there is information to suggest illegal activity.

Argentina requires licenses for all imports and exports, including those which enter or leave a free trade zone.

Belize: In the implementing legislation for its licensing system, Belize has instituted a requirement that any person or company operating in a free trade zone and trading in ODS must apply for a permit (not a license) for each trans-shipment/transit trade. Persons trading within these zones must also report data on a triannual basis to the NOU. Customs has been granted the power to inspect ODS shipments in free trade zones. This has been an extremely valuable measure, as Belize serves as an important transit point for ODS and other goods between Mexico, Guatemala and other parts of Latin America.

Colombia: generally the NOU does not have have enough information on the activities in free trade zones relating to the trade in ODS. The NOU was keen to find out more about trading in these zones.

Mauritius has no control over trade in its free trade zones and the NOU suspects that illegally traded ODS may pass through it. Since Mauritius has banned imports of CFCs to the country the value of CFC-12 is twice the face value, so there is quite an incentive for illegal trade by diversion through the free trade zone. The Mauritian NOU felt that free trade zones are a probable cause of illegal trade of CFCs worldwide.

Indonesia: So far Indonesia has no regulations specifically to control the movement of ODS in and out of free trade zones.

4.4.3 Other reporting failures

125. There are several other cases in which trade may go unreported or misreported. In low-volume-consuming countries, there may often not be any established importer bringing in ODS in bulk and selling it on to final users. Instead, final users, such as refrigeration and air-conditioning servicing companies, may bring in the small volumes they require as and when they need them, perhaps in personal effects or personal cars or trucks, whose drivers generally do not have to fill in the same kind of customs declarations as do registered importers; or the ODS might simply be declared as 'refrigeration equipment'. A properly designed licensing system ought nevertheless to record this consumption of ODS even if the data is never captured by customs, but such countries may not always possess such effective systems.

126. Similarly, though on a larger scale, fishing boats, freighters and cruise ships may often be fitted with refrigerated compartments, or air-conditioning equipment, which they can have serviced at ports outside their home countries. Although the ODS thus used should be recorded as consumption in the country of servicing, sales to ships are sometimes recorded as exports to benefit from tax concessions. The volumes involved can be significant, particularly for small countries; for example, HCFC consumption by tuna boats is probably ten to a hundred times the size of land-based consumption for many small Pacific Island nations.[40]

127. Most seriously, the status of overseas territories is often confusing. American and European territories, for example in the Pacific and Caribbean, should count as part of their home countries for the purposes of the Montreal Protocol (in some, but by no means all, cases the home country makes this explicit when it ratifies the Protocol). They therefore should adhere to the non-Article 5 phase-out schedules. However, in reality most of these territories share the economic and social characteristics of the developing countries which are their near neighbours, and their status with regard to phase-out schedules is, to say the least, confused. To complicate things further, several of these territories, such as St Martin/St Maarten, in the Caribbean, are free trade zones and major transit points for the import of ODS into their neighbours.

4.5 Illegal trade

128. Since all the problems described in the rest of Chapter Four can be exhibited even during normal, legal, trade, where there is no effort to mislead the authorities, it is hardly surprising that similar procedures can be employed as part of illegal trade. The meeting of the Parties' 2002 illegal

[40] Iain McGlinchy, pers. comm..

trade report identified five main sets of methods which have been used to move products illegally: evasion, mislabelling, concealment, disguise, and diversion.[41]

4.5.1 Evasion

129. Legal materials need to be labelled accurately and described in their accompanying paperwork; as has been seen, in most countries ODS need to be accompanied by an export and/or import licence. However, in general this documentation can only be checked at a border crossing point where customs officers are present, and it is often relatively easy for materials to be moved clandestinely across borders, avoiding any customs controls.

130. Many countries have relatively porous borders, with many unmonitored crossing points, and ODS may be moved along traditional smuggling routes used, for example, for narcotics or tobacco. In the Caribbean in recent years, fast narrow-beam 'cigarette boats' have been seized and found to be full of CFC cylinders. ODS may also be moved openly through border crossing points – with proper labels and customs codes but without licences – without any checks if customs officials are unaware of the need for an accompanying licence or are bribed to ignore it.

Recent example of evasion

In July 2006 officers from the Indian Department of Revenue and Intelligence seized 160 13.6kg cylinders of CFCs and HCFCs that were smuggled into India across the land border with Bangladesh. This is one of a great number of similar seizures dating back to 2000.

4.5.2 Concealment

131. Concealment of material passing across borders is an obvious method. Illegal ODS cylinders can be brought into the country of import hidden in the holds of ships, in lorries or even in car boots or individual backpacks (a common method for moving materials across the Mexico–US border). Illegal cylinders can be concealed in the midst of legitimate cargo, for example by placing a row of cylinders containing legitimate products round the outside of the illegal materials. Compressors or other refrigeration equipment can be filled with illegal ODS, perhaps beyond normal capacity, or ostensibly empty cylinders can be shipped as 'returned merchandise'.

132. Oil drums full of CFC canisters have been apprehended in Japan. The most sophisticated means of concealment, detected in Taiwan, involves the construction of cylinders with hidden compartments, and concealed valves, containing illegal material, with legal material in a small cylinder directly beneath the top valve, misleading anyone who samples only from the top valve. Movement of material on this scale is, however, relatively rare; most cases of smuggling of CFCs have involved 30lb (13.6kg) containers.

Recent examples of concealment

In October 2002, a firm tried to illegally import more that 18,000 cans of CFC-12 from China to Japan. The shipment was falsely declared as ethylene glycol. On inspection 4,536 kg of CFC-12 (contained in 250g cans) were revealed concealed in large drums.

[41] For a fuller description, see Lary Cook Larson, 'The art of smuggling: what customs officers need to know', and other articles, in UNEP DTIE, *Illegal Trade in Ozone-Depleting Substances*.

In July 2003, the Philippine authorities confiscated 28 tonnes of CFC-12 during an inspection of two 20-foot containers from Shanghai, China. Two layers of HCFC-22 were packed at the front of the container to conceal the 2,076 cylinders filled with CFC-12 that were hidden behind. The shipment was declared as HCFC-22.

4.5.3 Mislabelling

133. Most ODS are colourless, odourless gases at room temperature, and chemical analysis is needed to determine precisely what substances are present. Mislabelling of containers in which they are transported therefore provides perhaps the easiest means of smuggling. Cylinders can be repainted or relabelled (for example, as HFCs or hydrocarbons or as any ODS not covered by the licensing scheme, or as used ODS), often with false codes and markings indicating companies or countries of origin. Customs codes or chemical names can be falsified on the accompanying documentation; some names of ODS and non-ODS are very similar (e.g. 1,1,1-trichloroethane (methyl chloroform) versus 1,1,2-trichloroethene) and can easily mislead officials checking documentation; for those not familiar with this area, even basic terms like 'hydrocarbon', 'hydrofluorocarbon' and 'chlorofluorocarbon' can be quite confusing.

134. Mixtures containing ODS may be described as 'products containing ODS', trade in which is not controlled under the Protocol (see above in Section 4.2.2). General descriptions ('refrigerant'; 'pesticide') can be given which are correct but misleading. As touched on above, different ODS (particularly mixtures) are often assigned the same customs codes as many other chemicals, and there are many opportunities to mislead customs officers.

Recent examples of mislabelling

In January 2006, the Asia–Pacific Regional Intelligence Liaison Office (RILO) of the WCO, at the request of UNEP's Regional Office for Asia–Pacific, issued an alert to customs officers in the region, warning them to look out for cylinders of R415b (a blend of HCFC-22 with other non-ozone-depleting substances) deliberately mislabelled as R134a (HFC-134a, a non-ozone-depleting substance).

In 2006, DuPont circulated details of cylinders labelled as R134a but actually containing blends of R12, R22, R134a, R152a, R142b and as much as 20 per cent hydrocarbon (making them highly flammable); fake R502 was also detected. The cylinders were found in a number of Middle Eastern countries and were labelled with trade names including Suva, Freon, ISCEON and Genetron – many contained obvious mistakes, such as wrong spellings (isceon, Genatron), badly reproduced logos and incorrect colours.

In 2006 authorities in St. Kitts discovered a case where an importer was bringing in what was labelled as R134a without a license from St. Maarten free trade zone. There was no information on the cylinder indicating origin or verifying composition. When tested, it turned out to be a mixture of R22, R12 and R134a.

4.5.4 Disguise

135. Some relatively simple (albeit time-consuming) tests, such as boiling point or pressure checks, may help pinpoint discrepancies between the claimed and actual contents of a pressurised cylinder. However, on occasion nitrogen has been added to cylinders to raise the internal pressure of an illegal substance to what would be expected for a legal ODS. Virgin CFCs can be deliberately contaminated, for example with water vapour or oil, to make them appear as recovered or recycled material. Used ODS are not subject to the control measures of the Montreal Protocol, other than a requirement to report the quantities traded – though some countries have introduced national regulations to ban export

and/or import; in Argentina, for example, as part of the licensing process, importers must note whether or not the material they are importing is recycled ODS.

Recent example of disguise

In 2003 a CFC smuggling operation was exposed in South Africa. The scam began by the smuggling of virgin CFCs into South Africa through neighbouring countries. Then using the cover of apparently reclaiming CFCs from heavy refrigeration equipment in South Africa's goldmines, CFCs claimed as 'used' were exported to the United States.[42]

4.5.5 Diversion

136. Diversion of material has been a common means of illegal trade. ODS (produced legally) can be exported to legal markets in Article 5 countries via a non-Article 5 country – but then diverted into domestic markets in the country of transit, with false documentation. This was a common problem in the US when illegal trade first became a concern, with Miami an important source as a major transit port. The EU procedure for inward processing relief (now ended for CFCs) – where imports were processed in some way, usually simply being repackaged, and then re-exported (with tax advantages) – seemed particularly open to abuse, with few checks being made as to whether the substances were in fact exported.

137. ODS produced or imported for use as feedstock or process agents in a chemical process are not included in the Protocol's definition of production or consumption, and at least in theory false declarations can be made by importers and exporters as to the products' final intended use; since it is mainly the larger chemical companies that are likely to deal in these goods, however, this is an unlikely route for illegal trade. Under Decision VII/30, Parties importing ODS for feedstock are supposed, prior to export, to provide the exporters with a commitment that the controlled substances imported shall be used for this purpose, but this is infrequently observed. Similarly, ODS imported ostensibly for essential uses or for destruction may be diverted to illegal uses (in theory) as no systems exist to check their final destination.

138. All of the problems outlined in this section are compounded by the low priority which most customs agencies tend to afford to the issue, as compared to, say, smuggling of narcotics or of arms or people-smuggling. Illegal trade in ODS is a specialised area and one which is frequently difficult to detect. ODS are also sometimes treated as dangerous goods (some of them, such as methyl bromide, are toxic), which customs officers are not always keen to inspect closely. Nevertheless, there have been many successes in apprehending illegal traders, from which lessons can be learned.[43]

[42] Environmental Investigation Agency: *Lost in Transit: Global CFC Smuggling Trends and the Need for a Faster Phase-out* (November 2003).

[43] See, most recently, 'Information reported by the Parties to the Montreal Protocol, on illegal trade in ODS: Note by the Secretariat' (UNEP/OzL.Pro.16/7, 23 September 2004), which lists a series of cases of detection of illegal trade, mainly in China and India.

5 Lessons from other international systems

139. The monitoring and control of transboundary movements is an issue faced by many other international agreements and systems. This chapter analyses systems which operate under a series of international agreements, looks at international mechanisms for customs cooperation, and examines whether any data can usefully be derived from international trade databases.

5.1 Monitoring systems in international agreements

140. Annex Three contains descriptions of systems for the monitoring and control of transboundary movements of goods other than ODS, including the three specified in the terms of reference for the study: the Rotterdam Convention, the Basel Convention and the Convention on International Trade in Endangered Species (CITES).

141. A total of nine international agreements and one set of private-sector activities is examined. They can be grouped as follows (some appear in more than one category):

- The main chemicals and wastes agreements: Basel Convention (hazardous wastes), Rotterdam Convention (prior informed consent procedure for chemicals and pesticides), Stockholm Convention (persistent organic pollutants).
- Key agreements which include licensing systems: Basel Convention, CITES, Kimberley Process (conflict diamonds), Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), EU Forest Law Enforcement, Governance and Trade (FLEGT) initiative, International Coffee Organisation, private-sector supply chain initiatives in the timber trade.
- Agreements which include prior informed consent (PIC) systems: Basel Convention, Rotterdam Convention, Cartagena Protocol (biosafety).

142. What all of these systems share in common is the objective of controlling the international trade in the products they cover, and often in excluding particular products from final consumer markets altogether. Some or all of them operate differently from the Montreal Protocol in a number of important ways.

5.1.1 Effective licensing systems

143. Most of the agreements analysed here operate licensing systems that work effectively with relatively low levels of bureaucracy, even though they may cover substantially greater numbers of shipments than does the Montreal Protocol. Considering the Kimberley Process, the UK's Government Diamond Office, for example, issues almost 250 licenses a month (import and export), as well as dealing with UK input into the entire Kimberley Process, with a staff of just three. Considering CITES, management authorities can issue permits for almost 30,000 species of animals and plants.

5.1.2 Uniform licensing system

144. Most agreements which use licensing or permit systems operate a single system amongst all their Parties, with, usually, a uniform design of the license or permit; this is the case in particular with the Basel Convention, the Kimberley Process and CCAMLR; CITES permits can vary from country to

country but are usually based on a common format. This ensures that the trade controls operated by Parties are the same everywhere. It also makes it easier to train customs officials in recognising the paperwork (or electronic information) they can expect to receive from exporting countries, and should facilitate comparison of trade information between countries.

5.1.3 Monitoring and recording of exports

145. The Montreal Protocol is unusual amongst international agreements with licensing systems in not always monitoring exports (as has been seen, although the Montreal Amendment itself requires this, many countries have not implemented it). The other licensing systems examined here – Basel Convention, CITES, Kimberley Process, CCAMLR, FLEGT, International Coffee Organisation – all require Parties to issue export permits or licenses and to report them to a central body.

5.1.4 Requirements for transit licenses

146. Tracking the movement of goods through transit countries, particularly when they are simply trans-shipped, is frequently difficult. The Basel Convention and the Kimberley Process, however, do require countries of transit to require the presence of permits or certificates; CITES, in contrast, does not. Information is lacking on how the process works in practice, though it does not appear to cause any substantial difficulties.

5.1.5 Cross-checking

147. As described in Chapter Four, cross-checking of import and export licenses and data against each other is an important part of verifying that the system is working properly. This is, in fact, a common weakness amongst international agreements, although CITES possesses a rudimentary system through the monitoring function of the World Conservation Monitoring Centre (WCMC). The International Coffee Organisation was set up with a fairly rigorous system for ensuring its quotas were not breached, and made it work even before computers were used (although this required significant numbers of staff in the central secretariat).

148. The other dimension lies in cross-checking what is in the shipment against the description on the license. This happens to a greater or lesser extent in most of these agreements, including in particular CITES, Kimberley Process and CCAMLR, partly depending on the capacity of the country concerned.

5.1.6 Central role of secretariat

149. A number of the agreements' secretariats, including CCAMLR and the International Coffee Organisation, or related bodies, like WCMC for CITES, and the Biosafety Clearing House for the Cartagena Protocol, play a central coordinating role in collecting copies of all of the permits or licenses issued and used. This facilitates the transfer of information between countries, and offers at least the potential for central analysis and cross-checking of data.

5.1.7 Independent verification

150. The problem of relying on data reported by Parties, with no independent or third-party verification, which has been discussed above, is also a common problem for many international agreements. Some of them, however, have built in external means of verification, whether by independent third parties, such as commercial surveillance companies (FLEGT) or via 'peer review' or intrusive inspection procedures (Kimberley Process). This is particularly important where illegal trade is widespread and the original data, or government-operated licensing systems, may not be completely reliable without such oversight.

5.1.8 Review processes

151. The Kimberley Process incorporates a regular review process of the adequacy and operation of national regulations, in order to ensure that the system performs robustly. The Stockholm Convention includes a mechanism for a periodic evaluation of the effectiveness of the whole system.

5.1.9 PIC systems

152. Several of the agreements analysed here – the Rotterdam and Basel Conventions and the Cartagena Protocol – explicitly require some kind of prior informed consent (or 'prior notification and consent', or 'advance informed agreement') to the transboundary movement of controlled products. The Basel and Rotterdam systems appear to work well in practice (the Cartagena system is not yet fully in force), though information on their operation is not easy to find, particularly in the case of the Basel Convention. The Rotterdam Convention is a development of voluntary systems that have operated effectively for more than fifteen years.

153. In each case the PIC system can be seen as a substitute for effective domestic controls, which, particularly for goods such as genetically modified products, may be very difficult to establish and implement. Control of imports, by contrast, which is what a PIC system effectively sets up, is generally easier to implement. It is not a coincidence that developing countries were amongst those most enthusiastic to establish all these PIC systems – often lacking the capacity to establish effective domestic regulatory systems, they have tended to prefer to control access to their markets through import restraints.

5.1.10 Role of industry

154. It is, of course, seldom governments that undertake the international trade in the products controlled by these agreements; it is commercial enterprises that actually export and import. Of the agreements covered here, the Kimberley Process explicitly builds in a role for the diamond industry. Section A3.10 in Annex Three also examines voluntary means of controlling supply chains adopted within the timber industry, through certification schemes, with the aim of excluding illegal and unsustainable products from their own supplies.

5.2 Coverage of ODS in other agreements

155. At least in theory, all the three chemicals and wastes conventions looked at here could apply to some or all ODS. In practice, however, this is of little practical relevance. This is examined in detail in Annex Three; the conclusions are summarised here.

5.2.1 Basel Convention

156. As the Basel Convention deals with trade in wastes, virgin ODS are not subject to its controls. As discussed above, however, there is also international trade in used ODS; in 1992 the parties to the Montreal Protocol agreed that imports and exports of recycled and used ODS should not be included in the calculation of consumption, as long as the relevant data was fully reported. The Basel Convention does apply to these ODS, which can be defined as 'wastes'; halogenated organic solvents are listed in Annex I ('categories of wastes to be controlled') and ecotoxicity is listed in Annex III ('list of hazardous characteristics'). Exemptions, however, are allowed for the export of substances where it can be shown that a superior disposal or recycling technology exists in the importing country.

157. The Basel Convention therefore affects the shipment of ODS which are being recovered from products containing them and are destined for recycling or safe disposal. In principle, the Convention should permit such trade, but the wording is vague and the parties to the Montreal Protocol recognised in 1993 that it could usefully be clarified.[44] Following discussions between the Ozone and Basel Convention Secretariats, agreement was reached during 1995. Recycled CFCs and halons meeting usable purity specifications prescribed by appropriate organisations (such as the International Organisation for Standardisation, ISO) would not be considered to be wastes under the Basel terms. Trade in CFCs and halons which could not meet the purity specifications would then occur under the normal Basel terms, i.e. only if the importing country possessed recycling facilities which could process the imported ODS to those standards.[45]

158. In practice this means that there are no real overlaps between the Montreal Protocol and Basel Convention in terms of substances covered.

5.2.2 Rotterdam Convention

159. In principle, ODS could be included in the Rotterdam Convention PIC system. Some ODS, including methyl bromide and carbon tetrachloride, are directly hazardous to human health, and all, of course, have harmful impacts on the environment. However, in order to be listed countries must actually have banned their use, so for ODS this is likely only in the later stages of phase-out – when there would be little point in including them in the Rotterdam Convention, as there would only be a few years left until total phase-out under the Montreal Protocol in any case.

160. A possible exception to this is ODS still in use after phase-out under essential- or critical-use exemptions, such as methyl bromide. Whether any country would wish to trigger the Rotterdam procedure would then be determined by factors such as the speed of phase-out of the exemptions under the Montreal Protocol, and the country's ability to prevent imports of the substance without using the Rotterdam PIC procedure. There seems little reason to think that Montreal Protocol Parties would need to go to these lengths to prevent imports of ODS they had themselves banned.

[44] Decision V/24 of the Parties to the Montreal Protocol.
[45] Decision VII/31 of the Parties to the Montreal Protocol.

161. One further possible exception is the discovery of new ODS, where it may prove quicker to list the substance under the Rotterdam Convention's PIC procedure than to agree and bring into force an amendment to the Montreal Protocol. This would help to exclude the substance from trade, but not, of course, from actual use. In any case, at the moment this is an entirely hypothetical case.

5.2.3 Stockholm Convention

162. No chemicals covered by the Montreal Protocol are currently included in the Stockholm Convention's annexes listing the persistent organic pollutants that are to be phased out. Parties to the Convention may propose the listing of any new substance; the information they need to provide is listed in Annex D, and includes chemical identity plus 'screening criteria', including persistence, bioaccumulative nature, potential for long-range environmental transport and adverse effects. Further information – including the status of the chemical under international conventions – is then required for the formulation of a risk profile for the substance.

163. It is not clear whether any of the substances controlled by the Montreal Protocol could satisfy the requirements of Annex D. The Stockholm Convention is primarily concerned with chemicals that persist in water or soil, accumulate in living tissue, and are highly toxic, which probably rules out most ODS, with the possible exception of methyl bromide and carbon tetrachloride. There are catch-all references to toxicity, and 'potential for damage to human health or to the environment' which might in theory allow ODS to qualify. In reality, however, there would be no benefit in adding substances already being phased out under the Montreal Protocol to the control regime of the Stockholm Convention, so it seems safe to conclude that there is no possibility of overlap.

5.3 Customs collaboration

164. Effective collaboration with customs authorities is essential to the effective monitoring of transboundary movements of ODS. This section looks at existing international collaboration with relevant customs organisations.

5.3.1 World Customs Organisation

165. Established in 1952 as the Customs Co-operation Council, the World Customs Organisation (WCO) is an independent intergovernmental body whose mission is to enhance the effectiveness and efficiency of customs administrations; it currently has 168 members.[46] One of its main tasks is to oversee the Harmonised Commodity Description and Coding System, which is used world-wide as the basis for classifying goods and for the collection of customs revenue and international trade statistics by almost all countries (see Sections 3.2 and 4.2).

166. The WCO Customs Enforcement Network provides a route for exchange of information between customs agencies, and a mechanism for cooperation with other international agencies such as Interpol. WCO itself is collaborating increasingly with UNEP and convention secretariats in combating international environmental crime, and memorandums of understanding currently exist between the WCO, UNEP and the CITES and Basel Convention secretariats covering information exchange, joint technical meetings, cooperation between environment and customs officials at national level and training and awareness-raising exercises.

[46] See www.wcoomd.org

167. In June 2003 UNEP announced a 'Green Customs Initiative'[47] to improve training and coordination. More joint training is planned, training modules are under development, and a Green Customs Manual is in preparation. Distance and internet learning techniques are being developed for integrated training, in order to reach as many customs officials as possible, and ensure that the highest possible level of training is maintained.

168. The WCO has supported the establishment of a total of eleven Regional Intelligence Liaison Offices (RILOs), the first of which was set up in the Asia–Pacific region in 1987;[48] it proved to be successful in terms of the quality and quantity of its intelligence output, and its model was emulated elsewhere in the world. Member countries take turns to host and provide administrative support for the RILO, and non-host members have seconded officers to the RILO to help build up a network of personal contacts between customs officials across the region – and also with other RILOs elsewhere in the world. Exchange of information between the RILOs and WCO centrally is encouraged through the Customs Enforcement Network.

5.3.2 Project Sky-Hole Patching

169. In April 2006 the Asia–Pacific Regional Conference of Heads of Customs Administrations agreed, after a proposal by Chinese customs, to initiate 'Project Sky-Hole-Patching'. A joint operation by customs administrations and international organisations in the region, it aims at establishing a monitoring and notification system among member administrations to keep track of the movement of suspicious shipments of ODS and hazardous waste when they are imported, re-exported or trans-shipped across several customs territories.

170. Under the system, each member country is to:

- Nominate designated contact points and details.
- Identify high-risk importers/exporters, shipping agents, forwarding agents, etc., suspected to be involved in smuggling activities and draw up a target list.
- Target the suspicious export shipments of high-risk importers/exports for monitoring.
- Notify the importing member simultaneously of the shipment and request it to take over monitoring of any subsequent movements of the shipment.
- Inform RILO Asia–Pacific of the request made to the importing member.

171. Members who receive a notification are to:

- Initiate the monitoring mechanism.
- Notify the exporting member and RILO Asia–Pacific simultaneously upon the arrival of the shipment.
- Keep track of the movement of the shipment.
- If the cargos are for local consumption, notify the exporting member and RILO Asia–Pacific simultaneously.

[47] See www.greencustoms.org
[48] See www.wcoasiapacific.org

- If the shipment or part of the shipment is intended for re-export, inform the next importing member and RILO Asia–Pacific simultaneously.
- If false shipment declaration is found, seize the cargos.

172. The project will be coordinated by RILO Asia–Pacific and UNEP's Regional Office for Asia and the Pacific. The first six months, beginning in September 2006, will see a trial period focusing on ODS; wastes will be added subsequently, and a review meeting will be held after the trial period. This is a good example, not only of a targeted investigation and analysis project, but also of cooperation between a UNEP regional office and a regional customs network; it could be emulated elsewhere.

5.4 Trade statistics databases

173. Section 4.1 summarises some of the weaknesses in data reporting of trade in ODS. This section considers whether there any other sources of trade statistics that could assist in monitoring transboundary movements.

174. Trade statistics are collected by each country as a by-product of the collection of duties on exports and imports. National statistics are combined by the UN into a global database called COMTRADE and, within the EU internal market, a further database called EUROSTAT. As noted in Section 3.2, in order for statistics to be brought together into a global overview of trade, almost all countries collect their information according to the HS system of customs codes administered by the WCO.

175. National statistics, both direct and via COMTRADE, are also bought and repackaged for commercial use for products such as the *World Trade Atlas* and *Global Trade Atlas*. These commercial packages use the same basic data sets, as they do not have access to actual trade operations, but have proprietary formats for searching and viewing the sub-sets of data required. They can also focus on specific sub-sets of data, as does the US PIERS system, for example, collating information relating to sea shipment through ports in the US, Mexico, Latin America and Asia. It is theoretically possible for commercial databases to verify national data with collection of information direct from shipping companies; however, this kind of reporting is voluntary and, in practice, many operators opt out of such systems. While many commercial databases may make small sets of data easier to access immediately, the quality of them does not vary significantly to that collated in COMTRADE.

176. While there are recognised weaknesses in the collection of trade data, outlined below, it is important to note that large discrepancies between the recorded imports and exports of a given product across a specific trade route, particularly over a long time period, may be a useful first step in indicating the possibility of regular illegal trade routes, or at the very least to suggest the need for on-the-ground verification of the data or research into how the discrepancy is arising.

177. Detailed reconciliation of trade data can be hard to achieve because of differing statistical and confidentiality laws in a number of countries, preventing the exchange of detailed data. More challenging, however, are the many generally accepted flaws in the collection and collation of national statistics. These include:

- Methodological discrepancies in reporting – for example the point at which a product is reported to have crossed a border.

- Value thresholds which exempt smaller companies from statistical formalities.
- Triangular trade – where a product is sold through via a third county without physically moving through that country.
- Value discrepancies due to exchange-rate fluctuations.
- Volume discrepancies due to the use of different conversion factors.
- Reporting timelags, particularly for non-time-critical shipments.
- Accidental misclassification.
- Reporting concessions for large mixed-product shipments.
- Errors in data collection and processing.

178. For trade in ODS, all these databases rely on the same export and import data reported to the Ozone Secretariat, and they cannot, therefore, be used as an alternative source of information. Thanks to the level of detail of exports and imports provided, however, which may be less aggregated than Secretariat data, they can be helpful in, for example, conducting spot checks of the ways in which licensing systems are operating – see above in Section 4.3 for an example.

6 Options: components

179. Against the background of the problems set out in Chapter Four, and bearing in mind the ways in which other international systems have tackled similar challenges of monitoring and controlling transboundary movements of goods, described in Chapter Five, this chapter sets out possible options which could be adopted by the Parties to the Montreal Protocol. This chapter contains individual components, most of which could be adopted individually. Chapter Seven considers how a number of them can be put together into coherent packages and implemented over the short, medium and long term.

180. Where possible, the costs of each option are identified. It should be stressed, however, that it is almost impossible to do this with any degree of accuracy. Whereas in a few cases additional equipment or software may be required, almost all of the recommendations contained in this chapter involve additional staff time – but not so much, in most cases, that any great numbers of new staff would need to be recruited in any except the largest countries (and even there, since these are the countries most likely already to possess relatively sophisticated licensing systems, comparatively little extra time would be needed). Exact calculations of costs in these cases would require a detailed knowledge of existing staff resources, and their duties, in every Party to the Montreal Protocol, which is clearly impractical.

181. In many cases, the recommendations highlight activities that should already be being implemented under the Montreal Protocol – for example, export licensing systems – and for which support for the Multilateral Fund should already be forthcoming for developing countries. In other cases, the recommendations focus on activities which are being undertaken in some countries or organisations (without extra staff resources) but not in all – for example, again, for export licensing, or for the Asia–Pacific RILO's 'Project Sky-Hole Patching'. Very few of these recommendations involve any large expenditure of additional resources, staff or otherwise, a conclusion supported by the interviews conducted for this study. What they mainly require is the exercise of political will.

6.1 Data reporting

6.1.1 Data reliability

182. Section 4.1 identified potential weaknesses in the current system of data reporting to the Secretariat by Parties. Although there may be many reasons for discrepancies in aggregate data which do not necessarily indicate illegal production or trade (the main ones are listed in Section 5.4), it is surely alarming that the data being reported is not regarded as adequate for some of the Protocol's own purposes – as can be seen in the conclusions of the TEAP Task Force on Basic Domestic Needs in 2004.

183. As can be seen from Section 5.1, although data reporting is a common problem for international agreements, some have made efforts to verify the accuracy of the data they rely on. In one area where illegal activities are common – timber – the EU FLEGT scheme will, when implemented, probably rely, at least in some countries, on extensive third-party verification, for example by surveillance companies.

184. Illegal trade in ODS is not of such a magnitude, at least in most areas, to warrant this level of expenditure. Nevertheless, in some specific regions where illegal trade is more common, an

investigation of the accuracy of the data reported could be helpful, and detailed analyses of supply chains could be carried out (see Section 3.1.4). In the production sector, at least, the independent annual audits carried out for the implementing agencies should provide useful data for this kind of analysis. On a broader scale, the TEAP 2004 report's recommendation for further investigation of data discrepancies should surely be followed up. The data-reporting component of national phase-out plans could be reviewed and adjusted as appropriate.

185. Some improvements could be made to the Secretariat's data-reporting formats, particularly in ensuring that lists of mixtures, and the percentages of ODS they contain, are constantly updated and readily available through the Secretariat and/or UNEP DTIE website. Alternatively, space could be made on the forms for the reporting of mixtures, leaving the Secretariat to calculate the volumes of ODS these represent. Although this would represent an additional burden for the Secretariat, it should increase the accuracy of reporting.

186. Illegal trade tends to be concentrated in a few high-risk areas – particularly South and South-East Asia, where production, consumption and trade levels for CFCs are still relatively high compared to other regions. Targeted investigations of the extent and nature of illegal trade in such high-risk regions, including in-depth analyses of supply chains, followed by efforts to establish mechanisms to deal with it – along the lines of 'Project Sky-Hole Patching' – would be a valuable exercise.

187. Costs in this area are likely to be very low except possibly for the further investigation of the quality of data reporting in general. Even there, a consultancy budget in the hundreds of thousands (rather than millions) of dollars should be sufficient.

6.1.2 Cross-checking of export and import data

188. From the point of view of monitoring transboundary movements, cross-checking of import and export data is an important step. As noted above, Decision IX/8 encouraged 'cross-checking of information between exporting and importing countries' without specifying how, and Decision XVII/16 encouraged the Secretariat to communicate export data to importing countries. This is an important step forward, though it is too early to tell how it will work in practice. Periodically the Secretariat will send batches of reported export data on to the relevant importing Parties. It is not yet clear how Parties will treat the information once they receive it – for example whether they will use it as a basis to revise their data if there are significant discrepancies, whether they will come back to the Secretariat with queries, or whether they will query the data reported by the exporting country, or collaborate bilaterally to address the problem.

189. It will be important to monitor how this process evolves and how it can be developed. It should help to throw up and, hopefully, address, gaps in existing data reporting systems, for example of destinations, and it may reveal discrepancies caused by unreported or misreported transit trade. Some international agreements, including CITES, do collect centrally quite detailed information on exports and imports, and carry out some basic cross-checking, a function that could be emulated by the Secretariat. If this level of cross-checking was required, some additional resources might be required in the Secretariat, though the volume of shipments under the Montreal Protocol is far lower than under CITES. The cost of the existing staff member responsible for database management in the Secretariat,

together with additional consultancy support in data reporting and analysis, was US$170,000 in 2006.[49] (See further in Section 5.3.3.)

6.1.3 Commercial data

190. Interviews with NOUs in several countries indicated that industry is often the best source of information on trends in the ODS market, including issues of illegal trade, as companies regularly track and analyse customs records, import/export databases and other publicly available information as part of their everyday business. In some cases industry has considered it necessary to conduct market surveys and carry out intelligence-collecting activities.

191. Interviews with major international producers suggest that there is a willingness on behalf of much of the industry to share commercial data for the purpose of tracking the global ODS trade in order to limit illegal trade, ensure compliance and monitor the quality of ODS on the international market. Possible industry measures cover a range of possibilities, including both the type of commercial data that could be reported (aggregate versus shipment-level) as well as the level to which this data is shared (open versus restricted access).

192. Industry representatives voiced least concern over sharing aggregated data, such as quarterly reports. Increased collection of such data by the Secretariat or another designated body could have added benefits for tracking purposes. As noted in Section 4.1, currently such data collected by the Secretariat is patchy and is not yet being analysed and systematically cross-checked. An organised effort by industry to feed information into an international mechanism for analysis and cross-checking purposes may provide benefits for industry as well as for the efforts of the Montreal Protocol.

193. The sharing of up-to-date shipment-level commercial data would allow for the near real-time tracking of ODS and would serve as an effective enforcement tool. As it is unlikely that companies would be willing to share this information openly (due to issues of confidentiality and competitiveness), such data would have to be collated by the Secretariat, or UNEP regional offices, or a third party, and access restricted to appropriate user groups, such as NOUs and select customs officials. Interviews indicated that such a system may find support among the most significant global producers of ODS and their alternatives.

194. Costs here are likely to be negligible; many companies interviewed appear to collect this data already. The main questions revolve around the extent to which they are prepared to share it. As noted above, issues of commercial confidentiality are often a matter of concern. Companies may not always be willing to release information and the authorities may not possess the legal powers to require them to do so. Indian producers, to choose one example from the interviews, regard this as a serious issue; they feel that even data shared with ‘secure’ third parties could be leaked, and that this could compromise their company’s position in the global market.

195. Industries in other countries were not so concerned, however, and felt that shipment-level data could be shared with a third party, such as the Secretariat (or a consultant hired by the Secretariat), as long as there were strict controls and a high level of confidence could be established in the maintenance of commercial confidentiality. In other sectors, such as timber, third-party auditors have

[49] Trust Fund for the Montreal Protocol on Substances that Deplete the Ozone Layer, approved 2006 budget, contained in the report of the Seventeenth Meeting of the Parties (UNEP/OzL.Pro.17/11, Annex IV).

played a valuable role in collecting and verifying sensitive data along a given supply chain without compromising any single company.

196. Ideally, commercial data could be shared at both levels: more widely accessible aggregate-level data to give industry the ability to self-police, and shipment-level data to allow real-time ODS tracking by the Secretariat or other body to develop the ability to flag potential cases of non-compliance or illegal trade.

Views on sharing data and confidentiality

In Singapore, it is mandatory for companies to provide the names of trading companies to the National Environment Agency and customs at the time of the license application. The government is under a requirement to respect commercial confidentiality, so the companies can be confident that their commercially sensitive information will not be released.

India: Producers do not want to share/report their client database. They felt that if the government had a list of producers' export clients it would become available as public knowledge since India has a freedom of information act and no provisions for protection of commercially sensitive industry data.

DuPont USA: Agreed that it would be very advantageous to share aggregate data by country internationally. It was felt that this would help with better forward planning of trade. The company supported the idea of a unit, or a consultant, in the Montreal Protocol that had access to the company-specific, shipment level data which was kept confidential with assurances of security.

Du Pont Mexico: Felt that an international database for tracking trade in ODS would be extremely advantageous, and that such a database would require a 'gatekeeper' to monitor data and ensure confidentiality where required. It was felt that governments and producers would have to be co-operatively involved.

FIASA Argentina: Would strongly welcome an international system to record and exchange information. It was noted that customers' details should remain confidential due to risks of competitors accessing this information to their advantage, but that such a global system would be very convenient for producers in the region, and would be likely to be welcomed by most producers. FIASA would be able to share all information with the exception of customer details. Assistance from an international organisation could be very beneficial.

197. The terms of reference for this study include the requirement to examine international trade rules that may be relevant to the release of trade data, including the World Trade Organisation (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). The TRIPS Agreement is an attempt to begin to harmonise the way in which intellectual property rights – copyrights, patents, industrial designs, trademarks and so on – are protected around the world, and to bring them under common international rules. It establishes minimum levels of protection that WTO members have to give to the intellectual property of fellow WTO members, with the aim of striking a balance between the benefits of encouraging creation and invention (through ensuring that innovators can reap the rewards of their efforts) and the disbenefits of potentially establishing monopolies over new technological developments.

198. The TRIPS Agreement has nothing whatsoever to do, however, with the commercial data discussed in this report – production, import and export data, costs, prices and profit levels, and so on. The extent to which this kind of data has to be revealed (for example to governments), the extent to which it can be protected (for example from competitors, or the media, because of its commercial value) and the extent to which it must not be shared (for example, with other industries, in order to prevent collusive and anti-competitive behaviour) is often strictly regulated, but the relevant legislation is national, not international (with the exception of the EU) and varies widely between countries. It is not related to the TRIPS Agreement.

6.1.4 Centralising the collection and analysis of data

199. Given that potentially valuable data sources remain of uneven reliability and are collected in different ways – by government and by industry – it is worth considering increasing the capacity for the central collection and analysis of all data sources.

200. Recent innovations in national computer-based ODS licensing and tracking systems point to the effectiveness that well-designed software can play in meeting the challenges of data collection and tracking. An initial investment in a 'smart' system of collating data can save significant costs in the long term. Argentina's computerised licensing system, for example, is able to integrate customs, industry and licensing data; all operations associated with the programme (including responding to license requests) are undertaken by a single individual, who oversees access to the system via passwords for select user groups.

201. A software programme designed to incorporate different sources of data on a global level, in order to improve tracking and analysis of the international ODS trade, could enable significant progress for relatively little cost, as long as the original sources of data – primarily governments and industry – prove willing to cooperate. Such a system would need to:

- Incorporate data from the full range of national licensing systems, as well as industry, existing international trade databases and possibly non-governmental organisations.
- Incorporate aggregate, historical, and real-time shipment information, where possible.
- Include the capacity to cross-reference different data-sets.
- Provide mechanisms to address confidentiality concerns.

202. The system would need to be designed to produce added-value data outputs in order to inform decisions and activities of the Parties on trade in ODS, including, for example:

- Major trade routes for different ODS (and alternatives).
- Identification of high-risk trade streams.
- Identification of characteristics for risk analysis by customs.
- Information on high-risk shipments for customs agencies.

203. The provision of shipment-level data is key to most of these outputs, so this system is dependent on the improvements in licensing systems recommended below in Section 6.3. In the medium and long term, however, it should provide far better data on transboundary trade than existing systems appear able to do.

204. The costs involved in developing such a system, based on experience in one developing country, are estimated at about US$50,000, though there would of course be additional staff costs for operating it. In fact, there are already developments along these lines, including in particular the electronic Global Risk Identification and Detection (eGRID) system developed by two US companies.[50] Designed for customs and other entities responsible for international trade, revenue protection, health and safety, or transnational crime, eGRID aims to help reduce the risks associated with cross-border transactions by giving better control and access to the 'electronic paper trail' of goods, money, and people in transit; it combines trade data from import and export transactions with

[50] See www.strtrade.com/egrid.asp

commercially available trade-related data. The software has been used by US agencies to target illegal trade in ODS, and has been offered free to countries in the South Asia and South-East Asia–Pacific regions for the same objective.

6.2 Identification

6.2.1 Naming and labelling

205. As described in Section 4.2, ODS identification problems are commonplace. UNEP's 2002 study of illegal trade in ODS focused in particular on the question of improving labelling systems, and concluded that:

- For virgin substances, given the wide range of labelling systems already in place, and the relative ease with which they can be falsified, together with the existence of other ways of tracking movements of ODS (customs codes and export and import licences), there is no value in trying to introduce a new universal labelling system.
- This conclusion does not apply, however, to used substances, where the volume in trade is much lower and the problem of illegal trade is particularly strong. A consultation exercise involving relevant industry and governments could therefore usefully be undertaken to identify more clearly the feasibility, costs and benefits of labelling used ODS.
- Given the large number of products containing ODS in trade, a universal labelling system would be exceptionally difficult to introduce; but it might be possible to develop a system for key products such as refrigeration and air-conditioning equipment. A consultation exercise should be undertaken with the relevant industry over the feasibility, costs and benefits of introducing a voluntary common system for identifying the ODS contained in the product.

No action was recommended on any of these options in the decision (XIV/7) which followed discussion of the report (the third point above in any case falls outside the scope of this report).

206. Several of this study's interviewees, however, believed that better labelling with details of the producing or exporting company would be valuable. It was felt that there are few enough producing companies and re-packagers that voluntary action could achieve this; in any case many companies are already doing it. It would be helpful if UNEP DTIE could collect and disseminate information on the types of labels and information relevant to customs officials, and details (such as logos, colours, barcodes, etc.) that they should expect to see. Dialogue could be initiated with industry to ensure that labelling systems are as useful as possible to customs and other enforcement officers.

207. Interviews with industry representatives suggest that, if certain requirements for labelling were standardised (country of origin, producer name, phone number, email, address, etc.), companies could be more involved in the tracking of their products. For example, DuPont representatives believed that their internal capacity would allow them to respond quickly to queries (e.g. from customs agents or NOUs) regarding any given shipment of ODS. Including a phone number and email for such a contact point may also have the effect of incentivising and then utilising innovations for tracking procedures within industry (see Section 6.1.4). This may have the added benefit that as tracking of ODS within companies improves, the source data for an international tracking mechanism would improve as well.

208. As described in Section 4.2, identification is a particular problem for mixtures containing ODS, where the authorities may not even be aware which mixtures contain controlled substances. The

UNEP DTIE website listing trade names could be more regularly updated with information on mixtures, and extended to include more information on the substances, and photographs of the cylinders they tend to be shipped in. Examples of fake cylinders detected could also usefully be added. Producing companies could be encouraged to attach an identification analysis of the mixtures along with the shipment, perhaps on each cylinder.

209. None of these proposals involves anything but very low costs.

Views on labelling

Singapore: Labelling cylinders with the correct label is a license requirement in Singapore. Labelling ODS cylinders with the exporter's name and address, etc., would help to prevent re-packaging and suspicious cylinders arriving from big transit ports like Singapore with no assurance as to whether they had been interfered with during transit.

China: One Chinese producer already labels its materials. The company also uses a special tamper-proof identifying cap. The NOU felt that it is beneficial for producers to identify their material, but may have a drawback if dealers in other countries want to be able to repackage and rebrand materials There is also the risk of forgery of labels.

India: Chemicals produced by Indian companies have the company name stamped on them, along with a unique per-cylinder serial number (stamped by the cylinder manufacturer). Cylinders may also have a partial address for the company. Cylinders also carry the HS code of the contents, plus the ASHRAE number, and any safety/hazard information required by law (on an MSDS sheet). It was not possible to estimate the cost of labelling the cylinders with this information but the industry association representative believed that there was little difference in cost between neutral and branded packaging.

DuPont Mexico: Believes that it is important to have the name of the producer marked on cylinders/containers/boxes of ODS. It was felt that this is an important provision to allow customs and users to identify whether the product is introduced into the country legally.

DuPont USA: Standardisation of labelling internationally would be positive, i.e. everyone following the same convention for labelling. Consistency in the recordation of import records would also be helpful, then industry could help monitor activities. Different names 'make it hard for us to police … we'd be very happy to comply with whatever standard.'

6.2.2 Packaging and supply

210. One common suggestion from interviews is the proposal to ban the 30lb/13.6kg disposable cylinders, common packaging for CFC-12 in particular. A deposit-and-return system enables traders to keep track of the ODS they sell much more closely, though it does also involve additional overhead costs.

211. In fact a number of countries already have a ban in place for disposable cylinders, not only for CFCs but also for HCFCs, HFCs and methyl bromide. In South Africa an industry association is lobbying government to implement a similar system. Such a ban would, it is believed, make life easier for customs officers and enforcement personnel, as it is easier to identify a particular type of packaging that is illegal than to fully understand all the details of the restricted chemicals.

212. A rather different view, however, was held by the representative of Arkema in the EU, who considered that disposables are necessary to service the demand of smaller consumers. It was felt that banning them would not stop illegal operators either using them illegally or, more likely, using returnable cylinders without returning them. It may prove difficult or impossible to implement where

the manufacturers sell through agents, for small countries where consumption is very low and for areas where users are very widely dispersed (e.g. the Pacific region).

213. In the case of traders who are simply distributors (rather than re-packagers) the transition to using refillables could be costly as their trade currently relies on importing in disposable cans and trading these on. The alternative would be either to import in bulk quantities (e.g. in isotanks) and decant into suitable refillable cylinders (thus becoming a re-packager –with the associated costs of setting up a filling line, etc.) or attempting to import in refillable cylinders directly from a global producer – though the long-distance international shipping of refillable cylinders could add considerably to shipping costs as the return of the cylinders would also need to be factored in.

Views on banning disposables

From a South African industry perspective, as far as the ban on disposable cylinders goes, for the traditional re-packagers, with existing filling lines, to change from filling disposables to refillables does not add much additional cost. Transport costs for trading with refillable cylinders would be increased as the cylinders need to be returned to the plant; there is perhaps also a small increase in labour costs. In general, and certainly over a period of time the costs of moving to refillable cylinders are pretty minimal; there is an initial cost to the customer in terms of a deposit. Tracking of the cylinders is also not too much of a burden as if a deposit is paid on the cylinders it is in the interest of the customers to return these.

India (industry): It would not be practical to use only refillable cylinders internationally, as the cost and speed of returning cylinders would make such a trade uneconomic, and would also reduce the number of times each cylinder could be re-used each year.

214. The costs of disposables is about US$10–12 per 3.6kg can. The cost of a refillable 65kg cylinder is in the region of US$100. If the smaller 10kg refillable cylinders were used then the overall costs would naturally be lower (about US$60). For some regions, with a high concentration of users and good transport links, it makes sense to ban disposables, as it does seem to make illegal trade more difficult. For regions with more widely dispersed users and higher transport costs, it is not appropriate.

215. A related proposal is for producing companies to sell directly to final consumers only, and not through intermediate traders. Again this reduces the number of links in the supply chain, and makes diversion into illegal trade more difficult. On the other hand, many final users – such as companies servicing refrigeration and air-conditioning equipment – may be very small and may find it difficult to deal directly with producing companies in foreign countries. This is not likely to be a practical proposal for most countries.

216. Other constraints on trade may be worth considering. Some countries maintain blacklists of companies known to be trading illegally from which consumers can be warned away, and customs officers instructed to look out for. This tactic may be worth using in areas with particular problems with illegal trade. On the other hand, companies trading illegally may well respond simply by changing their name, a phenomenon which has already been observed on a number of occasions.

Experiences of restricting imports

Mauritius: When Mauritian authorities have a request from a domestic company for an import license the company is asked to provide the name of the overseas company with which they intend to trade. Trading company names are cross-checked against a blacklist of companies in China known to engage in illegal trade in ODS. This list is also shared with customs.

217. Alternatively, a ‘whitelist’ of companies known to be trading legally and responsibly could be constructed by adopting a certification scheme, similar to those used in other areas, such as timber (see

Section A3.10 in Annex Three). A representative from Quimobasicos suggested in interviews a certification scheme for ODS producers, perhaps as part of an ISO process or a separate certification process linked to the Secretariat, including criteria for labelling and tracking systems required to obtain certification.

218. Certification schemes have worked well in markets where there are many producers and many consumers, and little is known, in the absence of certification systems, of the provenance of the products. Thus they are suitable to sectors like timber; the EU FLEGT licensing system is essentially an attempt to compensate for the fact that certification schemes do not yet cover a sufficient portion of the market. The number of producers and consumers of ODS is rather smaller, however, so there is not such a strong case for a formal certification scheme. One could grow up informally, however, if companies proved willing to collaborate more in adopting common labelling and tracking practices, as discussed above.

6.2.3 Customs codes

219. Section 3.2 looked at recent developments in the HS system. Given that the new HS codes are due to be introduced from 2007, no further review is imminent, and any further suggestions for revisions could not be implemented for several years. In due course, it may be appropriate for the Montreal Protocol's Customs Codes Discussion Group to be reconvened to discuss any possible modifications to propose for the next revision, but this is not an immediate priority.

220. The further development of national customs codes systems, however, could certainly be further encouraged. Decision XIV/7 encouraged all Parties to develop their own sub-headings, particularly with regard to the more commonly traded HCFCs (22 and 141b) and mixtures of ODS. As has been seen, the WCO itself has issued a series of recommendations identifying the substances for which national subdivisions could suitably be developed. The information available to the WCO suggests that many Parties have not followed this advice, but this is not known for certain, and it may be helpful to conduct a survey amongst Parties to the Montreal Protocol on this issue; regional networks could possibly be used.

221. It should be remembered, however, that some low-volume-consuming countries may not operate even at the six-digit level of the HS system; many small Pacific island states, for instance, still use only four or even two digits in their national codes. Numbers of shipments into countries such as these is never likely to reach such a level that it would be worth developing more complex coding systems. As in other areas, the implementation of this proposal will need to vary with the size of the country concerned and its level of trade. Where it is appropriate, costs will be very low.

6.3 Licensing systems

6.3.1 Licensing system design

222. UNEP DTIE training and resource materials provide many options for the design and implementation of licensing systems; the more elaborate they are, and the more information they require, the harder they are to evade, though also the more difficult they may be to implement. The box below provides a listing of potential components.

Possible components of a licensing system (design and implementation)

- Coverage of all types of ODS, including substances and mixtures (required under the Montreal Amendment, but not always implemented).
- Coverage of recycled and reclaimed controlled substances (required under the Montreal Amendment).
- Coverage of imports and exports (required under the Montreal Amendment).
- Application to free trade zones (implicitly required under the Montreal Amendment).
- How re-exports and trans-shipments are controlled and if they are clearly distinguished from each other.
- Information the importer is requested to present when requesting an import licence for used, recycled and reclaimed substances.
- Inclusion of quota system for distribution of the total allowable imports between the individual importers; or other system the government applies to ensures that approved licences do not exceed the country´s total allowable imports under the Protocol.
- Information requested from the importer and exporter before approving a quota and a licence/permit for the individual shipment, respectively.
- Requirement for consultation with the importing country before approving an export licence, or requirement for informing the importing country retroactively about approved export licences.
- Conditions attached to the licence/permit with regard to reporting on actually imported/exported quantities, labelling of the containers, etc.
- Requirement for the importer and exporter to specify the country of origin, the manufacturer of the substance, the trading partner in the exporting/importing country and the place and date of the intended shipment when applying for an import or export permit.
- Use of national customs codes recommended by the WCO.
- Access for customs and approving authorities to a common electronic network to control actually imported and exported quantities.
- Extent of cross-checking of data is made, comparing data from importers/ exporters with corresponding data from customs records.
- System for cooperation between the approving authorities and customs.

223. As should be clear from Chapters Three and Four, many of the ODS regulations and licensing systems in operation around the world do not function well in collecting, recording and reporting data. The systems described in Section 3.4, particularly the EU's and Argentina's, function well and should be regarded as good models for other systems.

224. In terms of monitoring transboundary movements, the following are essential components of national licensing systems:

- Comprehensive coverage of all categories of ODS, including mixtures, and used ODS.
- Licenses issued on a per-shipment basis.
- Rapid collation of data relating to the use of the licenses.
- Inbuilt systems for cross-checking with other countries with which trade is conducted.
- Covering exports (including re-exports) as well as imports, and – if feasible – trans-shipments.

225. Licensing systems so far have focused mainly on CFCs. With the total phase-out of CFCs due in 2010, other ODS will become more important in international trade, and licensing systems should be extended to cover these too. Although there are many HCFCs available, however, only two – 22 and 141b – are currently being traded in any substantial volume. Nevertheless, the exclusion of any particular substance, or mixture – such as the less commonly traded HCFCs – from the licensing system could result in the mislabelling or misdeclaration of substances that should be covered as ones which need not. The systems should be designed to cover all controlled ODS.

226. Decision VIII/20 of the 1996 meeting of the Parties urged non-Article 5 Parties to establish systems requiring validation and approval of imports of used, recycled or reclaimed ODS,[51] requiring the importers to provide proof that the ODS had actually been used. The introduction of this requirement into import licences – as is already the case in some countries – would certainly assist in controlling this route for laundering virgin ODS into legitimate trade. The US system in particular does include these categories of ODS.

227. Some national licensing systems (including those of the EU (for imports), Argentina, Mauritius, Singapore, China and Japan) require permits for each individual shipment, which increases the burden on industry and customs, but allows more precise monitoring of movements. Japan and Singapore are both examples of countries which issue total export volume licenses on a yearly basis but require companies to apply for individual licenses for imports, to ensure that the trading partner country is legitimate. Individual shipment licences can be given unique identification numbers, helping to reduce the possibilities of fraud. Chinese licenses, whilst issued on a per-shipment basis, are valid for nine months.

228. In Argentina, the NOU keeps copies of all customs documents for each shipment of ODS that is licensed and uses the customs number as a reference. Once an importer receives a licensed shipment, they have forty-eight hours to input each import into the national licensing system with the customs transaction number. They then have sixty days to bring in either originals or copies of the customs declarations and bills of lading.

229. In interviews, Indian producers indicated that they would not favour the introduction of a per-shipment licensing system, fearing that the increased time taken to verify and issue licenses could impede trade. Nevertheless, particularly for countries which trade large numbers of shipments, it is difficult to see how a licensing system can work effectively except on a per-shipment basis.

230. In general the more visible the system is to the users – for example by requiring applications for licenses to be accompanied by declarations certifying the accuracy of the information, signed by the importer or exporter (as in the US) – the more effective they are likely to be. Spot checks by customs and environment officials working together may help to identify goods moving through entry and exit points that should have licences and do not. The checking of whether licences are actually used when issued, and if so how, is extremely valuable tool in monitoring the market and detecting possible illegal activity.

Views on improving licensing systems

Malaysia: Felt that in order to improve ease of implementation it would be useful to clear permits electronically; to improve cost-effectiveness, electronic approval will cut down cost of manpower; and to improve the likelihood of identifying illegal trade, there should be training of enforcement and front-line officers.

India (NOU): Noted a preference that licenses should contain the export ports, to make the NOU's job easier. The NOU felt that it would be useful for each consignment to have an individual license. If a tracking system were to be introduced an electronic system would be preferred; from India's experience of Nepal and Bangladesh's paper-based systems these leave many more loopholes open for illegal trade.

231. The costs of extending licensing systems in the ways outlined above (and below in the rest of this section) are not likely to be high for most countries. As described in Section 2.2, very few

[51] It should be noted that in this decision the term 'used' was applied to mean 'recovered' in the terminology clarified in Decision XIV/3.

countries experience large numbers of shipments; according to the analysis contained there, only fifteen import CFC shipments at the rate of one or more a week, and almost 100 have less than one a month; the volume of CFCs traded, is, also of course, steadily declining. Trade in other shipments of ODS is of a comparable scale, apart from HCFCs, where the estimated number of shipments per year is about six times that of CFCs, though about 40 per cent of this is in non-Article 5 countries.

232. The costs involved, as in most of the options examined here, are primarily in staff time rather than equipment. The Executive Committee study showed that most countries already used electronic systems. Even in the EU, which includes twenty-five member states, the system is run centrally by less than one full-time equivalent staff post. In the case of Argentina, managing the tracking system is the full-time job of one person. As the Director of the Division in which the NOU is situated said, 'It is basically managed by one person … [I am] very happy with it, [it's] much easier than I thought it would be. It has been working very well.'

233. Not everyone uses electronic systems: several smaller low-volume-consuming nations, for example, are still reliant on paper-based systems. But these are also countries in which numbers of shipments are never likely to be large enough for them to need much more sophisticated licensing systems. The additional staff resources needed for the implementation of these recommendations should only be needed in the larger importing countries which in some cases (like Argentina) already have reasonably effective systems.

6.3.2 Licensing exports

234. In most countries more effort has been devoted to establishing import licensing systems than to export licences, since far more countries are importers than exporters; a frequently held view is the assumption if there is no national production of controlled ODS, then there is no need for an export licensing system. Such a shortcoming could, however, lead to the country in question being unwittingly used as a transit point for these chemicals, since it is effectively exercising no control over this trade.

235. In 2005, for example, Thai customs reported forty-six seizures of ODS during the period 2003–05. Twenty-seven (58.9 per cent) involved material smuggled from the Lao People's Democratic Republic, despite the fact that Lao PDR has no registered exporters. The UNEP DTIE study on transboundary movements of ODS revealed that Lao PDR has reported no exports to the Secretariat in recent years. Despite this, in 2003 Thailand reported two seizures of CFCs being transported across the river from Lao PDR to Thailand. It is highly probable that smugglers have used Lao PDR as a transit country to smuggle ODS into Thailand.

236. In any case, the Montreal Amendment requires export as well as import licensing, and it is a vital means – if implemented properly – of controlling illegal trade. The meeting of the Parties' decision to revise the data reporting format to encourage reporting of all export destinations ought to encourage this full implementation of the terms of the Montreal Amendment. As with import licenses, export licences could include a requirement for full and accurate labelling of the contents of each cylinder in each consignment, again helping to raise the deterrent threshold against illegal activities.

6.3.3 Cross-checking

237. Cross-checking of import and export data is probably the single most important action that could be taken to ensure that licensing systems operate effectively. As noted above, Decision IX/8

encouraged 'cross-checking of information between exporting and importing countries' without specifying how, and Decision XVII/16 encouraged the Secretariat to inform importing countries of export data; this was considered above in Section 6.1.

238. Simple exchange of data between countries would clearly be of benefit in identifying discrepancies in data between exporting and importing countries. Regional networks have a very useful role here, facilitating the establishment of contacts and exchange of information between personnel in each country. The South-East Asia Pacific / South Asia regional networks have been particularly active in this area already, and offer a useful model to follow. RILOs also have a potentially useful role, and RILO Asia–Pacific's 'Project Sky-Hole Patching' (see Section 5.3) in particular should see this kind of exchange of information develop on a regular basis within the Asia–Pacific region; it is also a good model which could be emulated elsewhere.

239. The exchange of data between countries could be facilitated by a central clearing-house, receiving and forwarding all relevant information. As long as the clearing-house mechanism works rapidly, this simplifies the procedure, as license issuers only need to know one set of contact details. Effectively this is a development of the function which the Secretariat is beginning to fulfil under Decision XVII/16 (see Section 6.1.2). Section 5.1 identifies a variety of ways in which other international agreements carry out this function; some of them, including CITES, CCAMLR and the Cartagena Protocol, use this kind of system.

240. There are clearly some costs involved here, but as above, almost entirely in terms of staff time, and falling most heavily on the larger trading countries. The analysis of numbers of shipments in Section 2.2 does not suggest that this would be an onerous requirement for the vast majority of countries. If a central clearing-house function is assigned to the Secretariat (or to a body working alongside it, such as WCMC), some additional staff resources would be necessary; perhaps one additional staff member in the Secretariat.

Views on cross-checking

Fiji: For exports: it would be helpful to request information from destination country regarding: import license for each individual shipment; import license for a particular importing company, and import quota for volume of material to compare with volume of your exports. The exchange will be very informative so as to control the amount and movement trend of ODS.

Pakistan: The system currently available to allow cross-checking of information of ODS shipments with officials in trading partner countries is RILO.

Trinidad & Tobago: More access to regional and international data for cross-checking would be very helpful. It was felt that Antigua/Barbuda's current practice of sharing export information is very helpful, and that it was useful to have the trade name printed on canisters. It was felt that this type of information would be extremely beneficial on a global level. It was noted that information from sources farther afield, such as Singapore and Belgium, were lacking, however.

In the Caribbean region, Antigua and Barbuda is the main distribution centre for ODS. It has been suggested that the NOU from Antigua and Barbuda might act as a central repository for regional import and export data so that cross-checking of data could take place. However the NOU did not feel that this was appropriate and the responsibility for tracking ODS should rest with the NOUs and that good tracking comes from good relationships with stakeholders.

India: India customs noted that it would be feasible for India to participate in data exchange (i.e. aggregate import/export data by country) between trading countries on a quarterly (retrospective) basis to compare shipments and highlight where discrepancies have occurred, which would allow enforcement authorities to focus attentions on these areas in future. An industry representative noted that India supported the 1995

revised decision which called for voluntary cross-checking between exporters and importers. He felt that this would be a very useful system but no one implements it.

The Senior Evaluation Officer for the Multilateral Fund thought that one option for managing improved communications between key ODS producing and importing countries would be to introduce a voluntary system incorporating regular communications between the top producing and importing countries by volume.

Netherlands: There is no formal mechanism in place to carry out cross-checking with trading countries. However this can be done informally and initiated by the officer in question. It was not felt that it would be a problem or significant additional burden if routine cross-checking was carried out prior to export of ODS, if all the relevant details of the contacts etc. in the trading countries were readily available. It was also suggested that rather than a *prior* informed consent system there could be a *post*-shipment check carried out by the trading partners. This would mean that trade would not potentially be held up by delays in responding to requests, and it could occur on an individual shipment level. Checking would be carried out by the exporting country which would receive a copy of the importing country's import licence (or relevant details) as well as confirmation that the goods were received. This would then be compared to the export documents and if any discrepancy was evident this could be followed up by the relevant authorities.

The Indonesian NOU is willing to provide any information to the Ozone Secretariat and supports formalisation of data collection and cross-checking.

6.3.4 Uniform design

241. Unlike many other international agreements which incorporate licensing systems, such as the Kimberley Process or CITES (see Section 5.1), the Montreal Protocol does not possess a uniform licensing system. Although all Parties to the Montreal Amendment are placed under an obligation to establish systems of export and import licenses, it is up to each party to establish the systems however they see fit. Neighbouring countries may therefore record different data in different formats – and, of course, may use different languages. This obviously creates problems for communication between countries, and for cross-checking export against import data.

242. It would be possible for the Parties to establish a uniform licensing system, with a single design of license, along the same lines as other agreements. It would be logical to combine this with the central reporting, to the Secretariat, of the issue and use of licenses – as is also the case with CITES and a number of other agreements.

243. The costs of imposing a uniform licensing system could be relatively high, as most Parties would need to amend their existing systems (though in most cases this should not need new primary legislation, as the principle of licensing should already be established). Having said that, it is almost impossible to estimate the costs, as no systematic survey has been carried out recently into what licensing systems actually cover (the Executive Committee report only covered a sample of nine countries). It would also, probably, need an amendment to the Montreal Protocol, so would clearly not be feasible for CFCs; it would, however, still be relevant for other ODS with longer phase-out schedules, such as HCFCs.

244. If national licensing systems are working reasonably well, however, there is little advantage in trying to revise them to fit a global model. A more practical suggestion would be for a decision of a meeting of the Parties to set out minimum criteria, such as those set out in Section 6.3.1, which all licensing systems should meet. Examples of best practice in going beyond this could also be promoted; UNEP DTIE already publishes much useful training and resource materials, which could be revised and reissued. UNEP's Compliance Assistance Programme in particular can play a key role in spreading best practice.

6.3.5 Implementation

245. As seen in Section 4.3, one common problem in monitoring transboundary movements is the difficulties in communication between customs and other agencies. Some countries have found it helpful to create formal memorandums of understanding between the different agencies involved, clearly setting out each other's responsibilities and describing their means of communication. In the Philippines, for instance, an agreement between the Environment Management Bureau and the Bureau of Customs set out the precise responsibilities of each agency. The former was to be responsible for issuing regulations and pre-shipment import clearances, and for monitoring the movement of 'suspicious' shipments after they had cleared customs, while the latter enforced relevant trade regulations, and provided import data and information on suspicious shipments to the former. Both together were to draft a customs handbook.

246. Similarly, inter-agency groups or task forces can encourage collaboration. The Netherlands has established a National Environmental Crime Unit, under the responsibility of the Department of Justice, bringing together officials from a wide range of backgrounds and departments to share experience and information.

247. The inter-agency group established in the US to deal with illegal trade, involving the Environmental Protection Agency (EPA), Internal Revenue Service, Customs Service and Departments of Commerce and Justice, has provided a useful model to follow, and has been extended to include joint meetings with Canadian and Mexican enforcement authorities. It has also featured involvement by industry. To facilitate coordination between US Customs and the EPA, EPA recently invested in having a staff member obtain the necessary security clearances and training to have access to ODS-related customs data via a web portal set up by customs. This has enabled EPA to track ODS shipment by shipment for imports and exports.

248. This kind of real-time data on imports, and automatic alerts from customs agents when specified goods cross the border, are immensely valuable in delivering effective enforcement. Almost all NOUs have access to computers, facilitating the distribution of this kind of data and alerts in all countries.

249. The costs of establishing collaborative arrangements such as MoUs between departments are low, requiring only some management time. They also ought to lead to more efficient working.

Experience of internal communications systems

Japan: Implements occasional cross-checking of apparent trade with customs data (actual trade). Customs does not record amounts of all ODS in mixtures. Japan has very good communications between customs and NOU; the NOU has access to customs data via their customs database, which is public access. It does not contain information on individual shipments. Japanese customs does not have any need to check the customs data regarding individual shipments, but has the authority to do so if deemed necessary.

Bahamas: The NOU is in the process of attempting to set up a new system of collaboration with customs. A primary goal is to set up a joint database to be able to access certain fields relating to ODS. If any red flags arise, customs can call the NOU as well by phone and the NOU can advise them on how to proceed. Any inquiring official or trader will have to check with the NOU first, then take an 'approval copy' to customs to verify that the shipment is permitted. The NOU's hope is that they will develop the ability to track this process from their office electronically via said shared database. This new system may require re-training. Currently, customs need to have a paper of approval from the NOU in-hand to allow an ODS shipment to come in; if not they must contact the NOU. To improve the system the NOU formed a steering committee with customs in development of the licensing system legislation to ensure early identification of potential problems and conflicts in its implementation.

South Africa: Cross-checking between NOU and customs currently takes place annually; however, an MOU is currently being developed between customs and the NOU which should facilitate better communications.

The Argentine licensing system is web-based and is accessible to producers, importers, customs and the NOU. Each type of user has access to different types of information and only one 'super-user' at the NOU can see all types and levels of data.

An effective component in tackling smuggling in the Netherlands is the initiative of setting up a 'Port Expertise Centre' at Rotterdam Port. This has been operating for four years to facilitate the sharing of information. It includes representatives from all relevant agencies, including customs, police and finance. The success of the centre is based on having good contact between partners and on the free exchange of information and intelligence.

Indonesia: The NOU would like to see closer co-operation between NOU, customs and Ministry of Trade.

St Lucia: There is supposed to be an electronic system with Customs where a red flag is raised if Customs gets a shipment for ODS or ODS-containing equipment. Then the NOU can check it out. This is necessary for all refrigerants.

6.3.6 Evaluating licensing systems

250. Currently, the only information the Parties to the Montreal Protocol are aware of is the number of countries possessing licensing systems; almost nothing is known centrally about their effectiveness, and where trade data have been examined closely substantial discrepancies have been found (see Section 4.3). The Parties have no way of knowing whether this is a problem specific to the region studied, or whether it is a general problem affecting all licensing systems. The Executive Committee study simply looked at how the licensing systems in the nine sample countries were designed, not how they worked in practice.

251. This is a major weakness in any attempt to monitor and control transboundary trade – and, at least potentially, in the implementation of the Protocol itself, if import and export data really are as unreliable as the Asia–Pacific analysis suggests. There is a very strong case for an extensive evaluation of all national licensing systems, looking at, firstly the presence or absence of the components identified above in Section 6.3.1; and secondly, and even more importantly, the *effectiveness* of the systems in practice, not just their design. Effective cross-checking of data should go some way to fulfilling this function and highlighting where licensing systems are not performing satisfactorily.

252. There is obviously a cost involved here; a comprehensive study covering all Parties' licensing systems, including a thorough examination of the extent to which they were working effectively, would consume many person-hours. However, information can be collected through existing mechanisms, including NOUs and regional networks, and regional UNEP offices can be used in collection and analysis (as, for example, in the exercise conducted by UNEP's Regional Office for Asia and the Pacific). A consultancy contract in the hundreds of thousands (rather than millions) of dollars should be adequate for analysis, particularly targeted on high-risk regions; or the task could be added to the work of a putative extra member of Secretariat staff (see Section 6.1.2).

6.4 Unreported trade

6.4.1 Monitoring trans-shipments and re-exports

253. The establishment of systems to monitor transit trade has been a regular call from enforcement agents working on ODS; trade through one or more transit points is thought to be a common method of conducting illegal trade. Workshops and regional network meetings of the South Asia / South-East Asia–Pacific regions have recommended this step on a number of occasions.

254. There are two different aspects here, as discussed above in Section 4.4. First, can trans-shipment, which is usually not monitored at all, be incorporated into the control system? Although it would be an additional burden on government authorities, this kind of control is carried out in other international regimes, including the Basel Convention and Kimberley Process (see Section 5.1). Although customs agencies do not routinely inspect goods in transit, they generally possess the powers to do so; or sometimes other enforcement agencies, such as environmental inspectors, are granted these rights. If a PIC system is established (see Section 6.5), it should be relatively straightforward to extend it to transit trade – as occurs, for example, in the Basel Convention.

255. Second, are the existing controls on import and re-export, in which both steps should be reported to the Secretariat, and both covered by licensing systems, working properly? As discussed in Section 4.4, this is a different process from trans-shipment, but the interviews conducted for this study suggested that there is frequent confusion between the two, not helped by the fact that there is no decision of the Parties that precisely defines what the terms mean.

256. It is impossible to estimate the costs of any of these options, as no data is collected or reported on goods in transit. As a first step, a study should be made of a number of key transit countries in an attempt to estimate the number of shipments which include ODS which pass through their territory, and how they are recorded, whether as trans-shipments or as imports/re-exports. The overall estimates of total numbers of shipments, however, suggest that, as above, for the vast majority of countries the number of shipments involved is small.

Views on dealing with transit trade

India: NOU and customs believe that increased pressure should be placed on transit trade countries to encourage them to steer away from transit trade. Singapore is already tightening controls to prevent illegal trade through transit (i.e. PIC system) and the Indian NOU felt that other transit hubs should be encouraged to follow suit. Since transit trade often involves a big aspect of illegal trade it is actually not in the interests of transit countries to allow this to go on, because they lose revenue.

China: State EPA believes that transit trade should be stopped, unless necessary for practical reasons. It was felt that re-export should also be disallowed, because companies are profiting where the original exporter could have (if it had traded with the primary exporter).

South Africa: The NOU's opinion was that transit ports provides the biggest opportunity for shipments to get re-routed and become illegal trade, so any tracking (e.g. PIC) system would need a comprehensive system to control and track ODS in transit.

Bangladesh: The NOU felt that the Montreal Protocol should adopt the Basel Convention format for ODS in transit.

Afghanistan: The NOU felt that traders should quote the route of shipments as well, so as to control transit trade.

Netherlands: If goods are in transit it is possible for inspectors from the environment ministry to inspect these. Such an inspection can be carried out in response to a request from the destination country. Inspectors who are responsible for enforcement of administrative legislation are always authorised to take samples (without specific intelligence). They can react if they discover that the contents of the shipment are not in accordance with the documents or the packaging, even when the goods are in transit.

6.4.2 Free trade zones

257. Regulation of free trade zones is never straightforward, as by definition they are established to reduce regulation and bureaucracy. As has been seen, however (see Section 4.4), this can represent a major loophole. The fourth Joint South-East Asian– South Asian Customs–ODS Officers Cooperation Workshop, in 2006, identified free trade zones as a major concern and made the recommendation that customs should be empowered, through appropriate legislation, to fully control trade of ODS in such zones.

258. One mechanism for better and more harmonised legislation regarding free trade zones is ratification of the 1973 Kyoto Convention on the Simplification and Harmonisation of Customs Procedures, which states that, *inter alia*, 'customs authorities shall have the right to carry out checks at any time of the goods stored on the premises of any person introducing goods into a free zone'.[52] Other options discussed at the workshop included the prohibition of ODS from free trade zones, special inclusion of ODS on annexes that allow for increased powers of inspection within free trade zones, and prohibitions on tampering with packaging of ODS within free trade zones.

259. It should be clear that Parties to the Montreal Amendment which do not regulate the import and export of ODS into and out of free trade zones are by definition not in compliance with their obligations under the Protocol. ODS regulations should be extended to cover free trade zones, and a decision of the Parties could recommend this.

Views on dealing with free trade zones

Singapore: Under the Free Trade Zones Act, Singapore does not monitor ODS coming through free trade zones; in fact the authorities do not monitor transit trade at all. Customs officials are able to respond to tip-offs of suspicious illegal trade for hazardous waste (because under the Basel Convention transit trade is controlled), but the NOU believed that for the same would not be true for ODS because the Montreal Protocol does not stipulate controls over transit trade. Singapore has a mechanism under Basel to try to prevent diversion of shipments in transit zones. The NOU stated that it would be able/willing to act on requests from other countries wanting to know the onward destination of a shipment that originated in their country.

6.4.3 Other reporting failures

260. Section 4.4 identified a series of other ways in which trade may proceed in an unregulated and unreported manner: through very small shipments, or on boats' own refrigeration and air-conditioning systems, and as a result of confusion over the status of overseas territories. NOUs and implementing agencies (particularly UNEP) could usefully look at the first two issues, though the volumes of ODS involved seem unlikely to be so large that they would warrant substantial expenditure of resources. The impact of the third problem – the extent to which territories which should be treated as part of non-Article 5 Parties are not so because they are located in regions consisting entirely of Article 5

[52] Kyoto Convention, Annex F.1, paragraph 4; see www.unece.org/trade/kyoto.

Parties – is not known, and the Secretariat could usefully gather information from the relevant countries and regions; the issue could also be taken up at regional network meetings.

6.5 Prior informed consent

261. The next logical step beyond current licensing systems, and closer regulation of transit trade, is the establishment of a 'prior informed consent' (PIC) system through which the importing country would have to give explicit approval for any imports of ODS licensed for export from another country.

262. As seen in Section 5.1, several existing international agreements, including the Basel and Rotterdam Conventions and the Cartagena Protocol, already operate PIC systems. The vast majority of Parties to the Montreal Protocol are also Parties to the Basel Convention, which has 168 Parties to the Protocol's 190; the twenty-two non-Parties include just two non-Article 5 Parties (the US and Tajikistan) and twenty Article 5 Parties,[53] none of them major traders in ODS. Most Montreal Protocol Parties therefore have experience in operating at least the Basel Convention's version of PIC. More than half the Parties to the Protocol – 108 and 134 respectively – are similarly Parties to the Rotterdam Convention and the Cartagena Protocol.

263. In addition to this experience of operating PIC systems outside ODS, as seen above in Section 3.2, a PIC-type system, requiring 'written affirmations' for the export of CFCs to developing countries for their basic domestic needs, was introduced via Decision XVII/12, in 2005, and companies in the EU have some experience of its operation.

6.5.1 Informal PIC systems

264. A PIC system could operate on a relatively informal basis, between customs or other agents known to each other, though this will partly depend on the extent of their existing regulatory powers. Possibly in some cases new national legislation would be needed, though customs agencies are often granted quite extensive powers to regulate international trade. Formal agreements are in general preferable, though, as government personnel may change frequently.

265. A decision of a meeting of the Parties could encourage Parties to develop such informal regional PIC systems, focusing in particular on high-risk areas such as South and South-East Asia (where an informal PIC system is now beginning to operate; see box below). Effectively this represents the integration of different national licensing systems, ensuring they cover between them all the exports and imports in a given region, and helping to close the loopholes that may be left by incomplete coverage. Such a system would, however, only work if the licensing systems were implemented properly in every country in the region – and it would have to extend to cover countries outside the region but exporting into or importing from it.

266. Alternatively, or additionally, an informal PIC system could be established between major producing and consuming countries. Although clearly such a system would not be completely watertight, it would have the major benefits of concentrating efforts on the biggest trading countries, with the most capacity to handle the system, and focus on the largest trade flows.

[53] Afghanistan, Congo, Democratic People's Republic of Korea, Fiji, Gabon, Grenada, Haiti, Lao People's Democratic Republic, Myanmar, Niue, Palau, Sao Tome & Principe, Sierra Leone, Solomon Islands, Somalia, Suriname, Tonga, Tuvala, Vanuatu and Zimbabwe.

Informal PIC systems

In January 2006 the South Asia and South-East Asia–Pacific UNEP regional networks began implementation of an agreed voluntary system of Prior Informed Consent on Import and Export of CFCs. Network countries have provided lists of registered importers and exporters. Participating countries agree to consult this list when trading with other countries in the network in order to make unregistered traders easier to identify.

Licenses are issued on a per-shipment basis. An importing NOU, when issuing an import license, should, within five working days of its issue, send a copy of the license to the corresponding exporting NOU. Similarly, the exporting NOU should check the corresponding import license documents before issuing export licenses, and should send the copy of the license to the corresponding importing NOUs. If the exporting country NOU has not received the import license documentation within fifteen days of receiving the export license application, they are entitled to use their discretion to issue the export license without the import license documentation.

Importing NOUs should ensure that import licenses are not issued in excess of the limits set in national phase-out plans. Similarly, the exporting NOUs of countries should ensure that the export licenses are not issued in excess of the limits set in the phase-out plans of the importing countries. UNEP's Regional Office will assist the three exporting countries in the region not to unintentionally export CFCs over the limit of the consumption to one country.

Singapore has had several successes in preventing unlicensed trade using the informal PIC system. Before any shipment is cleared for export the NOU emails the NOU of the proposed importing country to check that they are happy to receive the shipment. The government warns new companies that the PIC system is a requirement of the licensing system, and to be aware that there may be delays in the export clearance process. This system has been found to work well so far, and most NOUs are willing to provide the information requested. There have been several cases where Singapore has identified and prevented illegal trade by simple communication and importing country consent prior to export.

UK: supports exploration of the idea of focusing a PIC system on the top three ODS producers and top twenty importers, since this would lessen the burden on Article 5 countries, and importers who are only dealing with very small quantities of imports. It was felt that that an informal PIC system might work better than a mandatory system for all Parties.

267. The costs of such an informal PIC system is not likely to be high, for the same reasons set out above, though this will depend critically on the extent of coverage (numbers of countries involved, coverage of ODS and numbers of shipments in transit).

6.5.2 A formal PIC system

268. A more substantial development would be to incorporate a formal PIC system into the Montreal Protocol, as an amendment to Article 4B, which deals with licensing systems. An amendment to the Protocol, however, would take several years to be agreed, enter into force and be implemented, and is obviously not a practical solution for the ODS soon to be phased out, including CFCs and carbon tetrachloride. It would, however, be relevant for ODS with longer phase-out schedules, such as HCFCs and methyl bromide. Such as 'formal' PIC system could build on the experience gained in operating the 'informal', regional PIC systems discussed above.

Views on PIC

South Africa: The NOU is not against the principle/feasibility of PIC, but felt that transit ports are where the danger of losing track of shipment occurs. If a shipment comes from China and is transhipped the final importing country cannot be certain whether it is importing what China originally exported or transhipment materials. A PIC system would involve considerably more work, but should be possible, given increased human resources.

Japan: The NOU felt that PIC would be a very difficult system to implement because it would take a long time to establish whether the license is genuine or not – the request would have to be channelled through the Ministry of Foreign Affairs, who would ask the government of the trading partner country, who would then confirm consent through their NOU – it would all take a long time.

Fiji: The current licensing system could be improved to improve ease of implementation by import licenses to be issued after receiving prior consent from exporting country. To improve cost-effectiveness, prior consent can be sent through email so saving time and money. Making a prior consent system legally binding for all exporters of ODS would improve the likelihood of identifying illegal trade.

China: State EPA felt that PIC is complicated, plus the EU and India won't subscribe. It was felt that it was not worth a lot of hassle for CFCs that will disappear from trading in a few years. HCFCs and methyl bromide are different issues and should be considered seriously and separately from CFCs.

EU: Arkema now needs to obtain PIC to ensure that exports are within basic domestic needs limits. Arkema sells to traders in other EU countries who can re-sell the ODS to Article 5 countries, or other EU countries who will then continue the sale to Article 5 countries. The PIC trail has to trace back along the sale train to check that Arkema had a PIC permission in the first place. The system works quite well but the companies involved do have difficulties with Article 5 countries not providing the basic domestic needs/PIC assurance letters, which also ask them if the import will put them in non-compliance. A big problem with any sort of PIC system is a lack of response from the other end.

269. The costs of a formal PIC system would be higher than most of the options examined here, though, as with other options, they would fall mainly on the bigger countries trading most extensively in ODS. Effective and timely communication between countries would be essential for the PIC system to work. The Secretariat would probably need further enhancement – perhaps one additional member of staff – to operate the PIC system, particularly if it operated a central clearing-house mechanism handling the PIC notifications along the lines of the Cartagena Protocol. (See discussion on costs above in Section 6.1.4.)

7 Options: roadmap

270. The terms of reference for this study call for 'two or three likely workable options for transboundary movements monitoring systems that would be useful in reducing illegal trade in controlled ODS'. In reality, however, most of the components identified above in Chapter Six could be implemented independently of each other and in almost any combination (though a few of them, such as PIC systems, need to build on others, such as effective implementation of licensing systems).

271. This concluding section therefore maps out three sets of activities which could be useful in monitoring the transboundary trade in ODS and in controlling illegal trade. Each summarises and refers back to recommendations which are discussed in detail in Chapter Six. Each also identifies, in line with the terms of reference, the responsibilities falling on different categories of actors (industry (producers and distributors), governments (including collectively, through meetings of the parties), and international organisations (the Ozone Secretariat, the Multilateral Fund and its implementing agencies, and any other relevant bodies, such as regional customs organisations).

272. Each of the three sets of activities are organised in increasing levels of cost, complexity and implementation time. Each are therefore 'options' in the sense that not all of them need to be chosen, but it would be more accurate to regard them as points along a 'roadmap' – each develops from and builds on its predecessor. It is up to the Parties to decide how far and fast to travel down this road.

7.1 Immediate actions

273. This first set of activities includes those that can be carried out in the very short term, largely using existing structures and without any need for significant increases in resources or amendments of the Protocol. It includes some steps that are already beginning to be taken.

- Full implementation of the new reporting requirement for destinations for all exports of all ODS; analysis of problems this reveals, and consideration of the best way in which to relay the information between Parties (for example, batched, or shipment by shipment). (Section 6.1.2.)
- Better provision of information on names, codes and labelling systems, particularly for mixtures containing ODS. (Section 6.2.1.)
- Encouragement for the development of internal (company-specific) tracking systems, for example for cylinders. (Section 6.2.1.)
- Full implementation of the Montreal Amendment requirement for licensing systems to cover all categories of ODS, including mixtures and used ODS. (Section 6.3.1.)
- Full implementation of the Montreal Amendment requirement for the inclusion of export licenses in all licensing systems. (Section 6.3.2.)
- Development of systems for cross-checking all export and import data per country and per shipment – effectively, full implementation of the terms of Decision IX/8. (Section 6.3.3.)
- Greater use of regional ozone officer and customs networks to raise awareness and spread examples of best practice in licensing systems. (Section 6.3.4.)
- Effective communication at national level in operating licensing systems, including promotion of memorandums of understanding between key agencies. (Section 6.3.5.)

- The adoption of clear definitions of the terms 'trans-shipment' and 're-export'. (Section 6.4.1.)
- Clarification of the status of free trade zones. (Section 6.4.2.)

274. Taking all these steps together implies that industry, government and international institutions would need to carry out the following measures:

- Industry (producers and distributors): work to develop internal tracking systems; cooperate with UNEP in providing information on labelling and naming systems.
- Governments: (exporters) provide disaggregated export data to the Secretariat, and (importers) undertake to analyse this data against their own records of imports; (all) fulfil their Montreal Amendment obligations with regard to the design of licensing systems (in their coverage of ODS and their inclusion of export licenses); improve coordination between agencies in operating their licensing systems.
- Meetings of the parties: adopt clear definitions of the terms 'trans-shipment' and 're-export'; clarify the status of free trade zones.
- Secretariat: develop the export and import data cross-communication function.
- Multilateral Fund and implementing agencies: provide better information on names, codes and labels, etc.; support the work of regional networks in spreading examples of best practice in licensing systems.
- Customs networks such as RILOs: support the work of regional networks in spreading examples of best practice in licensing systems.

275. The costs of these steps are in almost all cases very low. In many instances these activities are happening in some places, or beginning to happen. The most costly will probably be the implementation of the Montreal Amendment obligations on licensing systems – but Parties have already undertaken to fulfil these obligations.

7.2 Medium-term options

276. This second set of activities includes those that can be carried out in the slightly longer term – though whose implementation could start soon. It would require some expenditure of additional resources, primarily in staff time within the larger trading countries and the Secretariat. It builds on and develops from all the activities set out above in Section 7.1.

- Review of data collection and data reporting systems, aiming to identify and eliminate discrepancies and to provide better reporting in particular of ODS in mixtures. This includes in-depth studies of data reporting in particular high-risk regions. (Section 6.1.1.)
- Encouragement for customs investigations of illegal trade hotspots and supply chains, based on the 'Operation Sky-Hole Patching' model. (Section 6.1.1.)
- Further development of systems for cross-checking all export and import data per country and per shipment, using a central clearing-house mechanism. (Sections 6.1.2 and 6.3.3.)
- Encouragement for sharing of industry trade data with the Secretariat or other responsible bodies, subject to protection of commercially sensitive information. (Section 6.1.3.)

- Feasibility study on the costs and implications of a new centralised trade data collection and analysis system, drawing on multiple sources and allowing more targeted analysis of trade flows. (Section 6.1.4.)
- Encouragement for standardisation of industry naming and labelling conventions on cylinders. (See Section 6.2.1.)
- Encouragement for national bans on disposable canisters in regions where this option is appropriate (i.e. densely populated areas with good transport networks). (Section 6.2.2.)
- Encouragement for systems designed to 'blacklist' companies known to be trading illegally, and/or 'whitelist' companies known to be trading legally and responsibly. (Section 6.2.2.)
- Encouragement for the elaboration of detailed customs codes sub-headings at national levels, and collection of information on the extent to which this actually happens. (Section 6.2.3.)
- Clarification of the essential minimum elements of licensing systems, endorsed by Parties through a decision, plus enhanced promotion of best practice in comprehensive licensing systems and training. (Section 6.3.4.)
- Evaluation of how licensing systems are actually working, identifying and attempting to eliminate major data discrepancies. (Section 6.3.6.)
- Analysis of the extent of transit trade (trans-shipment and import/re-export) in high-risk regions. (Section 6.4.1.)
- Analysis of the extent to which overseas territories of non-Article 5 Parties in regions predominantly composed of Article 5 Parties affect trade in ODS. (Section 6.4.3.)
- Encouragement for an 'informal' PIC system in high-risk regions such as South and South-East Asia, and/or focused on the largest producers and consuming countries. (Section 6.5.1.)

277. Taking all these steps together implies that industry, government and international institutions would need to carry out the following measures:

- Industry (producers and distributors): share data with the Secretariat or other designated body; work to standardise naming and labelling conventions; consider development of certification schemes for legal and responsible companies.
- Governments: implement national bans on disposable canisters where appropriate; elaborate national customs codes; improve licensing systems, particularly in cross-checking between importing and exporting countries; participate in informal PIC systems where appropriate.
- Meetings of the parties: adopt minimum criteria for acceptable licensing systems.
- Secretariat: review and improve data collection systems; develop the import and export cross-checking function; carry out or commission studies on a new trade data collection and analysis system, a comprehensive evaluation of the effectiveness of licensing systems, the extent of transit trade and how it is reported, and the impact of overseas territories.
- Multilateral Fund and implementing agencies: support the work of regional networks in encouraging cross-checking between exporting and importing countries and, where appropriate, informal PIC systems; improving licensing systems; developing blacklists and whitelists of companies; and feeding into the Secretariat studies listed above.

- Customs networks such as RILOs: conduct investigations of illegal trade hotspots and supply chains; support the work of regional networks in improving licensing systems and implementing informal PIC systems.

278. There are some costs involved in these steps but in most cases they are modest, and are likely to fall most upon the bigger countries trading most extensively in ODS, which already tend to have relatively well-developed licensing systems. Probably the most concentrated costs fall on the Secretariat, in conducting and then acting upon the series of reviews and studies listed above; an extra member of staff, plus suitable support, and resources for consultancy contracts, would almost certainly be needed.

7.3 Long-term options

279. This final set of activities includes those that could only be carried out in the longer term, over a period of a few years. (They are not, therefore, particularly relevant to CFCs, because of the 2010 phase-out date.) They would require decisions of the Parties and in one case an amendment to the Protocol, and, probably additional national legislation. In most cases they are dependent on effective implementation of the steps outlined above in Sections 7.1 and 7.2; a PIC system, for example, cannot work unless effective licensing systems are already in place.

- Further efforts to improve data collection and reporting, including independent verification of data in the most severe cases of discrepancies. (Section 6.1.1.)
- Implementation of a new centralised trade data collection and analysis system, drawing on multiple sources and allowing more targeted analysis of trade flows. (Section 6.1.4.)
- Inclusion of transit movements (trans-shipments) in licensing systems, possibly through amending Article 4B of the Protocol. (Section 6.4.1.)
- Adoption of a formal PIC system (which would require amendment of the Protocol), which must therefore include export and transit licenses, and ideally a uniform licensing system, and effective communications between countries. This would also imply enhancement of the Secretariat in playing a central clearing-house role. (Sections 6.5.2 and 6.3.4.)

280. Taking all these steps together implies that industry, government and international institutions would need to carry out the following measures:

- Industry (producers and distributors): provision of data to the Secretariat or other body for the new trade data system.
- Governments: improved collection and reporting of data; inclusion of transit movements in licensing schemes; adoption of a formal PIC system.
- Meetings of the parties: amend the Protocol to require a PIC system and its implications (such as uniform design of licenses).
- Secretariat: further improve data collection systems; introduce the new trade data collection and analysis system; implement the PIC system.
- Multilateral Fund and implementing agencies: support the further development of licensing systems and the new PIC system.
- Customs networks such as RILOs: support the work of regional networks in implementing the new trade data system and the PIC system.

281. Clearly this set of measures involves the largest costs. All licensing systems will have to be revised, in particular to incorporate the transit and PIC requirements; having said that, if licensing systems have developed to the extent envisaged in Section 7.2, and at least some governments are operating an informal PIC system, the differences would not be large. As in Section 7.2, the largest costs at national level would fall mostly on the bigger countries trading most extensively in ODS. The Secretariat would need further enhancement – perhaps one additional member of staff – to operate the PIC system.

Annex 1: Relevant decisions of meetings of the parties

Decision XVII/16: Preventing illegal trade in controlled ozone-depleting substances

The *Seventeenth Meeting of the Parties* decided in *Dec. XVII/16:*

Mindful of the importance of preventing illegal trade to ensuring the smooth and effective phase-out of controlled ozone-depleting substances,

Understanding the need to control both import and export of all controlled ozone-depleting substances by all Parties, in particular through establishment of licensing systems, as required under Article 4B of the Montreal Protocol,

Recalling the provisions related to monitoring and control of trade in controlled ozone-depleting substances contained in decisions VII/9, VIII/20, IX/8 and XIV/7,

Recognizing that there are already trade tracking systems established in other environmental conventions as well as international trade statistics databases,

Mindful of the ongoing development of the Strategic Approach to International Chemicals Management, which includes as an objective the prevention of illegal international trade, and of decision 23/9 of the Governing Council of the United Nations Environment Programme, on chemicals management, requesting the Executive Director of the United Nations Environment Programme to promote cooperation between the Montreal Protocol and certain other conventions in addressing international illegal trafficking of hazardous chemicals and hazardous wastes,

Acknowledging with appreciation the draft terms of reference for a study on the feasibility of developing an international system of tracking the movement of controlled ozone-depleting substances between Parties produced by the Ozone Secretariat, as required by decision XVI/33,

Noting with appreciation the outcome of the workshop of experts from the Parties to the Montreal Protocol organized by the Ozone Secretariat on 3 April 2005 in Montreal on the development of specific areas and a conceptual framework of cooperation in preventing and combating illegal trade in controlled ozone-depleting substances,

Noting with appreciation the Report of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol on the evaluation of customs officers training and licensing system projects to the twenty-fifth meeting of the Open-ended Working Group,

1. To approve the terms of reference for a study on the feasibility of developing an international system of monitoring the transboundary movement of controlled ozone-depleting substances between Parties, as presented in the appendix to the present decision, and to request the Ozone Secretariat to undertake such a study, to initiate the necessary tenders and to present the results to the Eighteenth Meeting of the Parties to the Montreal Protocol in 2006;

2. To invite the Ozone Secretariat to consult with other conventions or organizations who might benefit from the outcome of that study to contribute towards its work;

3. To urge all Parties, including regional economic integration organizations, to implement fully their obligations under Article 4B of the Montreal Protocol, in particular, the licensing systems for the control of imports, exports, re-exports (re-exports mean exports of previously imported substances) and, if technically and administratively feasible, transit of all controlled ozone-depleting substances, including mixtures containing them, regardless of whether the Party concerned is or is not recognized as the producer and/or importer, exporter or re-exporter of the particular substance or group of substances;

4. To request the Ozone Secretariat to revise the reporting format resulting from decision VII/9 to cover exports (including re-exports) of all controlled ozone-depleting substances, including mixtures containing them, and to urge the Parties to implement the revised reporting format expeditiously. The Ozone Secretariat is also requested to report back aggregated information related to the controlled substance in question received from the exporting/re-exporting Party to the importing Party concerned;

5. To invite Parties to submit information to the Ozone Secretariat by 30 June 2006 on any existing systems for exchanging information on import and export licenses between importing and exporting Parties;

6. To consider additional control measures with regard to the use of controlled ozone-depleting substances in particular sectors or in particular applications, as this approach may effectively diminish illegal trade activities;

7. To encourage further work on the Green Customs initiative of the United Nations Environment Programme in combating illegal trade in controlled ozone-depleting substances as well as further networking and twinning activities in the framework of regional networks aimed at the exchange of information and experience on both licit and illicit trade in controlled ozone-depleting substances between the Parties, including enforcement agencies;

8. To request the Executive Committee to consider at its forty-eighth meeting the recommendations contained in the report of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol on the Evaluation of Customs Officers Training and Licensing System Projects to the twenty-fifth meeting of the Open-ended Working Group, in particular where they relate to customs training and other elements of capacity building that are needed in combating illegal trade in controlled ozone-depleting substances;

9. To approve a maximum amount of $200,000 from the Trust Fund of the Vienna Convention as a one-time measure to facilitate the feasibility study on developing a system for monitoring the transboundary movement of controlled ozone-depleting substances between the Parties.

Terms of reference for a feasibility study on developing a system for monitoring the transboundary movement of controlled ozone-depleting substances between the Parties

1. Describe the logistical and regulatory steps which could be applied to the movement of controlled ozone-depleting substances that are produced and exported for final use in another Party.

2. Describe important components that could usefully be included in an effective system for monitoring the transboundary movement of controlled ozone-depleting substances between the country of export or re-export and the country of import.

3. Describe potential actions that could be used by Parties to assist in monitoring the transboundary movement of controlled ozone-depleting substances as they move between Parties.

4. Assess whether any national or international systems already monitor transboundary movement of controlled ozone-depleting substances, including transit trade, and examine information on existing systems for exchanging information on import and export licenses between exporting and importing Parties referred to in the operative paragraph 5, and assess advantages and disadvantages of the systems in question.

5. Examine how tracking mechanisms operate in other international agreements (such as the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal, the Convention on the International Trade in Endangered Species of Wild Flora and Fauna) and how they may or may not be useful models for the development of a system for monitoring the transboundary movement of controlled ozone-depleting substances in a manner that would

assist in the efforts to reduce illegal trade. Examine the costs and practical difficulties associated with developing and operating tracking systems under the above mentioned international agreements in order to provide an estimate of the practical difficulties and costs with regard to implementation of a tracking system for controlled ozone-depleting substances. Examine the possibilities for securing synergies with related international agreements in tracking illegal trade. Compare the results of the work described in this paragraph with a similar analysis on the possibilities of using existing international trade statistics databases to monitor transboundary movement of controlled ozone-depleting substances between Parties.

6. Describe sources of information, information requirements (such as: carrier, port of import/export/re-export/transit or transshipment, customs information on ozone-depleting substances being shipped including, inter alia, country of origin and declared producer name, country of final destination and declared purchaser/receiver name) and information flows that would be needed to enable an ozone-depleting substances tracking system to be successful in reducing illegal trade. Describe also the functional governmental or non-governmental units that would need to be involved in providing and monitoring such information, considering both centralized and decentralized systems. Examine relevant international law including international trade rules that may assist in or govern the release of such information including the Trade Related Aspects of Intellectual Property Rights agreements.

7. Communicate with five to seven producing country Governments and producers and international distributors in those countries as well as with five to seven re-exporting country Governments and international distributors in those countries (representing Parties operating under Article 5 and Parties not operating under Article 5) to get their views on the feasibility and cost of obtaining needed information for implementing a transboundary movements monitoring system, and their views on whether such a system would impact on legitimate trade. Also communicate with the Governments and primary distributors in the two or three countries (representing Parties operating under Article 5 and Parties not operating under Article 5) responsible for the majority of the transit and transshipment of controlled ozone-depleting substances to discuss the same matters.

8. Taking into account the above, describe, in an overview fashion, two or three likely workable options for transboundary movements monitoring systems that would be useful in reducing illegal trade in controlled ozone-depleting substances. Those options should describe the steps and actions that could have to be taken at the producer, distributor, governmental and Secretariat level to better monitor transboundary movements of controlled ozone-depleting substances. Finally, estimates of the annual user (Government, exporter/importer, Secretariat) costs and system-wide costs for implementation should be provided for each option.

Decision XVII/12: Minimising production of chlorofluorocarbons by Parties not operating under paragraph 1 of Article 5 of the Montreal Protocol to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5

The *Seventeenth Meeting of the Parties* decided in *Dec. XVII/12:*

Noting that Parties not operating under paragraph 1 of Article 5 of the Montreal Protocol continue to report production of chlorofluorocarbons to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5 of the Montreal Protocol, pursuant to Article 2A of the Protocol,

Recalling that the Technology and Economic Assessment Panel reported to the Parties in its 2004 Basic Domestic Needs Task Force Report that there is no evidence of chlorofluorocarbon supply shortage in recent years and that the bulk market price for chlorofluorocarbons in Parties operating under Article 5 of the Protocol is not rising, a situation that may be impeding the market penetration of chlorofluorocarbon alternatives in those countries,

Also noting the phase-out schedule for production of chlorofluorocarbons to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5 by 2010 as set out in Article 2A of the Protocol,

Recognizing the successful efforts of several Parties operating under paragraph 1 of Article 5 to phase out their chlorofluorocarbon production with assistance from the Multilateral Fund for the Implementation of the Montreal Protocol,

Recognizing the successful efforts of several Parties not operating under paragraph 1 of Article 5 in phasing out production of chlorofluorocarbons for basic domestic needs,

Mindful of the requirement set out in decision V/25 for Parties supplying the basic domestic needs of Parties operating under paragraph 1 of Article 5 to report such quantities and secure and report affirmations from receiving Parties, and of decision VII/9 on basic domestic needs,

Noting that sufficient supplies of chlorofluorocarbons are available from production facilities in Parties operating under paragraph 1 of Article 5 and from recycled and reclaimed stocks,

Seeking to phase out chlorofluorocarbon production as soon as possible,

1. To urge all Parties not operating under paragraph 1 of Article 5 that produce chlorofluorocarbons to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5 to ensure that such production is truly required by:

   (a) Requesting a written affirmation from the prospective importing Party that the chlorofluorocarbons are required and that such importation would not result in its non-compliance, prior to exporting any chlorofluorocarbons to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5;

   (b) Including copies of these written affirmations when reporting chlorofluorocarbon production to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5 to the Ozone Secretariat under Article 7 of the Protocol;

2. To request that the Secretariat report at the next Meeting of the Parties and at each regular Meeting of the Parties thereafter, the level of production of chlorofluorocarbons in Parties not operating under paragraph 1 of Article 5 to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5 as compared to their allowed production as set out in Article 2A of the Protocol and when doing so to include copies of the affirmations, together with available data on transfer of production rights;

3. To urge all Parties not operating under paragraph 1 of Article 5 that have an entitlement to produce chlorofluorocarbons for the basic domestic needs of Parties operating under paragraph 1 of Article 5 to ensure an accelerated phase-out of their production, and to report back to the Parties at their Eighteenth Meeting on progress in eliminating production of chlorofluorocarbons for basic domestic needs;

4. To consider at the Eighteenth Meeting of the Parties an adjustment to accelerate the phase-out schedule set out in Article 2A of the Protocol for chlorofluorocarbon production to meet the basic domestic needs of Parties operating under paragraph 1 of Article 5.

Decision XVI/33: Illegal trade in ozone-depleting substances

The *Sixteenth Meeting of the Parties* decided in *Dec. XVI/33:*

1. To note with appreciation the notes by the Secretariat on information reported by the Parties on illegal trade in ozone-depleting substances and on streamlining the exchange of information on reducing illegal trade in ozone-depleting substances;

2. Further to note with appreciation the report by the Division of Technology, Industry and Economics of the United Nations Environment Programme on activities of the regional networks with regard to means of combating illegal trade;

3. To note the need for coordination of efforts by Parties at national and international level to suppress illegal trade in ozone-depleting substances;

4. To request the Ozone Secretariat to gather further ideas from the Parties on further areas of cooperation between Parties and other bodies in combating illegal trade such as development of a system of tracking trade in ozone-depleting substances and improvement of communications between exporting and importing countries in the light of the information provided in the note by the Secretariat on streamlining the exchange of information on reducing illegal trade in ozone-depleting substances and the report by the Division of Technology, Industry and Economics of the United Nations Environment Programme on activities of the regional networks with regard to means of combating illegal trade;

5. Further to request the Ozone Secretariat to produce draft terms of reference for a study on the feasibility of developing a system of tracking trade in ozone-depleting substances and the cost implications of carrying out such a study, taking into account the proposal presented by Sri Lanka;

6. To request in addition the Executive Secretary of the Ozone Secretariat to convene in the first half of 2005, and provided that funds are available, a workshop of experts from Parties to the Montreal Protocol to develop specific areas and a conceptual framework of cooperation in the light both of information already available and of the reports to be produced by the Secretariat pursuant to paragraphs 4 and 5 above and make appropriate proposals to the Meeting of the Parties;

7. To consider the information on the outcome of the workshop to be convened by the Ozone Secretariat at the Seventeenth Meeting of the Parties.

Decision XIV/7: Monitoring of trade in ozone-depleting substances and preventing illegal trade in ozone-depleting substances

The *Fourteenth Meeting of the Parties* decided in *Dec. XIV/7:*

Mindful of Decision XIII/12 requesting the Ozone Secretariat to undertake a study dealing with issues related to monitoring of trade in ODS and preventing illegal trade in ODS listed in Decision XII/10 and present a report with practical suggestions to the Open-ended Working Group at its twenty-second meeting, in 2002, for consideration of the Parties in 2002,

Acknowledging with appreciation the work of the Ozone Secretariat and all organizations and individuals which assisted in the preparation of the report,

Acknowledging with appreciation the proposal from the Ozone Secretariat, based on the work done by the ODS Customs Codes Discussion Group convened under Decision X/18, on national subdivisions to customs codes for classification of mixtures containing ODS, which is presently being processed by the World Customs Organization,

Recalling previous decisions of the Parties dealing with monitoring of trade in ODS, customs codes, ODS import and export licensing systems and prevention of illegal trade in ODS, namely Decisions II/12, VI/19, VIII/20, IX/8, IX/22, X/18 and XI/26,

Understanding the importance of actions aimed at improvement of monitoring of trade in ODS and preventing illegal trade in ODS for timely and smooth phase-out of ODS according to the agreed schedules,

1. To encourage each Party to consider means and continued efforts to monitor international transit trade;

2. To encourage all Parties to introduce economic incentives that do not impair international trade but which are appropriate and consistent with international trade law, to promote the use of ODS substitutes and products (including equipment) containing them or designed for them, and technologies utilizing them; and to consider demand control measures in addressing illegal trade;

3. To urge each Party that has not already done so to introduce in its national customs classification system the separate sub-divisions for the most commonly traded HCFCs and other ODS contained in the World Customs Organization recommendation of 25 June 1999 and request that Parties provide a copy to the Secretariat; and to urge all Parties to take due account of any new recommendations by the World Customs Organization once they are agreed;

4. To provide the following further clarification of the difference between a controlled substance, or a mixture containing a controlled substance, and a product containing a controlled substance contained in Article 1 of the Montreal Protocol and further explained in Decision I/12A:

   (a) No matter which customs code is allocated to a controlled substance or mixture containing a controlled substance, such substance or mixture, when in a container used for transportation or storage as defined in Decision 1/12A, shall be considered to be a 'controlled substance' and thus shall be subject to the phase-out schedules agreed upon by the Parties;

   (b) The clarification contained in subparagraph (a) above concerns, in particular, controlled substances or mixtures containing controlled substances classified under customs codes related to their function and sometimes wrongly considered to be 'products', thus avoiding any controls resulting from the Montreal Protocol phase-out schedules;

5. To encourage all Parties to exchange information and intensify joint efforts to improve means of identification of ODS and prevention of illegal ODS traffic. In particular those Parties concerned should make even greater use of the UNEP regional networks and other networks in order to increase cooperation on illegal trade issues and enforcement activities;

6. To request the Division of Technology, Industry and Economics of the United Nations Environment Programme through the Executive Committee to report to the Sixteenth Meeting of the Parties on the activities of the regional networks with regard to means of combating illegal trade; to request the Executive Committee to consider making an evaluation of customs officers training and licensing systems projects a priority and, if possible, report to the Sixteenth Meeting of the Parties;

7. To invite Parties, in order to facilitate exchange of information, to report to the Ozone Secretariat fully proved cases of illegal trade in ozone-depleting substances. The illegally traded quantities should not be counted against a Party's consumption provided the Party does not place the said quantities on its own market. The Secretariat is requested to collect any information on illegal trade received from the Parties and to disseminate it to all Parties. The Secretariat is also requested to initiate exchanges with countries to explore options for reducing illegal trade;

8. To request the Executive Committee of the Multilateral Fund to continue to provide financial and technical assistance to Article 5 Parties to introduce, develop and apply inspection technologies and equipment in customs to combat illegal ODS traffic and to monitor ODS trade, and to report to the Sixteenth Meeting of the Parties to the Montreal Protocol on activities to date.

Decision IX/8: Licensing system

The *Ninth Meeting of the Parties* decided in *Dec. IX/8:*

Noting that decisions V/25 and VI/14A set in place systems for exchange, recording and reporting of information concerning trade in controlled substances to meet the basic domestic needs of Parties operating under Article 5,

Noting that decision VI/14B requested that recommendations be made to the Seventh Meeting of the Parties concerning whether reports under Article 7 should be made in relation to trade to meet the basic domestic needs of Parties operating under Article 5,

Noting that decision VII/9 required that an import- and export-licensing system be incorporated into the Montreal Protocol by the Ninth Meeting of the Parties,

Noting that, in response to a report prepared by the Secretariat on illegal imports and exports of ozone-depleting substances, decision VIII/20 urged each Party not operating under Article 5 to establish a system for validation and approval of imports of any used, recycled or reclaimed controlled substances before they are imported and to report to the Ninth Meeting of the Parties on the establishment of such a system,

Noting that decision VIII/20 also requests the Ninth Meeting of the Parties to consider instituting a system to require validation and approval of exports of used and recycled ozone-depleting substances from all Parties,

Noting that the Ninth Meeting of the Parties has adopted an Amendment to the Protocol, requiring all Parties to implement an import and export licensing system,

1. That the licensing system to be established by each Party should:

   (a) Assist collection of sufficient information to facilitate Parties' compliance with relevant reporting requirements under Article 7 of the Protocol and decisions of the Parties; and

   (b) Assist Parties in the prevention of illegal traffic of controlled substances, including, as appropriate, through notification and/or regular reporting by exporting countries to importing countries and/or by allowing cross-checking of information between exporting and importing countries;

2. To facilitate the efficient notification and/or reporting and/or cross-checking of information, each Party should inform the Secretariat by 31 January 1998 of the name and contact details of the officer to whom such information and requests should be directed. The Secretariat shall periodically prepare, update and circulate to all Parties a full list of these contact details;

3. That the Secretariat and Implementing Agencies should take steps to assist Parties in the design and implementation of appropriate national licensing systems;

4. That Parties operating under Article 5 may require assistance in the development, establishment and operation of such a licensing system and, noting that the Multilateral Fund has provided some funding for such activities, that the Multilateral Fund should provide appropriate additional funding for this purpose.

Annex 2: Interviews

A series of country studies were conducted through a mixture of email and phone contacts and personal interviews in-country, as per the terms of reference for the study. Countries and interviewees were chosen to represent the full range of exporting, importing and trans-shipping activities and to gather a range of opinions from Article 5 and non-Article 5 Parties. A degree of flexibility around the original country list detailed in the initial proposal was agreed, due to the significantly shortened length of study period

Key individuals contacted included National Ozone Unit personnel, customs officials and other government officers responsible for monitoring cross-border movements of goods, and also employees of the companies and distributors producing and shipping ODS. Interviews took place both during dedicated country visits and at a range of customs and ozone officer training workshops; questionnaires were offered to all participants at these meetings. In some cases efforts were made to engage countries, but participation was declined..

The remainder of this annex contains concise summaries of each interview, together with the dates on which the interviews were conducted.

Antigua & Barbuda

Corah Charmaine Hackett, Assistant Ozone Officer (28 April 2006)

Antigua and Barbuda acts as a type of regional hub for the ODS trade in the Caribbean and exports ODS to most other countries in the region: St. Kitts, St. Vincent, St. Lucia, Dominica, Grenada, Trinidad and Tobago. They receive their ODS exclusively from Mexico.

Existing ODS licensing system: Each importer receives a quota. Each year this quota decreases. Customs receives information on what each importer is allowed. The NOU cross-checks their numbers with the numbers that Customs has recorded for imports. Customs tracks the ODS as it comes in and checks how each license holder's ODS is adding up to be sure they are not exceeding their quota. They report on a yearly basis to the NOU.

Current difficulties: The NOU noted that labelling is a 'real concern.' They have had cases where Customs does not understand what is on the import form. A 'list of names of [approved] alternative substances would be very useful.' She felt that it is very hard to tell by looking at a material if it is an approved alternative or not. It would be much better to have a list to refer to. She said that 'the Secretariat would be a good repository to rely on for us to get that information.'

Data analysis and cross-checking: When asked about prior notification, she stated '[I] don't think that would be a burden' especially because there is only one exporter. The idea of Antigua & Barbuda becoming a central repository for the region was discussed during the meeting because Antigua & Barbuda is the main distribution/export centre for the Caribbean. She noted that she 'feels the responsibility should rest with the NOUs' [to track ODS] and that good tracking comes from good relationships with stakeholders. It might be fine for the Secretariat to have some of this responsibility and some responsibility at the country level. When asked about any potential problems with sharing company information with the Secretariat, she said that 'in the case of Antigua, I do not think [sharing company data] would be a problem.' She noted that an Internet system for centralising import and

export data would be fine, but that all avenues should be available, that it should not be limited to one specific system and that it should cover 'all Montreal Protocol chemicals.'

Licensing, prior notification, other measures: The NOU liked the idea of a certificate of authenticity of some sort for ODS. She said that tracking individual shipments with a certificate system of some sort sounded good but noted that 'whether there is capacity to do that needs to be determined.' When asked about whether they have the capacity to monitor trans-shipment, or in her case, re-export, she said 'that is correct.'

Argentina

Environment and Sustainable Development Secretariat, National Ozone Unit: Laura Beron, NOO, Juan Miguel Alter, Licensing System Manager (17 July 2006)

The licensing system covers imports and exports of all ODS controlled under the Montreal Protocol, including new, used, and mixed material. The licenses are issued on a per-shipment basis. It is mandatory to have an ODS import/export license before customs authorises a release of a shipment of ODS. The licenses are valid for one shipment only and have a period of validity of 20 days.

Importers and exporters are required to register before receiving quotas. For import licenses for ODS under a phase-out schedule (such as Annex A Group I) the importer must either obtain a quota or can apply for imports under a special procedure for 'new or contingent' importers, which acts as a safety valve for unforeseen needs by industry. This category of importers has a limit quantity that is lower than the lowest quota assigned to the historical importers.

The following information is required to be supplied by the requester in order to receive a license:

- First, the requester must be registered with the NOU
- Country of origin
- Exporting country – different than the information Customs has, which is just country of export
- Value in USD
- Shipment by air, land or sea
- Final intended use
- Where it will be housed until it is picked up
- Estimated pick-up date
- Signature – verifying that the information is correct

Argentina has established the maximum import quantity of each group of ODS until 2010, and the amounts are distributed amongst the users. 90% of the total is for quotas given to companies, 4% for new importers and unforeseen needs, 1% for emergencies, and 5% for a safety margin.

All licensing system procedures are computerised. The interaction among users is made via internet and e-mail notifications. Customs, industry and NOU users have passwords to access registration and

licenses data. The system also has special features to manage critical uses (in the future), QPS and risk profiles.

The system is run by a single 'super-user' in the NOU who has access to all levels of the web-based interface and can change content and passwords as necessary. Other users are restricted to a particular interface: for customs, companies, and NOU officials. After a company requests an import or export license, the NOU has committed to replying within 15 days. Companies are required to pre-designate individuals to pick-up the permits at the environment ministry in Buenos Aires once they are issued.

As a result of including all ODS on a per-shipment basis, the system is able to produce extremely detailed, real-time data, e.g. number of shipments to date to a particular country/importer. The system is also designed to achieve 'information closure', meaning that once permits are issued, it requires confirmation as to how they were used. If an import permit is not used within 30 days, the system alerts the NOU.

Its system has received high marks from industry: the producer and two main importers all stated in interviews that there were minimal added costs for them as a result of the system and that they were satisfied with the turnover of permit requests.

Customs, Chemicals Section: Marcelo Martín Castro, Chief; Alejandro Montesano, Supervisor (18 July 2006)

When a license arrives they check to see that the merchandise they received matches the license. When ODS arrives, the Customs authority asks for the Environment Secretariat license. The owner of the merchandise must have a license number in order to realise the customs documentation. They see only 'orange' and 'red' merchandise at this Customs point (there is also a green channel, but ODS are subject to the orange or red channels). These represent risk categories: the red channel requires physical inspections and the orange channel requires only checking paperwork.

For ODS, they can check the licensing system to see the status of licenses for the ODS that they have. They cross-check the license information (weight, package quantity and etc.) to ensure that it is the material that they have received.

A few months ago they discovered merchandise with ODS that was not declared. The label said fluorine compounds, but they discovered that it was a ClFl compound (the label said this) and there was no license for it. The origin was China. The problem was that a company was trying to import ODS without a license. The company subsequently registered with the NOU and can now apply for and ODS license. This incident shows that the system works. The penalty is the same as the value of the shipment in this case.

If there is any discrepancy between the merchandise and the information on the license, the importer will need to get a new license. If they check the license and it is of a different origin than is declared, then they need to do a new license. This Customs unit can only see the license and registration modules of the tracking system.

There were no difficulties when the system started. The interviewees said, it was 'Not very difficult to implement, no trouble.' There was a short introductory training course on how to use the system. Compared to other systems, the Division Chief said he, 'likes it very much … We feel sure about it … very fond of the system.'

Division of Non-Economic Prohibitions, Customs Investigations/Research Division (18 July 2006)

This division deals with confidential information and conducts investigations and research. They use the licensing systems to verify licenses and have access to the registration and license modules of the system.

Depending on how the investigation proceeds, they might issue an alert. They investigate alternative routes for illegal trade. Environmental alerts are incorporated into their system and they can ask Customs officials to look at a specific HS code. They can issue a physical inspection alert to verify the chemical. They cannot give specific examples (the work is confidential), but they do look to see if ODS are being mislabelled as other chemicals.

The licensing system is helpful because they know when to expect ODS to arrive. They can check to see if the person who presented the license is certified and check the system to verify matches. They can go to the address where it says the material is being stored to check that it has been processed. With the ODS system, they can easily see registration, which is not the same as the CITES system. They have to write letters to request this information from the appropriate department for the CITES system, which is very time-consuming. The ODS system is the best system in Argentina. The Basel people may copy or adopt the same system.

It would be helpful to have a list of countries and which ODS they produce and a list of their registered users. It would also be useful to have examples of illegal trade and the methodologies used. A good example of international cooperation is a sensitive products group and matters called the 'Australian Group.' They deal with chemical and biological weapons. If one country denies a permit to another country, they notify the other country. This is not a legal agreement, just cooperation.

In terms of their methodology, they look for routes that are not convenient from an economic point of view or vessels that change their flagship many times and say they are carrying goods when it would not be economical where they are to be carrying those goods.

DuPont: Alberto A Cichero, Manager for Fluoroproducts (19 July 2006)

Labelling: One idea to improve labelling and tracking is to use the DuPont Genetron label with the origin added. The number on top of the ducts (the valves on top of the cylinders) starts with the first letter of the producer. Because of internal bureaucracy it can be different to change labelling, but the interviewee noted that, 'Legal requirements help us' get things done.

He said that they do use packaging to help identify their products. They import CFC ducts from Washington and have strict control of inventory. If some people decided to use other ducts, they would know. From their point of view, they have strict control over their inventory. The ducts from Washington that they buy have an ID on top of the cylinder that starts with 'W' for Washington and an 'A' for those from Antwerp. They stress to technicians to look for this number. This number just identifies the type of product and is not sequential or unique for each cylinder. It would be difficult to do this with the quantity of ducts.

Licensing system and sharing information globally: He said that the licensing system in Argentina 'runs well' and that they 'don't perceive any need for improvement.' With respect to sharing information internationally, he noted that at a meeting in Caracas earlier in the year, DuPont offered to

share market intelligence to improve the oversight of trade. He said they 'Will continue to work with them on things we think we can contribute.' He said that 'for sure information from others would help us understand, detect and alert people' and that 'Something is needed to centralise the information'. He noted that 'Our contribution should be to send a message to people and alert them.'

Giacomino (one of the largest ODS importers in Argentina): Francisco Celano, Sales Manager (19 July 2006)

Licensing system: Giacomino has been in the ODS market for fifty years and is the second largest importer in terms of quantity, third in terms of quota, behind FIASA and DuPont. He felt that the licensing system was 'very good' and using it has been 'no problem.'

Labelling: Suggestions for improving labelling included different paint colours for tanks to indicate the contents, having the importer destination on the canisters, as well as 'made in' and the producer name. He noted that R-22 and R-12 have different pressures; R-22 is twice that of R-12. Therefore, they can be weighed to discern the contents. This is helpful for cylinders. For isotanks, unless there is a built-in pressure gauge, it is difficult.

To maintain the integrity of the ODS after distribution, he suggested that stickers containing the invoice and import number should accompany the product. He has to do this for Customs. He did not believe that it would be expensive for his business if there were more labelling requirements.

International ODS tracking system: He noted that free trade zones are a problem and need special inspections and controls. He has heard that some companies are shipping to Uruguay and then change R-12 packaging to say R-22 in order pay less taxes. (The NOU later added that since January 2005, when the licensing system started to operate, no imports of HCFC-22 were registered from Uruguay or any other free trade zone in that country.) He has also seen material without labelling. An international system to address these problems would be fine and 'no problem for us' because they have 'nothing to hide.'

Frío Industrias Argentinas S.A. (FIASA): Marcelo Javier Silva, Technical Director (19 July 2006)

Licensing system: His experience with the licensing system is that it works 'fairly well' and is 'relatively straightforward.' He noted that sometimes there is a slight delay in obtaining a license, but this is never a problem and it is never more than a week.

Labelling and tracking: They buy 'Amtron' brand cylinders from Antwerp. He noted that DOT 39 (US Department of Transportation) regulations could be an opportunity to control the movement/track ODS. Generally, these requirements say that they cannot use any pressurised cylinder without meeting specific DOT transport regulations.

FIASA is in the process of implementing the ISO9000 quality assurance system. When each cylinder is filled, they mark the carton and the cylinders with a number that correlates with the date it was filled (for the 13.6 cylinders). It tells them the day the cylinder was filled, but not much else about the product. They are planning to implement a better traceability system to meet the ISO standards and he noted that he 'thinks [traceability] is important.' The interviewee explained that in the US all empty cylinders are recovered, but that getting clients to return empty cylinders is complicated.

International cooperation: It was noted that it 'could be useful' to have Montreal Protocol support and that it would be useful to learn how competitors trace. The interviewee felt it was a good idea for legitimate producers to get together to talk and work together 'to counteract the lack of certainty' and 'implement controls to avoid smuggled products or other problems.' He also said that it would be 'good to have better quality assurance on imports, better labelling and tracking [of]cylinders and fulfilment of export requirements by producers.' He would 'strongly welcome [this] kind of system to interchange information,' noting that Customs names should be kept out because of competitors. This would be 'very convenient for producers in the region … welcome by most producers.' With respect to international cooperation, he said: 'For us OK … yes, I think this wouldn't be a problem … help from an international organisation could be very important.'

Bahamas

National Ozone Unit: Rochelle Newbold, Senior Ozone Officer; Ryan S. Perpal, Assistant Ozone Officer, Bahamas Environment, Science and Technology Commission (27 April 2006)

The NOU is advised before a shipment arrives. To avoid going over their quota they get a pro-forma invoice. He recommends this. They are attempting to set up a shared database with Customs to be able to access certain data fields relating to ODS and if any red flags arise, they can call us as well by phone and we can advise on how to proceed. They would have the ability to track this from an office (electronically).

They import from the US and Europe. When they get data from the retailers, we cross-check it with suppliers. The NOU cross-checks with the importer has sent and this is cross-checked with suppliers from exporting countries (including contact information).

As Customs revamps its system, they will have a system where Customs checks ODS in and then it is red-flagged so the NOU can get the data and verify the shipment. But may not flag anything other than CFC-12. Export data from other countries to the Bahamas to verify 'would be most helpful to us.' Before the shipment would be better because they 'prefer to know in advance.' An export clearance system 'would be a great process' and would be 'useful to us to ensure compliance all around.' An international licensing system would be 'another level of bureaucratic regulation.' It would be hard for private firms: we would like it, but it would be politically difficult.

Caribbean Customs Law Enforcement Council (CCLEC)

Merton Moore, Joint Intelligence Officer (27 April 2006)

The Customs Regional Intelligence Liaison Office (RILO) ILO is housed in CCLEC for the Caribbean region. The World Customs Organisation (WCO) and CCLEC agreed that CCLEC would be responsible for RILO in this region and report to WCO two or three times per year. They set up a joint intelligence office – a central enforcement network with CCLEC at the hub. An Intelligence Liaison Officer (ILO) was appointed for the region who is supposed to ensure enforcement matters (usually seizures). New matters of interest of an enforcement nature are reported to the central enforcement network in CCLEC immediately. So far this has principally involved drugs and firearms. Up to this point, it has not included ODS.

CCLEC is somewhat linked up with the WCO central enforcement network which informs the administrator in the region as needs arrive locally. For example, if WCO finds a new method for how cocaine is shipped, they use the network to put this out.

As a CCLEC officer, he collects information, analyses and it and disseminates it. CCLEC has developed a journal in which such things (seizures and methods) are published. This journal comes out about twice per year.

It would be good to have NOUs work with Enforcement Liaison Officers (ELOs) or to have some sort of automatic reporting system. More sensitisation and training of Customs officers is also needed.

CCLEC provides reports to WCO and then WCO decides if it gets into the RILO database. When asked if this is just an information gathering function or if it also in real time, he said 'yes of course.' CCLEC 'there is that facility for real-time monitoring of things.'

CCLEC is part of the Green Customs Initiative. CITES is also not attracting a lot of attention because there has been little training. There is 'really a lot of need to sensitise ELOs in the region.'

An MOU has been signed between CCLEC and each of the countries, but not among the countries. ELOs are basically on duty at all times and have a list of all other ELOs in order to contact them. He made the recommendation to assign a specific officer/person in each country [for ODS]. These could be ELOs, the controller should decide. He also said 'Customs must report to NOU … they should work together … not only real-time, but also quarterly reports.' He recommended 'a network of three points': NOU, Customs and CCLEC.

China

NOU: Ms. Zhou Xiaofang, Senior Project Officer, Project Management Division III, SEPA (19 May 2006)

Existing licensing system: There are five licensed exporters of ODS in China, compared to thirteen last year. The licensed exporters are all producers and China no longer issues export licenses to dealers. New businesses wishing to qualify for a license would have to provide a business history for consideration. Licenses are on a per-shipment basis. The licenses require information including destination port name and company name. One of the five registered companies, Zhejiang Juhua Co Ltd., labels its ODS with company name details, and uses a special tamper-proof identifying cap. Licenses are issued if the proposed contract seems 'reasonable' and exporters are mandated to provide evidence that their trading partner company is legally able to accept the import from China. Licenses are valid for nine months, so SEPA will not know when the shipment actually leaves.

Examples of voluntary efforts to track/control ODS trade: China has agreed with Indonesia to only allow their exporters to ship to their one registered company. This may be a problem, but they are certain that they will only allow exports to this one Indonesian company.

China has been asked by Singapore to request PIC from Singapore before exporting but finds this unnecessary. It is China's responsibility to ensure that their exports are from registered producers, and Singapore's responsibility to ensure that their imports come from registered importers. If countries adhere to their domestic legislation and licensing systems, there should not be a problem.

Confidentiality issues: China has a 'new law' preventing them from publishing the names of importers and exporters.

Transit trade: Should be stopped, unless necessary for practical reasons. Re-export should not be allowed, because they are making profit where the original exporter could have (if it had traded with the primary exporter).

Suggestions for tracking trade in ODS: The emphasis should be on the importer to ensure that the trade is legal and does not put them in non-compliance. Capacity-building of developing countries is very important, as is useful information and intelligence. Importing countries should monitor their imports, and punish smuggling offenders severely. PIC is too complicated, and would be no use if India refused to subscribe. Creating a system to track trade in CFCs, that will disappear in a few years, seems a waste of time, but HCFCs and methyl bromide should be considered seriously and separately from CFCs. In China R134a demand outstrips supply so illegal trade in this gas could be a problem in future.

Colombia

Ministry of Environment: Nidia Pabon, Coordinador Sectorial (17 August 2006)

Comments on current licensing system: The current system was implemented in 2003, although quotas for CFCs were required in 2001. An export licence for each shipment is required, but this can contain include more than one chemical.

Previous experience of illegal trade: There have been many recent examples of illegal trade in Colombia and seizures of illegally imported ODS.

Examples of voluntary efforts to track/control ODS trade: Checking of shipments declared as CFCs are based on paperwork. However shipments declared as HCFC and HFC all are inspected and tested with a portable detector. In each container 2–3 cylinders are examined and tested.

Currently there is no cross checking with trading countries prior to trading, although it was felt that it would be a very useful procedure.

Transit trade: There is minimal legal transit in Colombia (some small quantities to Ecuador, Venezuela).

Suggestions for tracking trade in ODS: A system of cross-checking should be implemented, and be obligatory as is required under Basel. it was felt that if an informal voluntary system were adopted counties may not bother to exchange information so even if informal initially, it would ultimately be better to have an obligatory system. An electronic system is preferred as it is considered more secure

Providing detailed data to the Secretariat could be a problem due to the confidentiality laws in Colombia.

European Union

European Commission (DG Environment): Laurence Graff, Deputy Head of Unit, Unit C4; Peter Horrocks, Policy Officer, Industrial Emissions and Protection of the Ozone Layer; Kalina Lewanska, Assistant Policy Officer; Philippe Tulkens, Unit C4; Marcus Wandinger, Detached National Expert, Unit C4 (23 June 2006)

EU licensing system: The bulk of the interview was concerned with discussing the EU database and licensing system in detail (see box in Section 2.4).

Banning disposables: A ban on the use of disposables was recommended. It was felt that this may be something that the private sector in Europe could consider undertaking on a voluntary basis.

Sanctions: The lack of sanctions on companies that do not completely and correctly report their operations, or on governments that do not comply with reporting requirements or report incorrect data was seen as a significant weakness in the current system.

PIC: The potential of the PIC system was recognised, but it was felt that it could only work with an effective licensing scheme. Potential time delays to legitimate operators were also seen as a barrier to establishing PIC globally.

Arkema: Nick Campbell, Environmental Affairs, Fluorochemicals Division (21 June 2006)

System data: Modern processing machinery produces automated data on use of feedstock volume, output, efficiencies and conversion factors. This information is difficult to falsify, but considered commercially confidential.

Reporting burdens on legitimate companies: Legitimate producers can request smaller regional distributors not to sell on into illegal markets, but if the latter chose to, it is not the legal responsibility of the producer. Increasing administrative burdens on large producers is unfair and won't solve problems further down the supply chain. Of Arkema's supply, approximately 10 per cent is thought to go to independent traders with 90 per cent direct to Arkema agents.

Cylinders: Disposables are necessary to service the demand of smaller states; banning them will not stop illegal operators either using them illegally or, more likely, using returnable cylinders without returning them. Labelling individual cylinders was not considered a significant cost compared to the value of the products.

Blacklisting: Blacklisting companies was felt to be a bad idea. Illegitimate companies are likely to find it easy to change company names while larger recognised companies would not do this, but may be penalised for relatively small accidents.

Limits to commercial cooperation – EU Competition Directive: The possibility of cooperation among producers in the EU was thought to run the risk of contravening the EU Competition Directive, which prohibits the discussion of a range of commercial information including elements of prices, supply chains and end markets.

Licensing system: Differences between national licensing systems was seen as a significant weakness in the effort to control the international trade in ODS. The EU licensing system was considered to be

efficient and meet the requirements of the current Protocol. It was recommended that it be implemented as a global system.

Reconciliation: Reconciliation of data across the system is central to the efficient control of any system. This cannot practically be undertaken on a bilateral basis or in real time.

Prior informed consent: An experiment with an informal PIC system by producers was ineffective and provided no more control than that established by the EU licensing system. Efforts to contact NOUs in consumer countries were generally unsuccessful. It was felt that NOUs were generally understaffed and poorly-resourced considering the requirements of the MP.

HCFCs: The trade in CFCs is relatively understood and controlled. The trade in HCFCs, less so. Developing a system that incorporates the latter more effectively is more important currently.

India

NOU: Mr. Srinivas Ravindra, Project Co-ordinator, Project Management Unit (PMU) Ozone Cell, Ministry of Environment and Forests, Government of India (18 May and 3 August 2006)

Current licensing system: Annual bulk license. Applications go to Director-General of foreign trade, Ministry of Commerce. Every quarter the producers file their returns – listing the quantities of ODS exported. Customs also keeps records of each shipment exported and this is communicated to the NOU but this process takes too long and so is not timely for highlighting import/export discrepancies. NOU uses the producers' records and the customs reports to ensure that the amounts do not exceed the bulk quota by the end of the year.

Comments on current licensing system: CTC is the only ODS imported. Four producers are the only registered exporters which makes it easy for NOU and customs to keep records of licenses and shipments. Industry would resist moves to make the licensing shipment per-shipment. There would be confidentiality issues over sharing the details of their trading partner.

Previous experience of illegal trade: Problems with smuggling over land borders from Pakistan, Nepal and Bangladesh as these countries did not have a licensing system. Re-import of Indian-produced ODS to supply illegal market that is trying to avoid the high domestic sale prices of Indian-produced ODS. He believes that bilateral talks between India and these countries has stopped this land-based smuggling. He believes that approximately 2 metric tonnes of ODS are seized in India each year, and that illegal trade is now predominantly coming from the Middle East and Africa, since many seizures are made in Mumbai.

Examples of voluntary efforts to track/control ODS trade: Singapore called Indian NOU regarding a CFC export being sent to an Indian importer. India informed Singapore that India does not license any importers for CFCs and Singapore duly prevented export of the shipment.

India and Thailand have exchanged information on their registered importers and exporters. The system is voluntary and working well.

Transit trade: Increased pressure should be put on transit trade countries to encourage them to steer away from transit trade. Singapore is already doing this, he feels that Dubai should receive more

attention. Since transit trade often involves a big aspect of illegal trade it is actually not in the interests of transit countries to allow this to go on, because they lose revenue.

Suggestions for tracking trade in ODS: To prevent illegal trade requires a good intelligence network. Informal information networks are largely dependent on the people involved and how committed they are. A formal system would difficult to get consensus support for at the MOP. Therefore he favoured an informal system to deal with, for example, just CFCs at this stage. For short-term controls on illegal trade it would be better to strengthen the role of agencies such as UNEP – as soon as governments and laws get involved it becomes much more difficult to get anything done quickly. However, in the longer term it may be better to go for the more formal government-stamped option.

Customs: Sanjeev Sachdeeva, Additional Director, India Department of Revenue and Intelligence, Customs, Calcutta (2 August 2006)

Current licensing system: Each shipment exported is recorded by customs and the details communicated to the NOU on an almost real-time basis. They are in the process of improving this system now.

Examples of voluntary efforts to track/control ODS trade/experience of illegal trade: ODS from China always come through Nepal and Bangladesh. The people in the border areas are not sensitised to environmental crimes, and there is a often a lack of knowledge that any wrongdoing is occurring. The Bangladesh–India border is riverine in many parts, and the populations from both sides of the border intermingle and are indistinguishable The DRI seized 160 cylinders of CFC (turned out on inspection to be HCFCs) on Sunday 30th July, they were picked up because they were disposables and India does not permit disposables. They came across the border by boat, and were being driven in a truck from the Bangladesh border and intercepted in India en route to Calcutta. Smuggling on the Nepal border is greatly reduced these days, principally, it is thought, due to Maoist activities. Much of the problem in Bangladesh comes from the fact that their baseline consumption is far higher than real consumption needs, creating a surfeit of ODS free to be sold into India.

Transit trade: Transit ports should be encouraged to impose stricter restrictions on ODS during transit.

Suggestions for tracking trade in ODS: PIC is a good idea from an enforcement point of view but the Indian industry lobby would oppose it. Information exchange (i.e., aggregate import/export data by country) could take place between countries on a quarterly (retrospective) basis to compare shipments and highlight where discrepancies have occurred to allow enforcement authorities to focus attentions on these areas in future. He feels that if a tracking system were to be introduced an electronic system would be best; Nepal and Bangladesh both have paper-based systems which leaves many more loopholes open for illegal trade.

Industry: Suresh Wadwha, speaking on behalf of REGMA (Indian industry coalition) (31 July, 2006)

Current licensing system: Licenses are required for CFCs and all ODS. Companies report their export data to the licensing agency on a quarterly basis, and apply for a bulk license annually. Most exporters in India pre-check prior to export that the foreign company requesting the import has an import quota; this is largely to protect them from loss of trade and wasting time on no sales.

Chemicals produced by Indian companies have the company name stamped on them, along with a unique per-cylinder serial number (which is stamped by the cylinder manufacturer). Cylinders may also have a partial address for the company. Cylinders also carry the HS code of the contents, plus the ASHRAE number, and any safety/hazard information required by law (on an MSDS (material safety data sheet)). He cannot estimate the cost of labelling the cylinders with this information but believes that there is not much difference in cost between neutral and branded packaging.

Disposables versus refillables – could India switch to rerefillables only? It is not practical to use only reusables internationally as the cost and speed of returning cylinders would make it prohibitive, and also reduce the number of re-uses per year.

Suggestions for improvement of current system: The current situation could be improved by exports only being allowed to importers, not 'middle-men' as this allows more opportunity for diversions and illegal trade. Also thinks that neutral packaging should be avoided, and that the percentage content of gases in blends should be stated clearly on the cylinder. He noted that China sells blends of R-12 that contain a tiny fraction of R-12, and that some producer/traders offer the option to have cylinders labelled as R-12 so that they can sell it for more, and there are no controls to stop this mislabelling (which is obviously bad for legitimate exporters as their products get undercut).

Transit trade: It is not practical to imagine that all companies in all countries have trade access to each other, and transit trade is a way of ensuring that companies a long way from each other with no knowledge of each other's existence could still trade commodities. It is quite a crucial part of international trade, and trying to remove it may also have WTO implications.

Suggestions for tracking trade in ODS: Single-shipment licenses would be very cumbersome for industry and would remove the trade flexibility of the producers. They would fear ending up in a situation whereby red tape slowed the trade process down to the point where they could not get licenses to match their export quota, and therefore lost sales and revenue.

Confidentiality is also a big issue for Indian producers. Even if the data was being shared with third Parties who were supposedly secure there would still be the possibility of leaking which would compromise company's positions in the global market.

Any new system introduced should be simple and not consist of many stringent mandatory requirements (which will get rejected by countries' DTIs). India supported the MOP's 1995 revised decision which called for voluntary cross-checking between exporters and importers. This would be a very useful system but no one implements it.

Jamaica

Nicol Walker: Manager, National Ozone Unit (28 April 2006)

Existing licensing system: The licensing system in Jamaica is just for CFCs. The licensing quota is regulated by the Trade Board and the Ministry of Health. They make sure that importers stay within the quota system. Customs checks to make sure they are within their quota.

International cooperation: A central place that lists all of the approved alternatives would be helpful because some of the new alternative refrigerants have names that sound a lot like the CFCs. She noted:

'Illegal trade being carried out under alternatives – that is my concern.' A labelling system would be helpful because there is no manual she can turn to to see what alternatives are OK. 'How can I be 100% sure it is what it says it is?'

She thought that it would be good to have a central database of imports and exports at the regional level – i.e. ROLAC office. The ROLAC office could then report to an international database. An international license for individual systems she stated, 'sounds great, but harmonisation is very difficult even at [the] regional level.' She talked quite a bit about how hard it can be to find the right MSDS for chemicals because of a lack of harmonisation.

Japan

Ministry of Economy, Trade and Industry (METI) (Ozone Layer Protection Policy Office): Ms. Hiromi Umeda (5 July 2006)

Current licensing system: Japan has an import quota system, with licenses valid for one year. Export licenses are for every shipment because they need to check that the importing country is a party to the Protocol. It is not mandatory to implement PIC for Japanese exports. There are three companies in Japan producing HCFCs and two producing methyl bromide for critical-use exemptions. HCFC producing companies also have traders, who also need licenses to export. Some companies produce blends and carry out repackaging. There are many exporters overall, because many blend companies export their own products. At the end of the year the importing companies have to provide an account of imports over the whole year to METI, to make sure it doesn't exceed their annual quota.

Customs always check the licenses of trade actually carried out. Japan has very good communications between customs and METI. METI has access to customs data via their customs database, which is public access. It does not contain information on individual shipments. METI does not have any need to check the customs data regarding individual shipments, because it is the task of customs. Some importing countries ask Japan for information on the shipment after it has gone, to cross-check for data reporting to the Secretariat. Japan is happy to give the information on the volume of export in answer to these requests.

Suggestions for tracking trade in ODS: To instigate a mandatory PIC system in the Montreal Protocol – as is the case with the Basel Convention – would be very difficult to implement because it would takes a long time to verify the permission – they would have to ask the Ministry of Foreign Affairs, who would ask the government of other country, who would ask their NOU. This process would be likely to impede trade. There is a fundamental difference between PIC and Montreal Protocol; PIC is a trade procedure, whereas the Montreal Protocol is designed for the phase-out of production and consumption of ODS. If the Montreal Protocol wishes to adopt a tracking system, the Protocol would need to be amended because it is not currently set in the requirements of the Protocol; this would be complicated. Japan thinks that a licensing system is the basic requirement for controlling trade, and needs to be in place in all parties before tracking can occur successfully. If questioned bilaterally on whether a specific company is licensed, Japan is able to answer yes or no, but they couldn't provide a list of registered importers and exporters because this is confidential.

Mauritius

NOU: Yahyah Pathel, Divisional Environment Officer, Ministry of Environment (5 July 2006)

Current licensing system: There is a licensing system in Mauritius and they have ratified the Montreal Amendment. The system falls under Mauritius's dangerous chemical control act and permits are required per shipment. The NOU does not do any cross-checking, they leave this to customs, but personnel limitations often means that customs do not cross check either. Mauritius does not do any cross-checking with trading partner countries. When they have a request for an import PIC they ask the importing company to give the name of the company with which they intend to trade. Mauritius is developing a blacklist of Chinese companies known to have had involvement in illegal trade, which they share with customs.

Mauritius has five staff in its NOU (who also work on other environment protection control issues) and two or three staff in customs. It takes quite a lot of time and personnel to do the licensing per-shipment, this is one drawback with their current licensing system.

Transit trade/free-trade zones: Mauritius has no control over their transit trade. In 2005 they had around 50 tonnes of R22 brought into the country during transit but they don't know where it was exported to. They are not able to inspect transit shipments. Whilst they have not had any cases of illegal trade in ODS they believe it may be happening through the free trade zone. Since they have banned imports of CFCs to the country the value of CFC12 is twice the face value so there is quite an incentive for illegal trade by diversion through the FTZ. He thinks that FTZs are a probable cause of illegal trade of CFCs worldwide.

Suggestions for tracking ODS trade: Cross-checking of data already occurs between customs, importing companies, and the permit that the NOU gave out. Mauritius would be able to give information on their imports/export volumes and dates to the Secretariat but not the company names (which would have to remain confidential). A tracking system should focus on CFCs at present.

Mexico

DuPont: Ing. Ricardo Juarez H. – Exportation, Central America, South America, Caribbean Marketing Manager; Ing. Marco A. Calderon H. – Technical Support Manager; Gilda Sanchez – Assistant to Marco Calderon (25 July 2006)

Labelling and licensing systems: In 1995, DuPont closed down its CFC plant and there was a 90% reduction in CFC consumption by 2000. DuPont's remaining facilities (after the CFC plant closure) include tanks, trucks, distribution equipment, etc. They label lot numbers on canisters. They have a canister supplier. Once they receive the canisters, they fill them, put an identification number on them. They know their customers officers very well and where they are shipping to.

Container and box labelling characteristics:

Labels printed directly (no stickers)

- Cylinders from the US already with batch number
- They put on a white shrinkwrap seal and registered trademark in Spanish

- The lot number on the box is identical to the lot number on the canister
- Their trucks have ID numbers
- They use the SAP programme (see below) for tracking shipping.

DuPont sends reports every six months to the NOU on how much they export. Regarding the licensing system, the comments were: 'I think it's working well' 'I think in Mexico, issues are solved regarding licensing.' The ozone office 'controls very well' the licensing system. It is 'running very well in Mexico.'

Controlling and tracking ODS trade: The interviewees noted that, 'Mainly it's Customs' that needs to be involved to control the trade. He explained that we 'need to help them understand what the problem is.' Controlling the trade is important because 'competitors must play on [the] same track' – on a level playing field.

He also noted, 'I think it's important to have name of the producer' marked on the ODS and said 'one of the most important' things to have is the name of the produced on the 'container [cylinder, etc] and box.' They 'must have' this so that Customs and users can know/identify if the product is introduced into the country legally 'so can ask Agustin (the NOO) if it's legal.'

Internal tracking: DuPont's internal tracking system is called the SAP system. It is a database that can track where they ship, where they get the products from (Europe, US), etc.. They can match quotas against purchase numbers to cross-check the allowed tonnage. SAP is a system used mostly by huge companies with different modules for different purposes. It can be used for purchasing, production, maintenance, etc. It is software made by a private company. A lot of companies use it – General Motors, Dow, DuPont, etc.

Global tracking: A global system would 'work out,' but there 'need[s to be] a lot of discipline to put in the information.' The logistics manager said, 'Yes, I can see a huge database … so you can see what is going on in the world … everyone needs to be aligned … [but] someone needs to be the gatekeeper' for such a system. She noted also that 'governments [would] have to be quite involved … and of course suppliers, in this case us … in conjunction.'

Central Customs Lab, Mexico City: Ing. Enrique H. Jimenez Ramirez, Technical Administrator (25 July 2006)

Risk analysis is performed to determine which imports they should collect samples for to send for testing at this lab. About 10–15% of the samples are chemicals. They are testing the products for purposes of legality as well as for tax purposes, origin and etc. ODS is not very common, but sometimes small cans arrive for testing. They use a mass spectrometer to test ODS.

Mexico City Customs Centre: Ing. Enrique H. Jimenez Ramirez, Technical Administrator (26 July 2006)

This Customs point was visited as an example of Mexican customs procedures, although no hazardous materials, and therefore no ODS, are sent here. It is the customs point for goods that did not clear customs at a port or border point when first physically entering the country. Most goods arrive on train or by truck. They are sealed with a tamper-proof bond that has a number inside that matches the declaration and bill of lading.

The first step in the customs process is called the 'previous recognition' module. This is where goods are unloaded and the company or owner of the goods can check to see that the goods delivered match what they ordered and what they have declared. If there is a problem, they can send them back or make whatever changes might be needed. Customs authorities oversee this process. This is a large warehouse with drive-up areas for trucks and railcars.

The next step is called the 'first recognition module.' Trucks drive to a booth and present their paperwork (bill of lading, declarations, etc.) Based on a risk assessment that includes the company's history, the type of merchandise and other risk factors, the truck is then either finished or has to continue to more checks.

If a truck is sent to the next module, called the 'second recognition module,' they have to present their paperwork for inspection and must also undergo a physical inspection to check that the paperwork matches the content.

Quimobasicos: Julian Gonzalez Lasso, General Exportation Manager (26 July 2006)

Mr. Lasso gave a presentation on Quimobasicos, its history and current products, which was then followed by discussion of the questionnaire.

Illegal trade in the region: He noted that most of what he has seen of illegal trade involves Venezuela, the Caribbean and Colombia. For example, people in Mexico went to Guatemala to buy Quimobasicos product to re-import it to Mexico because the price was cheaper in Guatemala than Mexico. Quimobasicos dealt with this by stopping exports to Guatemala and El Salvador and by raising the price to neighbour countries.

Date reporting and exchange: With respect to reporting, he noted that, 'The records that the government is making for our production, export and domestic sales are best way and easiest way (to obtain and share import/export/production data) because you don't need extensive laws to implement this … producers are obliged to report annually and that is no problem.'

When asked about sharing import/export data, he explained that in Mexico there is a Customs database that contains who they exported to, how much and the price. He noted that the same type of databases exist in Brazil, Argentina and Chile. He said that, the 'database in customs is mostly accurate and it has all the information'.

The interviewee noted that if there was a requirement to share this information beyond Mexico: 'No, we don't have any problem, I think we are doing this already.' He suggested that 'All blends are under a generic tariff, so if they could break it down, like 404, 406, 409, whatever, then would be easier to track them as well.'

Labelling: With respect to labelling and tracking, he explained that the cylinder serial number is made by the cylinder manufacturer and that this information could be incorporated into the information that they keep if the cylinders had barcodes, noting that we are 'starting to code bar all packages now.' Then he would know what lot number (and thus chemical) is associated with each cylinder. He noted, 'I don't think it's practical' to track each cylinder, but added that 'if it is code bar, I have no problem, I just add it to my code bar'.

He explained that they decided on 'stencilled cylinders because lot number labels are easy to peel off' and cardboard boxes could be taken away. When asked if this worked, he responded positively and noted that it involved 'a little bit more labour' but was 'not a major issue.'

Quimobasicos used to let others re-package and blend their product, but 'not any more' for any chemicals. The used to allow this for the Middle East, but this ended last year.

At a regional meeting on illegal trade held in Mexico, the Quimobasicos representative recommended a third-party certification scheme for ODS – perhaps a certification of legality and/or origin. He suggested that this might work within the ISO certification schemes. He also noted the need for labelling requirements internationally.

Multilateral Fund

Senior Evaluation Officer of the Multilateral Fund: Mr. Ansgar Eussner (6 July 2006)

Transit trade: Hot-spot hubs for illegal trade are Singapore, Dubai and Nigeria. There are also transit problems, albeit on a smaller scale, in Latin America and the Caribbean.

Suggestions for tracking trade in ODS: SEAP region currently has the most advanced system for monitoring trade – any trade tracking effort should build on their experiences. Controlling imports is a more realistic goal than controlling exports.

Any system introduced to track/control ODS trade should be pragmatic. Start off with countries who are willing to contribute and who have licensing systems in place to do so. A focus on the hotspots like south-east Asia, the main producers (China, India and Atofina) and the (e.g.) top twenty largest importing countries/companies would be prudent. A first step might be and establish whether the main producers and consumers of ODS are willing to participate in a pilot project involving voluntary cross-checking of shipments. Any efforts should not be set on controlling 100%; it is better to introduce a system that will control 70% effectively than 100% but with no participants. The agreement on a tracking system does not need to be a big 'Decision', it may be better to offer an inclusive 'bottom-up' approach to ensure that the people who the system affects are happy with it. Make the system modest and inclusive, not obligatory.

Chemical priorities should be CFCs and CTC; methyl bromide (to a lesser extent) and then HCFCs. There is an emerging consensus that CTC is a problem, but we'd have difficulty separating feedstock from other trade. He suggests a pilot study with CFCs and CTC.

Training in customs is very important, at every level, and making sure that the training is ongoing. High-level customs representatives should communicate regularly with NOUs. Part of the problem is customs officers not entering in exact details of chemicals, just calling consignments 'refrigerants', even in developed countries (example in Boston). Technical tools are of course needed but first you have to have political agreements.

Costs: most countries are operating on a web-based system already so it shouldn't be a problem for them to introduce electronic cross-checking. There may be some legitimate confidentiality issues with companies. If directed to by the Parties, the Multilateral Fund could fund a project to facilitate implementation of a communication system to track trade (up to around $50,000).

Netherlands

Netherlands Ministry of Housing, Spatial Planning and the Environment (VROM): Dr Stefan L Hagens, Inspector, South West Region, Rotterdam; Marcel Stigter, Environmental Expert, DCMR Environmental Protection Agency (6 September 2006)

Comments on current licensing system: Methyl bromide is imported for QPS from Israel. HFCs are also imported. Exports are carried out in collaboration with the EC, a quota is granted each year and request for an Export Authorisation Number (EAN) number is sought from Brussels for each export.

There are very good communications between departments and ministries in the Netherlands. There is a formal agreement to facilitate communication on issues such as ODS, hazardous waste, heavy metals and fireworks. Customs data, although not directly available to the environment ministry, is provided on request.

Previous experience of illegal trade: The Dutch authorities have seen a number of ODS smuggling cases in the past (1990s). More recently, based on some anecdotal information there is a feeling that CFCs are still getting into Europe, particularly southern Europe. There is a concern that there may be exports from the Netherlands that are declared as heading to a particular destination outside the EU, but either arrives at a destination and then returns to another EU port and unloads the goods, or simply heads directly to an EU port despite declaring otherwise. It is felt that this is occurring particularly in eastern Europe.

It appears that as large quantities of CFC-reliant refrigerated containers are still used, the impression is that these are being re-filled and repaired. Whether this happens in the Netherlands or while these containers are in other countries is not known, but could potentially promote illegal imports of CFCs

Examples of voluntary efforts to track/control ODS trade: There is no formal mechanism in place to carry out cross-checking with trading countries. However this can be done informally and initiated by the officer in question. It was not felt that it would be a problem or significant additional burden if routine cross-checking was carried out prior to export of ODS, if all the relevant details of the contacts etc. in the trading countries were readily available.

Transit trade: Nine to ten million containers go through the Port of Rotterdam each year, about 1 or 2 per cent are searched. Goods declared as 'in transit' can be moved around between containers, and the containers can move between ports whilst still in transit.

If goods are in transit it is possible for inspectors from the environment ministry to inspect these. Such an inspection can be carried out in response to a request from the destination country. Inspectors who are responsible for enforcement of administrative legislation are always authorised to take samples (without specific intelligence). They can react if they discover that the contents of the shipment are not in accordance with the documents or the packaging, even when the goods are in transit. There are possibilities in subjects as trademark (false superscriptions), fraud (false description), transport and packaging of dangerous goods (incorrect toggle or tank). It is a matter of cooperation between the authorities. If the illegal goods are in transit and the description and the packaging are correct then they have no possibilities to intervene.

Suggestions for tracking trade in ODS: It was felt that a voluntary tracking system would be favoured. There may be some issues of confidentiality depending on the extent and detail of the information

which would be required to report to the Secretariat, however it was noted that much of the information that would be expected to be reported was already being sent to Brussels for the granting licences and Export Authorisation Number (EAN).

It was felt that as all ODS will eventually be phased-out the tracking system should cover all ODS.

Police (based in Port Expertise Centre), Rotterdam: C.M. (Kurt) Langeveld, Information Officer, National Police Agency, National Crime Squad; Henc C. van Twist, Information officer, Seaport Police (6 September 2006)

An interesting component in tackling smuggling in the Netherlands is the initiative of setting up a 'Port Expertise Centre' at Rotterdam. This has been operating for four years to facilitate the sharing of information. It includes representatives from Customs, Fiscal Intelligence and Investigation Service/Economic Investigation Service, Social Security Information and Investigation Service, Royal Military Constabulary, National Investigation Service and the Sea Port Police.

The success of the centre in based on having good contact between partners and on the free exchange of information and intelligence. This is initially at an informal level and then information exchange can be formal as required.

Customs, Rotterdam: Martin Vierbergen, Technical Coordinator; A. R. van Weijen (6 September 2006)

Comments on current licensing system: An Export Authorisation Number (EAN) number is required for exports. An export permit is required for CFCs and HCFCs.

Examples of voluntary efforts to track/control ODS trade: Customs does not communicate with the destination country. There is no checking that the goods exported reach their destination, other than rudimentary checking that goods declared as going to a particular country leave on ship en route to that country.

Transit trade: For transit trade no licences are required, as under EU regulations only import and export is under permit. This contrasts to endangered species or nuclear material where a licence is required for goods in transit.

There is a general policy to facilitate trade and not carry out routine inspections of goods in transit. At present the policy in Rotterdam is not to inspect goods in transit. Customs however can act in specific circumstances were there is definite suspicion that illegal goods are in transit. NB Inspectors from the environment ministry are able to inspect goods in transit.

Suggestions for tracking trade in ODS: Electronic system is favoured as this would facilitate efficient checking and comparison of licences and other paperwork.

It was felt that as far as the producers and traders were concerned a tracking system would not provide such a burden for those companies operating legally and wanting to continue to trade legally. A successful tracking system could assist these traders by identifying removing illegal activities which could undermine their legitimate trade.

It was suggested that rather than a *prior* informed consent system there could be a *post* shipment check carried out by the trading partners. This would mean that trade would not potentially be held up by delays in responding to requests, and it could occur on an individual shipment level. Checking would be carried out by the exporting country which would receive a copy of the importing country's import licence (or relevant details) as well as confirmation that the goods were received. This would then be compared to the export documents and if any discrepancy was evident this could be followed up by the relevant authorities.

It was felt that the issue of confidentiality of data supplied to the Ozone Secretariat would not be a problem if the data submitted remained confidential between the countries involved in the trade and the Secretariat

St. Kitts

June Hughes, NOU (26 April 2006)

Licensing system: The NOU issues the licenses and Customs receives a copy. They obtain the aggregate data from their national statistics department. Permits are on a per-shipment basis. Each company or individual is licensed. There is an annual quota, but this only applies to CFCs.

International cooperation: She would like to see a system similar to Basel, where the shipping country notifies the destination country to expect a shipment in a specified amount, 'so we know what leaves the country arrives in our port.' A barcode system would be expensive. However, she noted that 'most goods that are produced have a barcode on it' and that 'there are precedents' and they 'just need to apply it to CFCs.' She felt that an international license 'could work,' but there would probably have to be a 'backstopping system to go with it.'

St. Lucia

Donnalyn Charles, Sustainable Development and Environment Officer (26 April 2006)

Customs does not prioritise ODS. The trainers change a lot and Customs has high turnover. They depend on the NOU to do the training even though they have been through the train-the-trainers programme. Improvements are needed in communications/link with Customs. Biannual meetings with them would be helpful. Maybe an MOU would be helpful. She has the idea of Customs and other agencies signing a 'Declaration of Commitment to Ozone Layer Protection' or something like that for World Ozone Day and to make it very public.

There is supposed to be an electronic system with Customs where a red flag is raised if Customs gets a shipment for ODS or ODS-containing equipment. Then the NOU can check it out. 'It's necessary for all refrigerants.' Antigua sends a list of all ODS they export to St. Lucia once a year. St Lucia cross-checks this with what is reported in their own system. Antigua can export to whoever they want (even if the recipient is not a registered/licensed user). It is up to St. Lucia customs to regulate. They do not have this arrangement with any other country. It would be helpful if all exporting countries sent their export data to all countries that they export to so that the importing countries can cross-check this with their own data. It should include: type of ODS, to whom, date and quantity.

Cross-checking imports and exports would be of 'very high value' but only if before shipped. It would be problematic if this was done after the shipment left the exporter's port. By official email would be good followed by a phone call or by fax followed by a call. Follow-up should always happen with a call. It should include the name of the vessel, the type of chemical, quantity. Don't need to know company names if this would be problematic. There is no time or money for a fancy barcode system or something like that. Email/electronic tracking is better. All e-mail should be backed up with a phone call or a fax. There must be a back-up system. If a fancy database system was adopted, there would need to be some training for the NOU. They might not be inclined to use it if it's overly complex. St. Lucia does everything electronically, so an e-system would be great. She felt that, 'Yes it would be useful' to report data to the Secretariat for checking and matching of global imports and exports.

She felt that any uniform licensing system needs to capture: quota, date expected to arrive, where from, type of ODS, quantity. It needs to be an uncomplicated form. Importers hate this. They should run a test in some countries with a global representation. It would be great to have a license that was recognisable to all NOOs all over the world. 'An electronic system would be super for us.' They would have to provide training on this and capacity-building and finance.

Singapore

NOU: Rohaya Saharom, Senior Engineer, Chemical Control Section (Pollution Control Department of the National Environment Agency (NEA)) (18 May, 2006)

Existing licensing system: Electronic, held under the Environmental Pollution Control Act. Licenses are granted on a yearly basis and requires licensed companies to inform government before they export every shipment. They also have to inform government after every import they have received. Cylinders must be correctly labelled with the contents but not (currently) company names. Record system is administered by customs, and checked by NEA for approval, who then let customs know whether the shipment is allowed. Before the shipment is cleared for export the NEA writes (by email) to the NOU of the proposed importing country to check that they are happy to receive the shipment. Since Singapore has no consumption, by the end of the year all companies will have exported exactly the same amount that they imported. This is a relatively new system, introduced after the Beijing workshop. Singapore would like countries importing to Singapore to request PIC, currently no one does.

Comments on current licensing system: Singapore has received numerous complaints from the trading companies. Some companies have changed businesses as a result. The government now warns new companies that the PIC is a requirement of the licensing system, and to be aware that there may be delays in the export clearance process.

Confidentiality issues: In Singapore it is mandatory for businesses to tell NEA/customs who their importing clients are. Singapore has no freedom of public information act, which gives companies extra confidence that their commercially sensitive information will not be leaked.

Transit trade and free trade zones: Singapore does not monitor transit trade of ODS or ODS coming through their free trade zones at all. They respond to tip-offs of suspicious illegal trade for hazardous waste (because under Basel transit trade is controlled), but she doesn't think they'd have any teeth to do the same for ODS because the Montreal Protocol doesn't stipulate controls over transit trade. They have a mechanism under Basel to try to prevent diversion of shipments in transit zones. They would

be able/willing to act on requests from other countries wanting to know the onward destination of a shipment that originated in their country.

Suggestions for tracking trade in ODS: A tracking system should give much more control over transit, and aim to stop diversion of shipments. Such a system should commence with stringent tracking controls for CFCs and halons only. If data were to be reported to a central or regional database real-time ongoing analysis would be very useful.

South Africa

NOU: Sam Manikela, NOU focal point Air Quality Management and Climate Change, Department of Environmental Affairs and Tourism (6 July 2006)

Existing licensing system: Current licensing system is part of the import and export control act, which has a specific schedule to control ODS trade. Licenses are issued on an annual basis and cross-checking between DTI Customs and the importers takes place at the end of the year. A new regulatory system is currently being put through Parliament and should be in place by mid-2007, this should ban imports of disposable cylinders. An MOU is currently being developed between customs and the NOU which should facilitate better communications.

Problems unique to South Africa: South Africa ceased production of ODS in 1984 so no longer exports to neighbouring countries, but several countries with land borders with South Africa continue to consume ODS. There is a free-trade agreement between southern African countries whereby landlocked neighbours may use South African seaports, including for ODS imports. Many of these countries have poor environmental crime enforcement and smuggling is rife. Additionally R-12 is selling at 4–5 times the face value in South Africa, so there is a huge incentive for illegal trade by diversion of consignments destined to neighbouring countries. South Africa is also lacking staff resources within its NOU (only one employee).There are more than 30 importers and 3 exporters in South Africa.

Transit trade: Transit ports provide the biggest opportunity for shipments to get re-routed and become illegal trade, so any PIC system would need a comprehensive system to control and track ODS in transit.

Suggestions for tracking trade in ODS: Introduction of a per-shipment licensing system would require considerably more staff to ensure that trade was not impeded by license acquisition. A PIC system would involve considerably more work, but should be possible, given increased human resources. South Africa would favour an electronic system over a paper or telephone-reliant system, as there is less potential for manipulation and forgery within an electronic system. If a tracking system is adopted he suggests a pilot study including gases on Annexes A (halons and CFCs) and E (methyl bromide) only.

NOU: Peter Lukey, Chief Director, Air Quality Management and Climate Change, Department of Environmental Affairs and Tourism (8 June 2006)

Confidentiality issues: Company-specific information may difficult to supply. However it is hoped that the government will take a progressive stance on access to information on environmentally

sensitive commodities, along the lines that if you import/produce 'polluting' substances you lose the right to keep trade confidential.

Suggestions for improvements on current system: Limiting trade to re-usable cylinders only would be preferable. Numbering cylinders with unique numbers would aid tracking and be useful. Emphasis should be placed on industry to assist in the control of transit trade. MOUs required for better internal communication in South Africa.

If an overall tracking system were to be introduced an electronic system would be preferable. It should include a common identifier for each entry. He felt strongly that most countries should have computers in place and those that don't should be given assistance to achieve this rather that adopting a less useful system. A web-based system could work effectively. There is the possibility of development of parallel systems (paper and electronic); this should be seen as a model for other conventions, it should not rely on paper only which in reality can get lost etc and does not allow analysis, etc.

Industry: Ron Buissinne, A-Gas (South Africa) (Pty) Ltd. on behalf of the South African Fluorocarbon Association (SAFA). Also participating in interview: Dr Pieter Aucamp, Ptersa Environmental Management Consultants. (6 June 2006)

South Africa does not produce any ODS, but imports HCFCs and HFCs for domestic use and also for export to its neighbouring countries. The majority of these exports are sold in disposable cans with only a very small portion being in refillable cylinders

Refillable cylinders are labelled with the company name, unique serial number, product name, company address and HS code. As the cylinders have a value (buyers pay a deposit on the cylinder) they are tracked. There is no significant cost associated with labelling; however, the cost of tracking is could be significant, and for a large company may result in the implementation of asset tracking software and possibly the employment of an additional member of staff.

Current licensing system: Licenses are issued on an annual basis. The current system is not effective as only minimal checking occurs prior to issuing of licenses. There are also concerns over the reliability of data used in license acquisition. The current legislation is to be replaced with an improved system within two years. There is currently no mechanism for communicating with overseas buyers to cross check licenses/quotas.

South Africa has unique problems in that it is a non-Article 5 country surrounded by Article 5 countries. Within the region there is a customs union allowing free trade, which causes problems in that CFCs are allowed to pass through South Africa (but not be used within it). Smuggling across land borders between South Africa and neighbouring Article 5 countries is widespread.

Suggestions for improvements: Internal communications between customs and the NOU could be improved. There are difficulties in accessing information from different departments. MOUs may help address this problem. Any efforts for cross-checking between countries should have the emphasis placed on the importing country. Countries should consider limiting their importers to established and trustworthy companies, rather than numerous small trading companies.

One way to control the land border illegal trade in South Africa would be to impose a ban on disposable cylinders. This would allow trade to be tracked and illegal material to be identified much more easily.

A number of countries already have a ban in place for disposable cylinders not only for CFCs but also for HCFCs and methyl bromide, etc. In South Africa the South African Fluorocarbon Association are lobbying government to implement a similar system, banning disposables. Such a ban would most likely make life easier for customs officers and enforcement personnel (particularly in a county like South Africa where they have had reported cases of illegal R12 smuggled into South Africa and it is extremely difficult to control as there are long land borders with Article 5 countries which still use CFCs) as it is a lot easier to simply identify a particular type of packaging that is illegal than to fully understand all the details of the restricted chemicals.

From a South African perspective as far as the ban on disposable cylinders goes, for a traditional re-packager with an existing filling plant, to change from filling disposables to refillable cylinders, this does not add much additional cost. Transport costs for trading with refillable cylinders would be increased as the cylinders need to be returned to the plant, there is perhaps also a small increase in labour costs. In general, and certainly over a period of time the costs of moving from disposable cylinders to small refillable cylinders are pretty minimal, there is an initial cost to the customer in terms of a deposit. Tracking of the cylinders is also not too much of a burden if a deposit is paid on the cylinders which typically meets/exceeds the replacement cost. It is in then in the interest of the customers to return these and should the cylinder not be returned the deposit is withheld by the re-packager.

An effective way for this system to work is to charge a deposit on the cylinder (currently R700 for a 60 kg cylinder) which is equivalent to the cost of the cylinder. For the trader this capital outlay will ultimately be financed by the customer. For the customer this is a one-off cost which is refundable. In practice once a customer purchases their monthly requirement no further deposits are necessary as they are credited for the cylinders returned which offsets the new cylinder deposit required.

In the case of traders who are simply distributors (rather than re-packagers) the transition to only using refillables may be more difficult and costly as their trade currently relies on importing in disposable cans and trading these. The alternative would be either to import in bulk quantities (e.g. in isotanks) and decant into suitable refillable cylinders (thus becoming a re-packager –with the associated costs of setting up a filling line etc) or attempting to import in refillable cylinders directly from a global producer however the long distance international shipping of refillable cylinders could add considerably to shipping cost as the return of the cylinders would also need to be factored in.

The costs of disposable cans is about US$10–12 per 3.6kg can, and after a single use will need to be disposed of. The cost of a refillable 65kg cylinder is in the region of R700 (US$100). If the smaller 10kg refillable cylinders were used then the overall costs would naturally be lower (about US$60).

Trade Administration Commission: Louw Marsh, Assistant Manager import and export control, International Trade Administration Commission of South Africa (ITAC) (7 June 2006)

Current problems with illegal trade:

- CFCs bought in by land from neighbouring countries, made worse by the customs union;
- Direct (front-door) smuggling, although they don't know the scale of this;

- Possibility of smuggling to South Africa by diversion of transit e.g. to Zimbabwe.

Several cases of illegal trade have been identified in South Africa and are pending (e.g. gold mines: import of virgin CFCs and using cover of gold mines to export falsely declared 'used' CFCs to USA). A number of seizures have been made, but so far no prosecutions. So far cost of destruction has not been an issue as this has been carried out in South Africa for free by industry.

Suggestions for improvements of the current system: MOU between the three relevant departments (customs and NOU); only allow refillable cylinders – to work this would really need to be a joint venture with industry and government; currently the system is not proactive and does not rely on market analysis and risk assessment. Good cooperation with industry would be beneficial.

He would encourage licensing and cross-checking of each shipment and would favour a PIC-based system. He does not consider this unfeasible as it could be similar to Basel, and they should have all the relevant information to implement it.

Suriname

Cedric Nelom, NOO (26 April 2006)

Licensing system: The licensing system is an import/export registration list, which includes exports. Individual companies do not have licenses or quotas. Licenses are for each consignment. They just monitor what comes in and may stop it after it is already in. His office obtains their data from Customs and cross-checks it with the data from Trade and Finance and with importers. The Trade Department obtains the data from importers themselves and issue export permits for all goods not just ODS.

Cross-checking and international cooperation: Notification prior to shipment would be good to enable the Bureau of Public Health (where NOU resides) to give advice on shipments. With current system (permits are issued after products arrive), this creates problems for feedback to exporting countries. The NOU does not get a chance to cross-check and see that it is legal before it comes in.

When asked about their capacity to feed into a central database, he said 'this is actually welcome' and that it 'would definitely be a great support to do this.' The database or body should also submit data back to the NOUs with respect to information on certain companies or products to help make trade something that is credible. When asked if confidentiality could be a problem the answer was 'this shouldn't be a problem.'

With regard to cross-checking shipments with the other NOUs from exporting countries, he said that he would like to set this up with Belgium, Netherlands and the US 'to see how we can track import and export in Suriname with these ODS.' He noted that, 'It would be very efficient and effective if the country, at import, communicated the ODS from NOU to NOU.' Email, fax or a phone call would be fine. Both bilateral communication and communication within the network are needed.

If, for example, the NOU from Belgium was not allowed to ship the ODS to Suriname until it was cleared with Suriname, he said that 'can have a high burden.' He then said 'I think it can work, you know, it can work as long as it's the NOU doing this.' If the companies had to do it, it would be an extra burden. It depends on how quick. In the long run this might be an economic or financial burden. It would have to be for all ODS.

Other ideas: Further defining the HS code to 8 digits for internal tracking would be useful.

Trinidad and Tobago

Marissa Gowrie, National Ozone Officer (27 April 2006)

Existing ODS licensing system: Trinidad & Tobago implemented a licensing system in 1999. ODS regulations are incorporated into an existing license system attached to the Import Negative List. The Ministry of Trade and Industry, the Customs & Excise Division and the Environmental Management Agency are the agencies involved. Quotas are issued on a yearly basis. Importers apply for a license through the Ministry of Trade based on imports from the previous year. The Ministry of Trade sends the licenses to the NOU at the beginning of the year. The NOU writes a letter to the Trade Ministry outlining the quota. The Ministry of Trade presents this to Customs so that importers can get their ODS and to ensure that they are not exceeding their quota. If they exceed the quota, they can deduct from the next year's quota, but this has only happened once. Customs report to her what is brought in. The importers present their license (same license) each time that they go to pick up the ODS. Trinidad & Tobago's legislation does not cover alternatives but 'they are trying to amend this' so that it will.

Current difficulties: The interactions with customs present some challenges for effective implementation of the licensing system. Currently a lot of capacity for ODS work has left Customs. There used to be a National Ozone Committee which coordinated NOU, Trade and Customs, but this 'has degraded.' She is interested in setting this up again to get Customs more on board and to help with succession training. Customs communication and access to data would also be much improved if more of their work was done electronically. Her NOU is ahead with respect to capacity. Currently their licensing system is geared toward imports of ODS; after 2005, they will need to monitor illegal trade of ODS and alternatives which will require increased effort.

Data analysis and cross-checking: Cross-checking domestic trade and consumption data for accuracy is made difficult by the fact that the NOU does not have access to Customs' database. This could be improved by an arrangement with customs such as an MOU. More access to regional and international data for cross-checking would be very helpful. Antigua & Barbuda's current practice of sharing export information is very helpful. The product trade name must be on the canisters. Antigua & Barbuda can tell you down to the company level about shipments. We 'definitely need this type of information at the global level.' Information from sources farther afield, such as Singapore and Belgium, are lacking.

Ideas for improving tracking and preventing illegal trade: Learning on a real-time basis from other case studies was also highlighted as an idea to improve tracking and prevent illegal trade. A formal database or webpage that would be a place for cases of illegal trade to be reported (methodologies, etc.) would be very valuable according to the NOO. The NOU 'should have this information because then we can red-flag this, so if it's happening in the Caribbean we can look for it.' For example, the complications with imports of the mixture 415b resulted from the NOU finding it very difficult to get information. As more 415b began to arrive, there was much uncertainty about safety and flammability, which was exacerbated by inconsistent and suspect labelling. The influx caught the NOU by surprise because 'we don't get alerts' about what is going on.

The NOO prefers more real-time dissemination of information because they 'can change their MO everyday.' For example, 'information on latest identified false labels, and other MOs that would be

easy to access and understand and then pass on to technicians would be helpful … something as simple as a bulletin for illegal trade.' For example, 'over the last six months, these are the trends.'

Regarding Trinidad and Tobago's contributions to an international database of registered companies and cases of illegal trade, she said she does not see 'any problem divulging this information.' She stated, '[I] don't see why that would be an issue.' Current information exchange with trading partners is done via the regional Compliance Assistance Programme (CAP) office, which has been very helpful. An expansion of this function, with more information flow and contact points would be helpful. Using the CAP regional network to expand on would be 'very feasible as the existing network is highly functional.'

Licensing, prior notification, other measures: The NOO said an export clearance requirement by source countries would be helpful. To be effective it would have to 'be implemented on our side as a requirement for receiving a shipment.' With the number of shipments that go back and forth, it could burden the system, but she said it could be 'useful I think.'

When asked about an international license, she said 'definitely (this is a good idea).' She felt that 'A way to register the companies [from which the shipments came]' to recognise if a shipment is legal or not would be helpful. An invoice from the company should be included with the license. When asked about the idea of barcodes to register and track the shipment, she said 'all of these are good ideas.' 'We may have to restructure our local system to ensure it is legitimate.' She said the NOU would be the right agency to take on this responsibility.

Other characteristics of an international licensing system that were noted: it is feasible but would require significant additional training; ministry of trade and ministry of customs should take the lead on holding license and trade data and this should be 'channelled' through the NOU.

United Kingdom

Department of Environment, Food and Rural Affairs (DEFRA) and Customs: Stephen Reeves (Head of Stratospheric Ozone, Global Atmosphere Division of DEFRA); Frank Varey (Senior Policy Advisor for HM Revenue and Customs), Pamela Rogers (Head of Environment, Economic and Industrial Team, HM Revenue and Customs), Elizabeth Chrominissca (Policy Adviser, Ozone Layer Protection, Global Atmospheric Division, DEFRA), Jolyon Thompson (27 July 2006)

Current (EU) licensing system: (PIC for basic domestic needs (BDN)) Spain (Arkema) is the only EU producer of ODS now. The producer needs to obtain PIC to ensure that the export is within BDN requirements. Arkema sells to traders in other EU countries who can re-sell the ODS to A5 countries, or other EU countries who will then continue the sale to A5 countries. The PIC trail has to trace back along the sale chain to check that Arkema had a PIC in the first place. The system works quite well but the companies involved do have difficulties with A5 countries not providing the BDN/PIC assurance letters, which also ask them if the import will put them in non-compliance. The EU companies have an unofficial policy to make a couple of attempts to elicit a response from the A5 country, and if these both fail they will send the shipment. A big problem with any sort of PIC system is lack of response from the other end. Another problem is that it is never very clear how the ozone focal points relate to the rest of the system, or whether they have a firm mandate to respond to requests. It would not be

possible to restrict exports to producers within in the EU because you would be removing the legitimate trading rights of companies.

Suggestions for tracking ODS trade: Mr. Reeves suggested that it might be premature to attempt to introduce a high-tech tracking system when some countries did not possess a working licensing system. The notion that PIC was the right tool for tackling illegal trade was introduced at the Dakar MOP meeting with insufficient prior research, and thus wasn't put in place with the relevant mechanisms to ensure it would be successful. Mr. Thompson pointed out that the PIC systems of Rotterdam and Basel had been given a lot more thought, which was why they had been successful. This was not to say that, in theory, a PIC system could not be achieved within the Montreal Protocol, but equally that didn't necessarily mean it was the best way to control/track trade.

Mr. Reeves approved in principle of the idea of focusing a system on the top (e.g.) three producers and top twenty importers, since this would lessen the burden on A5 countries, and importers who are only dealing with very small quantities of imports. He felt that an informal PIC system might work better than a mandatory system for all Parties. He suggested that the SEAP-SA region's informal PIC system was introduced because the region's import/export licensing system wasn't working adequately. If a system (i.e. import/export licensing system) is not working perhaps the automatic solution should not be to introduce a new system; perhaps the focus should be on rectifying problems in existing licensing systems. If global import/export licensing systems worked there would be no need for a PIC system. One way to improve the effectiveness of existing licensing systems would be to focus on improving communication between licensing system personnel and NOUs.

Mr. Varey noted that UK customs has had difficulty in communicating with counterparts in customs overseas (for the purposes of sharing information, etc.), as there is no customs forum in the EU, or internationally, dealing with ODS and similar issues.

Confidentiality issues: Yes, a PIC or data-sharing system may face problems here. The way the EU website works, countries can see their own country's imports exports and quantities, companies cannot see other companies' trade data, as this is commercially sensitive. UK companies are very protective of their trade data and the EU has very stringent rules about confidentiality of information.

Transit trade: Many competent authorities are inundated with notifications of transit but they do not have the resources to check them. The priorities should be attention on the importers and exporters in the case of transit. The authorities do have the power to inspect goods in transit. Ms. Rogers added that authorities would only act to inspect transit goods acting on good intelligence which suggested that there was just cause to.

UNEP DTIE

Etienne Gonin, Associate Programme Officer; Gerda Merckx, Senior Environmental Affairs Officer (Network and Policy Manager); Suresh Raj, Capacity-Building Manager (21 June 2006)

Training and communications between NOUs: UNEP DTIE and the Green Customs Initiative run training schemes and support the development of MoUs to increase communication between key agencies both domestically and regionally. Training and bilateral and regional networks can improve the impact of the system on the trade in ODS but such piecemeal voluntary actions do not constitute a

global solution to illegal trade. Considerable investment in developing country customs capacity over the last five years was noted. This has been strongly supported by the USA.

Illegal production: It was felt that illegal producers are rare, although some over-production may be a problem. Baseline data supplied by governments was felt to be relatively reliable although effective verification would improve the credibility of the current system.

System design: The global system is not currently an effective control on the trade in ODS. Some countries have the capacity to operate and monitor, others do not. Any improvement to the system needs to balance the need for a range of solutions to meet different budgets and capacities with the strengths of an homogenous universal system.

Transit: Countries that do not produce and therefore have chosen not to develop export controls are at particular risk of providing transit cover for illegal trade. An effective global system would probably require all Parties to establish both import and export controls regardless of their production status. There has been a recommendation that the international community ban transit trade in all products although it is not clear whether this is politically feasible.

Field trips and material checking: Chemical weapons and nuclear agreements include field trips and on-the-ground verification of reported data. This role is generally played by the Secretariat or independent experts appointed by it.

Premium prices: It was reported that brand-named products from Europe and North America current incur a small premium price compared with generic products. This premium could be increased or used to validate the legality of the product.

Disposables: Banning disposables for CFCs and methyl bromide was considered a valuable proposal. Banning disposables for HCFCs may not be practical.

United States

Environmental Protection Agency (EPA): Tom Land, Manager International Programs, Stratospheric Protection Division, Office of Atmospheric Programs (1 August 2006)

The US ODS licensing system is paper-based. The data is hand-entered into a database. The reporting forms are all on-line and can be submitted via e-mail or by fax. They must report production, imports, exports (including which countries they export to). Decision XVII/16 requires the reporting of destination of exports for all substances. According to the interviewee, there is a 'reconciliation benefit in getting everyone to do this.' The US does not have a specific HS code for blends of ODS.

The Office of Enforcement and Compliance Assistance deal with cases where a quota has been exceeded.

US EPA has access to the Customs system via an internet database. They can now track ODS imports and exports, transaction by transaction. They do quarterly cross-checking of the Customs data, but they have the ability to do this on a nearly real-time basis if they need to. Importers and exporters have 30–45 days after the end of each quarter to submit data. The only ODS that are cleared before import to the US are recycled CFCs.

All ODS are flagged in the Customs system by their HS codes. Customs often calls EPA to ask questions about ODS imports. It was felt that it would be useful to work with WCO 'to create new [HS] categories.' CAS numbers are helpful though with identifying mixtures.

With respect to sharing data multilaterally, it was felt that companies might be willing to share data, particularly older data. The EPA is very good at protecting confidential business information. Individual transactions 'would be tough,' but companies might be willing to provide this for older data.

DuPont USA: Kevin O'Shea, Marketing Manager North America; Charles A. McCain, Product Manager for Fluoroproducts; Eric T. Teather; Carol Hoffstein, Environmental Specialist; Carol Fox Daily, Packaging and Distribution; Mack McFarland, Environmental Division (30 August 2006)

Concerns with illegal trade: A major concern of DuPont USA is the import/sale of ODS (within the US via an internal pollution rights trading scheme) above the rights that were granted by the EPA. Trading of rights is allowed, but monitoring is not sufficient. They do not have a high level of assurance that policing of the system is happening and are concerned that trade/import is occurring above and beyond the assigned rights. Allocations are public record, but trades are not because of confidentiality issues. EPA has asked for DuPont's help at times to monitor the trades. But DuPont noted that 'our ability to police and monitor is hampered by a lack of complete and accurate records' and 'if there was a standard, we would abide by the standard.' They suggested that third-party monitoring is needed, for example EPA, Department of Justice (DoJ) or an EPA contractor to 'make sure there is a consistent database to monitor that activity so everyone is operating on a level playing field.'

There are issues with inconsistency in labelling of imported materials. An analysis that they performed of PIERS showed that only 60% of imports could be adequately identified.

Tracking: For the 125 pound cylinders and 1 ton tanks, they can track these by barcode. For DACS (disposables), the lot number is on the cylinder so as to be able to identify the gas. The contact information and barcode is by lot and is on the box. 1400 is a typical lot size. The box is as required by US Department of Transportation regulation. Cylinder producers mark a serial number on returnables. Batch numbers are silk-screened on to disposables. They are currently examining barcode ideas – types and quality. Issues of damaged barcodes could create problems.

Standardisation of labelling internationally would be positive, i.e. everyone following the same convention for labelling. Consistency in the recordation of import records would also be helpful, then industry could help monitor activities. Different names 'make it hard for us to police … we'd be very happy to comply with whatever standard.'

Sharing information internationally: DuPont is willing to share gross numbers for imports, exports, etc. if these numbers were in aggregate for each country. If it was official, protected and there was a high degree of confidence that it is confidential, then they would be willing to share company-specific data with some level of Customs official. There would be a bit of a problem if all the Customs officers around the world had access.

If aggregate data by country was shared internationally, 'we'd like that,' 'a good thing,' 'very advantageous,' would help with 'better planning going forward.'

If there was a unit in the Montreal Protocol or a consultant for the Montreal Protocol that had access to the company-specific, shipment-level data and it was kept confidential and there was certainty that it would be secure, the response was that 'would be appropriate.'

Annex 3: International systems

A3.1 Basel Convention

The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal establishes a regime for controlling the international trade in hazardous and other types of wastes. Agreed in 1989 and entering into force in 1992, the Convention currently has 162 parties; the main non-party is the United States, which has signed but never ratified.[54]

The general objective of the Convention is to ensure that transboundary movements of wastes are reduced to a level consistent with environmentally sound and efficient management. The movement must be conducted in a manner which will protect human health and the environment. Parties have the right to prohibit the import of hazardous waste, and an export ban applies to states that have not given written consent to a specific import.

The Convention establishes a system of 'prior notification and consent' for transboundary movements of waste. The exporting state, generator or exporter must notify the importing state and any states of transit of any proposed transboundary movements. A movement document must accompany any shipment of waste from its origin to its disposal. A standard form is used, with the design approved by the Conference of the Parties.

The document must specify: the exporter of the waste; the generator and site of the waste generation; disposer of waste and site of disposal; carrier of waste; date the transboundary movement of waste started and date and signature on receipt by each person who takes charge of the waste; means of transport; general description of waste; declaration that the competent authorities of all concerned states do not object to the shipment; and certification by disposer of receipt at designated disposal facility and indication of method of disposal and of the approximate date of disposal.

Any traffic in waste that does not meet the notice and consent requirements, or fails to conform with the accompanying documents, or results in deliberate disposal in violation of the Basel Convention and general principles of international law, is held to be illegal and considered a criminal act. Transport and disposal of hazardous and other wastes can only be carried out by authorised persons, with the movements meeting generally accepted and recognised international rules and standards of packaging, labelling and transport, taking into account relevant internationally recognised practices.

Importing states respond to the notice in three ways: giving consent (with or without conditions); denying permission; or requiring additional information. Written consent of the importing state and confirmation from the exporting state of the existence of a contract between the exporter and the disposer specifying environmentally sound management of the wastes is needed. Where the terms of the contract cannot be fulfilled, the exporting state has a duty to re-import the waste. Written consent is also needed from the transit state(s). Written consent can include conditions on the supply of certain information, such as the exact quantities or periodic lists of hazardous wastes or other wastes to be shipped.

Notice and consent covers a twelve-month period as long as the waste has the same characteristics and is shipped regularly to the same disposer through the same exit office of the exporting state, entry

[54] See www.basel.int.

office of the importing state, and customs office of the transit state. The forms can be issued to cover a twelve-month period, or can be issued by shipment. Importing states and transit states can also require the wastes to be covered by insurance or other guarantee.

Traffic in waste is considered to be illegal where it is carried out: without notice to all the parties concerned; without the consent of all parties concerned; where consent of the state was obtained through falsification, misrepresentation or fraud; with lack of conformity in a material way with the accompanying documents; or there was a deliberate disposal in violation of the Basel Convention or international law. If the waste is deemed to be illegal, the exporting state, or the exporter or generator, has a responsibility to take back the waste, or if this is impracticable, to dispose of it in accordance with the Basel Convention, within thirty days of receiving notice of the illegal traffic. Parties are required to introduce national or domestic legislation to prevent or punish illegal traffic.

In general the Basel Convention appears to have contributed to a reduction in the trade in hazardous wastes, and in particular in the dumping of wastes in developing countries, a high-profile problem in the 1980s. However, it is difficult to reach a conclusion on the effectiveness of the prior notification and consent system, as data is not generally available and no systematic survey has been conducted. There is no obligation for the Convention Secretariat to be sent copies of the movement documents, there is no requirement for any independent verification of the system, and the Convention's Compliance Committee, a relatively new body, has received no submissions to date. The Secretariat is trying to develop the prior notification and consent system in various ways, for example to introduce an electronic version of it (it is currently entirely paper-based), but is constrained by a chronic shortage of funding.

The Basel Convention and ODS

As the Basel Convention deals with trade in wastes, virgin ODS are not subject to its controls. As discussed above, however, there is also international trade in used ODS; in 1992 the parties to the Montreal Protocol agreed that imports and exports of recycled and used ODS should not be included in the calculation of consumption, as long as the relevant data was fully reported. The Basel Convention does apply to these ODS, which can be defined as 'wastes': halogenated organic solvents are listed in Annex I ('categories of wastes to be controlled') and ecotoxicity is listed in Annex III ('list of hazardous characteristics'). Exemptions, however, are allowed for the export of substances where it can be shown that a superior disposal or recycling technology exists in the importing country.

The Basel Convention therefore affects the shipment of ODS which are being recovered from products containing them and are destined for recycling or safe disposal. In principle, the Convention should permit such trade, but the wording is vague and the parties to the Montreal Protocol recognised in 1993 that it could usefully be clarified.[55] Following discussions between the Ozone and Basel Convention Secretariats, agreement was reached during 1995. Recycled CFCs and halons meeting usable purity specifications prescribed by appropriate organisations (such as the International Organisation for Standardisation, ISO) would not be considered to be wastes under the Basel terms. Trade in CFCs and halons which could not meet the purity specifications would then occur under the normal Basel terms, i.e. only if the importing country possessed recycling facilities which could process the imported ODS to those standards.[56]

[55] Decision V/24 of the Parties to the Montreal Protocol.
[56] Decision VII/31 of the Parties to the Montreal Protocol.

Lessons from the Basel Convention for the Montreal Protocol

In practice this means that there are no real overlaps between the Montreal Protocol and Basel Convention in terms of substances covered. The main lesson for the Montreal Protocol are:

- The Basel Convention's system of prior notification and consent (in practice, a PIC system). As can be seen, however, monitoring of the way the system works in practice is limited, so it is not known how the provisions work in practice in any real detail.
- The inclusion of transit countries in the system, with requirements for the prior notification and consent procedure to take place at every stage in the movement of the wastes.
- The use of a uniform design of license.

A3.2 Rotterdam Convention

The 1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the 'PIC Convention') aims to promote cooperation and shared responsibility for the international trade in chemicals. The Convention applies to banned or severely restricted chemicals and severely hazardous pesticide formulations. Similar in principle to the Basel Convention's system of prior notification and consent, exports of a the listed chemicals and pesticides can only take place with the prior informed consent of the importing party. Importing countries are given the power to determine whether they wish to import a listed chemical or pesticide or ban it due to concerns that it cannot be managed safely.[57]

The system grew out of a series of voluntary commitments in the late 1980s. While developed countries were taking steps to ban the movement of hazardous wastes, developing countries frequently lacked the capacity to do so, and there was some concern that companies were exploiting this situation by relocating their operations to less regulated countries. In 1989 the UN Food and Agriculture Organisation (FAO) and UNEP combined their control methods for, respectively, pesticides and industrial chemicals, to form the voluntary Prior Informed Consent (PIC) procedure.

The Convention itself was agreed in 1998 and entered into force in 2004. There are currently 108 parties. Significantly, the US is not a signatory, though its domestic regulatory system is very similar to that prescribed by the Convention. The larger developing countries, including China, India and Brazil, mostly joined in 2005. The system is closely linked to the Stockholm Convention on Persistent Organic Pollutants (see below, Section A3.3).

Annex III to the Convention lists the pesticides and industrial chemicals that are to be controlled for health or environmental reasons. The initial list included twenty-seven substances, and fourteen have been added subsequently (though some of these are different formulations of the same chemical). The procedure for amending Annex III is described in Article 22 paragraph 5. Parties which have themselves banned or severely restricted a pesticide or chemical notify the Secretariat in writing of the fact, as soon as possible after the regulation is adopted. When the Secretariat has received at least one notification from each of two 'Prior Informed Consent regions' regarding a particular chemical, or one for a severely hazardous pesticide formulation, that it has verified meet the requirements of Annex I (a list of information about the substance and about the regulations applying to it), it forwards them to

[57] See www.pic.int.

the Chemical Review Committee, a committee of thirty-one government-designated experts in chemicals management.

The Committee reviews the notifications, and decides, in accordance with the criteria for listing banned or severely restricted chemicals set out in Annex II, whether to recommend the substances concerned for inclusion in Annex III. The Conference of the Parties then decides whether or not to accept the recommendation, following a similar procedure to that for adjustments to the Montreal Protocol. So far the process of adding new substances has been relatively slow, as many countries have chosen to opt for gradual phase-outs rather than outright bans, which do not trigger the procedure.

For each of the substances listed in Annex III, a guidance document is issued by the Secretariat to allow countries to decide whether to opt in or out of trade in the substance, or to apply certain conditions to its trade, such as a health department certificate. Decisions are usually made in a cross-ministerial manner, involving departments such as agriculture, environment and foreign affairs. All parties are required to take this decision – an 'import response' – for each of the substances listed in Annex III. A listing of all import responses received by the Secretariat is circulated to all parties every six months.

Import decisions taken by parties must be trade-neutral – i.e. if a party decides not to accept imports of a specific chemical, it must also stop domestic production for domestic use and refuse imports from any source, including non-parties (WTO rules require countries not to discriminate in this way in any case). If a country has banned a chemical domestically it can export it, but it must inform the importing country that the substance has been sanctioned by the producer country.

All exporting parties are required to ensure that exports of Annex III substances do not occur contrary to the decision of each importing party. They should ensure that the import responses circulated by the Secretariat are communicated to their own exporters and relevant authorities.

Transit trade is not regulated by the Convention. Countries have the right to request transit information from the Secretariat but to date none have done so.

In force for less than three years, it is still too soon to reach any conclusions on the impact of the Rotterdam Convention. Since the parties have not yet developed a non-compliance procedure, the Secretariat and the Conference of the Parties have no involvement, so far, in monitoring whether the system actually works. No trade data has been collected to date, but this should become easier in the future, with the introduction of a number of a new HS codes for substances controlled by the Convention in 2007. Illegal activity – i.e. evasion of the PIC procedure – seems probable, but despite requests no party has yet reported any to the Secretariat.

A number of parties have still not published any import responses, and there is an ongoing debate about the extent to which the Convention should offer capacity-building assistance, and the possible use of sanctions against non-complying parties. Problems can be caused by a lack of knowledge of the origin of some shipments, which is not always clear, particularly in free trade zones. The Secretariat is working with the Green Customs Initiative to prepare training materials for customs officers.

The voluntary PIC procedure which operated before the Convention entered into force operated with some success, and there is no reason to think that the Convention cannot emulate this. Most of the substances covered by the Convention are extensively banned and are therefore not traded in any great

quantities. A bigger test of the Convention will come when higher-profile, more extensively traded, substances are added – such as chrysotile asbestos and tri-butyl tin, both currently under discussion.

The Rotterdam Convention and ODS

In principle, ODS could be included in the Rotterdam Convention system. Some ODS, including methyl bromide and carbon tetrachloride, are directly hazardous to human health, and all, of course, have harmful impacts on the environment. However, in order to be listed countries must actually have banned their use, so for ODS this is likely only in the later stages of phase-out – when there would be little point in including them in the Rotterdam Convention, as there would only be a few years left until total phase-out under the Montreal Protocol in any case.

A possible exception to this is ODS still in use after phase-out under essential- or critical-use exemptions, such as methyl bromide. Whether any country would wish to trigger the Rotterdam procedure would then be determined by factors such as the speed of phase-out of the exemptions under the Montreal Protocol, and the country's ability to prevent imports of the substance without using the PIC procedure. There seems little reason to think that Montreal Protocol parties would need to go to these lengths to prevent imports of ODS they had themselves banned.

One further possible exception is the discovery of new ODS, where it may prove quicker to list the substance under the Rotterdam Convention's PIC procedure than to agree and bring into force an amendment to the Montreal Protocol. This would help to exclude the substance from trade, but not, of course, from actual use. In any case, at the moment this is an entirely hypothetical case.

Lessons from the Rotterdam Convention for the Montreal Protocol

Although there is in theory the possibility of overlap in the substances controlled by the Rotterdam Convention and the Montreal Protocol, this is of little practical relevance. The most important lesson to be drawn from the Rotterdam Convention is the experience of making a prior informed consent system work in practice.

A3.3 Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants ('POPs Convention') was signed in 2001 and entered into force in May 2004; it currently has 128 parties. The objective of the Convention is to protect human health and the environment from persistent organic pollutants. Parties are required to prohibit or take measures necessary to eliminate the production and use of the chemicals listed in Annex A to the Convention (currently, a list of nine chemicals or groups of substances, including aldrin, heptachlor and PCBs), and the import and export of Annex A chemicals. Production and use of the chemicals listed in Annex B (currently, DDT) are to be restricted, while measures are to be taken to prevent the unintentional production of chemicals listed in Annex C (currently, chemicals such as PCBs).[58]

Parties are also required to ensure that chemicals listed in Annex A and B are imported only for the purpose of environmentally sound disposal or for a use permitted for each party as prescribed in either Annex A or B. Chemicals listed in Annex A for which any production or specific use exemption may

[58] See www.pops.int.

be in effect can be exported only under specific conditions. This applies *mutatis mutandis* for Annex B for which any production or specific use exemption or acceptable purpose is in effect. Both Annex A and B chemicals can only be exported for the purpose of environmentally sound disposal to a party that is permitted to use that chemical under Annex A or B, or to a non-party that has provided an annual certification to the exporting party.

Certification must specify the intended use of the chemical and include a statement that the importing state is committed to protect human health and the environment by taking the necessary measures to minimise or prevent releases; take certain measures to reduce or eliminate releases from stockpiles and wastes; and, in the case of DDT, to use it only for disease vector control in accordance with World Health Organisation recommendations. Certification is also to include applicable legislation, regulatory instruments, or administrative or policy guidelines.

Where trade is allowed under the Convention, it must take place with reference to prior informed consent systems established under other agreements, with specific reference to the operation of the Rotterdam and Basel Conventions. Parties are committed to annual reports on implementation, including trade monitoring; the first analysis is due for publication by the Secretariat at the end of 2006. The reporting system has been designed to be electronic, and the Convention's financial mechanism has been specifically mandated to support countries without the necessary technical capacity to comply.

The Secretariat is mandated a significant role as a 'clearing house' for information relating to implementation, including export, import and 'transport' elements. Discussions at the Second Conference of the Parties, in May 2006, envisaged an eight-year schedule for development of the clearing house mechanism, commencing in January 2008, preceded by a pilot phase.

The Convention contains a mechanism for a periodic (every four years) evaluation of its effectiveness. Discussions at the Second Conference of the Parties, however, focused on scientific and capacity barriers to adequate reporting; interviewees felt that the Secretariat would not be in a position to identify individual countries that were not implementing the system effectively.

The Stockholm Convention and ODS

No chemicals covered by the Montreal Protocol are currently listed on the Convention's Annexes. Parties to the Convention may propose the listing of any new substance; the information they need to provide is listed in Annex D, and includes chemical identity plus 'screening criteria', including persistence, bioaccumulative nature, potential for long-range environmental transport and adverse effects. Further information – including the status of the chemical under international conventions – is then required for the formulation of a risk profile for the substance.

It is not clear whether any of the substances controlled by the Montreal Protocol could satisfy the requirements of Annex D. The Stockholm Convention is primarily concerned with chemicals that persist in water or soil, accumulate in living tissue, and are highly toxic, which probably rules out most ODS, with the possible exception of methyl bromide and carbon tetrachloride. There are catch-all references to toxicity, and 'potential for damage to human health or to the environment' which might in theory allow ODS to qualify. In reality, however, there would be no benefit in adding substances already being phased out under the Montreal Protocol to the control regime of the Stockholm Convention, so it seems safe to conclude that there is no possibility of overlap.

Lessons from the Stockholm Convention for the Montreal Protocol

As the Stockholm Convention is only just starting to operate, it is really too early to draw many lessons for the Montreal Protocol. However:

- The Convention more or less assumes that trade in the chemicals it controls will proceed under the prior informed consent system of either the Rotterdam or Basel Conventions.
- The mechanism for a periodic evaluation of its effectiveness is of possible relevance. Although the Montreal Protocol of course provides for regular assessments, they tend to focus on the broader picture rather than on the effectiveness of particular policy instruments employed by the parties.

A3.4 CITES

The 1973 Convention on International Trade in Endangered Species (sometimes referred to as the Washington Convention, but more commonly known as CITES) aims to protect endangered species from over-exploitation by controlling international trade, under a system of import and export permits. Species are placed on different lists: Appendix I includes all species that are threatened with extinction; Appendix II includes species that are not necessarily threatened with extinction now but may become so unless trade in such species is subject to strict regulation; and Appendix III includes species that an individual party identifies as being subject to regulation for the purposes of preventing or restricting exploitation, and where it needs the co-operation of other parties in controlling trade.[59]

Trade in any species under any appendix is not permitted except in accordance with CITES:

- For Appendix I species, trade cannot be detrimental to the survival of the species and must not be for primarily commercial purposes. Any trade in listed specimens must obtain both export and import permits, and certificates are also required for the re-export of specimens.
- Commercial trade in Appendix II specimens is allowed if it is not detrimental to the survival of the species. An export permit is required, and must be provided to the importing state's customs authorities. Unlike Appendix I species, an import permit is not required.
- Trade in Appendix III specimens requires the management authority of the exporting state to issue an export permit. Importers must verify that the shipment is accompanied by an export permit, if the shipment is from a state which has listed that species on Appendix III, or a certificate of origin, if from another state.

Exceptions from these requirements are made for transit or trans-shipment of species; specimens that are personal or household effects; specimens that were acquired prior to CITES applying to the specimen; non-commercial trade between scientists or scientific institutions; or certain specimens that are part of a travelling zoo, circus or other travelling exhibition.

In order to implement the Convention, parties must designate one or more management authorities, which administer the licensing system, and one or more scientific authorities, to advise them on the effects of trade on the status of the species; the former should only issue permits on the basis of the so-called 'non-detriment' findings by the latter.

[59] For a good summary of the operation of CITES, see Rosalind Reeve, *Policing International Trade in Endangered Species: The CITES Treaty and Compliance* (RIIA/Earthscan, 2002). Also see www.cites.org.

The general requirements for export and import permits are laid down in the Convention itself, but successive resolutions of the Conference of the Parties have elaborated them in some detail.[60] The main requirements are:

- The restriction of issuing authorities to national CITES management authorities.
- A separate permit or certificate for each consignment of specimens.
- A maximum validity of six months for export permits and re-export certificates and twelve months for import permits.
- The use of security stamps cancelled by an authorised signature and a stamp or seal, preferably embossed.
- The restriction of authorised signatures to those notified by parties to the Secretariat.
- The restriction of permit and certificate numbers to fourteen digits, to assist tracking and reporting.
- The recommended use of security paper for trade in wildlife specimens of exceptional value.
- The statement on permits and certificates of both the source of specimens (e.g. wild-caught, captive-bred, ranched or artificially propagated) and the purpose of the transaction (e.g. commercial, scientific or educational).
- The use of standard nomenclature adopted by CITES for names of species and specific numbers of specimens or units of measurement.

Permit fraud and inattention to these requirements by management authorities have proved to be a persistent problem. To counter this, in 2001 the CITES Secretariat issued additional advice on permits and certificates by notification to parties:

- That traders be encouraged to apply for permits and certificates shortly before the time of export, not at the beginning of a year, or harvest season or at a time when annual export quotas are established.
- That quantities to be exported are exact (permits and certificates are commonly issued with quantities in round figures).
- That no replacement be issued until the original permit or certificate is returned to the issuing authority.
- That, if a trader claims that the quantities actually exported were smaller than authorised, the original document should be inspected and proof of the number exported should be obtained.
- That document and shipment inspections should be conducted at the time of export, particularly for live animal shipments.
- That the original copy of a permit or certificate be collected by customs or other border control authorities of the importing country, endorsed to show completion of the trade and forwarded to the management authority.

[60] Information taken from Duncan Brack, *A Licensing System for Legal Timber: Options and considerations for a legality licensing system under the EU FLEGT Action Plan* (Chatham House, November 2004), available at www.illegal-logging.info/papers/Licensing_system_for_legal_timber.pdf

There is, however, no mechanism to verify that any of this advice is actually followed, and there is plenty of evidence to suggest that, in many countries, it is not.

The World Conservation Monitoring Centre (WCMC), once an NGO and now part of UNEP, monitors trade taking place under CITES, receiving annual reports from CITES parties on import and export permits issued. In fact there can be quite wide variations between the number of specimens traded and the number covered by permits; traders often apply for permits before they have actually acquired the specimens, and they cannot retain any excess not in the end traded. An export permit does contain a box for customs to fill in indicating how many specimens are actually included in the consignment, but this system only works in a handful of countries. The discrepancies should, however, be picked up through reports from the importers, who usually (though not always) report on the basis of actual trade.[61]

Of all the agreements examined in this Annex, CITES has the longest experience of operating a permit or licensing system. Nevertheless, it suffers from a number of weaknesses:

- Export and import permits effectively acquire a value, opening up possibilities for fraud, theft and corruption in issuing them, or tampering (such as changing the numbers of specimens covered) while in use. Falsification of CITES permits is a common problem, particularly for high-value products such as caviar, as is theft and sale of blank documents.
- Export and import permits are not systematically cross-checked against each other. As noted above, WCMC monitors CITES trade, but it is not part of its remit to investigate illegal trade – though it does sometimes pick up evidence of fraud from simple inspection of the permits.
- Permits are not always cross-checked against what is actually in the shipment. Only a tiny fraction of the huge volume of goods in international trade can ever be physically inspected, and in the case of CITES, there are obvious problems in correctly identifying species, out of the almost 25,000 or so listed in its appendices.
- Lack of capacity in many countries, with insufficient numbers of inadequately trained and paid staff, and shortages of basic equipment. The design of permits tends to vary slightly from country to country, and they may be printed in unfamiliar languages. Simple errors in issuing and monitoring permits may be just as much a problem as deliberate fraud and forgery. Delays in issuing permits may cause traders to prefer to try to trade without them.

Lessons from CITES for the Montreal Protocol

CITES *is* essentially a licensing system – unlike the Montreal Protocol, which features a licensing system as one way in which to implement its commitments. Features worth noting are:

- The substantial experience built up in operating a licensing system over many years, including features such as time-limited and tamper-resistant permits.
- A functioning data collection system, mainly through UNEP-WCMC, though it does not feature systematic cross-checking.

[61] All information in this paragraph: John Caldwell, UNEP-WCMC, personal communication.

A3.5 Kimberley Process

The Kimberley Process on conflict diamonds[62] came into operation on 1 January 2003, and now involves forty-five countries as full participants. The Process was initiated by a number of southern African countries who decided, in early 2000, to take action to stop the flow of conflict diamonds to the market while at the same time protecting the legitimate diamond industry.[63]

The system revolves around the certification of exports. Producer countries control the production and transport of rough diamonds from mine to point of export. Shipments of rough diamonds are sealed in tamper-resistant containers and a forgery-resistant Kimberley Process certificate is issued for each shipment. Importing countries inspect the seal and the certificate (and sometimes the contents) at the time of import, and prohibit the import of rough diamonds not accompanied by a certificate issued by a Kimberley Process participant. Similarly, transit countries ensure that only rough diamonds accompanied by a Kimberley Process certificate are permitted to enter the chain of transactions from import to export. Imports from and exports to non-participants in the Process are prohibited, though in fact Process participants currently account for 99.8 percent of global rough diamond production.[64]

Participants undertake to establish internal systems to implement and enforce the certification scheme, including establishing suitable penalties for transgressions. The Process' Participation Committee examines each country's national regulations to see if they meet the required minimum standards; if they do not the country is excluded from the Process. The first round of scrutiny resulted in twenty out of fifty-eight countries being excluded, of whom ten have now been readmitted. Participants also undertake a series of regular review visits to examine the operation of national regulations on the ground, and also specific missions in response to indications of non-compliance.

Simple examination of production, import and export data can also reveal discrepancies. The Process recommends, amongst other things, that the names of individuals and companies convicted of breaches of the certification scheme should be made known to all participants. In January 2003 the diamond industry introduced a system of self-regulation to support the Process, involving a system of warranties underpinned through the verification of individual companies by independent auditors and supported by internal penalties set by the industry. The effectiveness of the system is not monitored, however, and several breaches of it have been exposed.

Although the Kimberley Process certification scheme has only been in existence since 2003, the indications are that it has had some success in excluding conflict diamonds from world markets. It very rapidly developed to cover the vast majority of rough diamond production and trade, seizures of smuggled rough diamonds have increased in number, and anecdotal evidence suggests that non-certified stones are becoming steadily harder to sell.[65]

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[62] The Process defines 'conflict diamonds' as 'rough diamonds used by rebel movements or their allies to finance conflict aimed at undermining legitimate governments, as described in relevant United Nations Security Council (UNSC) resolutions insofar as they remain in effect, or in other similar UNSC resolutions which may be adopted in the future, and as understood and recognised in United Nations General Assembly (UNGA) Resolution 55/56, or in other similar UNGA resolutions which may be adopted in future' – Kimberley Process Certification Scheme Section 1.

[63] Information taken from Brack, *A Licensing System for Legal Timber*.

[64] See www.kimberleyprocess.com

[65] See Chair's Report to Plenary Kimberley Process Plenary Meeting, Gatineau, Canada 27–29 October 2004, available at http://www.kimberleyprocess.com:8080/site/www_docs/plenary_meetings20/chair_report_to_plenary.pdf

Lessons from the Kimberley Process for the Montreal Protocol

- The system requires relatively low levels of bureaucracy. The UK's Government Diamond Office, for example, issues almost 250 licenses a month (import and export), as well as dealing with UK input into the entire Kimberley Process, with a staff of three.
- The possibility of industry self-regulation and self-verification in operating the licensing system.
- The regular review process of the adequacy and operation of national regulations.

A3.6 CCAMLR Catch Documentation Scheme

Illegal fishing – or, more accurately, 'illegal, unregulated and unreported' (IUU) fishing[66] – is a serious global problem, one of the main impediments to the achievement of sustainable world fisheries. Worth between $4bn and $9bn per year, IUU fishing represents a major loss of revenue, particularly to some of the poorest countries in the world where dependency on fisheries for food, livelihoods and revenues is high. A series of regional fisheries management organisations govern fisheries conservation, of which one of the most effective is the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). CCAMLR was signed in 1980 and entered into force in 1982. It establishes a Commission which sets policy on and regulates activities associated with the rational utilisation and management of marine living resources in the Southern Ocean.[67]

The CCAMLR Catch Documentation Scheme[68] for the Patagonian toothfish, a heavily (and frequently illegally) fished deep-sea species, became binding on all members in May 2000. The Scheme is designed to track the landings and trade flows of toothfish caught in the Convention area and, where possible, adjacent waters, and to limit catches to the national allocation of catch areas and sizes. CCAMLR members are required to ensure that all of their flagged vessels fishing for toothfish are specifically authorised to do so, and complete catch document forms for all catches landed or trans-shipped; document forms are not to be issued to non-authorised ships.

All landings or trans-shipments of toothfish catches at CCAMLR members' ports are only permitted if they are accompanied by a valid form, and any export or re-export of toothfish must also be accompanied by the form countersigned by a responsible government official. Where shipments are split, as is often the case, the paper trail is maintained. Customs authorities are to require appropriate documentation for any case of import or export, and will often carry out cross-checks of weight of fish against the data included in the documents.

The CCAMLR secretariat holds the central register of all completed catch document forms, and satellite monitoring technology has been used for verification. There is interest in moving towards a completely electronic rather than paper-based system, with a central database maintained by the Secretariat, and a trial system recently came into operation. The Scheme has had a clear impact on the

[66] 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.
[67] Information taken from Brack, *A Licensing System for Legal Timber*.
[68] See http://www.ccamlr.org/pu/e/cds/intro.htm

price of toothfish, with a 20–30 per cent price differential developing between illegal and legitimately caught fish.[69]

Lessons from the CCAMLR Catch Documentation Scheme for the Montreal Protocol

- The role of the Secretariat in collecting all completed catch document forms.
- The fact that licenses (catch documents) are issued on a per-shipment basis.
- The extent to which information in the forms is cross-checked against the shipments.

A3.7 Forest Law Enforcement, Governance and Trade

The European Union's Forest Law Enforcement, Governance and Trade (FLEGT) initiative is designed to reduce the extent of illegal logging in many timber-producing countries, a serious problem for many developing countries in particular. The EU is a major importer and consumer of timber and wood products, and set out a series of measures to reduce its imports of potentially illegal products in the FLEGT Action Plan, published originally in May 2003 and currently being put into force.[70]

The Action Plan rests primarily on the negotiation of FLEGT voluntary partnership agreements (VPAs) with producer countries. These agreements will put in place in each country a licensing system designed to identify legal products and license them for import to the EU; unlicensed – and therefore possibly illegal – products will be denied entry at the EU border. The agreements will include the provision of capacity-building assistance to partner countries to set up the licensing scheme, improve enforcement and, if necessary, reform their laws – and, where appropriate, provisions for independent scrutiny of the validity of the issue of the licenses, verifying legal behaviour at every stage of the chain of custody of the timber.

As of September 2006, negotiations on VPAs are currently under way between the EU and a series of producer countries. The EU has already amended its own legal system by agreeing (in December 2005) a new regulation which requires its customs authorities to refuse entry to unlicensed products from partner countries. Initially the licensing scheme will only cover a limited range of products – raw timber, sawnwood, plywood and veneer – but the intention is to extend it to other product categories as quickly as feasible.

Lessons from FLEGT for the Montreal Protocol

- The importance of independent verification of the issue of licenses in the country of origin; the Action Plan recognises that in at least some producer countries, third-party verification (perhaps by a commercial surveillance company) will be necessary if the products can be guaranteed legal.

[69] David Agnew, 'The Drivers Behind Black Markets: Illegal and Unregulated Fishing', paper to RIIA workshop on International Environmental Crime, May 2002.
[70] See ec.europa.eu/comm/development/body/theme/forest/initiative/index_en.htm; and also www.illegal-logging.info.

A3.8 International Coffee Organisation

The International Coffee Organisation (ICO) was established in the 1960s to control the international trade in coffee and stabilise prices.[71] The agreement included a detailed system of unique ICO serial numbers and 'stamps' or certificates, issued by central banks, for different types of trade in coffee beans (import, export, transit, re-shipment and re-export) with both member and non-member consumers. These were checked in and out of countries by customs officials, and copies were sent direct to the Secretariat for validation and cross-checking. In addition to a range of details about the actual product, data collected for each trade included country of origin, country of production, port of export, name of ship/carrier, and details of all intermediate ports.

The system relied on production quotas to maintain prices, but by the late 1980s increasing productivity meant that producers were able to meet their quotas and also sell significant surpluses to non-member consumers. At this point the original framework collapsed, as consumer members realised that they were consistently paying higher prices than non-members, who no longer faced the risks to supply historically associated with being outside the organisation.

Despite this, the value of the data collected by the ICO was recognised by its member governments and the organisation continues to monitor trade through a detailed voluntary reporting framework. The new system is based on government reports, which include:

- For exporting members: preliminary monthly export figures, not more than thirty days after the close of each month; detailed monthly export figures, not more than sixty days after the close of each month; copies of all Certificates of Origin issued attached to relevant lading bills; monthly average and minimum prices received by growers; annual data on opening stocks, production by coffee type and domestic consumption.
- For importing members: monthly reports of imports and re-exports (by volume, value, origin, destination) not later than sixty days after the close of every month; monthly retail prices; annual figures for green coffee roast; inventories of stocks held by importers, roasters and in free ports.

Although the system is voluntary, compliance is checked and published annually and non-compliant countries are pressured into complying; the compliance rate is high. The system is now computerised, with most reports coming in via internet connections. The ICO Secretariat, based in London, performs a critical role in the functioning of the system, collecting and collating data in order to ensure correctness and completeness and provide an overview of the international trade for its participants and analysts; and facilitating and policing the system to ensure it functions effectively.

Lessons from the ICO for the Montreal Protocol

- The way in which a licensing system, tracking quite substantial movements of products in international trade, was made to work even before computerisation, and now works quite effectively with electronic communication, with all communications routed through a central secretariat.

[71] See www.ico.org.

A3.9 Cartagena Protocol

The Cartagena Protocol on Biosafety (Biosafety Protocol) was agreed in 2000, and entered into force in September 2003; it currently has 134 parties.[72] The objective of the Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity. There is a specific emphasis on transboundary movements of LMOs. The development, handling, transport, use, transfer and release of any LMO is to be undertaken in a manner that prevents or reduces the risks to biological diversity, taking also into account risks to human health.

The Protocol's 'advance informed agreement' procedure governs the import of LMOs for intentional introduction into the environment (though not LMOs intended for direct use as food or feed, or for processing). It is not yet fully in operation, and some of its details are still being resolved by meetings of the parties. A key problem is the lack of capacity to develop adequate legal, administrative and technical frameworks.

Under the procedure, the exporter is required to notify, in writing, the competent national authority of the party of import. The party of import is to acknowledge receipt of the notification, although failure to do so does not imply any consent to the import. The party of import is then required to inform the notifier – and the Protocol's Biosafety Clearing House – in writing whether the transboundary movement can proceed. The decision will approve the import, with or without conditions, including how the decision will affect future imports; prohibit the import; or request additional information. Decisions must be made following a risk assessment carried out by the importer, although the importer can allocate the costs of the assessment to the notifier.

The Protocol also allows parties to act in accordance with a more simplified procedure. Provided that adequate measures are applied to ensure the safe intentional transboundary movement of LMOs, a party can communicate to the Biosafety Clearing House cases where movement of LMOs can take place simultaneously with notification, or imports that are exempted from the advance informed agreement procedure.

The Protocol provides that transit states have the right to regulate the transport of LMOs through its territory. However, there is lack of clarity about these rights and obligations, particularly as they relate to documentation, and this continues to be discussed by the parties.

A central feature of the Protocol's ability to track the movement of LMOs is the Biosafety Clearing House, which at present is operational but not fully functional. The Clearing House is meant to provide open access to decisions relating to LMO movements, which facilitates tracking not only by the governments involved, but also by NGOs and the private sector. It features an internet-based central portal, which provides a searchable database of decisions. However, to date no decisions taken under the advance informed agreement procedure have been registered. Information about cases of illegal transboundary movements is also to be made available to the Clearing House.

Lessons from the Cartagena Protocol for the Montreal Protocol

- When fully in force, the advance informed agreement system will be an example of a prior informed consent system.

[72] See www.biodiv.org/biosafety

- The role of the clearing house mechanism, whereby transactions (legal and illegal) and related information can be easily found.

A3.10 Private-sector approaches to supply chain control

In some sectors, the level of illegal operations can be such that it undermines both the reputation of the industry and commodity prices for legal products. This has recently been the case in the global market for timber from the tropics, Eastern Europe and Russia, where illegal extraction has reached crisis point, having grown exponentially since the late 1980s.[73]

As a result of NGO pressure, some more reputationally-aware retail companies and traders began to explore options for demonstrating the legality of their products. This trend was reinforced by the development of policies in a number of EU member states which committed their governments to demanding verified legal or sustainable timber products when purchasing.

Much of the supply from high-risk countries is brought to consumer markets by extremely fragmented groups of operators, and as a result, companies face significant challenges in identifying the source of their raw materials in many cases. For those that have begun to tackle the problem, two main routes have been established: the first is to verify the legality of operations, often through increased integration down the supply chain, the development of chain-of-custody systems and second-party audits; the second is to commit to buying 'certified' products, which comply with a set of criteria for production and trade that is set out and audited by an independent body such as the Forest Stewardship Council (FSC).

In both cases, data is collected and cross-referenced along the supply chain, from a baseline in the forest to the point of export, import or retail, ensuring that products that are not from a legal or sustainable source cannot enter the supply chain. Auditors, either second-party or independent, also play a critical role in both cases, collecting, cross-referencing and auditing sensitive information that may compromise individual operators, establishing a neutral view of a given supply chain without contravening the requirements of commercial confidentiality.

In less contentious timber markets, such as softwood from Scandinavian plantations, almost all product is certified, ensuring that global prices reflect the costs of production and demonstrable legal compliance.

[73] See www.illegal-logging.info for more information on this topic.