

# **A Country-Driven Approach to the Phaseout of Ozone-Depleting Substances in Developing Countries**

---

*Submitted to the Executive Committee of  
the Multilateral Fund of  
the Montreal Protocol*

**March 2001**

**by**

**Rasmus Rasmusson**

**Christo Artusio**

**Olga Gassan-zade**

**Etienne Gonin**

**Joel Ngugi**

# Acknowledgements

This study would not have been possible without the financial support of the Swedish International Development Cooperation Agency, the Global Cooperation Department of the Swedish Ministry for Foreign Affairs, the World Bank, the Swedish Council for Planning and Coordination of Research, the Consensus Building Institute (CBI), and the Global Accords Program of the Massachusetts Institute of Technology (MIT).

Nor would it have been possible without the personal support and advice of a set of prominent members of an Advisory Body, particularly Professor Lawrence Susskind of MIT (who is also president of CBI); Dr. Joanne Kauffmann of the Center for Environmental Initiatives at MIT; and Professor William Moomaw of the International Environment and Resource Policy Program at the Fletcher School of Law and Diplomacy. (See Appendix 5.)

The study was further facilitated by generous advice and information from the Multilateral Fund Secretariat and the four implementing agencies of the Montreal Protocol. Also, Ingrid Kokeritz of the Stockholm Environment Institute provided expert input.

Our thanks also go to the National Ozone Units of numerous developing countries and countries with economies in transition, who gave us of their time in responding to both a survey and subsequent follow-up questions. The developing and developed countries that allowed themselves to be the subject of in-depth case studies also deserve special mention.

Five names appear as the authors of this report. It must also be noted that Chitra Kumar, Mohammad Mussavi, and Roni Zirinski each wrote one case study, thereby making important contributions to this research effort.

Finally, I as project leader received the support of two host institutions, the Weatherhead Center for International Affairs, and the Environmental and Natural Resources Program, Belfer Center, John F. Kennedy School of Government. Our thanks go to these hosting institutions and their patient leadership and staff.

Rasmus Rasmusson  
Cambridge, Massachusetts  
February 20, 2001

# Contents

<b>ABOUT THIS REPORT .....</b>	<b>3</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>PART A: INTRODUCTION .....</b>	<b>20</b>
Chapter 1. Background.....	21
Chapter 2. Theory of Ownership .....	25
<b>PART B: METHODS AND RESULTS.....</b>	<b>29</b>
Chapter 3. Research Methods .....	30
Chapter 4. Survey Results .....	39
<b>PART C: SPECIAL ASPECTS.....</b>	<b>58</b>
Chapter 5. Country Programming and A5C Ownership .....	59
Chapter 6. The Particular Problem of Methyl Bromide .....	63
Chapter 7. The Connection between Ozone and Climate Change Efforts .....	67
Chapter 8. Countries with Economies in Transition .....	69
<b>PART D: CASE STUDIES .....</b>	<b>91</b>
Chapter 9. Summary of Case Studies.....	92
Chapter 10. Uganda.....	97
Chapter 11. Brazil .....	107
Chapter 12. India.....	116
Chapter 13. Iran .....	130
Chapter 14. Egypt .....	139
Chapter 15. Asia.....	151
Chapter 16. Mexico and Turkey .....	155
Chapter 17. Italy.....	160
Chapter 18. France .....	164
Chapter 19. Sweden .....	176
<b>PART E: APPENDICES .....</b>	<b>178</b>
Appendix 1. Terms of Reference .....	179
Appendix 2. Cover Letter.....	180
Appendix 3. Questionnaire .....	181
Appendix 4. Response to Questionnaire by Region .....	186
Appendix 5. Advisory Body Members .....	187
Appendix 6. Methodology for Determining Strength of Domestic Networking.....	188
Appendix 7. Tables of Clustered Responses to Questions 5 and 8.....	189
Appendix 8. Table of Correlations and Vitiating Factors .....	196
Appendix 9. Methodology and Results of ODS Phaseout Correlations .....	198
Appendix 10. Questions on the Ozone-Climate Change Connection.....	205
Appendix 11. Tables from the CEITs Chapter .....	206
Appendix 12. Acronyms.....	211

## About This Report

The Montreal Protocol—the 1987 international agreement that aims to phase out the production and consumption of substances that deplete the earth’s ozone layer—faces significant new challenges, particularly in the developing world. The Protocol’s Multilateral Fund, which helps to finance phaseout in developing countries, has succeeded in considerably reducing the consumption of chlorofluorocarbons (CFCs) and other ozone-depleting substances (ODSs) in the manufacturing sector. It now faces the urgent task of reducing the consumption of ODSs in a countless number of widely dispersed small and medium-sized enterprises (SMEs). (Many other environmental conventions face a similar challenge.) In particular, there is a need to phase out CFCs used in refrigeration and methyl bromide used in agriculture. To meet these new challenges, the Montreal Protocol and the Multilateral Fund must employ a new strategy—one that puts the developing countries squarely in the driver’s seat.

This report summarizes the findings and recommendations of a 6-month inquiry into the possible elements of a country-driven approach to phaseout. In particular, we sought ways in which developing countries’ “ownership” of their phaseout programs could be strengthened. We define “ownership” as the engagement of the National Ozone Units (NOUs, the offices within each country that are responsible for overseeing phaseout) and their national governments in the policy process related to ODS phaseout, and the NOUs’ capacity to implement the policy measures it deems appropriate. Our work is based on the assumption that ownership by the NOUs and the national governments will lead to a greater ability and willingness to reach the numerous and dispersed SMEs, which in turn will lead to greater reductions in the production and use of ODSs. We hope that our work will complement the current efforts of the Executive Committee of the Multilateral Fund to identify elements of a New Strategy that is more appropriate to tackle new challenges in the phaseout of ozone-depleting substances.

As part of this research project, we surveyed 118 NOUs in developing countries, studied some specific aspects of ODS phaseout, and wrote in-depth case studies of the experiences of seven countries. Our analysis of the findings identified five important elements of ownership that should be emphasized and developed:

1. the status and mandate of the NOUs;
2. institutional strengthening;
3. the engagement and networking of stakeholders;
4. domestic and international information flow; and
5. regional coordination and cooperation.

An executive summary of our conclusions begins on the following page. The remainder of the report is organized into five parts. Part A provides background on the study and describes our theory of ownership. Part B details the methods, findings, and analysis of our survey of NOUs. Part C discusses several aspects of ODS phaseout that deserve particular attention. Part D includes seven in-depth case studies—five of developing countries and two of developed—as well as several short cases. Part E contains the appendices.

# Executive Summary

This executive summary presents the key conclusions and policy recommendations that emerged from our research. It begins with a brief discussion of the progress that has been made in phasing out ozone-depleting substances (ODSs) and the remaining challenges. The conclusions, including some general recommendations, are organized around five key elements of ownership:

- the status and mandate of the National Ozone Units (NOUs),
- institutional strengthening,
- the engagement and networking of stakeholders,
- domestic and international information flow, and
- regional coordination and cooperation.

The summary concludes with a section detailing specific policy recommendations.

## ***Progress and Remaining Challenges***

---

The 1987 Montreal Protocol sets time schedules for the phaseout of ozone-depleting substances. In order to encourage so-called “Article 5 countries” (A5Cs, most of which are developing countries) to sign on to the Protocol, a Multilateral Fund (MLF) was set up in 1991 to provide financial assistance to A5Cs. A5Cs were also given a ten-year extension on the deadlines in the Protocol.

ODS phaseout in developing countries is planned and implemented by the A5Cs with assistance from four implementing agencies (IAs)—the International Bank for Reconstruction and Development (IBRD, part of the World Bank), the United Nations Development Program (UNDP), the United Nations Industrial Development Organization (UNIDO), and the United Nations Environment Program (UNEP)—as well as the Multilateral Fund Secretariat in Montreal.

The Multilateral Fund receives contributions from industrialized countries in roughly the same proportions as their contributions to the United Nations (UN). The MLF received U.S.\$240 million from 1991 to 1993; U.S.\$510 million from 1994 to 1996 (including U.S.\$40 million carried over from the preceding period); and U.S.\$540 million from 1997 to 1999 (including U.S.\$74 million carried over from the preceding period). At the 11<sup>th</sup> Meeting of the Parties (MoP) in Beijing in December 1999, a fourth replenishment of U.S.\$440 million for 2000-2002 was negotiated. A proposal from industrialized countries to add a loan provision was turned down by developing countries.

The Multilateral Fund Secretariat estimates that, as of December 2000, a total of U.S.\$1.135 billion has been allocated by the MLF for programs and projects in A5Cs. This has resulted in phasing out more than 120,000 tons of ODP (ozone-depletion potential, a measurement of the capacity of an ozone-depleting substances to damage the ozone layer). The bulk of that phaseout occurred in Asia and the Pacific.

Progress made in ODS phaseout in A5Cs thus far is summarized in the table below, which is organized by sector of use and by region. The data were provided, at our request, by the Multilateral Fund Secretariat in February 2001. The figures reflect the tons of ODP phased out by all of the programs and projects approved by the Multilateral Fund's Executive Committee (ExCom). The figures for halon appear quite large because halon has a very high ODP value.

	<b>Total Phased Out</b>	<b>Africa</b>	<b>Asia &amp; Pacific</b>	<b>Europe</b>	<b>Latin America &amp; Caribbean</b>
Aerosol	20,988	1,242	18,918	730	98
Foam	23,067	2,300	15,664	1,498	3,605
Fumigant	-	-	-	-	-
Halon	44,482	-	44,477	-	5
Other	7,138 <sup>1</sup>	-	7,102	-	36
Refrigeration	23,261	2,296	14,074	1,661	5,229
Solvent	1,302	43	980	59	221
<b>Total</b>	<b>120,238</b>	<b>5,881</b>	<b>101,215</b>	<b>3,948</b>	<b>9,194</b>

*All figures are in tons of ODP.*

Despite the progress that has been made in phasing out ODSs, considerable challenges remain. A total of 110 countries reported their remaining ODS consumption in 1998 and 1999 by sector, and it added up to between 125,000 and 131,000 ODP tons. The figures are uncertain, but they provide a sense of the problem. Some of the tonnage reflected in these figures will be phased out through projects that were approved by the Executive Committee after 1997 but have not yet been implemented. For CFCs this would be some 40,000 tons.

The consumption data reveals that CFCs are the most significant remaining challenge. This is reflected in the table below, which was created from consumption data in an Executive Committee document submitted to the 31<sup>st</sup> meeting in July 2000.<sup>2</sup> The table shows the amount of each major ODS consumed, by sector of use.

<b>Sector</b>	<b>Tonnage and Percentage of the Substance</b>									
	<b>CFC</b>	<b>%</b>	<b>Halon</b>	<b>%</b>	<b>CTC</b>	<b>%</b>	<b>TCA</b>	<b>%</b>	<b>MBr</b>	<b>%</b>
Aerosol	6,238	5								
Foam	51,146	39								
Solvent	4,103	3			10,226	98	2,664	100		
Refrigeration	69,785	53								
Firefighting			26,583	100						
Fumigant					257	2			9,709	100
<b>Total</b>	<b>131,272</b>	<b>100</b>	<b>26,583</b>	<b>100</b>	<b>10,483</b>	<b>100</b>	<b>2,664</b>	<b>100</b>	<b>9,709</b>	<b>100</b>

*Are figures are in tons of ODP.*

From this table it is clear that CFC usage is dominated by refrigeration, followed by foam. Halon is used solely in firefighting, carbon tetrachloride (CTC) and 1,1,1-trichloroethane (TCA) as solvents, and methyl bromide as a fumigant. In terms of volume, CFC is the dominant ODS in the developing world.

<sup>1</sup> Of the 7,138 tons of "Other," 6,698 comes from the phaseout of ODS production.

<sup>2</sup> UNEP/OzL.Pro/ExCom/31/15.

It should be noted that these data are incomplete and likely inaccurate. For many countries, reliable data on what remains to be phased out simply does not exist. Information on production and consumption of ODSs is submitted to the Ozone Secretariat in Nairobi by all of the parties to the Montreal Protocol, thus fulfilling their obligations under Paragraph 7. In addition, developing countries report sector-by-sector consumption data to the Multilateral Fund Secretariat in Montreal. The consumption figures compiled by these two sources should tally, but typically do not. We have however the estimate of 181,000 tons of ODP, with about 131,000 tons of that total represented by CFCs, of which more than half (nearly 70,000 tons) is used in the refrigeration sector.

China is estimated to consume half of the world's CFCs. India, Brazil, and Indonesia are assumed to follow, in that order, in terms of total ODS consumption.

The very important refrigeration sector includes two parts—manufacturing and servicing. Refrigeration servicing is the most difficult to address because it involves hundreds of thousands of small and medium-sized enterprises (SMEs). (The term SMEs typically also includes micro enterprises and individuals.) It includes, for example, refrigeration servicing firms and technicians who install systems of all sizes, ranging from those in supermarkets and cold storage facilities to refrigerators in people's homes and air conditioners in offices, factories, hotels, homes, and cars. While only 57 of 111 developing country parties to the Protocol had, by mid-2000, reported how their CFC consumption was distributed between the manufacturing and servicing sectors, these 57 reported CFC consumption in the servicing sector as nearly 85% of total refrigeration-related consumption. Because of the importance of reaching this sector, this report will refer often to the many ailing or belated refrigeration management plans (RMPs), the national vehicles addressing this challenge.

As for the 54 countries that did not split their CFC consumption totals between refrigeration manufacturing and servicing, we simply do not know whether servicing is also dominant in those countries. All we can say is that the 57 countries who report the servicing and manufacturing figures separately totaled some 24,000 tons of CFCs used in refrigeration, while the other countries reported a total of 45,900 tons of CFCs in refrigeration.

## ***Status and Mandate***

---

It is imperative that the National Ozone Units—the offices in each country in charge of ODS phaseout activities—have a sufficient mandate from their governments to devise phaseout strategies. Increasingly, ODS phaseout has to be targeted toward the numerous and dispersed small and medium-sized enterprises. Therefore, all key actors must have a more nuanced understanding of the domestic political and economic setting in which phaseout takes place.

Mandate involves two main elements, as follows.

1. *Latitude of choice*: NOUs must be able to make their own decisions about what ODSs they will phase out and how. However, granting true choice will only be effective if NOUs have both the capacity and the willingness to understand the ramifications of the various decisions that confront them. In order to do this effectively, the NOUs must be in touch with all

national and international stakeholders—in other words, everyone affected by or responsible for ODS phaseout in some way. (Such a task may seem herculean and could therefore be assisted by the creation of a neutral, global information clearinghouse to facilitate NOU access.) Failure to grant an NOU latitude of choice in devising its own policies undercuts an NOU's sense of ownership and, ultimately, the efficacy of ODS phaseout strategies.

2. *Level of involvement:* NOUs must be involved in the policy process in all matters related to ODS phaseout. This means that both national governments and international stakeholders must engage NOUs more frequently and more effectively. In turn, NOUs must have the capacity to engage stakeholders and implement the policy initiatives it deems appropriate. Strategies initiated because of external pressure and not because an NOU considers them effective do not bring good results. In support of this point, our study found that NOUs that were not involved in the origination and formulation of their Country Programs showed low levels of ownership. (Country Programs are the specific plans for ODS phaseout in each country.) By involving the NOUs in devising appropriate strategies and policies, the international community shows that it recognizes the NOUs' crucial role in harnessing domestic politics and prioritizing phaseout activities.

In addition, there are three levels at which the concept of mandate is most relevant.

1. *Independence from a restricted mandate:* Most NOUs feel that their efforts at ownership are inhibited more by a lack of national or domestic support than a perception of domination by international stakeholders. This is partly because environmental policy goals in many A5Cs remain subsidiary to economic development goals, except in situations in which particular policies are perceived to both bolster economic efficiency and growth and address environmental concerns.<sup>3</sup> Consequently, there is a need to empower NOUs to influence their governments to prioritize ODS phaseout activities. We found that national government commitment plays a more important role in creating the conditions favorable to effective implementation of phaseout strategies than the attitudes and activities of international and bilateral actors. Overall, then, there is need to encourage more ownership at the national level. In addition, the Uganda case study presented in this report demonstrated that there is a need to parcel out the political commitment to a variety of actors to maximize the effectiveness of phaseout strategies
2. *Independence to choose implementing agency partners:* The present allocation of shares of the phaseout work between the four implementing agencies is counter to a flexible approach and does not give A5Cs enough latitude of choice. Ownership means assigning tasks to those IAs that have a comparative advantage for those tasks. Not all IAs are equally effective at performing all the tasks, and the NOUs must be given the right to identify which IA is best suited to its specific needs. As has been found, “the evolution of the comparative advantage debate suggests that the most important questions to ask before selecting an agency to manage an environmental aid program should be functional and specific, rather than organizational and abstract.”<sup>4</sup>

---

<sup>3</sup> David Fairman and Michael Ross, *International Aid for the Environment: Lessons From Economic Development Assistance* (Cambridge, MA: The Center for International Affairs, Harvard University, Working Paper No. 94-4, 1994), p. 43. See also World Bank, *World Development Report* (New York: Oxford University Press, 1992), p. 64-66.

<sup>4</sup> Fairman and Ross, p. 35.

3. *Independence from micro-management by international stakeholders:* NOUs must be allowed to come up with their own homegrown solutions to the ODS phaseout problems in their countries. In order to activate the commitment of the NOUs and their national governments, they both must be empowered to make decisions. Their capacity should match the responsibility they take on. Also, international stakeholders must encourage input from NOUs and refrain from patronizing them. In particular, detailed assistance conditions from the Multilateral Fund hinder the flexibility NOUs need. Such conditions also generate a perception of micro-management that diminishes faith in ODS phaseout strategies. In this sense, the World Bank's sectoral strategy is a form of country-driven approach, because it allows an A5C to plan its whole sector and obtain funds for it without detailed conditions for every project. This gives the A5Cs leeway to devise context-specific, flexible, and responsive phaseout policies.

In order for NOUs to be empowered and responsible actors, they must have the institutional capacity to gather up-to-date information and engage in policy setting and design. They must also have the capacity to be flexible and responsive in dealing with other national and international actors and with the administrative institutions of their countries.

The results of our study indicate that developing institutional capacity is an important way to involve and engage the NOUs in ODS phaseout activities. For example, we found that NOUs that were *in some way* involved in the formulation or revision of their Country Programs tended to show greater instances of ownership, such as more frequent stakeholder meetings and more efforts at consensus building and domestic networking. The survey also established that in cases in which an NOU has a strong team of dedicated staff who feel motivated to pursue their responsibilities despite difficult constraining factors, the NOU also has a strong showing in some of the performance indicators. An outstanding example from our study is an African country that has recorded spectacular success in terms of ODS phaseout, yet has no import/export legislation in place. The NOU complained outright that it needs more government support. At the same time, it has initiated a very strong public awareness campaign and has been rather successful in networking with other domestic agencies and private stakeholders. Also, while there is no formal import/export legislation, the NOU has initiated a temporary measure that seems to be working fairly well under the circumstances.

This example might be explained in terms of “cycles of influence.” A cordial and good working relationship with international stakeholders imbues an NOU with confidence, will, and motivation—important components of ownership. With a sense of ownership and motivation, an NOU is able to exert some measure of influence on its own national government.

It may also be helpful if an NOU is located within a ministry and is headed by a senior official of the ministry such as a Permanent Secretary. In such cases, even if there is no strong political conviction among the key national players, the NOU is still able to create space within the government bureaucracy that it can use to achieve its aims. In one country, a discussion of ozone issues between a UNDP representative and the president of the country resulted in strong and sustained ownership at the country level, which reinforced the NOU's ownership and correlated with success in ODS phaseout.

## ***Institutional Strengthening***

---

If developing countries are to take charge, they must have the capacity to do so. The task of phasing out ODSs includes:

- identifying what ODSs are produced and consumed, where they are produced and consumed, and by whom;
- launching awareness campaigns;
- engaging stakeholders in a dialogue on what needs to be done and how;
- suggesting measures (e.g., laws, incentives, disincentives, technology options, and voluntary schemes) to stakeholders;
- initiating, designing, detailing, and/or revising a Country Program;
- in so doing, coping with communication and dialogue with “the outside world” (the MLF Secretariat, implementing agencies, bilateral donors, the regional network of NOUs, neighboring countries, and major trading partners);
- setting up and benefiting from an advisory committee of stakeholders;
- implementing programs and projects in cooperation with stakeholders inside and outside the country; and
- doing follow-up and using feedback in an attempt to correct or adjust activities that do not fit the intended nature and pace of phaseout.

This list of tasks is not complete and is not in sequential order. The tasks are interdependent, and the NOU has to move back and forth among them. To be able to do all these things, often at the same time, the NOU must enlist the support of industry, consumers, NGOs, other arms of the government, and outside agencies such as the implementing agencies.

### ***The Need for Capacity***

The Multilateral Fund has issued guidelines regarding the number of NOU staff to be supported in each country in the first phase of institutional strengthening, based on a country’s estimated total consumption of ODP. The guidelines are as follows.

- Institutional support to high-consuming countries (above 10,000 tons ODP)—up to U.S.\$400,000, which might suggest at most three professionals and three supporting staff
- Institutional support to medium-consuming countries (5,000-10,000 tons ODP)—up to U.S.\$300,000, which suggests two to three professionals and two to three supporting staff
- Institutional support to low-consuming countries (less than 5,000 tons ODP)—up to U.S.\$170,000, which suggests one to two professionals and two supporting staff

Under these guidelines, equipment is expected to make up 3-7% of the total, personnel costs 30-50%, and operational costs 45-55%.<sup>5</sup>

Demands on NOUs’ capacity have increased greatly in recent years, as the focus has shifted to addressing consumption by a multitude of dispersed, small and medium-sized enterprises. The above levels of professional staff and financial support are probably not enough to meet the

---

<sup>5</sup> UNEP/OzL.Pro/ExCom/19/52, for the 19<sup>th</sup> meeting of the Executive Committee in May 1996.

needs of this new era, so we have to consider either increasing international assistance or finding resources within each country to augment these resources, or both. The Uganda case points to a useful way of mobilizing internal resources in a country—by “parceling out” ownership to stakeholders outside of the government.

### ***How to Build Capacity***

Increased institutional strengthening (a type of so-called “noninvestment” activity) better enables an NOU to deal with a very large number of consumers. Choice and flexibility in funding assistance would also increase an NOU’s effectiveness in this new situation. By contrast, detailed conditions for assistance from the Multilateral Fund hinder the necessary flexibility. The present allocation of “shares” of MLF funding between the four implementing agencies also limits NOU choice. Ownership would be promoted if tasks were assigned to IAs corresponding to their comparative advantages.

Institutional strengthening funds may seem less effective when compared to the short-term impact of so-called “investment” (or project-specific) funds. However, it should be remembered that, in the long run, institutional strengthening can actually increase the effectiveness of investment funds by improving NOUs’ capacity to oversee such projects.

As discussed previously, this study found that CFCs in the refrigeration servicing sector and methyl bromide in the agriculture sector are the two most difficult remaining challenges. These sectors are made up of many widely spread units, so NOUs’ capacity must be increased in order to handle these challenges. Still, there are ways to save energy by involving intermediaries that can assemble the many units—for example, in the form of associations of refrigeration technicians or other industry groups. Such intermediaries often do not exist in developing countries, however, so assistance will be needed in organizing them. Enticing the informal sector to join will also be time-consuming. These promotional activities may not show results for some time. Institutional strengthening has to be a “joint venture” between A5Cs and non-A5Cs by matching Multilateral Fund resources with developing country resources. As phrased in the 32<sup>nd</sup> Executive Committee New Strategy Document of December 2000, “Strengthening of NOUs in national governments under conditions and terms to be negotiated later on” would mean matching contributions from developing and developed countries in the spirit of partnership.

An NOU will need qualified and motivated officers. In order to raise the quality of NOU staff, and ensure continuity in staffing, the NOUs will need training, a reward system, infrastructure, and equipment.

Unfortunately, both the Multilateral Fund Secretariat and the IAs have acquired somewhat bad habits in recent years in their dealings with NOUs. The NOUs have been “mothered,” so to speak, by the donor side. They have been regarded more as the last in the chain of command or the purveyor of statistics and reports than as mature and responsible organizations and prime actors to be served according to their own needs and priorities. Hence, NOUs also have to increase their capacity to negotiate with the MLF Secretariat and the IAs, so they can “put their foot down” when needed. In order for NOUs to exhibit greater ownership, they need of course a

great deal of support from their governments. Again, we arrive at the need for shared responsibilities in a joint venture between the Multilateral Fund and A5Cs. More MLF flexibility must be matched by increased A5C ownership at different levels and sectors of government.

In this mutual development of flexibility and ownership, special focus must be given to the position, mandate, lines of command, budget, and flexibility of work plans suggested in decision 30/7 of the Executive Committee. This decision says that the National Ozone Units should be given a clear mandate and responsibility, position, capacity, and continuity of officers, and a specified high-level officer or post with overall supervisory responsibility necessary support structures and resources.

Investment projects are, alone, not likely to meet the new challenge of addressing ODS consumption in numerous and dispersed SMEs. Noninvestment activities will thus increase in importance. Indeed, the tradition of applying modest MLF funding to noninvestment projects (compared to investment expenditures) will no longer be adequate to ensure phaseout. The types of noninvestment activities needed include information exchange between NOUs and stakeholders, public awareness campaigns, the (re-)drafting of Country Programs, training, the analysis and assessment of technological alternatives, the drafting of laws, the (re-)drafting of refrigeration management plans, seminars, networking, lobbying, “road-shows,” and capacity strengthening within the NOUs themselves.

Of these activities, Country Program formulation and redrafting needs prime attention, as it provides the blueprint for all other activities. Such formulation and redrafting should coincide with institutional strengthening. The process of drafting or revising Country Programs helps to identify stakeholders and facilitates early consensus building. Among respondents to the survey, those who showed ownership of their Country Programs referred to it as the cornerstone of their further success.

Indeed, two important lessons were drawn from the study.

1. The factors vitiating ownership can be at least partially offset by institutional strengthening.
2. Where support by the national government is weak, institutional strengthening funds can assist in establishing NOUs that can then promote government support, to some extent.

These two conclusions support our rationale for more funds for institutional strengthening.

### **The Engagement and Networking of Stakeholders**

---

In our theory of ownership, the interactions of various stakeholders in fostering ownership is a driving force in the ultimate phaseout of ODSs. The responses to our survey identified the key players in a country-driven approach and the kind of consultation needed to make ownership invigorate the whole policy process.

## ***Who the Stakeholders Are***

The first stage of ODS phaseout encouraged by the Multilateral Fund focused on larger factories and dealt with national ministries and agencies. Today, however, the main stakeholders are not solely government actors or major industries. Given the new challenges described previously, it seems that other key actors should be considered central, including the public in general, small and medium-sized enterprises, associations of producers and consumers, NGOs, universities, and the media.

In our survey, each NOU was asked to name the most important stakeholder in phasing out ODSs. The NOUs most often cited associations of refrigeration manufacturers and technicians, importers and customs officials, and chambers of commerce. Interestingly, most of these are nongovernment actors. However, other questions allowed us to crosscheck and confirm that government actors remain, in many aspects, essential stakeholders.

NOUs were also asked to summarize their major strengths. In a large number of cases (20 out of 75, the biggest cluster among the answers to this question), support from stakeholders was mentioned as the primary strength. In 16% of the responses, government was cited as a crucial stakeholder, with stakeholders in industry and the NOU's steering committee both named in 5% of the responses. Support from the UN and affiliated agencies was cited in 7% of the responses.

The importance of involving stakeholders was also illustrated in the responses to our question about the NOUs' most successful initiative. Consensus building and coordination at the national level was cited in 15% of responses as the most effective initiative. The training of refrigeration technicians and customs officials, and the identification and measurement of ODS consumption, were also named as major successes.

From the survey responses we received, it appears that the major stakeholders at the national level are as follows.

- Other government agencies (ministries, agencies, customs officials)
- Industry representatives, especially associations of refrigeration technicians and producers (since refrigeration is the first concern in developing countries) and importers, as well as small and medium-sized enterprises and small farmers (for the phaseout of methyl bromide)
- Financial intermediaries within the developing countries
- The NOUs' advisory committees, which represent opportunities for contact between private and government actors
- The public at large, which needs to be informed and sensitized to the issues, especially if new regulations and taxes are to be passed

Our case studies revealed the central role that can be played by universities, the press, and NGOs in influencing ODS phaseout. These actors are the primary means for awareness raising, and can foster debates on technical alternatives. NOUs often found it beneficial to include academics and NGOs on their steering committees, for instance.

The case studies also illustrated the type of governmental stakeholders that should be involved. For instance, several cases (including Brazil) indicate that the engagement of the Ministry of

Finance in the steering committee is an essential step in enforcing ozone policies. Our survey found that import/export legislation was in effect in only about 40% of responding countries, which also underlines the need for engaging the ministries in charge of such legislation.

Other types of stakeholders were identified and are treated elsewhere in this paper (e.g., implementing agencies, which are sometimes not clearly distinguished from the MLF itself by NOU officials; other neighboring countries, which often face similar issues; and bilateral donor countries). This section will more particularly underline the need to involve national stakeholders.

### ***Why and How to Involve Stakeholders***

The need to involve stakeholders was a fundamental premise of our theory of ownership. We assumed that it is easier to implement a policy if people have been consulted about it and their input taken into account. Consulting with and giving a sense of ownership to stakeholders is a way of ensuring political buy-in, the efficacy of which has been recognized in many areas of social policy. Such measures do not preclude the need for strict regulations, however, when such regulations are deemed the most efficient solution to an ODS phaseout challenge.

Our survey confirmed this aspect of our theory and highlighted the importance of timing. For example, in several cases, Country Programs were devised before an NOU had been established. This obviously implied relatively limited input into the Country Program by local stakeholders. Analysis on a country-by-country basis showed that such a sequencing led to slower ODS phaseout. In short, we found that it is easier for NOUs to reach objectives that they and other stakeholders have had a hand in developing.

Likewise it was demonstrated, as expected, that countries that had received Country Programs for comment (after they were written by an outside consultant) performed relatively worse compared to countries that were involved in the writing of the documents. It thus seems wise to involve national authorities and industry representatives in any advising done by consultants on ODS phaseout. Such involvement is only possible if these stakeholders are in contact through an active domestic network, however.

### ***Domestic and International Information Flow***

---

A free flow of information is a critical element of ownership and is important in facilitating the phaseout of ODSs. Information must flow domestically between an NOU and its stakeholders. It must also flow internationally, among NOUs sharing a geographic region, and between NOUs and the MLF and IAs. It is also important for information to be retained and accumulated within the NOU over time.

### ***Domestic Information Flow***

NOUs that network with stakeholders in their countries are more likely to succeed in both collecting accurate data on ODSs and mobilizing stakeholders to follow, and even suggest, policies and advice designed to achieve phaseout. Domestically, information is important in building the institutional capacity of NOUs. Without an inflow of timely and accurate information, an NOU has little awareness of the nature and extent of its country's consumption or production problem. If an NOU lacks the means to get information to stakeholders, it is difficult for stakeholders to understand the nature and significance of the problem, how their actions may be contributing to it, and what they can do to help solve it. Information is also a critical component in the formulation, implementation, and revision of a Country Program.

The flow of information from domestic stakeholders to NOUs helps NOUs to understand the context in which they are operating. Many NOUs have difficulty collecting information, and so they do not know where, how much, and what kind of ODSs are being consumed in their country, because consumption is becoming highly decentralized. The informal sector also frequently serves as a barrier to information gathering, especially in African countries. In response to our survey, most NOUs cited the consumption of CFCs in refrigeration and methyl bromide in agriculture as the two most difficult sectors, partly because the consumption is widely dispersed throughout small and medium-sized enterprises and individuals. Thus, it is increasingly important to have accurate and comprehensive data to understand the extent and nature of the consumption problem and identify the best approaches to ODS phaseout. This trend also confirms the need to enhance capacity building and other noninvestment measures that improve networking and data collection as a crucial aspect of ODS phaseout.

Information flow from an NOU to stakeholders helps the stakeholders to understand the nature of the problem and how to address it. Without this flow of information, an NOU's efforts are unlikely to be successful. By enhancing an NOU's capacity to build stakeholder consensus through active networking, public awareness raising, and providing information, ownership is increased at both the NOU and national government levels, and also among the stakeholders. In our survey, the NOUs that demonstrated high efficiency and capacity felt that noninvestment projects were their most successful initiatives. Among such initiatives, consensus building, active networking, and public awareness programs were mentioned most often. Increased awareness and consensus among stakeholders facilitated voluntary phaseouts, greater acceptance and support for proposed and adopted regulations, and local counterpart funding, thus increasingly strengthening ownership in A5Cs. In short, domestic networking is the best way to secure national commitment to the Montreal Protocol. Only with the engagement of all actors, including central ministries like Finance, Planning, Commerce, and Industry, can an A5C implement its commitments.

### ***International Information Flow***

NOUs cannot possibly have adequate knowledge about all aspects of ODS phaseout. The Multilateral Fund Secretariat, the Technical and Economic Assessment Panel serving the Meeting of the Parties, and the implementing agencies all have information on technology

choices and procedures that is critical to the success of NOUs' phaseout efforts. NOUs need this information in a timely and accessible fashion. We have frequently heard that the information is not readily available to the NOUs; although it is on the World Wide Web, many NOUs have unreliable Web access. Information is also frequently not available in the language of the country, creating a need for translation before the material is disseminated and made useful to the stakeholders who rely on it. Translation services are often not available, creating a further barrier to the proper flow of information.

### ***Retaining Information within the NOU***

We found that many NOUs do not have enough resources to retain staff and ensure the retention of important information and the continuity of domestic policies. NOU staff are usually paid less than their international counterparts, and they frequently take more lucrative positions after a few years within an NOU, depleting the NOU's organizational memory. In many cases, the head of the NOU who responded to our questionnaire could not comment on the Country Program or other early phases of the NOUs' efforts, because he or she was not present at the time. This lack of continuity and institutional memory inhibits the learning process, because mistakes can be more easily repeated. It also disrupts the flow of information between NOUs and stakeholders, because networks are formed between people, not institutions, and are thus weakened when key staff leave.

### ***Regional Coordination and Cooperation***

---

All but one of the respondents to our survey stated that the UNEP-organized regional network meetings are a fruitful way to share their experiences and learn from each other, including finding joint approaches to implementation. On several occasions during this research inquiry, in fact, NOU representatives asked us to help them locate and join a regional network. We also received requests for a UNEP Representative Office in the regions where UNEP is not yet present.

Although the available data do not support quantifying the impact of regional networking on the efficacy of the phaseout, some of the case studies provide factual evidence of it. India, for example, is involved in the South Asian Regional Network and reports that it benefits greatly from this network through facilitated regional action. In particular, the network enables India to address the smuggling of ODSs between India and Nepal.

### ***Types of Regional Cooperation***

Regional networking meetings can help to facilitate information exchange, which is perhaps the simplest type of regional cooperation and at the same time the most needed. In countries with economies in transition (CEITs), for example, lack of information is viewed as one of the major problems. At regional network meetings, countries can exchange a broad spectrum of information on alternative technologies, policies and approaches of the MLF and IAs, current

developments in the field, and the specific details of individual projects. Direct interaction with international stakeholders, who are typically present at regional meetings, is especially helpful in clarifying procedural or policy issues and information on the functioning of the MLF. But another important feature of regional networking is that information exchange occurs primarily at a peer-to-peer level. When NOUs exchange information with each other, they may be less concerned about possible biases in the information than they would be if it came from international actors and/or industry stakeholders.

Regional networking is also the opportunity for direct exchange of experiences with ODS export, import, and recycling between the NOUs. While sending ODS data from the Ministry of Environment in one country to the Ministry of Environment in another country might be complicated by a web of bureaucratic procedures and constraints, a direct interaction between NOU officers allows for an immediate “check” and helps to identify smuggling problems. This also limits “free-riding” behavior, as countries have more direct access to policy implementation in their neighboring countries. Other regional problems and their causes, for example excessive dumping of outdated technology in a region, can be also identified through the personal interaction of the NOU officers.

Through regional networking, the NOUs can learn about successful initiatives and best practices applied in other countries. We found that the NOUs with high levels of ownership were most willing to teach other NOUs about their best practices. Regional network meetings thus provided some NOUs with a chance to take credit for their successes and hard work.

Regional networking also allows NOUs to cooperate in ODS-phaseout implementation on the regional level. For example in Latin American countries, where countries’ legal structures are similar, local trade zones permit legal harmonization on the regional level. The countries therefore can share successful policies and introduce bills modeled on laws in neighboring countries. In another example, a German bilateral project, also supported by France, seeks to explore the possibility of a joint halon-banking management program in four Middle Eastern countries.<sup>6</sup> Updating and harmonizing regional ODS consumption and production information is also a possible form of regional cooperation. Another example of a regional phaseout approach is the French project of ODS phaseout in the refrigeration sector in the UEMOA economic area (in West Africa): it suggests an integrated approach to energy savings and ODS and greenhouse gas phaseouts, coordinated at the regional level.<sup>7</sup>

Another possibility for regional cooperation is through regional public awareness campaigns. Regions sharing the same language generally also share the same informational space—in other words, newspapers and television programs produced in one country can be distributed or aired in a neighboring country. Thus, NOUs can cooperate to produce regional public awareness materials and campaigns.

Thematic, problem-oriented regional workshops can also facilitate the sharing of experiences between the NOUs. Tips, useful advice on what has worked and what has not, and even national strategies can be learned from such workshops. Also, thematic meetings addressing a particular

---

<sup>6</sup> Bahrain, Lebanon, Qatar, and Yemen.

<sup>7</sup> UEMOA includes eight countries in Western Africa.

ODS problem or policy allow NOUs to interact with international consultants and can facilitate direct knowledge transfer from the developed countries. For example, Italy has shared its experiences phasing out methyl bromide with Eastern European and African countries through thematic regional workshops. Methyl bromide is a major issue in Italian phaseout, and it is also a high priority in developing countries.

### ***Why Regional Networking Is Important***

Regional collaboration is an essential factor in creating ownership of phaseout activities. It provides NOUs with latitude of choice (in terms of information and possible policies), increases levels of involvement by including NOU officers in a peer group, and builds NOUs' capacity by diversifying their exposure to ODS phaseout activities and increasing their level of knowledge and understanding of the issues. In short, it allows countries to learn from the successes and mistakes of other countries. In addition, regional action makes it possible to reach small countries with low consumption, and thus limits free-riding, encouraging collective action on the part of regional stakeholders. And finally, such networking allows countries that face regional problems to resolve those problems together. For example, when ODSs are illegally imported into several countries through another, there is a need for coordinated action.

### ***Policy Recommendations***

---

Based on our analysis of our survey of NOUs and seven in-depth case studies, we offer the following specific policy recommendations.

***Strive for partnership relations.*** To promote ownership by A5Cs, the Multilateral Fund Secretariat and the implementing agencies need to be more respectful and less persistent in their attitudes and communications with NOUs, and instead work to build partnership relations with NOUs. Ultimately, this requires the Executive Committee to encourage more of a partnership dialogue between developing countries and industrialized countries. This will require A5Cs to be better prepared and consistent in their approach to ExCom meetings, thus increasing the demands on the NOUs in those countries.

***Establish regular joint evaluations.*** Monitoring and regular joint evaluations by A5Cs and non-A5Cs will improve the utilization of MLF funds. With widespread consumption of CFCs in refrigeration identified as the largest remaining problem in phaseout, and associations of refrigeration manufacturers and technicians often named as the most important stakeholders, the ExCom should promote sectoral approaches (taking care to avoid underestimating sector consumption). Such strategies invite the involvement of two kinds of intermediaries: industry/branch/professional associations and national A5C financing institutions. Such arrangements facilitate desirable joint evaluations of achievements and bottlenecks. Hence, intermediaries must be identified and approached as a matter of urgency, and NOUs can play a key role in establishing this domestic network.

***Avoid micro-management in institutional strengthening.*** In other words, avoid rigid guidelines and the tendency to "mother" A5Cs. Each NOU and A5C has particular characteristics, and no

general development path can be prescribed. The current tendency to spell out organizational characteristics and work plans in detail should be avoided, in order to meet the need for individualized approaches and greater flexibility in institutional capacity building. IAs working directly with the A5Cs should be given discretion in identifying individual institutional strengthening needs.

***Increase attention to SMEs and noninvestment activities.*** Given that the consumption of CFCs in refrigeration and methyl bromide in agriculture are the two biggest phaseout problems, both of which have large and dispersed target groups of SMEs (including individual entrepreneurs and micro enterprises), noninvestment activities are very important and the Executive Committee should give them a higher priority. In this reorientation, a blurring of the distinction between investment and noninvestment activities must be accepted.

***Provide more noninvestment support to NOUs.*** Sector approaches demand more from NOUs in terms of revising the Country Programs, awareness raising, domestic networking, and persuasion/national consensus building. The strong relationship between an NOU's involvement in country programming and domestic networking, on the one hand, and the ability to collect information and enact legislation, on the other hand, suggests that the Multilateral Fund and A5C governments should make matching contributions to further strengthen the NOUs. A5C resources could be generated by taxing ODSs, which are usually consumed by the more affluent strata of society.

***Make institutional strengthening support dependent on demonstration of national involvement.*** Such involvement refers both to the general government level, and the NOU level. This would be a way to keep A5Cs accountable for their actions, which is an important concern for donor countries. Institutional strengthening should be regarded as a "joint venture" between developing and developed countries in the implementation of an important environmental convention. Also, it is important to formulate and design support to institutional strengthening so that priority is given to clear mandates and responsibilities of NOUs, and their strengthened, well-defined, and stable position within government, including necessary support structures.

***Revise a significant number of Country Programs while providing more institutional strengthening, as a way of increasing capacity by doing.*** Because many Country Programs are outdated, do not reflect actual consumption, and/or do not contain an operational government strategy, the Executive Committee should prioritize and facilitate the updating or complete revision of these documents. The process of drafting and revising a Country Program helps an NOU to identify stakeholders and facilitates early consensus building. Normal MLF routines typically prescribed Country Programs first, and institutional strengthening with support to NOUs afterwards. This method was argued as a means of soliciting domestic A5C resources for the NOU. However, it had the drawback of generating less local input in the design of the first Country Programs and limiting the NOUs' connectedness and influence in the future. There are a number of indications that many of the first Country Programs were more like shopping lists for investment projects than well-conceived national plans for phaseout. Thus they urgently need revision.

**Broaden stakeholder involvement.** The general public should be considered a crucial stakeholder, and NOUs should give greater priority to funding awareness raising with matching contributions from the Multilateral Fund and developing countries. Industry representatives must also feel they own part of the policy put in place.

**Improve the quality and focus of already useful regional network meetings.** To be really useful for the exchange of experience and promoting South-South cooperation, regional network meetings must have clear agendas and obligations for participants to prepare presentations, to form the basis for discussion and the sharing of experiences. More room should thus be created to allow additional meaningful information and data exchange at the meetings through preparation, time allocation, and precise agenda setting.

**More regional approaches should be considered.** To allow the engagement of smaller and less-active countries, the Multilateral Fund, bilateral programs, and IAs should attempt to further reinforce regional coordination by learning from existing regional approaches to ODS phaseout and designing new ones. Active collaboration between NOUs should be encouraged through the further strengthening of regional networks, coordination between IAs country offices, and appropriate project funding.

**Encourage broad representation in the advisory committees.** Advisory and steering committees can facilitate NOUs' efforts to pass and implement import/export regulations, the foundation for control. The customs authority should be included in the development and application of import/export legislation and help identify practical difficulties of implementation. It is important to include the ministry of finance in a steering committee because of its significance in resource allocation. Finally, advisory committees should include more representatives of industry, NGOs, and academics, to prevent the committees' being monopolized by any one stakeholder.

**Promote the integration of environmental conventions.** Due to limited capacity in A5Cs, and considering the interrelationships between the phaseout of ozone depleting substances and greenhouse gases, integrated efforts to comply with the Montreal and Kyoto Protocols through joint organization should be promoted.

# **PART A**

## **INTRODUCTION**

---

# Chapter 1

## Background

Rasmus Rasmusson first conceived of this study nearly five years ago. In 1996, he accepted a position in the Global Cooperation Department of the Swedish government's Ministry for Foreign Affairs. Rasmusson had previously worked for 36 years as a career diplomat in various African, Asian, and European countries. Just prior to 1996 he served as Swedish ambassador to Botswana and Lesotho. Rasmusson's new portfolio at the Global Cooperation Department included responsibilities related to the Montreal Protocol, in particular the Executive Committee (ExCom) of the Multilateral Fund (MLF).

From 1997 to 1999, the Executive Committee was responsible for allocating more than U.S.\$500 million to promote the phaseout of ozone-depleting substances (ODSs) in Article 5 countries (A5Cs). (Most but not all A5Cs are developing countries.) Another U.S.\$440 million was to be allocated from 2000 to 2002. In the allocation process, the Executive Committee typically considers and makes decisions on proposals put forward by the A5Cs. In preparing these proposals, the A5Cs are guided and assisted by the four UN implementing agencies (IBRD, UNDP, UNIDO and UNEP<sup>8</sup>), and the proposals are screened by the MLF Secretariat in Montreal.

Early in his tenure, Rasmusson noted that the role of the developing countries in determining their challenges and responsibilities and in fashioning their solutions and plans of action in the context of the Montreal Protocol appeared much more constrained than in the context of international development cooperation. Conversations with representatives from a number of developing countries during a Meeting of Parties (MoP) in Costa Rica confirmed this intuition. The concern was that developing countries seemed to be "mothered" by the donor side, in particular by the UN implementing agencies and the MLF Secretariat. Another aspect of the interaction seemed to be the strong role of individual firms, as opposed to governments and their National Ozone Units (NOUs, the offices responsible for ODS phaseout). Direct contacts between the implementing agencies and firms in developing countries often put A5C governments in the position of having to accept de facto changes without being able to evaluate or influence them, even when those changes might have repercussions on government budgets or responsibilities.

The developed countries' paternalistic attitude toward developing countries was possibly due to the large amounts they—particularly the United States, Japan, and major partners of the European Union—contributed to the Multilateral Fund. Also, most developing countries have not put measures against ozone depletion at the top of their agenda. Still, there was reason to be uneasy about developing country "ownership"—or lack thereof—of their own Country Programs (i.e., their formal plans for decreasing the consumption and production of ODSs). Rasmusson thus set out to assess A5Cs' level of ownership of their Country Programs and its effect on the success of their efforts to reduce ozone-depleting substances.

---

<sup>8</sup> The International Bank for Reconstruction and Development, the United Nations Development Program, the United Nations Industrial Development Organization, and the United Nations Environment Program.

## ***Institutional Structure***

---

Under the Montreal Protocol, signatories negotiate and set the standards regarding which substances are to be phased out and how quickly. The Protocol also includes several amendments. Member countries take on the added responsibilities of those amendments only after specifically ratifying them.

The signatories meet annually at a Meeting of the Parties (MoP). The most recent one was in Ouagadougou, Burkina Faso, in December 2000. The Preparations for the MoP are made by the Open-Ended Working Group (OEWG), which typically meets three times per year. The MoP and OEWG are advised by the Scientific Assessment Panel, the Technical and Economic Assessment Panel (TEAP), and TEAP's many Technical Options Committees (TOCs). The MoP and OEWGs are served by the Ozone Secretariat, which is located in Nairobi. However, the substantive implementation lies in the developing countries' and implementing agencies' preparatory work, the MLF Secretariat's screening and ExCom's ensuing allocation decisions, and the actual on-the-ground implementation in developing countries.

Within the Swedish government, the Ministry of Foreign Affairs gives prime attention to the ExCom, since that ministry is primarily responsible for funding. The Swedish Ministry of the Environment is more involved on the MoP or "principles" side—namely, preparing MoP decisions on phaseout and related issues and negotiating common stands within the European Union. Many governments have a similar division of labor with regard to the Protocol.

The Multilateral Fund, created in 1991, has its Secretariat in Montreal. The MLF's ExCom has 14 seats, or "constituency chairs." Of these 14 constituency chairs, 7 are held by industrialized countries and 7 by developing countries. Each constituency chair, except for those permanently held by the U.S. and Japan, is shared by a number of countries in the same region, with a two-year rotating spokespersonship. In 1999 and 2000, Sweden took over the spokespersonship of its constituency chair from the very experienced and active Swiss representative. The position is now held by a Finnish representative.

The ExCom has two important subcommittees, the Project Review Sub-Committee (PRSC) and the Sub-Committee on Monitoring, Evaluation, and Finance (SCMEF). Much or even most of the substantive work takes place in these two subcommittees, and then this work is accepted or rejected by the full body, the ExCom. On the subcommittees, membership is restricted on a rotating basis to three developing and three developed countries. The Chair alternates each year between a developed and a developing country representative. (There is a similar rotation of the Chair of the Executive Committee, also with a designated Vice Chair to take up the Chair the following year.) The deliberations of the two subcommittees partially overlap. The agenda and documentation for the subcommittees are prepared by the Multilateral Fund Secretariat, which also makes proposals on what might be recommended and/or decided. But essentially the PRSC suggests to the ExCom what projects and/or programs should be funded, whereas the SCMEF deals with a number of strategic issues relating to criteria and evaluation.

## ***Themes for the Inquiry***

---

Rasmusson's experiences with the ExCom and the MoPs raised five issues that became important themes for this inquiry.

First, the study addresses "ownership" questions. The Article 5 countries appeared to a considerable extent to be objects rather than subjects or prime movers of the planning and implementation of ODS phaseout. In the ExCom, for instance, considerable effort was spent deciding how the available funds should be split among the four implementing agencies, but these decisions were not based on the agencies' competitive ability in relation to the job as defined by the "owner," a developing country. Also, developed countries painstakingly elaborated the details of operations, paying particular attention to individual projects, frequently in the form of phaseout of ODSs by (individual) producing firms. Where was the undertaking of a developing country government, of official actors? Furthermore, why were developed countries, supported and advised by the Multilateral Fund Secretariat, outlining in great detail the nature and reimburseability of so-called "noninvestment" costs, necessary for the capacity development of A5Cs? Although funds had to be carefully spent, how were the non-A5Cs to know the best approach on the ground? *So, this research inquiry looks more deeply into the concept of ownership.* It is worth noting that in 2000 the ExCom began its search for a "New Strategy" to deal with the perceived need for more country-driven approaches, underlining the need for the kind of research provided by this project.

Second, what is the situation on the ground in developing countries, and what is the role and influence of the National Ozone Units? Were they given the leverage to be responsible, to respond, and to act? Although many renowned people have applauded the successes of the Montreal Protocol, the developing world remains a significant consumer (and producer) of ODSs, due to widespread consumption by a multitude of small units in these countries. *This inquiry mapped the situation of NOUs in the A5Cs and did a few in-depth studies of A5Cs, in an attempt to illustrate the situation on the ground with concrete examples.*

Third, what is the situation in the countries with economies in transition (CEITs), in particular the republics of the former Soviet Union? The Montreal Protocol Implementation Committee considers many of them to be noncompliant developed countries, although some have slid into or remained in the developing country category. Even before the 1996 MoP, Russia was under surveillance, defending itself with contested arguments. The World Bank, on behalf of Russia, launched a Special Initiative in 1996, to which Sweden (among others) also rallied to provide funds for phasing out seven CFC factories. By definition, the Multilateral Fund cannot provide funds to a non-A5C. So, the Global Environmental Facility and bilateral donors, with the United States the largest individual one, had to step in. How do these kinds of operations work, and what are the implications in other CEITs? Is there cause for concern for the success of the Protocol, or not? What can we learn from these efforts? *So, this inquiry also analyzes the situation in a number of CEITs and includes a few in-depth studies of CEITs.*

Fourth, in both the MoPs and the Conference of the Parties of the Climate Convention, increasing attention has been paid to built-in conflicts between the aims and means of these two conventions. Ozone-friendly substances like hydrofluorocarbon (HFC) and perfluorocarbon

(PFC) have global warming effects. Still, they appear needed as alternatives to ODSs. In such matters, coordination between treaties is important. The problems touch upon the need for cooperation between environmental conventions in general, to optimize the sum of their results in terms of promoting sustainable development. Equally important is the need to optimize the use of scarce capacity in developing countries, which cannot be asked to handle numerous conventions in separate “pigeonholes.” In the background we have the renowned UN target that all countries shall have National Strategies for Sustainable Development. *So, this research inquiry includes notes on the tradeoffs between the Montreal Protocol and the Climate Convention in terms of some practical considerations, including those of organization at the developing country level.*

Fifth, the policies of developed countries, particularly those involved in the ExCom, have a profound effect on the performance, priorities, and activities of developing countries. Thus, any serious study of Montreal implementation must take these policies into consideration. In fact, most authors on the Montreal Protocol appear to put prime emphasis on the role of industry and developed country governments in bringing about the Protocol and its obligations, in addition to the promotion of ozone-friendly substances. There is a need, however, to know more about the effects of these policies and this industrial focus on developing countries’ policies and activities. *Thus, this research inquiry looks into the policies and implementation of a few non-A5Cs, as a means of illustrating the importance of partnership in implementing the Protocol.*

Sixth, and finally, the handling of the refrigeration management plans (RMPs) has been an anomaly in developed country policies relating to A5C ownership and the implementation of the Protocol. RMPs are instruments for planning the phaseout of CFCs in the refrigeration sector. An efficient RMP must include many items, including awareness-building and the training of refrigeration technicians and customs officers, as well as laws, regulations, incentives, technical choice, and follow-up. An RMP requires a lot of groundwork to be a valid and efficient instrument. Strong Executive Committee constituencies remained adamant that RMPs must be relatively inexpensive, however. There were arguments for this, such as wanting to see greater financial commitments from A5Cs. This policy appears to have led to a number of unfit and partial RMPs, with unsatisfactory opportunities to phase out CFC consumption. Only at the second to last ExCom meeting in Geneva (ExCom 31, July 2000) was this situation rectified to some extent by a decision offering greater flexibility in the size, design, and other modalities of RMPs. *Thus, this inquiry looked into the roles and attitudes of developed countries and the Multilateral Fund Secretariat in responding to urgent needs for the phaseout of ODSs in the Refrigeration Sector.*

## Chapter 2

# Theory of Ownership

This study is premised on the need to establish whether “ownership” of Country Programs by A5C governments and NOUs is a critical condition for successful Program implementation and policy setting in terms of ODS phaseout. We examine whether there is a relationship between the ownership of ODS phaseout initiatives and policy setting, on the one hand, and the success of these initiatives at the country level, on the other. If such a relationship exists, we may conclude that ownership is a critical condition for effectiveness in ODS phaseout in A5Cs.

### *Hypothesis*

---

Our central hypothesis is that there is a positive interdependence between (1) ownership of the Country Program and policy setting by the NOU and (2) performance in ODS phaseout initiatives. In other words, a country’s capacity and willingness to implement the Country Program and set policies on ODS phaseout strategies is crucially dependent on their ownership of the Program and policy setting.

### *Objectives*

---

The purpose of the study is two-fold. First, we seek to establish or verify a “policy ownership-performance link” in accordance with our central hypothesis that the greater the ownership of Country Programs and policy initiatives by the NOU, the higher the chances of better performance and effectiveness. The second purpose of our study is to establish a number of determinants which can act as indicators of ownership in a country. Hence, our study will simultaneously enable us test the hypothesis and determine the indicators of ownership among the A5C countries.

### *Assumptions*

---

The question we attempt to answer is whether ownership contributes to an NOU’s performance in phasing out ODSs. In doing this, we make two assumptions.

1. Ownership and performance are causally related. It is the nature and extent of such relationship that will be tested.
2. Ownership and performance are quantifiable concepts that can be qualitatively represented.

## ***Meaning of Ownership***

---

It is imperative to this study to first establish the meaning of the term “ownership.” Finding an operationally tangible<sup>9</sup> definition is important for two reasons. First, by clarifying the meaning of the concept it becomes possible to list and test the various determinants of ownership. In other words, it is possible to come up with a theory of ownership and to test it. Second, a definition of the concept at once maps out what needs to be done to ensure that ownership is achieved. By setting out the determinants of ownership, we hope to encourage the developing countries to take an initiative to “own” the programs while discouraging developed countries and multilateral and donor agencies from adopting stances and practices that alienate developing countries from the policy-setting process.

In our study, “ownership” is defined as the engagement of the National Ozone Units and their national governments in the policy process related to ODS phaseout, and the NOUs’ capacity to implement the policy measures it deems appropriate. The capacity of the NOU, in turn, is determined by two crucial factors: first, the nature and extent of resources that the NOU commands, and second, the political will and support that the NOU receives from the political leadership in the country.

## ***Theory of Ownership***

---

Ownership is definable by reference to three inputs:

1. the resources that the NOU commands;
2. the latitude of choice that the NOU has to devise its own policies; and
3. the political will and support that the NOU receives from the political leadership.

The NOU, as the crucial actor in organizing ODS phaseout strategies in a country, harnesses and channels these inputs in three ways that speak directly to the ownership of the policy process at the NOU level. These are:

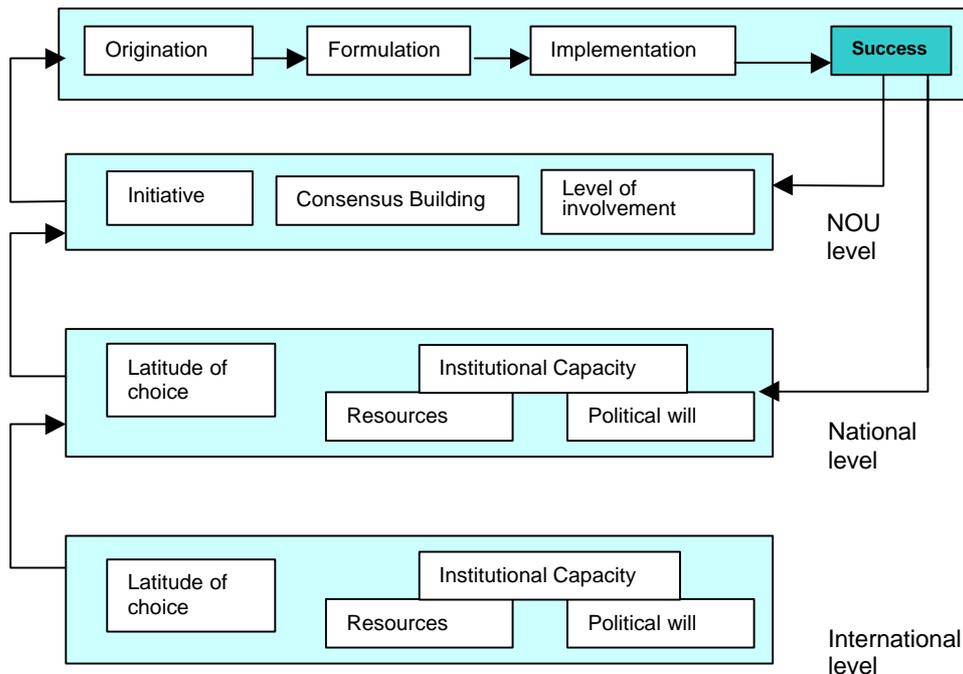
1. consensus building and domestic networking;
2. the NOU’s level of involvement in the policy process; and
3. the NOU’s will, initiative (self-esteem or reputation), and/or intellectual conviction in carrying out the responsibilities charged to it.

What ultimately emerges from this interaction (of the inputs and actors described above) can be termed “ownership.” It affects the efficacy of the ODS phaseout strategies in each of the three policy process stages—namely, the origination, formulation, and implementation of policy initiatives. Ownership is measured by looking at the quantity of inputs that the NOU receives from both the national actors and international actors/stakeholders, as channeled through the NOU to produce an output that directly affects the efficacy of the ODS phaseout strategies. The

---

<sup>9</sup> The language of “operationally tangible” is borrowed from analogous literature on ownership of economic reform packages. See, for example, Kwesi Botchwey, “Country Ownership and Development Cooperation: Issues and the Way Forward,” in United Nations (ed.), *International Monetary and Financial Issues for the 1990s* (United Nations, 1999), pp. 117-128. Our ideas on ownership have been influenced by the literature on the subject in the area of economic reform.

causal relationship between ownership and performance (i.e., the success of ODS phaseout strategies or initiatives) is established by correlating the inputs measured with the extent of success of the strategies or initiatives. This causal relationship is diagrammatically represented below.



From this representation, we can make the following important observations. First, an NOU can be said to demonstrate strong ownership when it strongly participates in each of the three stages of policy initiatives: origination, formulation, and implementation. However, the lack of participation in one of the earlier stages does not necessarily fatally weaken the NOU’s ownership of the policy initiatives. For example, the fact that in some countries the Country Programs were written with the help of external consultants long before an NOU was formed is not necessarily indicative of a complete lack of ownership, as ownership may have been strengthened in the latter stages of formulation and implementation.

Second, whereas the above position may be true of Country Programs and other formal expressions of policies, it is generally less true regarding the nuts-and-bolts questions of operationalizing the ODS phaseout. This is because of the nature of the two kinds of policies. There may be a disjuncture between the formal expression of the policies and the actual operation on the ground, which indicates the appropriation of the formal program by the NOU to its own agenda and suitability. But it is more difficult for this invention process to take place in the more specific, direct issues of everyday operations.

Third, when we talk about the locus of policy initiatives, we are referring more to who sets the policy agenda than who actually writes the program document itself or reduces it to print. An NOU that lacks technical expertise, for example, may ask for technical support in writing the

Country Program or subsequent operational programs. However, the way the NOU contributes to and implements the programs might strengthen its sense of ownership.

Fourth, ownership is critical both at the NOU level and at the national level. In addition, ownership is mutually reinforcing between the two levels. Ownership at the NOU level enables the NOU to better utilize the resources at its disposal to do domestic networking and consensus building. The NOU is also better able to harness political support and intellectual conviction among the political leadership, thereby enhancing ownership at the national level. In short, the greater the number of government agents involved, the more the perception of ownership within official circles spreads out. The result is that the government perceives itself as being in the driver's seat. This, in turn, manifests itself in greater political support for the NOU, which increases the institutional capacity of the NOU and its ability to be involved, hence, enhancing its sense of ownership, and so on.

### ***Importance of Ownership***

---

Our claim that ownership is crucial for the success of ODS phaseout strategies in A5 countries requires an answer to the question: Why is ownership at both the NOU and national level a critical condition for this success? From our study, we can surmise five reasons.

1. Ownership facilitates and acts as a measure of commitment by ensuring that countries take responsibility for the policies they put forward as their Country Program.
2. Ownership ensures that the Country Program will reflect the reality on the ground and not just carry abstract statements about extrapolations of what ought to be the case.
3. Ownership assists in making short-term measures compatible with long-term development goals and plans, hence providing assurance that no conflicts will arise.
4. The process of facilitating ownership, by its very nature, supplies an incentive to the country to involve a broad base of stakeholders who are critical in ensuring the success of the Country Program.
5. Ownership helps to build institutional capacity, which not only contributes to the successful implementation of the Country Program, but has the indirect, wider effect of nurturing democratic institutions.

## **PART B**

# **METHODS AND RESULTS**

---

## Chapter 3

# Research Methods

This chapter discusses the research methods used in this inquiry. In particular, it reviews the design and execution of the questionnaire used, the strengths and weaknesses of the project, and biases inherent in the results.

### *The Design and Execution of the Survey*

---

To understand the NOUs' situations and test our hypothesis, we needed to hear directly from the NOUs. In particular, we wanted to know how they perceived the adequacy of their resources, capacity, position, and stakeholder connections with regard to the task of phasing out the consumption and production of ODSs. To get direct feedback, we sent them a brief questionnaire. (The questionnaire can be found in Appendix 3).

### *Development of the Questionnaire*

Rasmusson began work on the questionnaire in June 2000. The research assistants took up the task of refining the questionnaire when they joined the project in mid-September. The goal was to design a thorough questionnaire that elicited useful background information, while keeping it short enough that it would not overly burden NOU staff.

We wrote multiple drafts, several of them reviewed by experts outside the project. In fact, the pre-final draft was reviewed by a number of NOUs; a Harvard researcher who previously worked in the Chinese NOU; persons close to the Ozone office in Ukraine; persons in Canada and Germany familiar with NOU operations; and the resource persons at the Stockholm Environment Institute and UNEP. The comments we received greatly improved the questionnaire.

The questionnaire attempted to elicit:

- perceptions of ownership within the NOUs, and
- perceptions of the degree of difficulty phasing out different kinds of ODSs.

Some questions merit comment. Question 4A asked about the NOU's involvement with stakeholders, to determine the extent of the connection between NOU efforts and governmental and nongovernmental stakeholders. Question 5 attempted to verify whether phasing out CFCs in the refrigeration servicing sector is the principal remaining problem. This choice was deliberately placed in the middle of the options to prevent any bias that might have occurred from it being placed first on the list. We considered asking the NOUs for information on remaining levels of ODS consumption, but felt that the additional burden this would place on the NOUs would greatly reduce the response rate. Instead, we asked the NOUs to forward us information on ODS consumption only if they had it readily available.

The cover letter accompanying the questionnaire was critical in achieving a good response rate. NOU staff have many competing demands on their time, and the letter needed to convince them that it would be worthwhile to them to fill out the questionnaire. Thus, the letter explained that the responses to the questionnaire would influence the Swedish recommendations to the Executive Committee of the Multilateral Fund. However, the letter was careful to avoid implying that a response would elicit funding. There was no such mandate for the inquiry. Both the cover letter and the questionnaire were translated into French and Spanish, to elicit a higher response rate than if they were sent in English alone. The final version of the cover letter can be found in Appendix 2.

### ***Obtaining Responses to the Questionnaire***

We sent the questionnaire by e-mail and direct mail, in the appropriate language(s), to the 113 NOUs on UNEP's August 2000 list. Because direct mail was often slow and unreliable, and many e-mail addresses were outdated or not functional, we followed up with phone calls to the NOUs a few weeks after the mailing. The phone calls had two purposes: first, to make sure we had the proper contact information, and second, to remind the NOUs to return the completed questionnaires. The combination of phone calls and e-mails at least doubled the response rate. When it was not possible to contact an NOU through any other means, we contacted the local Swedish Embassy and asked them to contact the NOU and encourage them to respond. The response rate was improved by the fact that the questionnaire was also distributed on our behalf at NOU regional network meetings in Vientiane, Laos; Dalian, China; and Uruguay.

Two weeks into the project, we received UNEP's September 29 list of NOU contact information, which allowed us to get in touch with several NOUs whose contact information had changed. The new list contained five additional countries with NOUs (Haiti, Iraq, Oman, Palestine, and the United Arab Emirates), to which we immediately sent questionnaires.

The tactics used to elicit responses were time-consuming, and they delayed the subsequent phases of the project. However, we received a good response rate. As of December 2000—when we began our analysis—75 out of 118 NOUs, or some 65%, responded. All countries with a population of more than 60 million responded. To complement the survey results, we collected data from other sources on the consumption and production of ODSs, income, and population for 109 A5Cs, including all 75 respondents.

### ***Strengths and Weaknesses***

---

This research project has several strengths and weaknesses worth mentioning.

#### ***Strengths***

The most important benefit of our approach was that we received direct responses, frequently in their own language, from the prime agents of ODS phaseout—the people who make up the

National Ozone Units. These units are often looked upon simply as intermediaries; they are asked, with very short time limits, to produce information and proposals relating to phaseout. This may appear necessary from the point of view of industrialized country partners, implementing agencies, and the Multilateral Fund Secretariat because of the urgency of meeting deadlines for phaseout. However, being at the receiving end of these requests may cloud the NOUs' overall view of goals and strategies. Hence, this study provided NOUs with an opportunity to reflect on their experiences, and it is our opinion that many valid and frank pictures of the "life of an NOU" emerged.

Another important strength is that we addressed the questionnaire to all NOUs, not merely those assisted by one of the four implementing agencies. Hence, a wider coverage of experiences and views were solicited than the normal procedure, in which implementing agencies report on a limited number of A5C phaseout efforts.

The project also benefited greatly from the diverse backgrounds, cultures, and experiences of the research assistants. In most cases, the research assistant spoke the language of and/or came from the region of the world for which he or she had responsibility. This allowed the assistants to understand the nuances of the questionnaire responses and elicit higher response rates. It also facilitated their work on the case studies.

### ***Weaknesses***

Although we attained a high response rate, the NOUs that did not respond are somewhat different from those that did. An analysis of potential biases in the responses is presented in the next section.

Another possible weakness is that respondents might be reluctant to indicate either a lack of support from their own governments or poor networking with stakeholders. This tendency could lead NOUs to give "inflated" information. Respondents might also exercise special care when referring to relations with external stakeholders, such as implementing agencies and the MLF Secretariat. We tried to counter these tendencies by assuring anonymity in the compilation of our results.

We were also concerned that NOUs might respond so as to elicit more support. We were thus careful to formulate the cover letter so as not to lead to expectations of fresh assistance.

It would have been ideal to conduct personal interviews. However, with the time, resources, and staff available, this was not an option. The country case studies constitute our attempt to provide more in-depth coverage and personal contact. The selection of countries, because of the time constraints, was not based on the results of the survey, but on a desire for diversity of geography and country size.

It was also unfortunate that no member of the team could attend an NOU Regional Network Meeting to personally experience the dynamics and speak to NOU representatives. The survey

provided overwhelming evidence of the value of these fora for group learning and sharing experiences. The time and budget did not allow for such an excursion, however.

The project had the ambition to put forward reflections and policy advice related to the work of the Executive Committee of the Multilateral Fund, a body already busy reviewing its positions and looking, it appeared, for more country-driven approaches. Thus, speed and some simplicity in presentation were of the essence. Some scientific ambitions had to be shelved.

### ***Analysis of Biases in the Results***

---

This section underlines some of the biases inherent in our results. It compares the average characteristics of respondents and nonrespondents in several areas of interest. It also compares the medians for each, which helps to avoid the distortions created by extreme values. In each case, we created a category of respondents (dubbed Category 4) that excludes China and India, to take into account the exceptional character of these two huge countries. We also made the calculations excluding Brazil and Indonesia and found the results to be similar to when only China and India were excluded.

Among nonrespondents, information on ODS consumption and production (which we had gathered from other sources) was frequently lacking. In particular, a significantly higher percentage of countries that did not respond to the questionnaire had no data on consumption for CFCs, halons, and methyl bromide. This may illustrate the fact that our nonrespondents generally have a weak connection with the Multilateral Fund and tend to make less information available. Countries having rare communications with the Multilateral Fund were probably unlikely to respond to our survey.

In sum, our analysis revealed the following. The respondents to our questionnaires tended to be countries with higher populations—this is true even when China and India are treated separately. Respondents' CFC production and consumption levels were very similar to those of nonrespondents. However nonrespondents tended to consume more halon and methyl bromide. The nonrespondents also received fewer funds from the MLF, especially noninvestment funds. Finally, nonrespondents tended to be richer countries than respondents. This implies that NOUs in poorer countries were as likely, if not more, to respond than NOUs from wealthier nations.

### ***Population and CFC Production and Consumption***

The following table compares the population of respondents with the population of nonrespondents. It also compares the CFC data from respondent countries to that of nonrespondents.

	<b>Averages</b>				
	<b>Population (000s)</b>	<b>Current CFC Production</b>	<b>Base CFC Production</b>	<b>Current CFC Consumption</b>	<b>Base CFC Consumption</b>
Respondents (1)	54,908	1,247	1,300	1,417	1,737
Nonrespondents (2)	12,938	265	379	732	960
Ratio (1)/(2)	4.2	4.7	3.4	1.9	1.8
Ratio (4)/(2)	1.9	0.9	1.0	1.0	0.9
	<b>Medians</b>				
Respondents (1)	7,465.0	0.0	0.0	116.3	120.0
Nonrespondents (2)	6,156.0	0.0	0.0	136.9	210.5
Ratio (1)/(2)	1.2			0.8	0.6

- (4) = The average for all respondents except China and India.
- The medians for CFC production equal 0 because more countries did not produce CFCs than did.
- Empty cells mean that it was impossible to calculate the ratio.
- All numbers are in ODP equivalent.

The population of the average respondent country is three times larger than that of the average nonrespondent. This can be explained in part by our efforts to obtain answers from very large countries such as China, India, Brazil, and Indonesia. Among the populated countries that did not respond are Thailand, Congo (Democratic Republic), South Korea, and Argentina, all of which have more than 30 million people.

When China and India are removed from the calculations, the ratio of the population of respondents to that of nonrespondents falls to 1.9. Accordingly, the population median is only about 20% higher for respondents than for nonrespondents. This confirms that the respondent countries tend to be more populated than the nonrespondents, but the difference is not as high as the averages (including China and India) might suggest.

In terms of CFC production, the ratio of the average respondent to the average nonrespondent is almost 5. In other words, on average, countries that responded to the questionnaire produce almost five times as much CFC as those that did not respond. Once again, this is due to the fact that we focused on big producers such as China and India. Among the nonrespondents, the only major CFC producer (for which data is available) is South Korea.

In terms of CFC consumption, the average respondent consumes almost twice as much CFC as the average nonrespondent. The biggest CFC consumers missing in our responses are South Korea, Argentina, and Thailand.

When China and India are subtracted from the CFC figures, the respondents and nonrespondents appear remarkably similar. The ratio of averages for CFC production and consumption is between 0.9 and 1 for all four categories of CFC figures. We can thus conclude that outside of China and India, respondents and nonrespondents have, on average, very similar production and consumption figures. The median figures are higher for nonrespondents.

There is no significant difference in the respondents/nonrespondents ratio for base-year consumption as compared to current consumption. Fewer nonrespondents than respondents have decreased their consumption, but fewer also increased it. The table below elaborates on this point, showing data from the base year to the most-recent year available.

<b>Responding Countries</b>	<b>Nonresponding Countries</b>
<ul style="list-style-type: none"> <li>• 21 countries increased CFC consumption and 3 had no change in consumption (32%)</li> <li>• 49 decreased CFC consumption (65%)</li> <li>• 2 did not report any CFC consumption data (3%)</li> </ul>	<ul style="list-style-type: none"> <li>• 9 increased CFC consumption(26%)</li> <li>• 18 decreased CFC consumption (53%)</li> <li>• 4 did not report any CFC consumption data (12%)</li> <li>• 3 had no consumption (9%)</li> </ul>

### ***Halon Production and Consumption***

The following table compares the halon production and consumption of respondents with that of nonrespondents.

	<b>Averages</b>			
	<b>Current Halon Production</b>	<b>Base Halon Production</b>	<b>Current Halon Consumption</b>	<b>Base Halon Consumption</b>
Respondents (1)	374	550	73	60
Nonrespondents (2)	68	115	144	232
Ratio (1)/(2)	5.5	4.8	0.5	0.3
Ratio (4)/(2)	0.0	0.0	0.5	0.2
	<b>Medians</b>			
Respondents (1)	0.0	0.0	0.0	0.0
Nonrespondents (2)	0.0	0.0	0.0	0.2
Ratio (1)/(2)				

- (4) = The average for all respondents except China and India.
- Medians were equal to zero when there were more nonproducers than producers or more nonconsumers than consumers.
- Empty cells mean that it was impossible to calculate the ratio.
- All numbers are in ODP equivalent.

Only two developing countries produce halon: China (which responded to our questionnaire) and South Korea (which did not respond, but which produces far less than China). However, the number of halon consumers is higher and there are many consumers that did not respond (including South Korea, Saudi Arabia, Jordan, Syria, and Thailand, for instance). This is confirmed by the medians and by the averages excluding China and India.

Nonrespondents appeared to have more difficulty phasing out halons than respondents did, as the table below reveals. The data for this table is from base year to the most-recent year available.

<b>Responding Countries</b>	<b>Nonresponding countries</b>
<ul style="list-style-type: none"> <li>• 8 increased halon consumption, and 1 had no change in consumption (11%)</li> <li>• 40 had no halon consumption (or less than 0.3 tons) (55%)</li> <li>• 23 decreased halon consumption (31%)</li> <li>• 3 reported no data (4%)</li> </ul>	<ul style="list-style-type: none"> <li>• 5 increased halon consumption (15%)</li> <li>• 14 had no halon consumption (41%)</li> <li>• 8 decreased halon consumption (24%)</li> <li>• 7 reported no data (21%)</li> </ul>

### *Methyl Bromide Production and Consumption and Funding*

	<b>Averages</b>						
	<b>Current MBr Production</b>	<b>Base MBr Production</b>	<b>Current MBr Consumption</b>	<b>Base MBr Consumption</b>	<b>Investment Funds</b>	<b>Non-Investment funds</b>	<b>IS Funds</b>
Respondents (1)	19	1	85	103	9,577,092	1,406,205	237,889
Nonrespondents (2)	0	0	108	104	4,107,740	952,417	169,924
Ratio (1)/(2)			0.8	1.0	2.3	1.5	1.4
Ratio (4)/(2)			0.5	0.8	1.0	1.2	1.3
	<b>Medians</b>						
Respondents (1)	0.0	0.0	0.2	1.4	85,990.0	492,400.0	110,000.0
Nonrespondents (2)	0.0	0.0	1.4	1.9	0.0	245,587.0	73,000.0
Ratio (1)/(2)			0.1	0.7		2.0	1.5

- IS Funds = Institutional Strengthening Funds (from the MLF), a share of Noninvestment Funds
- MBr = methyl bromide
- Empty cells mean that it was impossible to calculate the ratio.
- (4) = The average of all respondents except China and India.
- All numbers are in ODP equivalent.

Respondents' and nonrespondents' average methyl bromide consumption is similar (indeed, remarkably similar in the base year). The differences in production are because China (which responded) is the only developing country that produces methyl bromide (although its base year level was very small).

The consumption results when China and India are excluded are interesting. Whereas the overall average figures for respondents and nonrespondents are similar, the medians and modified average ratios show us that nonrespondents tend to consume more methyl bromide than respondents. This is discussed in Chapter 6 on methyl bromide and might explain why responding countries did not consider methyl bromide to be a primary concern in phasing out ODS.

A larger share of respondents decreased their consumption of methyl bromide than did nonrespondents (28% of respondents did so, versus 15% of nonrespondents). The table below provides more detail on this topic. The data for this table is from base year to the most-recent year available.

<b>Responding Countries</b>	<b>Nonresponding countries</b>
<ul style="list-style-type: none"> <li>• 23 increased MBr consumption, or had no change (31%)</li> <li>• 19 reported no MBr consumption (25%)</li> <li>• 21 decreased MBr consumption (28%)</li> <li>• 12 reported no data (usually base year) (16%)</li> </ul>	<ul style="list-style-type: none"> <li>• 10 increased MBr consumption (29%)</li> <li>• 9 reported no MBr consumption (26%)</li> <li>• 5 decreased MBr consumption (15%)</li> <li>• 10 reported no data (29%)</li> </ul>

With regard to funding, nonrespondents receive on average far less money from the Multilateral Fund than the respondents, particularly in Investment Funds. However, this is almost entirely explained by the weight of India and China. Indeed, when these two are taken out, the ratio of averages is very close to one, especially for Investment Funds. The remaining difference in noninvestment funds (of 20-30%) may illustrate the remark made in introduction about the possibly loose relation between MLF and nonrespondents: on average nonrespondents received less noninvestment funds from the MLF.

### ***Income***

The differences between the income of respondents and nonrespondents are highlighted in the table below. This data was drawn from the World Bank's World Development Report.

Categories of Income (GDP per capita)	Number of countries among respondents	Percentage among respondents	Number of countries among nonrespondents	Percentage among nonrespondents
High	2	3%	5	15%
Upper Middle	19	25%	5	15%
Lower Middle	21	28%	13	38%
Low	33	44%	11	32%
Aggregation of High and Upper Middle	21	28%	10	29%
Aggregation of Low and Lower Middle	54	72%	24	71%

We see that when aggregated in two categories of income (the lower part of the table), the percentages for respondents and nonrespondents are very similar. With a more detailed classification (the upper part of the table), the differences are more salient. The percentage of high-income countries among nonrespondents is far higher than among respondents. Conversely, the share of low-income countries is higher among respondents.

This analysis is confirmed by our comparison of average and median GDP per capita for respondents and nonrespondents, as shown in the table below. (We used the purchasing power parity (p.p.p.) adjusted value available in the World Bank's World Development Indicators databank. The data are for 1998.) For some of the countries, data was not available. However, we can see that the average GDP per capita of the nonrespondents is noticeably higher than that of

the respondents. Although the median value reduces the gap between the two groups, the income difference remains.

<b>GDP per capita, p.p.p.</b>	<b>Averages</b>	<b>Medians</b>
Respondents (1)	3,922	3,073
Nonrespondents (2)	6,076	3,347
Ratio (1) / (2)	0.65	0.92

This situation has also been noticed in our regional studies. For instance, in French-speaking Africa, the smaller and poorer countries were more likely to respond. This might be because these countries saw the questionnaire as an opportunity to have their opinion heard and their situation improved. Lack of funds or time was apparently not a barrier to answering the questionnaire.

## Chapter 4

# Survey Results

This chapter outlines the results of our analysis of the National Ozone Unit survey. Section A summarizes the basic findings of the survey regarding the nature and position of NOUs and their work. Section A also includes a discussion of the NOUs' responses to open-ended questions about the obstacles they face, interesting and useful initiatives, and the strengths and challenges they perceive, including how to address those challenges. Section B offers an analysis of the conditions that make for strong "ownership," as well as the negating or vitiating factors that undermine ownership. What emerges is a distillation of some "rules of the thumb" on favorable and unfavorable conditions for the phaseout of ODSs. We discuss these results at some length.

Section C looks at how the level of consumption of each of three ozone-depleting substances (CFCs, halons, and methyl bromide) varies with the frequency of stakeholder meetings and the implementation of an import license regime. Section D correlates the existence (or nonexistence) of a steering committee with the frequency of NOUs' meetings with stakeholders. Section E correlates the position of the NOUs with the status of import/export legislation regarding ODSs. Section F compares the results of the survey with other findings on the situation of NOUs, in particular the country studies summarized in Chapter 9.

### ***Section A: Questionnaire Responses***

---

This section summarizes the responses to the questionnaire. It includes two parts. In general, the first outlines the respondents' answers to the closed-ended questions on the survey (i.e., those that required a "yes" or "no" or multiple-choice answer.) The second summarizes the respondents' answers to several open-ended questions (i.e., those that allowed the respondents to answer in their own words). For the purposes of analysis, the answers to these open-ended questions have been "clustered" into themes or categories. In each case, the question number is indicated in parentheses after the heading. For the text of the questionnaire, see Appendix 3.

As discussed in Chapter 3, 75 of 118 (64%) of NOUs responded to the questionnaire. Most questionnaires were complete in the sense that all questions were replied to. Chapter 3 also includes an analysis of response biases.

### ***Responses to Closed-Ended Questions***

In general, the survey responses to the closed-ended questions revealed that most NOUs are located in the ministry in charge of environment. Most have steering committees. Only seven NOUs have more than five permanent staff members. Most NOUs participated in the drafting or formulation of the latest Country Program, but only a few actually wrote it. The stakeholder cited most frequently as most important in achieving ODS phaseout was the Association of Refrigeration Manufacturers. This is not surprising given the fact that the refrigeration sector was

named as the most difficult sector by most respondents. Less than half the respondents reported that import/export legislation is in place in their respective countries. This section looks at these results in more detail.

### ***NOU Position (Q 1A)***

Most NOUs (59 of 75) are located within a ministry that has “environment” in the title. Many of these are environment and natural resources, or environment and health. Of the 16 not in a ministry of the environment, four are in the ministry of industry and/or commerce/tourism, and the rest are widely distributed.

### ***Level of Office (Q 1B)***

The survey did not reveal useful information about where the NOUs stand in the governmental hierarchy of their countries. The reasons for this are twofold. First, half of the respondents (37) did not specify the level of their closest superior. Second, those who did respond gave such different titles for their immediate superiors that it was impossible to establish which were higher in the hierarchy. It was clear that in 3 cases, all in Africa, a cabinet minister is the immediate superior. In 9 cases, the superior is a vice-minister or a permanent secretary, and in 12 cases it is a director.

### ***Steering Committee (Q 1C)***

Most NOUs (54 of 75) have a steering committee, although 2 of these are currently not functional. Seventeen do not have a steering committee. In 3 of these countries, a committee is being created, and one country used to have a committee but it is now defunct. Four countries left either no response or unclear responses.

### ***NOU Establishment (Q 1D)***

Most countries that responded do have an NOU. Two have not yet created an NOU. The larger countries (those with a population greater than 10 million) generally have older NOUs; only 7 of 33 have NOUs that were established after 1995. By contrast, the smaller countries (those with a population less than 10 million) have newer NOUs; 29 of 42 have NOUs that were established after 1995.

### ***NOU Permanence (Q 1E)***

Forty-seven of the 75 NOUs are permanent. Twenty-three are temporary, although 3 of these will be permanent soon. Three gave no response.

### ***Staffing (Q 1D)***

The average number of total staff in the NOUs is about 6.5: 3 permanent staff and 3.5 temporary staff. Thirty-two countries, many of them Latin American and African, have zero, 1, or 2 permanent staff. Only 7 countries have more than 5 permanent staff.

### ***Budget (Q 2)***

The responses to the question about the NOU's budget were relatively inconclusive. We believe the NOUs interpreted in different ways the question about whether or not they have a budget of their own. Some believe that receiving only MLF funds means they have an independent budget, while others in the same situation said they do not have an independent budget. Most NOUs (54 of 75) say they have their own budget, 18 say they do not, and 3 gave no response. Thirty-three indicated that the MLF is their only funding source, and at least 9 received in-kind support from their ministry in the form of office space, equipment, or administrative staff.

### ***Country Program (Q 3)***

The NOUs provided a variety of responses regarding how involved they were in formulating the latest Country Program.

- 11 said they wrote the Country Program
- 19 participated in drafting it
- 17 drafted it with the help of an international consultant
- 5 received it for comments
- 3 had a consultant prepare it
- 5 said it was written before the NOU existed
- 8 gave other varied responses
- 2 provided no answer
- 3 said they had no Country Program or it was not yet approved

### ***Stakeholder Ties (Q 4A)***

Regarding the frequency with which the NOUs met with government stakeholders, 10 reported a high degree of frequency, 25 a low degree of frequency (2 of those were low-middle), 31 reported medium frequency (1 of those was medium-low, 2 were medium-high), and 9 were categorized as "other." Regarding the frequency with which the NOUs met with nongovernment stakeholders, 23 reported a high degree of frequency, 15 reported a low degree, 28 a medium degree, and 9 were categorized as "other." For a description of the methodology used to classify these responses, please see Appendix 6.

### ***Most Important Stakeholder (Q 4B)***

The stakeholders most frequently cited as being most important to achieving ODS phaseout were the Association of Refrigeration Manufacturers and technicians, the importers and customs officials, and chambers of commerce.

### ***Most Difficult Sectors (Q 5A)***

When asked to name the most difficult sector in which to achieve ODS phaseout, 48 respondents said the refrigeration sector. The next most frequent response was methyl bromide (12 responses). No other sector was mentioned more than 3 times. CFC production and solvents received 3 votes each, while 2 respondents chose foam.

The respondents' choices for the second-most-difficult sector varied significantly. Fourteen respondents chose firefighting, 13 said methyl bromide, 9 chose foam, 8 chose refrigeration, 5 said solvents, and 6 chose aerosols.

For the third-most-difficult sector, 12 respondents named firefighting, 11 chose aerosols, 8 said methyl bromide, 6 said solvents, and 5 said foam.

### ***Regional Network Meetings (Q 6)***

With only one exception, every NOU that had attended a regional network meeting found them to be very useful. The respondents frequently highlighted the exchange of information and experiences and joint problem-solving as being particularly useful. Five did not respond to the question, and one did not know a regional network existed.

### ***Import/Export Requirements (Q 7)***

Responses on the status of import/export requirements were varied.

- 29 said the requirements were completed and in effect
- 18 said they were completed and awaiting cabinet, parliament, or other approval
- 8 said they were currently being drafted
- 12 said the requirements were considered, but no action had yet been taken
- 5 said no work was undertaken
- 2 gave other responses
- 1 provided no response

### ***Other Comments (Q 7)***

In the open response section, the two comments given most frequently were that the country has a need for greater public education on ODS issues, and that the NOU needed to better understand where ODSs are being consumed within the country.

### ***Responses to Open-Ended Questions***

Regarding obstacles to ODS phaseout, survey respondents most frequently reported that they had difficulty identifying and collecting data on ODS consumption. The next most common problem was issues related to export/import legislation—either the difficulty of having a law enacted or difficulty in enforcing it. Public awareness campaigns were most often named as the most effective initiative in promoting the phaseout of ODSs. Regarding what the NOUs perceived to

be their greatest strengths, support from governments topped the list. To address the challenges facing them, NOUs' almost unanimously mentioned the need to diversify and increase outside funding. It is instructive that this need is perceived by the NOUs to be much more important than garnering the greater involvement and commitment of the national governments.

### ***Obstacles and Stakeholders (Q 5B)***

Question 5B asked the NOUs to rank the major obstacles they faced in achieving ODS phaseout. Respondents were given the opportunity to rank the three most important obstacles in descending order. Table 1 in Appendix 7 presents the analysis of what respondents saw as the major (1<sup>st</sup>) obstacle. The responses are clustered into thematic groups, with the actual responses appearing in the right column of the table. If noted by more than one respondent, the frequency of the response is given in brackets. The overall results are summarized below.

- The responses revealed that the most frequently encountered obstacle to ODS phaseout is *difficulty in identifying and collecting data on ODS consumption* (13 responses). The actual responses in this category include difficulties in identifying the users of ODS, difficulties in measuring the size of the problem, and the specific problem of identifying and collecting data on ODS consumption in the refrigeration management sector.
- The second most frequent response was *problems encountered with regard to ODS legislation* (11 responses). These responses cover problems relating to the need to amend such legislation (6 responses), the lack of political will and difficulties in drafting and enacting ODS legislation (4 responses), and difficulties in implementing it (1 response).
- The third most frequent group of responses dealt with the *problems of planning and implementation* (8 responses), touching upon the roles of various national and international stakeholders. The responses include, for example, "long and rigid procedures of implementing agencies," inappropriate sectoral approaches of the MLF, and difficulties in devising and implementing the Country Program and individual ODS phaseout projects.
- Among the other categories of responses were lack of funds and/or resources (7 responses), difficulties encountered due to the high cost or unavailability of alternatives (6 responses), and the smuggling of ODSs and dumping of second-hand ODS-based equipment (5 responses). The rest of the responses were grouped into three categories: the lack of awareness and will among key stakeholders and general public (4 responses), problems in recycling ODSs (2 responses), and possible conflict between the Kyoto and Montreal Protocols (1 response).

### ***Most Effective Initiative (Q 5C)***

Question 5C asked the NOUs what they perceived to be the most effective initiative promoting the phaseout ODSs in their country. The clustering of the responses to this question is presented in Table 2 in Appendix 7, and the results are summarized below.

- A high proportion of the responses mention *technical and financial assistance* as well as individual and sectoral phaseout projects as their most successful initiative (19 responses). However, NOU efforts in *public awareness raising* (18 responses) appear to be just as important. Awareness raising and *consensus building and coordination at the national level* (11 responses) comprise the most numerous group of successful “unsubstantial” measures (29 responses together). Related to this category is the third most numerous group—*legislative measures* to control ODSs (16 responses).
- The rest of the responses focus on successes in *training customs officials and refrigeration technicians* (7 responses) and *identifying and measuring ODS consumption* (3 responses). In 3 countries no initiatives were yet implemented.

These responses were not altogether surprising. Consensus building and coordination at the national level, preceded or reinforced by awareness-raising activities, obviously facilitate the development and enactment of adequate ODS-controlling legislation. These measures together constitute the most frequently encountered category of the most successful NOU initiatives, underlining the importance of noninvestment activities that may involve modest costs.

### *Strengths and Challenges (Q 8A)*

Question 8A asked how the respondents would describe the current situation, strengths, and challenges of their NOU. For detail on the responses, see Appendix 7, Table 3. The results are summarized below.

- In their responses, NOUs highlight especially *the support received from various stakeholders* (20 responses altogether). These stakeholders include government (12 responses), stakeholders in the industry (4 responses), and the steering committees (4 responses).
- The second-largest category comprises the features pertinent to *institutional strengthening* (18 responses altogether), including NOU capacity (7 responses), public awareness achievements (6 responses), and introduction and enforcement of ODS-controlling legislation (5 responses).
- Finally, *achievements in securing ODS phaseout* (12 responses) and *support from the UN and related systems* (5 responses) constitute the third-largest category of responses (17 altogether).

These responses show a wider variation than that provided in Questions 5B and 5C, on the major obstacles and most successful initiatives. As discussed in Chapter 3, there are considerable biases in the responses given, in particular those arising from the reluctance of NOUs to diminish their position, role, and possibilities and rather inflate those. Readers should bear that caveat in mind as they peruse this analysis.

### *Addressing the Challenges (Q 8B)*

Not surprisingly, the responses to Question 8B, about ways to improve the situation of the NOUs and address their challenges, appear to be the most diverse. Almost half of the responses (approximately 35) relate to the issue of increased funding in one way or another. Requests to increase NOU capacity comprise the most numerous group of responses. Realizing that there might be significant biases in the responses, given the nature of the question, we are nonetheless convinced that, for the most part, these responses do reflect the situation on the ground. For detail on the responses, see Appendix 7, Table 4. The results are summarized below.

- The responses dealing with the issue of *NOU capacity* (20 responses) cover four major areas: overall institutional strengthening, insufficiency of human resources, the need for better coordination (possibly through a steering committee), and specific needs of the NOUs (such as vehicles, training, translation, and improved communication infrastructure).
- The second-largest group of responses deals with the need for *greater involvement and commitment on the part of the government* (13 responses). Five responses in this group also reflect on the need to improve the position of the NOU vis-à-vis the government.
- In the third-biggest cluster of responses, bearing on *the need to diversify and increase outside funding* (12 responses), the responses noted both an overall need for increased and more flexible funding, as well as specified activities and sectors requiring such funding.
- *Public awareness* and *regulatory measures* are mentioned by the NOUs with equal frequency (11 responses each). Frequently the NOUs note *the need for the implementing agencies and the Multilateral Fund to “improve”* and stop obstructing the implementation process through delays in releasing funds, miscommunication, or contradictory decisions.
- *Handling the refrigeration (servicing) sector, finding good alternatives, and facilitating technology transfer* comprise another common group of suggested improvements. Finally, answers pertinent to *training customs officers* and *developing or revising the Country Program* are also prominent.

The rather strong correlation of these responses with the responses received in Question 5B (major obstacles) validates our position. In particular, difficulties in identifying and collecting ODS consumption data (the 1<sup>st</sup> major obstacle) could be resolved through increased institutional strengthening, and problems with ODS legislation (the 2<sup>nd</sup> major obstacle) can be dealt with once ownership at the governmental level is improved. This analysis also validates our theoretical thesis that most NOUs feel that their efforts at “ownership” are inhibited more by lack of national or domestic support than a perception of domination by international stakeholders (see Chapter 1).

## ***Section B: Internal Ownership Correlations***

---

In this section, we compare respondents' involvement in the formulation of their Country Programs to how much they showed "ownership" in terms of five indicators:

- frequency of meetings with government agencies;
- frequency of meetings with private stakeholders and nongovernmental organizations;
- progress made in enacting and implementing import/export legislation; and
- the degree of domestic networking, domestic consensus building or public awareness.

The results provide interesting insights into the nature of "ownership" and how it affects the effectiveness of an NOU to originate, formulate, and implement successful policies on ODS phaseout. We present our results in this section and in a matrix in Appendix 8.

In summary, our analysis yielded the following conclusions.

1. "Ownership" is too loose a concept to be employed as a causal variable in rigorous empirical testing in the way we had originally hoped.
2. Five "vitiating" factors tend to negate ownership and explain certain exceptional findings. These vitiating factors play an important role only when they are negative; in other words, they operate to negate, weaken, or impair ownership.
3. NOUs that were not involved in the origination and formulation of their Country Programs showed low levels of ownership.
4. Lack of participation early on in the formulation of ODS phaseout strategies does not necessarily fatally weaken the ownership of the policy initiatives by the NOU.
5. The locus of policy initiatives as a relevant aspect of ownership refers more to who sets the policy agenda than who actually writes the program document itself or reduces it to print.
6. Most NOUs feel that their efforts at ownership are inhibited more by a lack of national or domestic support than a perception that international stakeholders limit their true choice.
7. More efforts need to be made to encourage ownership at the national level. The international stakeholders may do this by changing the persisting attitudes toward the A5C countries.
8. Ownership is important at both the NOU and the national level.

### ***Methodology***

In tabulating these results, we used a rather simplistic method to score the performance of the countries in the five areas of evaluation. We used a simple system of pluses (+) and minuses (-) to indicate either a weak, moderate, or strong showing in a particular area. We relied only on the responses to the questionnaire to score the countries. The scoring system is as follows.

#### ***Formulation of the Country Program:***

- (-) Countries that did not participate at all in the formulation of the Country Program
- (+) Countries that participated in any way in the formulation of the Country Program
- (++) Countries that formulated the Country Program

*Frequency of meetings between the NOU and government agencies/ministries:*

- (-) For an NOU that had relatively low frequency of meetings (defined as two or fewer parties meeting on a quarterly or less-frequent basis)
- (+) For an NOU that had a medium number of meetings (defined as between two and four parties meeting at least monthly or quarterly)
- (++) For an NOU that had a high number of meetings (defined as more than four parties meeting at least daily or monthly)

*Frequency of meetings with private stakeholders:*

- (-) For an NOU that had relatively few meetings with the private sector
- (+) For an NOU that had a medium number of meetings
- (++) For an NOU that had a high number of meetings

*Status of import/export legislation on ODS:*

- (-) For countries that have not taken action at all, including those that said that they have considered but have not taken any action
- (+) For countries that have considered legislation and have, in some way, started action on it, including those countries where it is awaiting approval or passage into law and where it is awaiting implementation
- (++) For countries that have legislation in place already

*Domestic networking and public awareness efforts:*

- (-) For those NOUs that have not done any domestic networking or have not started any public awareness campaigns
- (+) For those NOUs that have done some public awareness/consensus building programs but what has been done is inadequate for some reason, be it lack of funding, lack of institutional capacity, lack of government support, etc.
- (++) For those NOUs that have done extensive, effective public awareness campaigns and have no complaints about any inhibition in implementing this measure

***Vitiating Factors***

The sixth column of the table in Appendix 8 contains what we call “vitiating” factors. In analyzing the survey responses, we noted certain patterns in the factors that NOUs complained about—factors that tended to negate ownership. (We borrowed the word “vitate” from contract law to forcefully bring the imagery of “impairing the quality of a thing” or “weakening the effectiveness of a thing.”) We noted, generally, five kinds of vitiating factors and denoted each with a minus (-). The five kinds, and the abbreviations used to denote them in Appendix 8, are as follows.

1. When an NOU reported that it does not have its own budget, thereby implying an inability to properly plan its operations due to lack of financial autonomy, we signified this with the letters NB (No Budget).
2. When an NOU is only a temporary unit, we feared that it would tend to implement only short-term measures and would lack sufficient institutional capacity to follow through with long-term plans for ODS phaseout. We signified this with the letters TE (Temporary).

3. In the rare case where an NOU has not been created, we took it for granted that the unit that was for the time being charged ODS phaseout would be hampered in its duties by the lack of an institutional base. We signified this with the letters NN (No NOU).
4. Where the NOU lacks political and intellectual support from the government or lacks the autonomy or independence to do its work effectively due to insufficient political support or prioritization by the government, we signified this with the letters NA (National vitiating factors).
5. Where the NOU feels trammled in any way by international stakeholders or feels that it lacks true choice by virtue of the international environment, we signified this with the letters INT (International vitiating factors).

### ***Discussion of the Results***

In Chapter 2 we hypothesized a causal relationship between ownership and performance. We hoped to find a verifiable causal relationship between a quantifiable and measurable concept of “ownership” and quantifiable concept of “performance.” However, upon embarking on the study, we realized that many factors make such a simple causal inference difficult to verify empirically. Ownership, we realized, is too loose a concept to be employed as a causal variable in rigorous empirical testing in the way we had originally hoped. On the one hand, the meaning given to the concept may be too diffuse to give any interesting or useful implications for theory or policy. On the other hand, the meaning assigned to the concept may be so tight that it hardly approximates reality despite its theoretical elegance.

In this study, any reliance on formal indicators only produced, at best, inconclusive, disordered, and unpatterned results. However, the pattern showed by the NOUs became more discernible when we tried to consider more “substantive” processes that may influence effectiveness and ownership. Our decision to include the sixth, seemingly much less scientific column on vitiating factors is an attempt to do this. As explained previously, we found five vitiating factors that helped to explain certain exceptional findings. As we explained, these play an important role only when they are negative—in other words, when they operate to negate or weaken ownership.

The countries that did not participate *in any way* in the origination or formulation of their Country Programs, as designated by minus (-) in column one, generally, as expected, posted dismal results in most of the indicators.

- Of the 10 countries that reported that they were not involved, 9 of them (90%) scored extremely poorly in most areas (i.e., they scored more than one minus in most cases and at least one minus in all cases).
- Only one of these 10 countries (10%) had no vitiating factor as signified by a minus (-) in the sixth column.

The conclusion is that NOUs that were not involved in the origination and formulation of their Country Programs showed poor instances of ownership.

Of the countries that *were* involved in some way in formulating the Country Program, the results revealed no significant differences in ownership between those NOUs that actually *formulated* the Country Program and those that only *participated in* formulating it.

- Sixty-five of the 75 countries that responded reported that they were involved in formulating the Country Program. Forty-seven of the respondents (62.6% of the total number of respondents) reported that they participated in formulating the program. Eighteen (24%) reported that they actually formulated their Country Program.
- Of the 18 that actually formulated their Country Programs, 5 (27.7%) reported no vitiating factor. Of the 47 NOUs that merely participated, 11 of them (23.4%) reported no vitiating factor.
- Of the 18 that formulated their Country Programs, 7 of them (38.8%) did not score any minus (-). Of the 47 that only participated, 15 of them (31.9%) did not score any minus (-).

This confirms our point in Chapter 2 that lack of participation in one of the earlier stages does not necessarily fatally weaken the ownership of the policy initiatives by the NOU. It also confirms our point that when we talk of the locus of policy initiatives, we are referring more to who sets the policy agenda than who actually writes the program document itself or who reduces it to print.

Countries that were involved in formulating the Country Program in some way tended to show greater ownership generally; they had stronger scores in the first five columns and fewer vitiating factors in the sixth column.

- Of the 10 countries that did not participate at all in the development of their Country Program, only 1 (10%) had no minus sign recorded in any of the first five columns.
- Of the 65 that did participate in the formulation in some way, 22 of them (33%) had no minus sign recorded in any of the first five columns.
- Of the 10 countries that did not participate, one (10%) did not report a vitiating factor in the sixth column.
- Of the 65 that did participate, 35% of them did not report a vitiating factor in the sixth column.

The NOUs that reported vitiating factors were more likely to also have at least one minus (-) in one of the first five columns.

- Of all 75 respondents, 15 (20%) reported no vitiating factors.
- Of the 60 that reported a vitiating factor, 25 (41%) reported that there were some “international” vitiating factors either solely or in part. Six of these (10%) complained outright that international stakeholders do not provide them with proper latitude of choice to make their own decisions.
- Of the 60 that reported at least one vitiating factor, 22 of them (36%) reported some “national” vitiating factor. In that case, we did not consider an NOU’s status as a temporary unit or the fact that it does not have its own budget as a vitiating factor of “national” origin. If we considered these two vitiating factors to be of “national” origin, then the number rises to 47 (63%).

These results might mean that most NOUs feel that their efforts at ownership are inhibited more by a lack of national or domestic support than by international stakeholders keeping them from fashioning their own ODS phaseout strategies.. However, the results might also mean that more efforts need to be made to encourage ownership at the national level.

Even after factoring in the vitiating factors, we noticed that some NOUs made a notably strong showing despite those vitiating factors. For example, an NOU may report some vitiating

factors—both nationally and internationally—but still manage to do good networking or have fairly frequent meetings. This may be explained by considering the NOU’s institutional ability. Loosely defined, this refers to ownership at the NOU level. Where an NOU has a strong team of dedicated staff who feel motivated to pursue their responsibilities despite difficult constraining factors, this is registered in a strong showing in some of the indicators. The following example of an African country demonstrates this point.

This country has recorded spectacular successes in terms of ODS phaseout and is well ahead of its scheduled phaseout dates under the protocol and under its initial Country Program. Yet the NOU reported a clear lack of adequate political support from the government, and the variables showed some dismal performances in areas that require government support, namely meetings with government agencies and the passage of import/export legislation. The NOU complained outright that it needs more government support. Here, there are clear vitiating factors of national origin. Yet the NOU has initiated a very strong public awareness campaign and has been rather successful in networking with other domestic agencies and private stakeholders. Also, while there is no formal import/export legislation, the NOU has initiated a stop-gap measure that seems to be working fairly well under the circumstances.

This example appears to show that even if ownership is not very strong at the national level, strong ownership at the NOU institutional level could make a profound difference. This might be explained in terms of “cycles of influence.” A cordial and good working relationship with the international stakeholders imbues the NOU with confidence, will, and motivation—important components of ownership. With a sense of ownership and motivation, an NOU is able to exert some measure of influence on the national government. This is especially so when the NOU is located within a ministry and is headed by a senior official of the ministry such as a Permanent Secretary. In such cases, even if there is no strong political conviction among the key national players, the NOU is still able to create spaces within the government bureaucracy that it can use to achieve its aims.

In our example, despite the lack of sufficient intellectual and political support from the national leadership to enable the expeditious passage of import/export legislation, the NOU was able to work out stop-gap measures that proved almost as effective as formal legislation. The success or effectiveness of such measures both motivates the NOU to do more and demonstrates to the political leadership the viability of the programs. In other words, a motivated NOU may exert “virtuous” influence upon the political leadership. This may, in turn, translate into more political support from the government.

The implication of this last point and our example is that ownership at the NOU level is just as important as ownership at the national level. Furthermore, strong ownership at either level is not only necessary for overall successful ODS phaseout strategies, but ownership at one level reinforces ownership at the other.

## ***Section C: ODS Consumption Correlations***

---

To understand the factors that are linked to actual ODS phaseout, we looked at how the level of consumption of each of three ozone-depleting substances (CFCs, halons, and methyl bromide) varied with the frequency of stakeholder meetings and the implementation of an import license regime.

### ***Results***

The consumption of CFCs, the principal ODS of concern, was more likely to decrease in countries in which the NOU had frequent meetings with a large number of government and private stakeholders than in countries where the NOU had infrequent meetings. Likewise, CFC consumption was more likely to decrease in countries that had some form of import regulation. These correlations were consistent with our expectations that increased country ownership results in greater ODS phaseout.

The reduction in halon consumption appears to have a correlation with the frequency of an NOUs' meetings with private stakeholders and a strong correlation with the establishment of import regulations. It should be noted that the Montreal Protocol put a freeze on halons at the 1995-97 average levels that will come into force on January 1, 2002, followed by a 50% reduction by January 1, 2005.

Methyl bromide consumption does not show consistent correlations. This is to be expected, as many countries have not yet signed the Copenhagen Amendment committing to reductions in methyl bromide consumption, and many others do not consume or have no data on the consumption of methyl bromide. There appears to be a moderate relationship between the frequency of meetings with government agencies and the phaseout of methyl bromide. However, the most significant result is that those countries with no data on methyl bromide consumption have significantly less-frequent stakeholder meetings and have made little progress on import regulations. This may indicate that those countries not reporting data have less ownership of the ODS phaseout process.

The correlation of meeting frequency and import regulations with halon and methyl bromide is not as strong as with CFCs, because not as many countries have import regulations that restrict halon and methyl bromide imports.

The results are summarized in the following table.

<b><i>Correlation with Level of ODS Phaseout</i></b>			
<b>Substance</b>	<b>Meetings with Government</b>	<b>Meetings with Private Stakeholders</b>	<b>Import Legislation</b>
CFC	Strong	Moderate	Strong
Halon	None	Slight	Strong
MBr	Moderate*	None*	None*

\* Those countries with no data on methyl bromide phaseout have significantly less-frequent stakeholder meetings, and have made little progress on import regulations.

## *Methodology*

These results were obtained by creating three categories for CFC consumption: increased consumption (i.e., where consumption in the most recent year was greater than or equal to the baseline), consumption that decreased between 0-33%, and consumption that decreased more than 33%. We picked 33% as the boundary because it split the decrease in consumption into two groups with relatively equal numbers of countries, improving our ability to analyze the relationships with other factors. We broke the consumption of halons and methyl bromide into three categories: increased consumption, decreased consumption, and no consumption (i.e., no consumption in the baseline years or the most recent year).

We looked at how the level of consumption of each of the ODSs varied with the frequency of stakeholder meetings and the implementation of an import license regime. We hypothesized that more frequent meetings with greater numbers of stakeholders indicate a higher level of communication and information flow, both of which are essential to the phaseout of ODS consumption. We felt that the status of import license legislation was important because import restrictions control ODS supply in most developing countries and greatly aid phaseout efforts. For details about how we established these relationships, see Appendix 9.

We also tried to correlate four other variables (the existence of a steering committee, NOU office level, ministry support, and Country Program involvement) with the level of ODS phaseout, but found no relationship between them. We also found little correlation between an NOU's success in phasing out CFCs and its success in phasing out halon and methyl bromide. That is, in countries where CFCs were successfully phased out, methyl bromide and halon were no more likely to be successfully phased out than in countries where CFC consumption had increased dramatically. For details about these efforts, please see Appendix 9.

We recognize the limitations of simple comparisons between two factors. However, the nature of the data did not support multivariate regressions or other more sophisticated statistical interpretations.

The correlations between meetings with private stakeholders and ODS phaseout were not as strong as we anticipated. This is likely due to how we defined the categories "high," "medium," and "low." Because there is likely to be a greater number of relevant private stakeholders than government agencies, it was easier for an NOU to show a "high" number of meetings with private stakeholders. This skewed the distribution of results such that too many NOUs were in the "high" category and may have decreased the apparent correlation with ODS phaseout.

## *Source of Data*

We used ODS consumption data from the 3238 Annex,<sup>10</sup> and calculated reductions using the latest year consumption (usually 1999) and the baseline consumption (an average from 1995-97).

---

<sup>10</sup> The 3238 Annex is in the Strategic Planning and Draft Three-Year Business Plan for the Multilateral Fund. UNEP/ OzL.Pro/ExCom/32/38, 8 November 2000.

We recognize that this time span does not adequately reflect the efforts of most countries to phase out ODSs, because many countries were reducing ODS consumption before the baseline period. Were it possible, we would have preferred to have data from the time of the Country Program, but that data does not exist.

### ***Response Bias***

A cursory analysis of the 24 countries that did not respond to the questionnaire reveals that they are far more likely to have also not reported consumption data, and they are slightly less likely to have reduced their consumption of any of the three ODSs. For a more detailed analysis of response biases, see Chapter 3.

### ***Section D: Steering Committee Correlations***

---

The majority of the countries whose responses were available for analysis were found to have a steering committee (72%). An analysis of the correlation between the existence of a steering committee, on the one hand, and the frequency of meetings with stakeholders and the existence of import/export legislation, on the other, allows us to conclude that a steering committee facilitates domestic networking and improves the chances of adopting ODS-controlling legislation, possibly through raising awareness and ownership at higher governmental levels, leading to a higher degree of commitment. A full statistical analysis of this topic can be found in Appendix 9, and the results are summarized below.

#### ***Existence of a Steering Committee and the Frequency of Meetings with Stakeholders***

*In countries with a steering committee, there is a tendency for a medium frequency of meetings (44%).* A possible explanation for this tendency is that the existence of the steering committee facilitates awareness among the key stakeholders and allows for an easier resolution of the issues facing the NOU. A steering committee, however, does not substitute for the NOU's domestic networking efforts; it reduces but not eliminates the need to meet with stakeholders. This point is substantiated by the low proportion of the NOUs with a steering committee who reported a high frequency of meetings with stakeholders (23%).

*In countries without a steering committee, two extreme situations are observed.* In 40% of the countries without a steering committee, the frequency of meetings with stakeholders is low, while in another 35% of those countries the frequency is high. One possible explanation is that low meeting frequency might be indicative of an overall low level of activity, while in countries with high meeting frequency, the NOU meets with stakeholders more often to substitute for the lack of communication and awareness caused by the absence of a steering committee.

### ***Existence of a Steering Committee and Existence of Import/Export Legislation***

*Most countries have taken some action regarding import/export legislation, regardless of whether they do or do not have a steering committee (78% and 83% respectively). This can be explained by the fact that the MLF only disburses grants to countries that promise to take steps in the near future to establish import/export legislation.*

*The proportion of countries that have established import/export legislation is higher among countries with a steering committee than in those without it. Based on the questionnaire responses, a possible explanation is that a steering committee makes it easier to remove typical difficulties that NOUs face in putting through appropriate regulations (such as low awareness of the ozone issues among governmental authorities, and consequent resentment and delays in policy approval and enactment).*

### ***Section E: Measuring Government Commitment***

---

This section discusses two measures of government commitment. First, it addresses the relationship between the position or level of the NOU within the government and the existence of import/export legislation. Second, it discusses the possibility of a correlation between certain characteristics of the NOU (e.g., its age, staff, and status) and the amount of funds available to it.

First, it does not appear possible to measure political will by assessing the position of the NOU within the administration. We found no obvious proof that an NOU's higher position in the government made the adoption of import/export legislation more likely. The only conclusion we can draw is that a higher position within an administration may increase the chances that a project on legislation will be *considered* by the government.

We isolated six countries with NOUs that were "highly" positioned within the administration. We then discovered that import/export legislation was being considered if not yet adopted in all six countries. This seemed to indicate that establishing an NOU high in the administration helped to ensure that such legislation would be considered. However, we also looked at countries at the other end of the spectrum—those whose NOUs were placed low in the administration's hierarchy. The results contradicted our previous conclusion: the percentage of these countries who adopted import/export legislation was even higher than those with NOUs highly positioned in the administration.

Second, our conclusions regarding the relationship between the characteristics of the NOU (e.g., age, number of staff, status) and the availability of funds it enjoyed were not compelling. Only the total number of staff seemed to be clearly correlated with the availability of funds. This is not surprising and does not add a determinant element to our understanding of ownership. Indeed, the correlation could be interpreted as the fact that bigger countries tend to have bigger staff and receive more funds from both domestic and international resources. The detailed results of this analysis can be found in Appendix 9.

## ***Section F: Comparing the Results of the Survey with Other Findings***

---

A well-established, properly financed, permanent National Ozone Unit should be in a reasonable position to help fulfill its country's obligations to the Montreal Protocol regarding the protection of the ozone layer, by phasing out ozone-depleting substances.

Being "well-established" is a necessary but probably not sufficient condition for true ownership. By well-established we mean three things. First, the NOU's *position within government* should be clear and should include access to, and reasonable commitment from, top-level political and administrative leadership. Second, the NOU should have an active and engaged *dialogue with domestic stakeholders*, so it can appropriately influence these actors; reach them with operative legislation, advice, and other communication; and assess the ODS situation accurately and keep abreast of its changes over time. Third, the NOU should be *respected by and be consulted by outside supporters* such as the Multilateral Fund Secretariat, implementing agencies, and bilateral donors, as the case may be. The survey questionnaire throws light on these conditions, particularly in the responses to Questions 1, 3, and 4.

By "properly financed" is meant the right kind, volume, and timing of resources to do the job. If the NOU is properly financed, it should secure a reasonable quality and continuity of personnel. If the conditions for being well-established are met as described above, the financing is probably also adequate. Questionnaire responses 1D and 2, and to some extent 5B and 8, may throw light on these circumstances.

"Permanence" as a quality of the NOU is indicated in question 1D, and it is related to the third aspect of establishment, namely being respected and consulted about ODS phaseout issues. Permanence also has another aspect. Is the NOU permitted to concentrate on its task of planning for and implementing the phaseout of ODSs, or is it asked (by its government, or by outside agents) to do all sorts of other things? If the latter is the case, it probably means a split and inefficient usage of human resources. Such situations have been discussed in deliberations on institutional strengthening projects, with the view expressed inter alia by Sweden that NOUs should not be asked to perform numerous, diverse tasks outside of planning and implementing ODS phaseout. Many A5C countries concur with this idea, but sometimes donors or other outside agents encourage NOUs to undertake a multitude of tasks.

In fortunate and well-planned cases, such diversity of tasks may be appropriate. In particular, NOUs might be encouraged to integrate the implementation of different environmental regimes such as the Montreal Protocol and a Kyoto Protocol. This issue is dealt with in Chapter 7.

The previous sections of this chapter analyze the results of the survey of NOUs. The following discussion on establishment and proper financing provides additional evidence from other sources, combined with data from the survey.

## *Establishment*

At first, only few developed countries ratified the Montreal Protocol. By the early 1990s, A5Cs were encouraged to join, and to prepare for implementation, through the creation of the Multilateral Fund. Differently put, some major A5C said they would join only if they were assured of funding for the “incremental costs” of phaseout. Hence, the Multilateral Fund was established and received major contributions from non-A5C countries.

In order to receive funds from the MLF for institutional strengthening and the creation of an NOU, a country had to first develop a Country Program—an overall plan for meeting obligations or phaseout schedules. In each country then, the first Country Program was usually very much an outside product. The emphasis was decidedly on developing a Country Program first and an NOU afterwards.

This procedure of importing a Country Program could be seen as a necessary shortcut, given modest or weak early political commitment from A5Cs and the guiding role of non-A5Cs and implementing agencies. But it did lead to initially very low values on the three measures of “establishment” described previously. An Asian NOU reported in the survey that its Country Program was formulated in 1997 and approved by the Multilateral Fund Executive Committee in 1998, but the NOU was not established until 1999. Other respondents stated frankly that Country Programs are formulated by foreign consultants in a standardized manner without any consideration of local, national, or cultural conditions. These statements reflect poor respect for and little consultation with the A5C that is to be affected by the program.

A February 2000 report on a set of missions to evaluate institutional strengthening projects, written by the Chief Monitoring and Evaluation Officer of the Multilateral Fund Secretariat, notes that most NOUs are located in the ministries of the environment and are thus “mainstreamed,” but generally on a low hierarchical level with limited access to top decision makers.<sup>11</sup> Some larger countries such as China, India, Malaysia, and Egypt are exceptions, as are some smaller countries such as Chile, Mauritius, Ghana, and Tunisia. This points to a variety of situations with respect to the first characteristic of being “well-established,” namely, a clear position within government with good access.

What about the second establishment factor—a live network of stakeholders within the country? Mexico and Ghana are often mentioned favorably in this respect. Mexico was the first A5C to sign the Montreal Protocol. The Mexico NOU was instrumental in arranging agreements between producers to phase out simultaneously, which was partly done in close cooperation with the National Industry Associations.<sup>12</sup> In Ghana, an associative, self-help-like movement triggered early contacts with refrigerant users, in the direction of early incentives for switching to non-ODS. The National Air-Conditioning and Refrigeration Workshop Owners Association (NARWOA) represents 95% of ODS users. According to a case study of that country, “[NARWOA] has tapped on the membership of self-interest groups to build up the association. It buys spare parts at wholesale prices for the membership, it has also negotiated with national tax authorities and has obtained weekly payments. NARWOA realized early the need to issue

---

<sup>11</sup> UNEP/OzL/Pro/ExCom/30/6.

<sup>12</sup> Ibid., paragraph 18.

certificates for successful operations. This has enabled the organization and implementation of training seminars.”<sup>13</sup>

Regarding the third establishment characteristic—being respected and consulted by outside supporters—reference is made to Swedish comments on the Institutional Strengthening Project Agreements.<sup>14</sup> This suggests that it is important that Multilateral Fund support goes to a unit with the necessary position and role, and that the current practice of specifying activities, work plans, timetables, and outputs in the institutional strengthening agreement itself limits both the ability and the responsibility of the NOU to adapt its activities and tools, as time goes by, to what it considers to be the most effective way to achieve required ODS reductions. Sweden therefore suggested that IAs should acknowledge the need for less-detailed descriptions.

### ***Proper Financing***

Of the roughly \$1 billion spent by the Multilateral Fund to support phaseout, *some \$25 million, or less than 1%, has been targeted to NOU support.* Over the life of the Executive Committee, there have been strong indications, through the applications of decisions and rules, to suggest that considerations of financial support must be preceded by an identification of the number of ODS tons phased out. From this it follows that so-called noninvestment costs (e.g., awareness building, institutional strengthening, etc.) should also attempt to identify their effects in terms of phaseout. It is very difficult to project the tonnage that will be phased out as the result of additional support to an NOU. ExCom decisions have tended to favor investment activities without appropriate recognition of the fundamental need for a change agent, an operator, at the national level, and other noninvestment costs. The agency focused on support for NOUs—UNEP—is the agency receiving the smallest share among the four IA’s. UNEP has found it difficult to suggest what tonnage will be phased out through support to an NOU, or to other activities in an A5C intended to increase ownership. Hence, there appears to be a vicious circle preventing proper financing. It thus behooves A5C governments to provide appropriate financing of their own NOUs. This point can and should be made, but is difficult to pursue until ownership has been secured at higher levels of government. (See Chapter 2 on ownership.)

---

<sup>13</sup> Ibid., from a case study by Beer A. Budoo.

<sup>14</sup> ExCom 32/18, paragraphs 13-17.

# **PART C**

## **SPECIAL ASPECTS**

---

## Chapter 5

# Country Programming and A5C Ownership

Our study suggests that phaseout can be achieved by a combination of:

- revising Country Programs with strong NOU participation;
- supporting sector programs that tackle a multitude of small and medium-sized (or micro) enterprises (SMEs), rather than supporting individual projects;
- using national-level intermediaries such as associations for identifying, coaching, supporting, and monitoring the phaseout of consumption by SMEs;
- further promoting ownership by giving A5Cs, and the financial institutions they select, milestones against which performance is judged, and allowing disbursement only if such milestones are reached; and
- using intermediaries and financial institutions, while each NOU and its government remain ultimately responsible for phaseout.

This chapter elaborates on these ideas. It is organized into two major sections: one on revising Country Programs and one on using a sectoral approach and intermediaries to work with SMEs. First, however, we briefly review the concept of the Country Program.

### ***Country Programs***

---

Country Programs prepared under the Montreal Protocol consist of a number of key components, including ODS data for, or a profile of, the country, as well as an action plan for how to reduce and ultimately eliminate ODS consumption to meet obligations under the Protocol. Such obligations refer to the phaseout of CFCs, methyl bromide (MBr), CTC, hydrochlorofluorocarbons (HCFCs), and so forth. These data and action plans are normally organized by sector. The sectors typically include: household refrigeration, commercial/larger-scale refrigeration, air conditioning (stationary and mobile), aerosols, foams, solvents (i.e., cleaning of electronic parts with solvents), fire protection, and the production of ODSs. Only about ten A5Cs produce ODSs, but most do consume imported or recirculated ODSs.

### ***Revising Country Programs***

---

*Based on our research, we believe it is time to leave NOUs and their governments in peace to do a proper, revised, “live” Country Program.*

A good Country Program with strong national ownership is a major venture. It necessitates collaboration and trust between an NOU and all stakeholders that produce, sell, buy, and/or use

ODSs. The NOU must gather detailed data and information from all these sources. Ultimately, a good Country Program also requires commitment from the government at a high level.<sup>15</sup>

If the NOU is successful in finding and communicating with stakeholders, the sectoral data will be relevant and reliable, and a good start will have been made in assessing the means for reducing consumption and production. The data-gathering process will also reveal what stimuli—in terms of incentives, disincentives, provisions of alternative technology, training, awareness raising, and so forth—are likely to be successful and acceptable, as well as the likely incremental cost of operations (to be submitted to the Multilateral Fund for funding).

To develop a useful Country Program in this way, an NOU needs the capacity and some amount of quiet and concentration. Frequent contacts with implementing agencies, bilateral donors, and the Multilateral Fund Secretariat may be laudable and even necessary. If such contacts are not voluntary and also take most of the time of the NOU, however, the NOU is not going to have the time to design and implement a program that is *of* and *for* the country itself. Ownership is going to be weak and the design is going to be hasty or fetched from other sources who are not familiar with local conditions.

Sweden suggested—in its input on the *General Principles for Agreements between Governments and Implementing Agencies on New and Renewed Institutional Strengthening Projects*—that Multilateral Fund support should go to a unit with the necessary position and role within a country. Sweden also stated that the current practice of specifying activities, work plans, time tables, and outputs in the institutional strengthening agreement itself should be discontinued.<sup>16</sup> This practice limits both the ability and the responsibility of the NOU to adapt its activities and tools, as time goes by, to what the government considers to be the most effective way to achieve required reductions in ODS consumption. In short, ownership implies less intervention from the outside and more national responsibility.

In this project, we realized that from the beginning we were up against a formidable obstacle in seeking examples of true ownership. The Multilateral Fund's guidelines state that assistance for institutional strengthening can be provided only after a Country Program is in place. Thus, the first Country Program would be characterized by ownership only if the A5C government from the very start made its *own* investment into an NOU and provided it with proper training. Because the Montreal Protocol was not at the top of most A5Cs' agendas in the early 1990s, such instances of strong local investment in institutions and people were rare. From this follows that, in most A5Cs, at least the first Country Program is likely to be an imported product, developed by implementing agencies and/or consultants rather than nationals of the A5C concerned.

Worse, the first Country Program may merely be a “shopping list” for a set of investment projects for which Multilateral Fund assistance is sought. We have heard of past cases when A5Cs were encouraged to present such shopping lists without going to deeply into the strategy of phaseout. Furthermore, a recent document of the Executive Committee (32/31), which was tabled at the December 2000 meeting in Burkina Faso, seems to promote the continuation of

---

<sup>15</sup> See Chapter 2 and also Rasmus Rasmusson, “A Note on Developing Country Ownership in Respect of Implementation of the Montreal Protocol,” *Currents*, June 2000.

<sup>16</sup> ExCom 32/18.

such an undesirable situation. Paragraph 12 states that an updated Country Program “should serve three purposes:

1. it should delineate all of the projects that are left to implement in the country
2. it would establish the context for seeking project-level funding from the Multilateral Fund by showing how projects and policies will work together in time to ensure achievement of the agreed reductions
3. it could be the basis for designing a performance-based final national phaseout agreement with the ExCom.”

The guidelines quoted above appear to view the update of a Country Program as a tool for the Executive Committee to decide on funding, rather than a tool for A5C governments to develop a phaseout strategy. This brings us to the fundamentals of ownership: *Whose program are we talking about?*

This impression of “putting the cart before the horse” is reinforced in Decision 5 of ExCom 32. This decision prescribes that “project preparation”—including Country Programs and refrigeration management plans—should normally be completed within 12 months and that any delay should be accompanied by an explanation. The decision does say that, “in certain cases, such as the preparation of umbrella projects, sector plans, refrigeration management plans, and terminal phaseout projects, project preparations might take longer.” Still, however, the document overall does not give due recognition to the fact that creating ownership with awareness raising, networking, consultations, persuasion, and consensus building takes time, and creating reports for the outside world is a time-sink.

At an MIT seminar on climate-ozone relationships, held November 2 and 3, 2000, it was suggested that the Multilateral Fund had invested U.S.\$25 million in NOUs, out of a total of \$1 billion. In order to promote ownership, A5Cs would certainly have to supplement this modest amount with strong indigenous efforts and help from bilateral donors.

In our survey, an Asian country characterized the situation thus: The Country Program was formulated in 1997 and approved by the Multilateral Fund in 1998, however the NOU was established in 1999. Another A5C stated that foreign consultants flown in to write the Country Program paid little attention to local economic and social considerations.

The way in which implementing agencies support the formulation of Country Programs in A5Cs will obviously have an effect on ownership. For example, it appears that the UNEP has a different idea than other agencies about how to develop a Country Program. UNEP asks the country to set up a national team consisting primarily of governmental agencies. UNEP then sends a consultant to explain to the national team the context, what information they should collect, what a Country Program should contain, and so forth, and then let the national team work on it. The final Country Program is drafted by the consultant, in cooperation with the national team. Although there is no NOU before the first Country Program has been approved, this national team often provides a basis for continued cooperation between agencies, and the basis for the formation of the NOU. In short, the formulation of the first Country Program constitutes at the same time the training and launching of an NOU. It is our understanding that the Executive Committee has applauded this concept, recognizing its ownership values. It

appears that other implementing agencies choose to engage an international consultant to do the major part of the work, except that a local consultant collects consumption data and other relevant information.

If UNEP mainly serves small A5Cs, the difference between these two opposing procedures of assistance in producing the first Country Programs may not be so dramatic. Small A5Cs may have great difficulty in actually putting up an adequate national team. However, the difference in principles between the support of UNEP and the other Implementing Agencies is important in terms of their promotion of ownership. It would be possible, through additional case studies, to trace the effects, in terms of ownership, of these different attitudes and procedures.

### ***Working with SMEs***

---

*Once a live Country Program is in place, it is essential to encourage a sectoral approach for working with SMEs and to find national intermediaries to help implement ownership.*

Our survey revealed that, for most countries, widespread consumption of CFCs (and in some cases methyl bromide) was considered the major challenge to phasing out ODSs. In large countries like India and Brazil, some two-thirds or more of all CFC consumption takes place in small firms and units related to refrigeration, servicing, solvent use, air conditioning, and so forth. Likewise, methyl bromide may be used by thousands of farmers. There is, as revealed in the survey responses, a set of intermediaries or major stakeholders that can be approached and encouraged to help reduce consumption by these many SMEs.

Such intermediaries are those with which the NOU networks, including trade associations, refrigeration technician associations, industrial associations, and small business associations. These are umbrella organizations through which a government and its NOU can reach out to the multitude of ODS users. A dialogue with these stakeholders may reveal how phaseout should be achieved, what training should be provided, and what alternative technology might be found.

The World Bank, for its part, promotes the idea of having another kind of intermediary, such as a development bank, take the role of change agent, financier, and promoter of phaseout in a sector. This is a different and additional, but no doubt very useful, approach. The identification of such intermediaries can further enhance ownership at various levels within a nation, but does not of course relieve the government and its NOU of their ultimate responsibilities. Contracting with such intermediaries and making them responsible for monitoring and reporting on progress can also enhance ownership and provide milestones for government, the Multilateral Fund, and bilateral donors. Linking such intermediaries with the associations described in the previous paragraph can assist the government in spurring and supervising phaseout. By using such linkages, the government, its NOU, the Fund, and the implementing agencies can deal directly with fewer parties. The NOU can create partnerships and have allies in national phaseout. Thus a virtuous circle of ownership, initiative, implementation, and control can begin. These facilitating arrangements for broadly based phaseout will, however, never relieve a government and its NOU from ultimate responsibility for phaseout or the need to be the driving force behind it.

## Chapter 6

# The Particular Problem of Methyl Bromide

Although all findings, both from statistical analysis and the survey of NOUs, point to CFC in refrigeration as the prime challenge in ODS phaseout, methyl bromide (MBr) is frequently identified as the second most difficult problem. Methyl bromide is mainly used as a fumigant in agriculture for crops such as tomatoes, peppers, and strawberries. It is widely used and seen as highly efficient for protecting crops in Latin America, Asia, Africa, the United States, and Southern Europe. It is also used for pest control in structures and stored commodities, and for quarantine treatments. Australia and the United States, for instance, often demand that imported timber be treated (fumigated) with MBr to control quarantine pests.

MBr is, simply put, terrible for the ozone layer. It has an “ozone-damaging potential” factor of 0.6. It is surpassed only by halons, CFCs, and CTC. It might be interesting to note that a Swedish mill owner has for a long time argued that naphtha used for heating is a good substitute in storage, but he has apparently had limited success in convincing his U.S. colleagues. His method of heating is probably not applicable in warm climates.

### ***Methyl Bromide and the Montreal Protocol***

---

In 1992, the Meeting of Parties passed what is known as the Copenhagen Amendment to the Protocol. The Copenhagen Amendment set a deadline of 2002 for a freeze of methyl bromide at 1995-98 average levels and 1 January 2015 for a complete phaseout. In 1995, the deadlines were changed: MBr consumption in non-A5Cs was frozen at the 1991 base level (with exceptions for quarantine and pre-shipment (QPS) use), and, after phased reductions, total phaseout was to be achieved in 2005 except for critical uses and QPS. For A5Cs, consumption was to be frozen in 2002 at average 1995-98 levels, reduced by 20% in 2005, and phased out by 2015. In 1997, the Meeting of Parties in Montreal again set new targets for the reduction and elimination of methyl bromide use, with the developing countries, as usual, being given more time. At that time, the MoP also agreed that the MoP of 2003 should decide on further MBr reductions in A5Cs for the period beyond 2005.

During the 1996 MoP negotiations in San Jose on Fund replenishment for 1997-99, the developed countries made an offer of an extra U.S.\$10 million for trials on alternatives to methyl bromide. The A5Cs accepted this suggestion, but the funds were utilized only partly during the 1997-99 period. This is a contentious issue and it has not been fully established why the funds were only partially used.

As of 31 March 2000, only 63 out of the then 119 A5Cs had ratified the Copenhagen Amendment. Many did so only in 1999. Important parties such as China and India have not yet ratified. Indonesia ratified in December 1998 and Brazil did so June 1997.

The problem is, only A5Cs that have ratified the Copenhagen Amendment can get assistance from the Multilateral Fund to implement the methyl bromide phaseout schedule. With a poor rate of ratification, there is insufficient attention to MBr phaseout. Indeed, at an MIT seminar in Cambridge on November 2 and 3, 2000, Dr. K.M. Sarma, until recently for many years Executive Secretary of the Ozone Secretariat, pointed to MBr and HCFC as vital remaining challenges in the implementation of the Protocol.

The stern restriction on funds for methyl bromide phaseout may in rather exceptional cases be relaxed. The new Executive Committee guidelines for MBr projects say that if an A5C sends a letter indicating its intent to complete the ratification of the Copenhagen Amendment within 12 months, the ExCom may consider funds for national capacity building (e.g., transfer of information, policy development) in order to facilitate faster ratification.<sup>17</sup>

In the annual Meeting of the Parties, there are normally lengthy negotiations on the modalities of MBr quarantine and pre-shipment use. These negotiations hardly serve to bolster the will of A5Cs to phase out MBr production and consumption. The coordinator of this research project was himself witness to a somewhat depressing, late-night negotiation of the 11<sup>th</sup> MoP in Beijing, in December 1999, where efforts of the European Union representatives to put a lid on exceptions were staunchly opposed by a set of A5C and non-EU, OECD representatives.

### ***The Magnitude of the Problem***

---

A recent Executive Committee document summarizing reported ODS consumption data estimated that out of 180,700 tons of ODSs in all A5Cs, some 9,700 tons, or 5%, is MBr.<sup>18</sup> (Seventy-three percent are CFCs). This might suggest that MBr is a marginal challenge. However, comparatively few countries have ratified the Copenhagen Amendment, which offers stakeholders economic incentives to find alternatives, aided by the Multilateral Fund. Also, the 9,700 tons are likely to be an underestimate. The Methyl Bromide Technical Options Committee of the TEAP estimated that 1998 MBr consumption in A5Cs was at least 12,000 tons.

In the following table, the second column contains data gleaned from this Executive Committee report regarding methyl bromide consumption. Only those countries with a large reported consumption (more than 100 tons per year) are listed. The third column shows figures for 1998 consumption as per the Ozone Secretariat Report of December 2000. The data in these two columns were collected at slightly different times and using slightly different methods, and the differences between them illustrate the difficulties in getting an accurate picture of the situation in each country.

<b>Country</b>	<b>Tonnage, ExCom Data</b>	<b>Tonnage, Ozone Secr. Data</b>
Argentina	536	505
Brazil	420	578
China	1518	1960

<sup>17</sup> UNEP/OZL.Pro/ExCom/32/44, Annex XIV, paragraph 6.

<sup>18</sup> UNEP/OzL.Pro/ExCom/31/15.

Costa Rica	568	540
Egypt	409	240
Guatemala	514	580
Indonesia	210	126
Jordan		180
Kenya	461	235
Lebanon	121	111
Malawi	125	126
Mexico	1027	1208
Morocco	1016	954
Romania		102
Turkey	835	415
Zimbabwe	475	819

For four countries—Jordan, Cuba, Morocco, and Turkey—we also found figures on “approved but not implemented”—that is, tons of methyl bromide that could be phased out with funds approved by the Executive Committee, but not yet phased out. From those few cases, the following figures emerge:

Country	Consumption	Approved but not Implemented	Copenhagen Amendment Ratif.
Cuba	118	48	1998
Jordan	89 <sup>19</sup>	180	1995
Morocco	1016	61	1995
Turkey	835	50	1995

The ExCom has since approved some 20 or more phaseout projects, and implementation has started in some, many due to be wholly phased out around 2005 or 2007. Among the four countries shown above, only Cuba and Jordan seem ready to push ahead in terms of relative volume slated for phaseout. Finally, Iran, which reports no consumption except for 12 tons approved but not implemented, presents an unlikely scenario where there is probably more to be done than meets the eye.

In data from other implementing agencies, consumption figures deviating from those of the first table above appear for twelve countries, among which are Chile, Syria, Thailand, and Vietnam which did not even show up in the first table above. They are reported with consumption of 327, 201, 412, and 172 tons, respectively.

### ***Indications from the Survey***

---

In our survey, 10 out of 75 respondents, some of them very large countries with a strong agricultural base, felt MBr is the most important and challenging remaining problem in phaseout. Another 11 felt it was the second-biggest problem. Among those ranking it first were two of the three countries having a reported consumption over 1000 tons. Among the others who rank MBr as problem number one, some have a very strong agricultural base. An African country refers to tobacco growers, grain storage, and flower growers as the main stakeholders. Another Latin

<sup>19</sup> Reported consumption for Jordan is obviously underestimated, or consumption has risen since reported.

American/Caribbean country ranking MBr as its biggest problem states that stakeholders are willing, but customers are not ready to accept alternatives.

In all, 21 countries out of 75 gave MBr first or second ranking in the list of ODS problems to be tackled. Twelve of them have ratified the Copenhagen Amendment. This means that 9 are basically unable to do anything about methyl bromide because they cannot receive funds for phaseout. In ownership terms, they are not in charge of the problem.

Even if a country has ratified the Copenhagen Amendment and thus qualifies for assistance, a lack of momentum still seems to prevent action. This lack of ownership has two faces: an inability to push for finding alternatives, and an inability to make a political decision to ratify the Copenhagen Amendment. Finally, there is a Catch-22 situation. If a country cannot convince stakeholders that there are relevant alternatives, they will find it more difficult to ratify the Amendment, and this will make it more difficult to secure means to support phaseout.

The South African respondent offers the following description, which he has authorized us to quote: “The major challenge facing South Africa is finding effective alternatives to methyl bromide. Some financial input to help with some research would be greatly appreciated, since our phaseout target date is 2010 but I’m afraid we may have to go up to 2015.” The University of Stellenbosch in South Africa is reportedly making good progress in research but is running out of funds and has not yet developed and tested any alternatives. This situation is exacerbated by a lack of support from the Fund, because when South Africa was reclassified as an A5C there was an agreement that the country should not get Multilateral Fund resources for phaseout.

In all likelihood, the world’s destiny in terms of MBr phaseout lies above all with the most prominent consumer of the substance, China. Can imported alternatives be made economically attractive? The matter of a Chinese ratification lies largely in convincing the Chinese Ministry of Agriculture that there are efficient alternatives. To do this, thousands of Chinese farmers must first be convinced through demonstrations projects. And who will pay for such demonstrations? European Union invitations to study alternatives could play some role in a changing of attitudes.

## **Chapter 7**

# **Connection Between Ozone and Climate Change Efforts**

A number of countries have established an organizational connection between their domestic activities to phase out ozone-depleting substances, and their activities to mitigate or adapt to climate change. Establishing a relationship between ozone and climate change efforts demonstrates ownership because the country is proactively anticipating the difficulties that may arise from the inherent tensions between decisions made to phase out ODSs and those made to mitigate climate change.

HFCs are often used in refrigeration, air conditioning, and foam applications, because they are less damaging to the ozone layer than the CFCs and HCFCs they replace. Approximately 8% of CFC use in A5C countries was replaced with HFCs. PFCs are less common, and are used as a substitute for CFCs in solvent applications, as a substitute for halons in fire protection, and in new semiconductor applications. Both HFCs and PFCs are greenhouse gases (GHGs) with very high global warming potentials, although HFCs often have a lower global warming potential than the ODSs they replace. Thus, actions taken to comply with the Montreal Protocol can adversely impact a country's efforts to comply with the Kyoto Protocol on Climate Change.

It was our understanding that 15 countries had established some form of functional connection between their ozone and climate change activities. We sent out a brief questionnaire (see Appendix 10) to each of these countries, asking about the nature and degree of the connection. Of the 15 countries, ten responded (67%). The respondents are: Estonia, Guyana, Kiribati, Lithuania, Mexico, Niger, Senegal, Slovakia, Uruguay, and Vietnam. Several clear patterns emerged among the respondents. Despite several attempts, we were unable to elicit responses from the other five countries (Botswana, India, Latvia, Malaysia, and Samoa).

### ***Connection between Ozone and Climate Change Efforts***

---

Most of the respondents indicated at least informal communication between the NOU and the national climate change unit. Only two countries cited very little or no connection at all. Six countries indicated that the programs worked in the same department, conversed frequently, and were aware of each other's activities. However, the level of substantive coordination between the units varied greatly. In most of these countries, there appeared to be little strategic coordination, both because PFC and HFC consumption is low or nonexistent, and because the countries currently have no obligations to reduce greenhouse gas emissions. Only two countries described a very close working relationship, with the programs working in the same office and coordinating actions, plans and strategies.

## ***Nature of Current Climate Change Activities***

---

Almost all A5Cs are also non-Annex B countries, and thus do not have commitments to reduce their emissions of greenhouse gases under the Kyoto Protocol, and do not anticipate having commitments soon. Thus, the principal work of most countries on climate change issues appears to be attending the Conferences and Meetings of the Parties, preparing a national inventory of gases, mitigation and adaptation options, submitting their national communications to the climate change secretariat, and raising public awareness.

Only two countries (Lithuania and Slovakia) indicated that they have begun working to reduce GHG emissions. Both of them are Annex B countries, and thus have commitments for emissions reductions.

## ***Extent of HFC and PFC Consumption***

---

Four of the ten respondents reported consuming HFCs. Only one of them (Mexico) reported significant consumption. None reported consuming PFCs. This indicates that the degree of the coordination problem is likely not currently significant in most A5Cs. Indeed, several countries that do have ozone-climate connections responded that they are not currently concerned with the consumption of HFCs and PFCs, because as A5Cs and non-Annex B countries, they are not responsible for reducing GHG emissions. However, many A5Cs are importing older equipment from industrialized countries, and thus may begin consuming HFCs in the future.

## ***TEAP and IPCC Connection***

---

To understand whether the countries felt coordination between the Montreal Protocol and Kyoto Protocol should be strengthened, we asked whether they supported current efforts to coordinate between the Technology and Economic Assessment Panel (TEAP) and the Intergovernmental Panel on Climate Change (IPCC). Four had no comment. Four felt that it was important or very important that the ozone-climate connection be strengthened. One did not feel it was important to have intensive collaboration, but that the treaties should take each other into account. One indicated general interest in TEAP/IPCC cooperation but was not familiar with their activities partly because the relevant information was not available in the local language.

## ***Conclusion***

---

By creating a connection between their national ozone and climate change efforts, most of the respondents have demonstrated high ownership and forethought. At this time, it is premature to imply lessons about institutional design and ownership from the effectiveness of various approaches to coordinating policies and strategies between the treaties.

# Chapter 8

## Countries with Economies in Transition

by Olga Gassan-zade<sup>20</sup>

### ***Summary***

---

The following ownership lessons can be extracted from the phaseout activities conducted in countries with economies in transition (CEITs).

Enhancing *ownership on the NOU level* requires improved information access and active regional networking, including building the countries' negotiation capacity at the MoPs. It also requires ensuring continuity of funding for the NOU and instilling pride in the phaseout activities through general public awareness-raising measures.

Enhancing *ownership on the national level* requires raising general public awareness and conducting targeted awareness workshops for governmental and industry stakeholders, as well as proactive position on the part of high-level implementing agency officials in soliciting counterpart high-level policy statements from the local government.

### ***Research Methodology***

---

Because of its specific focus, this CEIT special study is intended to provide a close and detailed look at the implementation of the Montreal Protocol on the regional and sub-regional level, with an opportunity to study the historic development of the issue. Documents and analysis produced by the implementing agencies with regard to ODS phaseout in CEITs were studied. Most important, it provided an opportunity to hear directly from the ODS officers working in the field.

The questionnaire response rate for CEITs was 89% (out of 27 countries), of which 70% were fully completed questionnaires. The three countries we were not able to have responses from were Albania, Bosnia-Herzegovina, and Slovakia. The results are based on the questionnaire responses in combination with a survey of existing assessments and evaluation materials that were extensively used to guide the research on the approaches and strategies used by the international community to deal with ODS phaseout in CEITs. Additional input to the study was provided through interviews with NOU officers in seven CEITs.

---

<sup>20</sup> The author would like to thank all the NOU officers for their responses and interviews, and also Tom Waltz and Eric Pedersen at the World Bank, Jacques van Engel at UNDP, Rajenda Shende at UNEP, and Mahir Aliyev at UNOPS for their support and feedback in the process of preparing this special study.

## ***Geography***

---

Countries with economies in transition is a new name that has been recently applied to the countries of the former socialist block in recognition of the unique geopolitical and socio-economic changes experienced by these countries in the period of transition from centralized to market economies.

The CEIT region is comprised of 27 countries:

- Central Europe: Czech Republic, Hungary, Poland, Slovakia, Slovenia
- Southeastern Europe
  - *The Balkans*: Bulgaria, Albania, Croatia, Bosnia-Herzegovina, Macedonia, Romania, and the former Republic of Yugoslavia
- Newly Independent States (NIS, i.e., the former Soviet Union)
  - *The Baltic states*: Estonia, Lithuania, Latvia
  - *Europe*: Belarus, Ukraine, Russia, Moldova
  - *Caucasus*: Armenia, Azerbaijan, Georgia
  - *Central Asia*: Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, and Uzbekistan

## ***Size of the ODS Problem***<sup>21</sup>

---

The combined ODS baseline<sup>22</sup> consumption in the CEITs region was 304,379.7 ODS tons, which represents 16% of the global ODS baseline consumption.<sup>23</sup> Out of that amount, 298,578 ODS tons, or 98% of the baseline consumption in the region was consumed in non-Article 5 countries. In 1995, mostly as a result of the economic slump caused by political and economic changes in the region, total ODS consumption in CEITs dropped to 32,000 MT, almost 75% down from 1990's levels.

In 1998, with the global consumption of ODSs at the level of 312,382.3 ODS tons, about 62% (194,280.9 ODS tons) were consumed in Article 5 countries, of which around 1% was consumed in Article 5 CEITs (3,534 ODS tons), and 38% were consumed by non-Article 5(1) countries, of which no more than 7% (21,809.40) were consumed in non-Article 5 CEITs. Combined CEIT consumption in 1998 thus constituted around 8% of the global ODS consumption.

---

<sup>21</sup> This analysis is based on the three following reports:

- *Strategic Options for Accelerating ODS Phaseout in Countries with Economies in Transition*, UNEP IE, Danish EPA, COWI Consulting Engineers and Planners AS, June 1997 (hereinafter the “**1997 Study**”);
- *Study of Impacts of GEF Activities on Phaseout of Ozone Depleting Substances*. GEF Evaluation Report. (hereinafter the “**1999 Report**”);
- *Report of the Secretariat on Information Provided by the Parties in Accordance With Article 7 of the Montreal Protocol on Substances that Deplete the Ozone Layer*. UNEP/OzL.Pro.12/4, 17 October 2000. (hereinafter the “**2000 Report**”). The 2000 Report contains information received by the Secretariat on 16 October 2000.

<sup>22</sup> Annex A Production and Consumption base for Article 5 Parties is the average of 1995, 1996, and 1997 production/consumption. For non-Article 5 Parties the production and consumption base is the base year 1986. Annex C Group I Consumption is the sum of the 1989 consumption of HCFCs and 2.8% of the 1989 consumption of Annex A, Group I substances.

<sup>23</sup> 2000 Report.

Similarly, in the same time period ODS production in the region dropped from 255,000 ODS tons (123,000 MT CFC, 4,250 MT Halon, 96,000 MT CTC, 3,300 MT CF) in 1990, which was the peak production year, to approximately 171,000 ODS tons in 1992 and 51,000 ODS tons in 1996.<sup>24</sup>

## ***Status of CEITs vis-à-vis the Montreal Protocol***

---

### ***Status of Ratification***

As of the fall of 2000, all 27 of these countries had ratified the Montreal Protocol, and 20 of them have ratified the London Amendment. (See Table 8.2 below). As can be seen from the timeline of ratification of the Vienna Convention and the Montreal Protocol, which is presented in Table 8.1 below, the first countries to ratify both were Belarus, Ukraine, and Russia (1986). These were the only three Soviet republics that were members to the UN at the time of the Soviet Union. The majority of ratifications in Central and Eastern European countries came in the period between 1990 and 1994. The ratifications by the rest of the republics of the former Soviet Union began in 1993, following its disintegration in 1991.

**Table 8.1. Ratification of the Vienna Convention and the Montreal Protocol in the CEITs.**

<b>Year:</b>	<b>Countries:</b>	<b>Subtotals:</b>
1986	Belarus, Ukraine, Russia	4
1988	Hungary	
1990	Bulgaria, Poland, Yugoslavia	6
1991	Croatia	
1992	Bosnia and Herzegovina, Slovenia	
1993	Czech Republic, Romania, Uzbekistan, Slovakia, Turkmenistan	6
1994	Macedonia	
1995	Lithuania, Latvia	7
1996	Azerbaijan, Estonia, Georgia, Moldova, Tajikistan	
1998	Kazakhstan	4
1999	Albania, Armenia	
2000	Kyrgyzstan	
	<b>Total:</b>	<b>27</b>

---

<sup>24</sup> 1997 Study.

**Table 8.2. Ratification of London Amendment in non-Article 5(1) CEITs**

<b>Year:</b>	<b>Countries:</b>	<b>Subtotals:</b>
1992	Russia	1
1993	Hungary	1
1994	Slovakia, Turkmenistan,	2
1996	Azerbaijan, Belarus, Bulgaria, Czech Republic, Poland	5
1997	Ukraine	1
1998	Latvia, Lithuania, Uzbekistan, Tajikistan	4
1999	Estonia	1
Not yet	Kazakhstan, Kyrgyzstan	2
	<b>Total:</b>	<b>17</b>

### *Classification*

Despite many similarities in social and economic situations in these countries, their status vis-à-vis the Montreal Protocol varies significantly. Out of 27 countries with economies in transition, 10 are operating as Article 5 countries<sup>25</sup> and 17 as developed, non-Article 5 countries.<sup>26</sup>

According to Paragraph 1, Article 5 of the Protocol, any Party that is a “developing country” and whose annual ODS consumption is less than 0.3 kilograms per capita any time until 1 January 1999 is allowed to delay its compliance with the Protocol for 10 years. The First Meeting of the Parties in 1989 established a list of countries to be considered as “developing” for the purposes of the Protocol. The list was limited to G-77 countries as of 1989 plus China and Albania. Thus, there were only three CEITs (Albania, Romania, and the Socialist Federal Republic of Yugoslavia) classified as A5Cs by the First Meeting of the Parties.

At the Fourth Meeting of Parties in 1992, following the reclassification of Turkey as a developing country in 1991, a recommendation was made to consider applications for classification as developing countries on an individual basis when such applications are made.<sup>27</sup> Following this decision, Georgia and Moldova were reclassified as developing countries in 1996 and 1997 respectively. Armenia received A5C status upon ratification in 1999. Bosnia and Herzegovina, Croatia, Macedonia, and the Former Republic of Yugoslavia (Serbia and Montenegro) received their A5C status as successors to the Socialist Federal Republic of Yugoslavia. Slovenia was reclassified as A5C after 1995.

<sup>25</sup> Bosnia and Herzegovina, Croatia, Georgia, Moldova, Romania, Slovenia, the Former Yugoslav Republic of Macedonia, Yugoslavia, Armenia, and Albania.

<sup>26</sup> Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Russian Federation, Slovakia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

<sup>27</sup> Decisions on definitions and classifications. Section 2.3 *Handbook for the International Treaties for the Protection of the Ozone Layer*.

## *GEF Assistance*

Recognizing financial difficulties plaguing the region and considering the fact that non-A5C CEITs were not eligible for assistance from the Montreal Protocol Multilateral Fund, Belarus, Bulgaria, Romania, the Russian Federation, and Ukraine requested at the 5th Meeting of Parties in Bangkok in 1993 to grant CEITs a special status, “which would provide for concessions and a certain flexibility in the fulfillment of their obligations under the Montreal Protocol.”<sup>28</sup> Such status has not been granted and any further attempts by CEITs to request a grace period were dismissed for the lack of legal basis. However, in the face of the CEITs potential or actual non-compliance, the 7<sup>th</sup>-10<sup>th</sup> Meetings of Parties, through a number of decisions on compliance by particular countries, recommended international agencies to provide individual CEITs with financial assistance. In response to this request, the Global Environmental Facility (GEF) through the Global Environmental Trust Fund (GET) supported more than 30 projects at a total of \$142 million that are currently at different stages of implementation. Additional support came through bilateral programs from the German, Danish, Norwegian, Swedish, and Finnish Governments, along with Environment Canada.

## *London Amendment*

Responding to the concerns of some CEITs, the Parties decided at their eighth meeting in Costa Rica in 1996 that, beginning in 1997, contributions to the Multilateral Fund were to be paid only by non-Article 5(1) Parties that were Parties to the London Amendment. Ratification of the London Amendment was also the requirement under GEF operational strategy (adopted 1995) for receiving GEF assistance in implementing ODS phaseout projects. Ratification of the London Amendment has thus become an important milestone in non-Article 5 CEITs’ commitment to phasing out ODSs. To date, only Kazakhstan and Kyrgyzstan have not ratified the London Amendment. The timeline of its ratification by other non-Article 5 CEITs is given in Table 8.2.

## *Compliance with the Montreal Protocol*

---

### *Status of Reporting:*<sup>29</sup>

The Parties to the Protocol have an obligation under Article 7<sup>30</sup> of the Protocol to report their baseline and annual production, imports, and exports to the Montreal Protocol Secretariat. The Parties that are late or do not report their data are considered noncompliant.

---

<sup>28</sup> Declaration by countries with economies in transition, Bangkok, 1993. *Ibid.*, p. 282.

<sup>29</sup> Based on the 2000 Report.

<sup>30</sup> Article 7 of the Montreal Protocol reads:

- (a) **Base-year data:** Each Party shall provide to the Secretariat, within 3 months of becoming a party, statistical data on its production, imports, and exports of each of the controlled substances in Annex A for the year 1986, Annexes B and C for the year 1989, and Annex E for 1991, or the best possible estimates of such data where actual data are not available.
- (b) **Annual data:** Each party shall provide to the Secretariat statistical data on its annual production (as defined in paragraph 5 of Article 1), imports, and exports of each of the controlled substances listed in Annexes A, B, C, and E, and separately for each substance, for the year during which provisions concerning the substances in Annexes A, B, C, and E respectively entered into force for that Party and for each year

Among Article 5 countries, Albania and Bosnia-Herzegovina have not reported some or all data for 1995, 1996, or 1997, and the Secretariat was unable to determine their baseline for the phaseout of Annex A substances. Furthermore, Albania is only temporarily classified as an Article 5 country pending its submission of baseline data to confirm its status. It is one of 11 A5 countries that have never reported any ODS data for the years 1986 to 1998.

Armenia (A5C) and Tajikistan (A2C) are the other two countries whose Annex A base-year data are overdue. In the case of Armenia, the data are overdue by less than two years, whereas Tajikistan's Annex A base-year data are overdue by more than two years. Tajikistan is also the only CEIT country among those who have ratified the London Amendment that is over two years overdue with its Annex B and Annex C, Group I (HCFCs) base-year data (1989).

The 1998 data are the latest available data for CEITs as a region, since 11 CEITs have not reported their data for 1999 to the Secretariat.

Deviations by the CEITs from the consumption and production reduction schedules established under the Protocol are presented in Tables 8.4 and 8.5 in Appendix 11.

It should be mentioned that compliance by CEITs is an important factor in the implementation of the Montreal Protocol globally. A possibility of noncompliance in the region might entail the following risks:

- illegal ODS export/re-export,
- technology dumping (the export of outdated ODS-using technology and equipment), and
- the erosion of international environmental law from sustained noncompliance among parties.

### ***The Financial Mechanisms***

---

The crucial difference in the nature of the Montreal Protocol implementation in A5C CEITs and non-A5C CEITs lies in the inherent differences between the respective financial mechanisms providing for the phaseout. A5C CEITs, just as the rest of the developing world, are eligible for "regular" international assistance under the Montreal Protocol. Non-A5Cs are assisted on individual basis through grants from the Global Environmental Facility. Thus, the differences in implementation arise from the differences in the guidelines attached to project implementation under the two financial mechanisms, the differences in the approaches to assistance provisions utilized by them, and the differences in the styles of management exercised by the Executive Committee of the Multilateral Fund and the GEF Council.

---

thereafter. Data shall be forwarded not later than nine months after the end of the year to which the data relate.

- (c) Annul data on recycling: Each Party shall provide to the Secretariat separate statistical data on its annual imports and exports of each of the controlled substances listed in Group II of Annex A and Group I of Annex C that have been recycled.

## *Approaches*

The approaches of the two financial mechanisms to the phaseout are the most critical part of the differences between the GEF- and the MLF- sponsored projects. While the MLF approves phaseout on a project-by-project basis, the GEF approves projects implemented under the Montreal Protocol on a country-by-country basis. That is, in the case of the GEF, a country plan with a number of projects in it is prepared, an appraisal of the total cost of phaseout in a country is made according to the plan, and, after approval, a fixed sum is made available to the implementing agencies to make implementation happen. *The GEF approach is therefore inherently country-driven.* It allows for the flexibility to divert the use of funds from an over-funded to an under-funded project, and most importantly, GEF guidelines are applied to the grant at the time of its approval and do not change after it has been approved. As a consequence, the country is exposed only to one set of guidelines. The MLFs project-by-project approach, by contrast, puts the NOU in a situation where the guidelines change from project to project.

A major drawback of the GEF funding is a fixed three-year limit on institutional strengthening funding, whereas the MLF funding allows renewal of institutional strengthening projects every two years. Another danger of the GEF approach is in a possibility of overlooking some consumption in the country (e.g., in Azerbaijan), which later can be added to the project only if there are unutilized funds available in the sum that has been approved for the country. If there are no residual funds available, further funding is not possible.

## *Management Styles*

The GEF is managed by a Council consisting of 32 members representing constituencies from 16 developing countries, 14 developed countries, and two countries with transitional economies. Representatives of the Montreal Protocol, its Multilateral Fund, other environmental conventions and accredited NGOs are invited to attend the Council meetings. The GEF Council meets twice a year for three days and decides on developing, adopting, and evaluating GEF activities in four focal areas and ten operational programs.<sup>31</sup>

The Multilateral Fund is managed by an Executive Committee composed of 14 members with equal representation from seven Article 5 and seven non-Article 5 countries. The ExCom approves funding and develops guidelines for the administration of the Fund. It holds three meetings per year to decide on requests for funding and other issues.<sup>32</sup>

The GEF Council therefore has a much greater diversity of representation, meets less often, and has a much broader focus. All of which results in a reduced number of guidelines. Whereas the MLF's ExCom issues guidelines at every meeting, the foundation guidelines for GEF activities are laid out in the GEF Operational Strategy approved by the GEF Council in 1995.

---

<sup>31</sup> <http://www.gefweb.org/participants/Council/council.html>

<sup>32</sup> UNEP IE, *Elements for Establishing Policies, Strategies, and Institutional Framework for Ozone Layer Protection* (January 1995).

## *Content of Guidelines*

Overall, the MLF and the GEF projects are similar in their content and composition, since GEF procedures and project criteria in general mirror those of the Multilateral Fund.<sup>33</sup> The GEF Operational Strategy of 1995, however, spells out a number of differences between GEF and MLF, namely the GEF projects require:

1. ratification of the London Amendment,
2. consideration of climate-friendly alternatives,<sup>34</sup> and
3. ineligibility of operational costs.

Ratification of the London Amendment is not required for MLF projects, other than in the projects designed to meet the obligations of the country under it.

## *Implementing Agencies*

---

The World Bank, UNDP, and UNEP act as implementing agencies in preparation and later implementation of the projects provided through the Global Environmental Facility. Similarly to the case of the MLF assistance, CEITs have different implementing agencies. The World Bank is/was the sole implementing agency for the following nine CEITs: Hungary, Czech Republic, Poland, Slovakia, Slovenia, Bulgaria, Russian Federation, Belarus, and Ukraine.

The UNDP and UNEP implement GEF-financed projects in CEITs jointly, with UNDP being responsible for investment projects, and UNEP for Country Program preparation, institutional strengthening, capacity building, information dissemination, and training. UNDP/UNEP also implement MLF-financed projects in A5C CEITs. As implementing agencies, UNDP/UNEP are engaged in 12 countries in Central Asia, the Caucasus, and the Baltic States (Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan, Kazakhstan, Lithuania, Latvia, Estonia, and Azerbaijan, plus A5Cs Moldova, Georgia, and Armenia). Other than the guidelines of the respective donor agencies (GEF or MLF) and their appropriate committees, there is no difference from the point of view of the implementing agencies between A5 and non-A5 CEITs.

UNIDO acts as an implementing agency for the following six A5 CEITs: Romania, Croatia, Macedonia, Albania, Bosnia-Herzegovina, and the former Republic of Yugoslavia.

Individual project implementation also differs in accordance with the experiences and background, and thus internal guidelines, of the individual implementing agencies. For example, on the basis of the World Bank's experiences in Czech Republic (1994) and Hungary (1995), the guidelines for the ODS Phaseout Project in Poland (1997) in particular specified the "need for flexibility and simplicity in sub-project design and financing mechanisms, well-prepared sub-projects and implementation plans, and most importantly, the need to strengthen local capacity during the preparation and implementation of sub-project activities."

---

<sup>33</sup> 1999 Report.

<sup>34</sup> "The GEF will fund the conversion to technology with the least impact on global warming that is technically feasible, environmentally sound, and economically acceptable."

All further World Bank projects in CEITs had the benefit of drawing on the experiences of implementing ODS phaseout projects in other developing countries, such as the “importance of a national phaseout policy or Country Program as a basis for assuring commitment and ownership by the client country; the value of strong enterprise/government linkages to achieve phaseout objectives; the need for institutional strengthening and training for local implementation units and intermediaries, etc.”<sup>35</sup>

The World Bank also benefited from its continued presence and experience implementing other projects in CEITs. The following guidelines, for example, were taken into account when implementing ODS phaseout projects in the Former Soviet Union: “identifying a consistent committed counterpart team with sufficient authority and implementation experience to move the Project forward; coordination among key interested parties and at the federal, regional, and enterprise levels; early detailed attention to procurement and other implementation issues; involving local consultants and institutes in the progress.”<sup>36</sup> The focus on the national program and the team implementing it, as well as the country-driven approach of GEF, resulted in the strong ownership of ODS phaseout clearly felt in the CEITs of the former Soviet Union.

The approach of UNDP/UNEP as implementing agencies is different from that of the World Bank in the respect that they do not use a local financial intermediaries when implementing projects, instead engaging the United Nations Office for Project Services (UNOPS) as an Executing Agency responsible for purchasing, interaction with suppliers, and other implementation details. Though the World Bank approach leaves more freedom and “room for ownership” to the enterprises and the NOU, the reliance on the UN system in all stages of the UNDP/UNEP implementation protects enterprises from being taxed for the equipment they receive, which was a problem encountered in some of the World Bank projects and raised active opposition of the industry. In the UN approach, UNDP conducts customs clearance on the equipment purchased by UNOPS, and upon completion of the project, UNOPS hands it over to the enterprises with a gift status.

### ***Findings from the Questionnaires***

---

***When the NOU was created.*** The oldest NOUs were created in 1994 (three), the youngest one in 2000. The bulk of NOUs were created in the period between 1996 and 1998.

***Number of staff.*** NOU’s staff varies from 1-12 people, with 2-4 permanent and 2 temporary staff on average.

***Domestic support.*** In 11 countries, Ministries of Environment support the NOU, partially, fully, or in-kind. In 4 countries NOUs, though supported by the ministries, are adjunct or fully independent structures with their own budget.

---

<sup>35</sup> Russian Federation, *Ozone-Depleting Substance Consumption Project* (World Bank: May 1996).

<sup>36</sup> Combined on the basis of Russian Federation, *Ozone-Depleting Substance Consumption Project* (World Bank: May 1996) and Republic of Belarus, *Ozone-Depleting Substance Phaseout Project* (World Bank Project Document: April 1997).

**Country Program preparation.** In all but two staff later recruited to the NOU participated in preparing the Country Program, typically as part of the National Country Program Team.

**Steering committee.** Only 8 countries have a steering committee, of which in one it has not met in four years because of internal restructuring. The existence of a steering committee does not correlate with existence of import/export licensing and frequency of meetings.

**Frequency of stakeholder meetings.** Most of the NOUs (85%) maintain a medium to high frequency of meetings. In two of the three NOUs with low frequency of meetings, the latter can be explained by human capacity limitations (one and two people on staff respectively).

**Status of licensing.** 80% of the countries surveyed have adopted import or import/export licensing systems; in three countries it is waiting for approval of the relevant authorities, in two it is under preparation.<sup>37</sup>

**Main source of data.** Customs, national statistical authorities, and the enterprises themselves are the most common providers of data in the region. Other responses included: UNEP, National Consultant, commodity exchange, and the refrigeration association.

**Regional networking.** 85% of the respondents can remember participating in at least two regional meetings recently. Central European countries participate in meetings other than NIS and also request meetings with the EU. Three countries did not participate in any meetings (two Balkan countries and one Central Asian). Baltic states additionally participate in meetings of the Baltic Network on Climate and Ozone. All the NOUs unanimously evaluate regional meetings as useful and beneficial. NIS frequently comment that a more meetings or a network are needed.

**Sectors most difficult for phaseout.** For approximately 70% the refrigeration servicing sector is the most difficult one, due to the high cost, strong industry opposition, their quantity, or technology dumping. The second most difficult sector (for approximately 60% of the respondents) is firefighting. The reasons named included high cost, industry opposition, difficulty of changing old stockpiles, and low quality of alternatives. Because of the lack of alternatives, methyl bromide is considered to be the third most difficult task (approximately 50%, predominately in Central Asia, the Caucuses, plus agricultural European CEITs). Other sectors mentioned included solvents (cost and lack of alternatives), foams, production, and HCFCs for the EU.

**Most important stakeholder.** Agencies dealing with economy, industries, or trade are most commonly named as the most important stakeholder. Other stakeholders commonly named (in the order of diminishing frequency): Customs department, importers and consumers, Ministry of Environment, and the refrigeration association. In one country a national consultant was named as the most important stakeholder.

**Major obstacles.** Problems of implementation, such as lack of monitoring, illegal trade, and lack of affordable alternatives, are the major obstacles mentioned by the NOUs. Lack of information appears to be the second most frequently mentioned obstacle. Lack of additional institutional

---

<sup>37</sup> A 1999 survey of legislative measures adopted in CEITs is given in Table 8.6 in Appendix 11.

strengthening, such as training, ODS detectors for customs, and vehicles for the NOU is the third major obstacle encountered in CEITs. Lack of governmental support and consumer/stakeholder awareness are mentioned only in four cases.<sup>38</sup>

***Most successful initiatives.*** The introduction of alternatives and awareness raising appear to be the most successful initiatives undertaken by CEITs. International assistance, both financial and technical, and preparation of the Country Program were noted as the other major categories of successful initiatives. Two countries mentioned the success of market forces, and two mentioned institutional strengthening and training.<sup>39</sup>

***Suggested improvements.*** Requests for more funding or staff are the most common responses to the question of suggested improvements. These requests do not come as a surprise, since the projects implemented in CEITs typically do not cover the full cost of ODS phaseout. Also, half of the requests for more staff came from NOUs staffed with one or less (i.e., part-time) person. The third major category of suggested improvements consisted of requests for stronger information exchange and networking. In particular, some NIS countries requested establishing a regional network. Also common were concerns about the need for greater commitment on the part of governmental and industrial stakeholders.<sup>40</sup>

## ***Country Stories***

---

In this section we provide detailed information on two CEITs: Kazakhstan and Azerbaijan.

### ***Kazakhstan***

Kazakhstan is the largest country in Central Asia, with total area of 1,052,100 square miles (2,724,900 square km) and a population of 16,554,000 (1997 est.).<sup>41</sup> In 1995, per capita GDP in the country constituted U.S.\$1,330. Kazakhstan obtained its independence during the break-up of the Soviet Union in 1991, however the Communist Party, though renamed, remained in power and won three subsequent elections. The government followed moderate policies and remained close ties with Russia. It represents a mix of old Soviet and modern management. The country went through a change of capital, which resulted in a situation where the Ministry of Environment, the central government, and the UNDP office are all in different cities.

Kazakhstan was one of the last countries among CEITs to accede to the Vienna Convention and the Montreal Protocol and is classified as a non-A5 country. The delay in ratification was caused by the rejection of the Inter-ministerial Expert Council that approves all international treaties and strong opposition from the industry accompanied by an anti-Protocol media campaign. The Protocol was adopted, however, in August 1998 after resubmission in August 1996. Kazakhstan's ODS consumption also showed the least reduction of only 18%, despite the

---

<sup>38</sup> A more detailed representation of the responses is given in Table 8.7 in Appendix 11.

<sup>39</sup> A more detailed representation of the responses is given in Table 8.8 in Appendix 11.

<sup>40</sup> A more detailed representation of the responses is given in Table 8.9 in Appendix 11.

economic turmoil of transition. The latest available data for Kazakhstan's ODS consumption (1998) is 1,970.5 ODS tons, while its base-year consumption (1986) is 2,404.6 ODS tons. The existence of old Soviet nuclear testing sites and a space launching facility obstruct ODS data collection in the country.

With the help of UNDP/UNEP, Kazakhstan began to draft its Country Program in May 1998, actively involving eight Ministries, industry, UNEP, and UNDP. The Country Program was submitted to the GEF Council and consequently approved with funding kept pending until ratification of the London Amendment. However, a delay in its approval by the government arose because the Country Program did not meet domestic requirements for such documents. Because of this delay, the Country Program that contains 1998 data on ODS consumption needs updating, and will be only submitted once 1999 data are available.

No NOU exists to date in Kazakhstan. Since the GEF Operational Strategy of 1995 requires ratification of the London Amendment for financial assistance in the phaseout, no institutional strengthening grant has been disbursed yet and the would-be NOU staff are supported through the GEF Sustainable Development Focal Area. With regard to the London Amendment ratification, the Kazakh Ministry of Natural Resources and Environmental Protection faces the same problem as it did with the ratification of the Protocol itself before 1997, since its ratification would immediately make Kazakhstan liable to pay contributions to the MLF. In 1997, Kazakhstan's yearly contribution to the MLF was U.S.\$367,493.

The London Amendment has not been ratified to date. Even now that the approval of the ratification was received from the Interministerial Expert Council, the transfer of documents to the government and then to the Parliament takes much longer than expected. A number of the ministries finally supported ratification and the ratification documents were handed over to the government. The Amendment went through the Lower House of Parliament at the end of February 2001. Pending approval by the Senate, the law is expected to be published in March, with Kazakhstan transferring the documents to the depository in April and becoming a Party in July 2001. The NOU hopes financing of the NOU will begin in August 2001.

With the delay in project financing, the activities of the NOU are still focused on the initial stages: information collection, awareness raising, etc. An important move, however, is the development of import/export legislation that is now awaiting approval of the Ministry of Government Income (Customs Committee) and the Ministry of Justice. The regulations will stipulate mandatory Ministry of Natural Resources and Environmental Protection permitting of ODS import/export, and the guidelines for permit processing and issuing are being developed. At present, the draft of the regulation is being reviewed by the Customs Committee. Once it is approved it can be registered with the Ministry of Justice.

The "virtual" NOU of Kazakhstan does not have a steering committee, but employed various consultants while preparing the Country Program. Some lack of ownership is noticeable here, since not enough attention is paid to awareness raising among the stakeholders. In particular, the strong opposition of industry in the wake of the anti-Protocol campaign in Russia in 1996 is a demonstration of how inadequate attention to building stakeholder support can delay legislative and bureaucratic processes relating to implementation.

Overall, the NOU staff feel themselves confident and capable of completing their task. With the introduction of the ODS import/export control, the NOU hopes that the Customs Committee will become their most important stakeholder, able to control ODS imports, ODS-containing products, and ODS-using outdated technologies. The refrigeration sector is seen as presenting the largest difficulty in the phaseout, with approximately 600 ODS tons consumed there. Technology and equipment dumping are seen as the major causes of the sustained high ODS consumption, caused mainly by loose border controls because of the length and porousness of Kazakhstan's borders. Consequently, the major obstacle encountered by the NOU is the lack of trained staff in Customs and the regional bodies of the Ministry of the Natural Resources. The second obstacle encountered by the NOU, namely, the lack of awareness-raising publications for the end-users, reflects the general need of building supportive constituencies for implementation. The NOU specifically requests information, in Russian and Kazakh, on the issue of ozone layer protection and ODS alternatives in general, and specifically on the obligations of Kazakhstan with regard to the Montreal Protocol. In addition to its provisional status, the NOU complains about the lack of adequate coverage in the media and low awareness by the general population.

Despite the absence of an NOU proper, Kazakh representatives took part in the regional meetings in Kiev and Baku. Besides, a high-level summit of environmental ministers was organized by UNEP in cooperation with Kazakhstan in Almaty (Kazakhstan's biggest city) to raise the awareness of the Montreal Protocol among the Central Asian high-level environmental officials. The NOU credits the meetings as of "great use." The NOU also points out the need for a regional network of the NOU officers in the Central Asian region for the sake of methodological guidance, translation and adaptation of relevant materials, and, last but not least, enhanced import/export information exchange that would allow more precise information to the Secretariat. As the most successful initiatives, the NOU lists close contact with the industry and governmental authorities and development of appropriate legislation encouraging reductions in ODS phaseout.

## *Azerbaijan*

Azerbaijan is the easternmost of the countries that occupy the southern flanks of the Caucasus Mountains. It stretches 33,400 square miles (86,600 square km) and is occupied by 7,424,000 people (1994 est.). The country gained its independence in 1991 and went through a civil war in one of its regions in 1992-93, which ended in a ceasefire in 1994. Petroleum and natural gas production and industries remain significant in Azerbaijan's economy, though they have declined since Soviet times. In 1995, Azerbaijan's per capita GDP was U.S.\$480.

Azerbaijan ratified the Vienna Convention and the Montreal Protocol on June 12, 1996. On the same date, it acceded to the London and Copenhagen Amendments. Ratification of the Protocol had been attempted before, but without success. The ratification process was facilitated by a Presidential Decree expressing Azerbaijan's commitment to the Protocol, which was signed after the Protocol had been discussed by a UNDP representative and the President of the Republic. Afterwards, the ratification documents were promptly transferred to the Parliament and the Protocol was ratified together with the two Amendments. Ratification of the London

Amendment has made Azerbaijan liable to pay contributions to the Multilateral Fund. Though a cautious approach to the ratification of the London Amendment would have benefited the country more, ownership at the national level did not diminish. Contributions to the Multilateral Fund have been included in the national budget, and some of the payments have already been made.

After ratification, the National Country Program Team was created under the auspices of the Committee on Environment and Resource Use (equivalent to a Ministry of Environment). The group is composed of industry, science, and education professionals. It created an inventory of ODS consumption in Azerbaijan and together with UNEP and UNDP consultants prepared Azerbaijan's Country Program, consisting of six projects. The Program was approved by the implementing agencies and the Azerbaijani government. Azerbaijan's commitment to ODS phaseout is sustained through the support of the head of the Committee on Environment and Resource Use, who also occupies the post of the Vice Premier of Azerbaijan Republic. Azerbaijan adopted a licensing legislation, and the amendments operationalizing it, prepared by the NOU, are being considered by government agencies.

The NOU itself was created in November 1998 as a temporary unit, financed within the framework of the GEF Projects it implements. The head of the NOU should be credited with being able to put together a very committed and talented team of five permanent and three temporary staff, all of whom are highly qualified professionals. The NOU does not have a national steering committee, but notes that when needed it consults the UNEP Office in Paris. All legislative and procurement documents the NOU prepares on its own, sometimes with the help of outside consultants. It should also be noted that the NOU has a very high frequency of stakeholder meetings with more than 20 national and local governmental agencies and more than 20 companies and industry associations. Within the framework of the UNDP "Recovery and Recycling" Project it held workshops and distributed information throughout the country. In addition, to facilitate approval of ODS-controlling regulations, the NOU conducts explanatory workshops in the relevant governmental agencies. The NOU regularly meets with the National Broadcasting Corporation to prepare a monthly TV show, "Ozone and Us." Through the show, the NOU is able to get its message to the public and government agencies. The NOU also collaborates with an environmental education NGO to hold exhibits and contests dedicated to the issue of ozone layer protection. The NOU participates annually in the Meetings of the Parties, participated in two regional workshops, and hosted one. It also praised such workshops as being very helpful to all ozone officers through further cooperation and useful exchange of experience, and suggested creating a regional network of ozone units.

On the operational level, the NOU considers halons used in firefighting to be the most difficult sector because of the high cost and the absence of local alternatives. The major obstacle encountered by the NOU is the lack of ODS consumption monitoring, and lack of ODS detectors for the customs officers. The most effective measures, as the NOU viewed them, were first, the introduction of alternative technologies; second, public awareness raising; and third, regional and local workshops.

Describing its situation, the NOU pointed out that it has been recognized as one of the best NOUs by UNEP and that it actively shares experiences with other countries in the region. An

unexpected difficulty is phasing out 50-60 ODS tons at a private production facility (estimated at U.S.\$1.5 million) that was overlooked in the inventory for the Country Program. Lack of ODS monitoring remains its major weakness, together with the need for additional funding.

## ***Regional Overview***

---

The regional diversity within CEITs is important in understanding the differences in the progress made in phaseout and in finding individual approaches to creating ownership. Though CEITs typically follow geographical classification, this subdivision has also important cultural and economic roots.

### ***Central Europe***

The countries in Central Europe, which became part of the Socialist camp only after World War II, bear the greatest resemblance to Western Europe. Economic transition here had different results than in the Former Soviet Union, leaving enterprises and the national economy overall in better shape compared to the rest of the region. Most of the Central European states aspire to join the EU or at least consider it a significant trading partner, which creates powerful market and political incentives for compliance with the Montreal Protocol at the national level, such as mandatory harmonization with the EU environmental legislation and need to maintain European market access. Therefore, in Central Europe there is awareness of the problem and a pre-existing commitment among governmental and industrial stakeholders to resolve outstanding issues that might keep the country from European access, including compliance with international environmental law.

For example, in Slovenia (an A5C), the phaseout was prepared and coordinated by the Chamber of Commerce, not by the Ministry of Environment as is typically the case. The GEF grant provided for 66% of the phaseout, the rest being covered by local resources. According to a 1999 Evaluation Review, implementation of the Slovenian Project has been “smooth and successful,” with virtually all of Annex A and B consumption phased out by 1996.”<sup>42</sup> The NOU itself attributes most of its success to market pressure from the EU and notes that implementation helped prepare for joining.

Because of this predisposition to commitment on the national level, in Central Europe ownership had to be created primarily at the NOU level, through a clear-cut mandate and sufficient institutional capacity and resources to do the job. All of the above was provided through GEF grants, ensuring a high level of ownership during implementation. Central European countries were the first to ratify the Protocol and the first to begin its implementing it. By now the bulk of ODS consumption and production in Central Europe has been phased out. Speedy phaseout and the three-year limit on institutional strengthening projects had their drawbacks. Not enough has been done to retain institutional memory, and now that GEF-sponsored projects have been completed, some residual consumption remains, and difficulties arise in phasing it out because little is remembered about what was done and how it was done. Often the people responsible for

---

<sup>42</sup> 1999 Report.

the phaseout left or were removed upon completion of the project, or the ozone issue was reassigned to other agencies, or even if it has not been moved, the ozone portfolio is handled only part-time. Concerns have been voiced as to the countries' capacity to phaseout residual consumption and maintain monitoring.

This situation has implications for both the domestic and regional levels. Domestically, a lot of pressure is put on the people handling ozone issues because these issues are an addition to these individuals' portfolios. As a consequence, ownership at the NOU and national levels significantly decreases, making it even more difficult to solicit national-level support and resources for ozone issues. Regionally, this means that alongside the diminished capacity to deal with ozone issues, the residual consumption sustains a certain demand for ODSs. Combined with the fact that there are several non-compliant A5Cs in neighboring Southeastern Europe, this creates risks of illegal trade in the region.

Continuing with the example of Slovenia, after completion of the GEF projects, the responsibility for ozone issues has been transferred from the Chamber of Commerce to the NOU, which was placed in the Ministry of Environment and Spatial Planning. The NOU, however consists of only one person working half-time who is new to the problem and has other demands on her time. Some residual consumption remains in the country in the refrigeration sector and for laboratory use, but as an A5C Slovenia is not in noncompliance with the Montreal Protocol. The 1999 Phaseout Review suspected, though without hard evidence, that illegal imports take place.

Another regional implication of this situation is that it hinders the transfer of experience and knowledge in the greater region. It would have been beneficial for NIS countries to learn from Central European ones, since they are the only non-wealthy countries who have succeeded and completed their phaseout. On the contrary, NOU officers are not invited or are not willing to share, and are often burdened by other tasks. There is little communication between the NOUs of Central and Eastern Europe, and NIS, which leaves the task of transferring the lessons learned in Central European phaseout to the implementing agencies.

### *Southeastern Europe*

In Southeastern Europe, where totalitarian regimes left a much deeper imprint on society and which continues to be torn by ethnic conflict, the economic situation itself focuses economic incentives on the short-term survival of enterprises and society. The whole focus, both economically and politically, is much more on the short term. Implementation here is impeded by many factors and obstacles, such as a weaker and less-reliable legal system, "state seizure," and greater penetrability of the borders. With regard to the Montreal Protocol, most of the countries in the region are Article 5 countries. Some of them, in particular Albania and Bosnia-Herzegovina, are in flagrant violation of even the reporting requirements of the Protocol. More intensive approaches to building ownership need to be applied in the region, in particular measures enhancing national ownership, such as stakeholder engagement, national consensus building, and public awareness have to be strengthened.

As an example, Montreal Protocol implementation in Bulgaria was marred by a number of problems.<sup>43</sup> While the project was scheduled to be fully implemented by the end of October 1999, the implementation actually started only in February 1997. Despite the fact that some stringent measures were implemented and the phaseout has been completed, there are suspicions of a certain level of illegal trade. The implementation did not go smoothly, there was a disruptive economic crisis in Bulgaria in 1996/97, and the NOU is straightforward in saying it phased out all the consumption in the production sector, but “other sectors” remain. Now that the project is finished, the NOU is left to face these remaining problems on its own. Further supportive activities are needed.

### *The Newly Independent States (NIS, the former Soviet Union)*

In the Newly Independent States, the most drastic reduction in both consumption and production of ODSs was caused by the economic transition. Their remaining needs were covered by ODS imports from Russia. Other than in the three Baltic states that aspire to EU membership, there were few incentives for the NIS to implement the Protocol. It was not until 1996, when Russian export controls became more stringent and its ODS production started to be addressed, that the enterprises in the NIS experienced their first problems in securing traditional ODS sources. Though with a delay, implementation in the NIS is now in full swing. The European NIS, as those with the biggest consumption and the ones with production capabilities, received priority and were the first to start implementation. Because of the Soviet tendency toward large-scale production, the phaseout here focused on large industrial projects that were typically state-owned and fairly easy to pinpoint. In contrast to Central Europe, difficulties arose in determining the enterprises able to survive the market transition. The lessons learned by the World Bank in implementing other projects in the region helped to create a significant level of ownership in implementation.

The largest investment was made in Russia in the form of a U.S.\$60 million umbrella project, which also included a crucial special initiative for ODS production closure, with U.S.\$17 million from bilateral donors, including the governments of Austria, Denmark, Finland, Germany, Sweden, Italy, Japan, Norway, the U.S., and the UK. As a result of the initiative, as of December 2000, approximately 140,000 MT of ODS production capacity were eliminated. Ukraine, with projects totaling U.S.\$24 million, was the second-largest investment in the region.

The progress in Central Asian countries and the Caucasus reflected their individual political developments, characterized by several ethnic conflicts and a greater tendency to preserve old-style management. A more difficult economic transition and lower GDP levels made it more difficult for the governments to consider committing themselves to contributing to the MLF, as stipulated by the London Amendment. Consequently, most of these countries went through significant delays in ratifying the Montreal Protocol and the London Amendment, resulting in delays in the formulation and disbursement of projects. Much lower levels of consumption and difficulties in identifying end-users also contributed to the delays. All of the above played a role in bringing down the degree of ownership experienced at the NOU and national levels.

---

<sup>43</sup> 1999 Report

The progress achieved by UNEP/UNDP relies on their commitment to a the local team and the partnership relationship they enjoy with NOUs. For example, UNEP made it possible to finance the activities of the NOU during the project formulation stage by signing a Memorandum of Understanding with the government. The initial offer of a series of recovery and recycling projects motivated the governments to ratify the London Amendment and played an important role in disseminating information and raising awareness of ozone issues through a great number of training and awareness-raising workshops. Recovery and recycling projects also helped to build national commitment by demonstrating the benefits of the phaseout and prompting the government to issue appreciation letters to the implementing agencies.

The example of the NIS countries also provides us with factual evidence that ownership can be effectively correlated with success in phaseout. The three countries enjoying the highest level of ownership among the CEITs for which UNDP/UNEP act as implementing agencies; (i.e., Lithuania, Latvia, and Azerbaijan) are expected to complete their Country Programs by the end of June 2001.

### ***Salient Ownership Characteristics***

---

#### ***Regional Networking***

There is no network among the CEITs, and the “exclusive status” of the CEITs has contributed to their exclusion from all natural networking circles. Also, the mixture of A5Cs and non-A5Cs and the variety of implementing agencies in the region probably contributed to the situation. Georgia, Moldova, and later Armenia (A5Cs) might have different needs from the rest of the region and are cut off from the GEF operational framework. However, some thematic regional meetings are organized by UNEP. Starting in 1998, UNEP held three meetings for Central European NOUs, two for NISs and a high-level meeting for Central Asia. In addition, UNEP supports the Baltic Network on Climate and Ozone , which has held two preparatory meetings and one official meeting. There were also two meetings before that in Minsk, Belarus, in 1994 and an intergovernmental meeting of high-level officials in Riga, Latvia, in 1996.

Respondents unanimously found the workshops extremely fruitful. For many NOUs these regional meetings were a very important source of information. The meetings were their only opportunity to exchange experiences with peers and receive updates on the status of the international policy frameworks being applied. Most of the NOUs, especially those that experienced delays in implementation, considered the current frequency of meetings insufficient. People see each other approximately once in two years and wish they had more day-to-day exchange of information. Therefore requests are made to establish a regional network or even a regional IA office. Some requests were also made to increase exposure to the practices in the developed world and to have meetings with the NOUs in the countries that have successfully completed the phaseout. Here, the Central European expertise would be extremely valuable. In addition, the current problems with ozone issues experienced by Central European countries could teach an important lesson and prevent similar mistakes in the NIS. An example of regional

cooperation is the forthcoming project of halon banking for the Baltic countries and Poland. With the halon facility stationed in Estonia, the project will allow the Baltic states to work more closely with a large Central European country. It also may give new impetus to Estonia's phaseout efforts, which have been less active than the rest of the group.

### ***Stakeholder Engagement***

Lessons from the CEITs' experience confirm the importance of stakeholder engagement and consensus building on the national level as prerequisites for ownership. The main activities of an ozone office are ensuring ratification of appropriate Amendments, obtaining licensing legislation, and committing ODS consumers to cooperate. Therefore, much depends on the rapport that the Ozone Unit is able to have with its stakeholders, which is confirmed by the importance the NOUs assign to awareness raising.

The CEITs' experiences highlight three types of stakeholders: government, industry, and international agencies. Typically (unless the grant is taxed), there is little opposition from industry, which is eager to accept foreign investment. Therefore, little is done to actively engage industry in policy-making processes. As a rule, industry representatives do not sit on NOU steering committees and are not asked to review and comment on proposed regulatory tools. However, at least in one case this had a detrimental effect on country ownership and consequently on the implementation process, due to active opposition of the industry.

Government stakeholders tend to be more involved throughout the CEITs. The NOUs often named networking and awareness raising through targeted workshops or national awareness campaigns as the main tools to solicit their support and cooperation. UNEP addressed the same problem through a high-level summit of environmental officials from Central Asia and the Caucasus.

The CEITs also provide a valuable lesson on the use of leverage of international stakeholders in creating country ownership at the national level. The case of Azerbaijan, where national commitment was built through direct, high-level intervention of an implementing agency, confirms that the proactive position of an international actor can help in cases where more simple approaches to building ownership fail to produce a positive result.

### ***Level of Involvement***

#### ***Country Program Preparation***

It has been noted in the discussion of the ownership theory that one of the major tools for building ownership at the NOU and national levels is ensuring involvement of the NOU staff and domestic stakeholders in the formulation of the Country Program. The CEITs examples confirm this. Unlike some small developing countries, where the NOU had very little to do with the Country Program, and the program was written by a national consultant, with the consent of an international consultant, in all but two CEITs, NOU staff or the staff later recruited to the NOU participated in preparing the Country Program. In both of the countries where the NOUs did not

participate in drafting the Country Program preparation, the level of ownership appears to be lower than on average in the region.

### ***Participation in the Meetings of Parties (MoPs)***

Another way of involving countries in the formulation of policies to be applied to them is through the Meetings of the Parties. Representation of the CEITs as a region (with their many commonalities and joint needs and positions) at MoPs remains mainly an untapped resource. The CEIT representatives view each other as competitors at the negotiations, and try to shun people from the same region, instead going after representatives of individual developed countries in an attempt to solicit bilateral aid. As a result, the CEITs as a region do not have a common voice. The NOU officers rely on the implementing agencies to get their message across to the Secretariat, while a MoP would be a more appropriate place to do it. A regional position or joint communiqué sends a much stronger message to the international community than individual addresses. A regional network could be used to address this problem in the form of “pre-negotiation” workshops for the MoPs, giving the countries a chance to organize themselves and develop joint statements.

Ensuring the NOU officers’ participation in MoPs is also the best way to create ownership on the NOU level. Across the whole region, where people have been active or at least present at MoPs, they feel very strong ownership of what they are doing. At an MoP, there is a feeling of belonging to a much bigger whole, a chance to see and understand the situation, including the constraints facing the Secretariat, the MLF, and the implementing agencies.

### ***Information Availability***

Psychologically, ownership is not possible when there is only one source of information, and that is exactly what is happening in many NIS CEITs. Being able to have a choice of information sources and to be able to make one’s own decision on which information sources to trust creates a better understanding of reality and enhances the feeling of ownership. The bigger the information choice, the more the NOU feels in charge of its own destiny.

Lack of technical or operational information is an issue continuously mentioned in the CEITs. Some countries receive all of their information from the implementing agencies and would like to diversify their information sources to be able to construct their understanding of the situation independently. While in developing countries regional networks were created to ensure penetration of information and its availability locally, in the CEITs, despite previous recommendations, this has not been done. For example, Georgia and Moldova face similar economic and political situations and both are Article 5 countries in a predominately non-Article 5 environment, but, to their mutual regret, each country is moving with phaseout on its own.

Lack of informational materials in local languages also means that the NOU officers have little to present to the stakeholders they want to influence. Even if the officer is able to use English language materials, in cases when some factual information needs to be presented to a governmental official or an industry stakeholder, the latter is not likely to understand.

## *Institutional Strengthening*

One of the critical moments relating to ownership is the issue of what happens to an NOU once the projects are completed. Often, because the institutional strengthening projects supporting NOUs have a limited three-year term as part of a one-package GEF deal, the NOUs are given temporary status in the government. However, the majority of the CEITs agree that the NOU should not be discontinued. In reality, the NOU as an office can be closed, the mandate to deal with ozone remains with some individual within a ministry, but takes up only a fraction of a person's time. However, in such an arrangement people appear to be overworked, and it is better to ensure that there is always one person available to deal with ozone issues, such as participation in MoPs, reporting requirements, illegal trade, and regional meetings. Ownership at the national level is essential to ensure the continuity of funding for the NOU, and the IAs should work from the very beginning to receive this kind of commitment from the countries. Also, UNEP should be given an opportunity to continue to fund such offices, at least in part.

The officers also commented on the need for greater flexibility in institutional strengthening funds. In the European NIS, the officers experience difficulty recruiting and retaining qualified staff because of the competition from the growing private sector. The officers in Central Asia, where cars are the main transportation means, complained about their inability to reach out to end-users because of the lack of vehicles.

## *Conclusions*

---

*A high degree of regional diversity* is observed in CEITs for a variety of economic and political reasons. The general trend is for Central European countries to be more market-oriented, more organized, and more efficient in implementing international projects. The countries in Southeastern Europe are less affluent, less efficient, and might experience problems in implementation. Among the Newly Independent States, the European NIS started their implementation earlier and enjoyed a higher degree of ownership, whereas the countries of Central Asia and the Caucasus experienced problems in identifying consumption and ratifying the relevant international instruments.

The NOUs in the CEITs typically demonstrate *a high level of ownership* of the phaseout. Partnership relations between the NOUs and the implementing agencies active in the region, as well as high level of preparedness, expertise and personal commitment on the part of the NOU officers worked to create high levels of ownership among the NOUs.

*Lack of domestic support* was found to be the major factor inhibiting phaseout. Insufficient national ownership was manifested either in the form of imposing taxes on the grants accepted by the enterprises and causing consequent opposition to the phaseout among the industry, or through delays in the ratification of the Protocol and its London Amendment, or through obstacles and delays in developing and enacting ODS controlling legislation.

*Inhibited regional networking and overall lack of information* were often mentioned by the NOU officers as independent factors obstructing their work. There is a great demand for information

exchange and for creating regional approaches to the phaseout. Despite the fact that they are now divided politically, the countries feel that they have many similarities and that there are great opportunities in joint regional work.

*Institutional capacity building and its continuity* remain an issue for CEITs. Because of the great regional variety and consequently different needs of the NOUs, more flexibility is needed in institutional strengthening funding. The continuity of such funding also needs to be ensured, either through building commitment at the national level, or through streamlining additional institutional strengthening funds to UNEP.

Overall, the CEITs case study serves as a perfect practical example of the ownership thesis described in Chapter 2, The Theory of Ownership: “Ownership is more inhibited by lack of national or domestic support, than by a perception of domination by international stakeholders.”

### ***Policy Recommendations and Ownership Lessons from the CEITs***

---

Increase *information availability* by:

- creating a regional network of the NOU officers;
- distributing and translation additional phaseout-related information; and
- preparing materials for and conducting *regional* awareness-raising campaigns.

Enhance the *level of involvement* by:

- involving the NOUs and national stakeholders in the preparation and/or revision of the Country Program;
- building the CEITs negotiation capacity at the Meetings of the Parties; and
- encouraging active regional collaboration.

Ensure an adequate level of *commitment at the country level* by:

- encouraging a proactive position of high-level international stakeholders in committing high-level governmental officials to ozone layer protection and soliciting policy statements from them; and
- ensuring continuity of funding for NOUs upon completion of the phaseout.

Ensure *transfer of knowledge* between the implementing agencies and the NOUs by:

- establishing an active regional network;
- conducting in-depth evaluations and risk assessments with the implementing agencies; and
- establishing knowledge-transfer mechanisms between the implementing agencies.

**PART D**

**CASE STUDIES**

---

## Chapter 9

# Summary of Case Studies

This chapter summarizes the results of the case studies. Seven in-depth studies of NOUs were completed—one each for Uganda, Brazil, India, Iran, Egypt, Italy, and France. This chapter summarizes the gist of these studies and the lessons learned from them. The full-length studies themselves can be found in the following chapters, for readers who are interested. In addition to the seven case studies, we have summarized in this chapter some pertinent issues raised by short case studies of six other countries: Turkey, Mexico, Sweden, and three others that must remain anonymous because of our pledge not to disclose their identities. Initially, we did not set out to do in-depth studies of these five countries. However, in the course of the survey of NOUs, interesting ownership-related issues emerged that we thought should be flagged.

### *Uganda*

---

The in-depth study of the operations of stakeholders involved in ODS phaseout in Uganda has provided a valuable lesson. For ODS phaseout efforts to succeed, a very intricate balance needs to be struck in the relationships among all the actors and stakeholders. While ownership is obviously an important component for the success of ODS phaseout efforts, it is the way that ownership is parceled out among the different actors and stakeholders that ultimately determines how effective the efforts become. This issue of “parceling out” speaks directly to the question of the roles that the actors and stakeholders must play in the strategies. It also speaks directly to the question of how much they perceive themselves as being empowered and meaningful players in the process. This creates a very complex and delicate situation that requires clever balancing among the roles of all the stakeholders concerned.

To a lesser degree of certitude, there is a second important lesson from the case study on Uganda. It is that there is a lot of merit to the argument that, for countries whose ODS consumption totals are more a result of small to medium-sized enterprises than large enterprises, it is both effective and economical to rely heavily on noninvestment projects as an ODS phaseout strategy. This is because in many cases investment projects are really one-time, unrepeatable changes as far as ODS phaseout is concerned. Hence, although they may initially yield spectacular outputs in terms of the ratio of investment dollar to ODS phaseout achieved, such a ratio may not be sustainable. For small countries that consume and do not produce ODSs, it is imperative that more funds be spent on noninvestment projects, although it may appear at first that the spent-dollar to ODS phaseout ratio is less spectacular than that yielded by investment projects. This is because noninvestment measures have the capacity to yield repeatable and continuous changes and effects.

## ***Brazil***

---

The Brazilian NOU is a well-staffed, confident, and proud unit. In 1997 it was transferred from the Ministry of Development, Industry, and External Trade to the Environment Ministry. It perceives itself as having greater support in its present location. Its Interministerial Executive Committee, called PROZON, is an important body in implementation. However, the Ministry of Finance is not part of this committee. Hence, the committee lacks influence with Customs, whose proactive cooperation is required to enact import/export legislation. A top-level National Council for the Environment, CONAMA, can speed legislation but may not find enough time for ozone matters.

The NOU has built valuable partnerships with a set of stakeholders. It has phased out production of CFCs, but CTC remains a challenge. For Brazil to meet its deadlines on the reduction of CFC consumption, a refrigeration management plan must be finished in record time, followed by training with refrigeration technicians and users, the application of legislation, and adequate resources.

Such a venture needs additional partnerships, sectoral approaches, and the full cooperation of states within the Federation. If suitable intermediaries for implementation can be found and coached, the World Bank (i.e., the IBRD) might choose to become involved once again. The present absence of the IBRD is one of the reasons why Brazil wants to see the dropping of shares of implementing agencies in MLF work. Additional resources can also be mobilized within this country, which has many First World characteristics. Awareness raising has been skillfully promoted with the resources of the Ministry of Health.

In sum, ownership is considerable in many organizations, but Brazil is vast and ownership probably needs to be “parceled out” to other key actors as well.

## ***India***

---

India’s National Ozone Unit, referred to as the Ozone Cell, is well-placed in the Ministry of Environment and Forests and has connections with several other government ministries. The Country Program was initiated before India’s accession to the Montreal Protocol and included input from 13 ministries as well as many actors from industry. India’s Ozone Cell continues to be engaged in the Country Program revision process, although the updated version, due in 1999, has yet to be released. Ownership has been displayed by the NOU in various ways.

Without the updated Country Program, it is difficult to gauge the NOU’s direction in promoting further phaseout. However, it is clear that a few key areas of concern remain, including reaching small- and medium-sized enterprises (SMEs) and pursuing fair and equitable technology transfer (especially for CFC producers). India has relied heavily on HCFCs as one of the only affordable alternatives for CFCs and feels vulnerable regarding its future phaseout.

The NOU has attempted public awareness campaigns and educational activities, as well as sectoral approaches, to improve the phaseout efforts of SMEs. For example, World Bank funding

has been awarded to collectives of SMEs that have a sectoral office. Still, India's efforts could be bolstered by the cooperation of implementing agencies in finding funding mechanisms that can improve India's industries' latitude of choice. Ownership could, in this way, be increased.

## ***Iran***

---

A case study on Iran's NOU promises numerous practical insights into the NOUs in other A5Cs, since Iran represents an unusually sophisticated setting for environmental policy making. The NOU picture depicted in this case study includes the NOU's history, operational environment, organizational structure, role allocation and differentiation, and decision-making process. The tumultuous recent history of Iran has barely allowed successive administrations to effectively promote environmental issues in their development agenda. The structure and process of national environmental decision making further reinforces the marginalization of environmental issues. The parliament allocates a budget to the Department of the Environment (DOE), while it does not directly oversee it. Furthermore, the DOE may not hold much appeal for the members of parliament, since ODS phaseout does not fall within single constituencies.

The National Ozone Committee (NOC), which consists of governmental stakeholders, develops the phaseout strategy and supervises the NOU. The composition and the internal decision-making process of the NOC plays a significant role in the direction and pace of phaseout. The NOU faces several challenges in data gathering and consensus building. It plans to phase out about 8,000 metric tons of ODS, an amount far greater than the first Country Program or other previous estimates predicted. Obtaining reliable data may only be made possible when an effective ban is placed on ODS import. Including several Parliament Deputies in the NOC meetings would significantly improve the legal processing of the bills that the NOU proposes; the process now proceeds at a snail's pace. The NOU may begin to establish a societal network that includes influential nongovernmental actors in order to reach out to the stakeholders who have persistently escaped systematic treatment, especially the SMEs. In short, the NOU should implement a push-pull strategy, whereby it pushes its agenda at the governmental side and pulls the public side along. This strategy may even help treat the "HCFC syndrome" that NOU phaseout initiatives are currently plagued with.

## ***Egypt***

---

The case study on Egypt suggests three ways to enhance the effectiveness of all NOUs' operations. Each of these three suggestions is a commentary on the concept of ownership. The first suggestion is to improve public awareness programs through marketing (as a noninvestment activity, but with more resources). The case study reveals the need to use culturally tailored policies and the need for a professional marketing specialist. Better marketing, in this sense, leads to pressure on stakeholders from below.

Second, the case study suggests the need to improve the structural organization of the NOU and its relationships with other NOUs. We mean here three kinds of relationships.

- *Regional relationships*—in the Egyptian case, both among Arab countries and among other North African countries.
- *Structural relationships*—relationships with NOUs in countries that either export to or import from Egypt. We stress here the importance of gathering export data for the use of other NOUs. The case study also shows the structural change that is needed to fulfill this goal, and suggests the need to open offices in the main harbor city.
- *Problem-oriented relationships*—relationships with countries that have the same main problems with phaseout.

Finally, the Egyptian case study suggests a novel way to tackle ODS phaseout—that is, by granting NOUs some judicial prerogatives that enable them to investigate cases and enforce the law relating to ODS phaseout matters. We tentatively suggest here, without developing a formal model, granting some judicial prerogatives to the NOUs through an international agreement. Such prerogatives may be fashioned after anti-trust tribunals or anti-corruption authorities in some countries.

### ***Ownership Stories from Asia***

---

Stories from three Asian countries were written based on the questionnaire responses we received. These stories provide a closer look at the possible roots of ownership. Inclusion and broad participation, whether through a steering committee, a network, or the Country Program drafting process, appear to be able to stir up ownership at the NOU and national level. The stories also demonstrate how ownership can become the moving force of a positive feedback loop, creating a vicious/virtuous circle. In these three cases we were also able to correlate ownership with performance (based on MLF ODS consumption data). Since the stories are response-centered, we realize that we might have not covered the actual situation in these countries fully. However, throughout our research we found the factors described here to be salient features of ownership and therefore hope that these cases will provide a useful illustration to the ownership concept.

### ***Mexico and Turkey***

---

A short, thematic study of these two countries revealed a curious spectacle. These two A5Cs wanted to phase out ODS earlier than obligated, but they discovered that the current criteria and procedures applied by the Executive Committee tend to discourage early phaseout. The criteria and procedures might reflect a true concern for targeting phaseout necessary to meet deadlines, but this sends an unfortunate message: do not do more than you must, and apply for conventional assistance only. In other words, countries that owned their ODS phaseout strategies were punished, since early phaseout efforts were not rewarded.

## ***Italy***

---

Italy is one of the major European actors in ODS phaseout. Its performance has been diverse: remarkably rapid for halons, more problematic for methyl bromide. One of the distinctive aspects of the Italian policy is its refusal to encourage a rapid phaseout of HCFCs. Italy has not developed a structured bilateral program for ODS phaseout in developing countries, mainly due to difficulties in securing parliamentary approval for contributions to the Multilateral Fund. Italy is now considering using its share for bilateral policies, and particularly intends to assist Eastern European countries. Its experience with methyl bromide, smuggling, or recycling operations could allow positive developments for developing countries and encourage them in developing their own solutions to ODS phaseout.

## ***France***

---

France has developed a substantial bilateral policy for ODS phaseout based on its experience with other environmental and development institutions within its administration. Although France has some distinctive national interests, especially in terms of methyl bromide production, it seems to be in accord with the general policies of the EU at the ExCom. In its bilateral approach, France focuses on its priority regions for development assistance: the Middle East and Africa (which, as low-consuming countries, are not the first priorities of the MLF). France does not finance much institutional strengthening or country programming, but rather focuses on technical assistance. Its recent projects seem to take into account some of the demands of A5 countries we heard in our questionnaire (such as encouraging the training of technicians and regional and sectoral approaches). These bilateral policies also offer interesting initiatives in terms of coordination between environmental conventions.

## ***Sweden***

---

As an early and active participant in negotiating the Montreal Protocol, Sweden phased out 93% of its ODSs between 1988 and 1994 at a cost of some U.S.\$28 million per year. The phaseout of CFC in refrigeration was facilitated by forming an “umbrella” organization, the Refrigeration Industry Cooperative Foundation. Nordic cooperation help provide the blueprint for the first ODS officers network in Southeast Asia, still financed by Sweden. Sweden has argued on a number of ownership-related issues in the Executive Committee, such as the need to give NOUs more leeway to manage their own affairs. Sweden recently started a bilateral program for ODS phaseout.

# Chapter 10

## Uganda Case Study

by Joel Ngugi<sup>44</sup>

### *Summary*

---

The in-depth study of the operations of stakeholders involved in ODS phaseout in Uganda has provided a valuable lesson. For ODS phaseout efforts to succeed, a very intricate balance needs to be struck in the relationships among all the actors and stakeholders. While ownership is obviously an important component for the success of ODS phaseout efforts, it is the way that ownership is parceled out among the different actors and stakeholders that ultimately determines how effective the efforts become. This issue of “parceling out” speaks directly to the question of the roles that the actors and stakeholders must play in the strategies. It also speaks directly to the question of how much they perceive themselves as being empowered and meaningful players in the process. This creates a very complex and delicate situation that requires clever balancing among the roles of all the stakeholders concerned. This is the valuable lesson that our in-depth study of ODS phaseout in Uganda has bequeathed to us.

To a lesser degree of certitude, there is a second important lesson from this study. It is that there is a lot of merit to the argument that, for countries whose ODS consumption totals are more a result of small to medium-sized enterprises than large enterprises, it is both effective and economical to rely heavily on noninvestment projects as an ODS phaseout strategy. This is because in many cases investment projects are really one-time, unrepeatable changes as far as ODS phaseout is concerned. Hence, although they may initially yield spectacular outputs in terms of the ratio of investment dollar to ODS phaseout achieved, such a ratio may not be sustainable. For small countries that consume and do not produce ODSs, it is imperative that more funds be spent on noninvestment projects, although it may appear at first that the spent-dollar to ODS phaseout ratio is less spectacular than that yielded by investment projects. This is because noninvestment measures have the capacity to yield repeatable and continuous changes and effects.

---

<sup>44</sup> We would like to thank our collaborator based in Uganda, Barbara Munube, for her invaluable contribution. She indefatigably conducted all the interviews, in no way a mean task considering the time constraint. It is her knowledge of how things are done locally in Uganda that helped get the information we wanted within such a short period. We would also like to thank all our respondents in Uganda who kindly agreed to be interviewed for this report. Special thanks must go to Professor John Okedi who warmly invited us to do a case study on Uganda and gave us all the assistance we needed. Though we received assistance from all these people, the sole responsibility for all the information and analysis in this report remains ours.

## ***Introduction***

---

In the pages that follow, we briefly present the results of the Uganda case study. We begin with a paragraph outlining the political and economic situation in Uganda. Next, we very briefly summarize the responses given by the Uganda National Ozone Unit to the formal questionnaire. We then sketch out the different actors that are involved with ODS phaseout efforts in Uganda, the different roles they play, and their interactions with each other. Most of the information in this section is from interviews that we conducted in Uganda and from documentary evidence collected during these interviews. We then briefly analyze these interactions and try to draw conclusions about how the nature and quality of these interactions implicates the concept of ownership. In the course of this discussion, we suggest why and how we came to the view that one lesson that we can draw from the Uganda case study is to view the concept of “ownership” as a bundle.<sup>45</sup> Viewing it as a bundle is preferable to seeing it as a singular monolithic concept that applies uniformly to all the stakeholders. In other words, we suggest that “ownership” in this sense can and should be parceled out between the different stakeholders for ODS phaseout strategies to be successful. In proffering this lesson, we simultaneously suggest the need to de-emphasize ownership at either the NOU level or at the country level as seems to be the orthodoxy at the moment. Rather, we suggest that ownership at both levels is not only essential and required but is mutually reinforcing.

## ***A Short Political and Economic History***

---

Uganda is located in the eastern region of Africa and occupies an area of about 241,500 square kilometers, of which 15.3% is open water, 3.0% permanent wetlands, and 9.4% seasonal wetlands. It is bordered by the Republic of Kenya in the east, Tanzania and Rwanda in the south, Democratic Republic of Congo (the former Zaire) in the west, and Sudan in the north.

Uganda is primarily an agrarian country, with agriculture contributing more than 50% of the gross domestic product (GDP). Agricultural activities are mainly supported by peasant (subsistence) farmers. The current government effort is towards modernizing agriculture, which entails transforming Ugandan society from agrarian to industrial. Apart from this major challenge, the transition period is certain to register both agricultural and industrial environmental problems.

The country’s average growth between 1966 and 1990 was the lowest in sub-Saharan Africa, basically due to political turmoil during this period. Furthermore, a high inflation rate undermined the economy. In 1996, the GNP per capita was estimated at only U.S.\$220. Thus, controlling the inflation rate has been a key preoccupation of government since 1986. Positive results have already been registered; for instance, the inflationary rate has been reduced from as high as 200% in 1987 to about 5% in 1996.

---

<sup>45</sup> Our conception of “ownership” as a “bundle” is no doubt influenced by the way modern lawyers think of property as a “bundle of rights” and not as most laypersons are likely to think of it as “thing-ownership.” This vocabulary in legal literature can be traced back to Wesley Newcomb Hohfeld, *Fundamental Legal Concepts as Applied in Judicial Reasoning and Other Legal Essays* (1923). For a modern explanation, see J.E. Penner, “The ‘Bundle of Rights’ Picture of Property,” 43 *University of California Law Review* 711, 1996.

Since 1987, the government of President Yoweri Museveni has been pursuing an economic reform program intended to achieve sustainable economic growth and stabilize the economy. The reform program seeks macroeconomic management with the objectives of bringing about financial stability by lowering the rate of inflation, reducing imbalances in external accounts, promoting economic growth, and instilling financial discipline. However, the government has also systematically put in place a very strong environmental aspect in its planning and structuring of the reforms.

### ***“In Their Own Words”: The Situation as Seen by the NOU***

---

This section is based on the Uganda NOU’s written response to our questionnaire. We have obtained the permission of the head of the NOU in Uganda to disclose it.

The NOU comes across as a self-confident institution that clearly understands its mandate. The response also gives the impression that the NOU is perched comfortably within the government hierarchy. The NOU reports, quite instructively, that its most important strength is the access it has to the top management of the National Environment Management Authority (NEMA) and other “top policy makers.” NEMA is the principal agency in Uganda for the management of the environment, and is mandated to coordinate, monitor, and supervise all activities relating to the environment. The NOU is a desk within NEMA. In terms of reputation, then, the NOU appears to enjoy the ready visibility that is crucial for some of the tasks that it has to carry out.

The NOU was created in 1992 and is a permanent entity but has no permanent staff. All the staff members who periodically work on NOU matters have other responsibilities within NEMA. The NOU names its most important and immediate priority as the enactment of ODS import/export licensing legislation. This will be part of “The Ozone-Depleting Substances Management Regulations, 2000” that is awaiting the approval of a cabinet committee on the environment. The regulations will also include a comprehensive licensing/permit system to curb the import of ODS into the country, especially as secondhand equipment. The legislation will require implementation by both the Customs Department and NEMA.

Among its greatest challenges, the NOU names lack of capacity and funds to do sufficient domestic networking and public awareness. It also quite truthfully mentions the need to involve all stakeholders in ODS phaseout efforts and the need to provide continuous training for refrigeration technicians and customs officials manning the major entry points. According to the NOU, there is also a need to enhance surveillance by the Anti-Smuggling Unit of the Uganda Police to detect illegal trade.

Both the NOU and the government were involved in writing the Country Program. UNEP contracted a consultant who worked with a national team that was constituted to collect basic data and information. The draft Country Program produced was studied and approved by the government before being submitted to the Multilateral Fund for funding. Clearly, there was a lot of involvement by both the government and the NOU right from the beginning. As it turns out, this set out the right level of engagement for the government and the NOU with ODS phaseout

strategies. To a great extent, this interaction between the implementing agency (UNEP), the NOU, the government, and other domestic stakeholders has persisted.

Two things in the questionnaire responses are striking, however. One is the low frequency of meetings between the NOU and other stakeholders domestically. The NOU only meets with these stakeholders “as need arises.” We interpreted this to mean that the NOU meets with the stakeholders only infrequently. Our interviews confirmed that meetings between the NOU and other stakeholders are indeed rare. This is surprising because, on a comparative basis, NOUs with far less a sense of ownership (judging from other parts of the questionnaire) have indicated that they have far more meetings than this. The second striking thing about the responses is that the NOU, though a permanent entity, has no permanent employees. Below, we deduce this is symptomatic of an uneven parceling of the bundle of “ownership.” A very strong constituency and awareness in environmental issues generally, quite paradoxically, might act to lessen rather than increase concern with the ozone layer. We explain why below.

### ***Stakeholders Involved in ODS Phaseout***

---

At least five actors/stakeholders are involved with ODS phaseout efforts in Uganda. Their roles and interactions with the NOU are described below. Where it seems appropriate, we supplement our observations with our analysis of what we thought was going on.

#### ***National Environment Management Authority (NEMA)***

Uganda is reputed to have some of the best environmental laws in Africa and possibly in the world. A number of African countries have adopted Uganda’s environmental laws, in particular the National Environment Statute 4 of 1995 (hereinafter NES).

NES’s Section 5 creates NEMA to be the principal agency in Uganda to coordinate, monitor, and supervise all activities in the environmental arena. Section 6 states that the main functions of NEMA *inter alia* are

1. to coordinate the implementation of government policy and decisions on the environment;
2. to ensure the integration of environmental concerns in overall national planning through coordination with the relevant ministries, departments and agencies of government;
3. to serve as liaison to the private sector and intergovernmental agencies of other states on issues relating to the environment;
4. to propose environmental policies and strategies to the Policy Committee;
5. to initiate legislative proposals, standards, and guidelines on the environment in accordance with this statute; and
6. to mobilize, expedite, and monitor resources for environmental management.

Section 51 imbues NEMA with the responsibility, in consultation with the lead agency, to undertake national studies and give due recognition to developments in scientific knowledge relating to substances, activities, and practices that deplete the stratospheric ozone layer and other components of the stratosphere to the detriment of human health. By dint of this section

also, NEMA is charged with making regulations, issuing guidelines, and instituting programs concerning

- the elimination of substances that deplete the ozone layer;
- management practices and activities likely to lead to the degradation of the ozone layer and the stratosphere; and
- the reduction and minimization of risks to human health created by the degradation of the ozone layer and the stratosphere.

Again, NEMA is required to consult with the lead agency in fulfilling its statutory functions under this part of Section 51. The lead agency in this case is the National Ozone Unit. In short, then, by virtue of Sections 5, 6, and 7, NEMA is the overall Authority responsible for all issues concerning the environment in Uganda. NEMA is headed by an Executive Director who reports to the administrative head of the ministry, the Permanent Secretary. Considering there are only five other Authorities within the ministry, it is clear that this is a very senior position within the ministry.

Ozone issues come directly under NEMA by virtue of Section 51. The NOU is created and vested with powers to act on ozone issues as the lead agency referred to in this section. This, in our analysis, has turned out to be both a blessing and a setback. It is profoundly helpful and effective that the NOU was created to fit within the contours of a larger statutory body that has both institutional and political clout. This is far better than in many countries that had to found NOUs “from scratch.” However, this advantage turns out to have a downside too. The existence of an institutionally powerful statutory body that has the broad mandate to deal with all environmental issues in the country also dampens the need to found an institutionally powerful NOU. This explains why the Uganda NOU is established as a “desk” within NEMA. Institutionally this makes sense, but in terms of the resources that are made available to the NOU itself to operate, it is somewhat problematic.

In our view, this situation explains both the profound sense of “ownership” that has been demonstrated by Uganda at the national level, and the apparently diluted sense of ownership seen at the NOU level. Nationally, NEMA is a powerful and instrumental player with clear statutory mandate that includes the ozone portfolio. Internally, however, the NOU is but one of the many tasks that NEMA must carry out within the constraint of time and resources, such as staffing. It is then no surprise why the NOU, though a permanent unit, is only manned by temporary staff. This also may explain the low frequency of meetings between the NOU and other stakeholders.

### ***National Ozone Unit***

In Uganda the NOU desk links Uganda/Uganda Government with the Secretariat of the Montreal Protocol. Its main focus is ODS phaseout. ODSs are used in various industries. According to the NOU, Uganda imports at least 15 metric tons of ODSs annually. It is noteworthy that Uganda does not produce ODSs, but rather consumes them. The NOU identifies the users of these substances and informs them of the phaseout period and what is expected from them in terms of reductions.

Because Uganda is a consumer of ODS, and not a producer, it appears obvious that the most effective way to phase out ODSs in the country would be to regulate the importation of ODS into the country. As indicated previously, such a regulation has already been drafted and is awaiting approval by a cabinet committee. However, the fact that it is not yet in place eight years after the formation of the NOU is not encouraging. There does appear to be a good explanation for the delay. The delay to enact the statute came as a result of the fact that there needed to be a change in the institutional arrangements. At that time, the Directorate of Environment, which was part of the Ministry of Natural Resources, was replaced by NEMA.

The drafting of the ozone regulations was funded in part by a UNEP project. The provisions, which relate to the permit system, were written after studying the regulations in Canada and Sweden as well as the Montreal Protocol and its amendments. According to the consultant who helped draft the regulations, work started as early as 1993.

The draft regulations themselves appear to be very well thought out. They reflect ownership, innovation and seriousness in two ways.

1. The regulations were drafted by consultants with heavy input from the NOU and many stakeholders. Since the regulations were drafted, two consultative meetings have been held. The first one, held in October 1999, involved members of the tourism sector, breweries, hotels, and the refrigeration industry. The second one took place last year. It was attended by permanent secretaries from Kenya, Tanzania, and Uganda. Hence, in the drafting of the draft regulations, very broad consultations have been made.
2. The draft regulations propose a twin system of import permits and tax incentives to control the importation of ODSs into the country. Both systems require the cooperation of importers and Customs authorities, so consensus building, domestic networking and public awareness are essential. A lot of training will be needed for Customs officers in order to equip them with the skills and capacity to detect ODSs at points of entry. Also, far more targeted and vigorous public awareness campaigns will have to be carried out to inform the importers about the tax incentives and penalties. Both these measures will be necessary to substantially alter behavior and patterns of ODS consumption. Also, both will require considerable noninvestment funding. Yet, owing to the fact that ODS concentrations in imported equipment tend to be dispersed, it is likely that the results of the efforts in terms of ODS phaseout might not register readily. We argue in our conclusions below that this kind of analysis, which has been advanced before to promote investment measures over noninvestment measures, is not necessarily sound.

We now briefly return to the issue of the interaction between the NOU and other stakeholders. The NOU is involved in public awareness campaigns and in training refrigeration and air-conditioning technicians. In this latter exercise, it acts in conjunction with the Uganda National Association of Refrigerators and Air Conditioners. Indeed, this stakeholder collaborates and interacts most closely with the NOU. The NOU also reported that it collaborates with the Multilateral Fund and the implementing agencies. However, the collaboration with the Multilateral Fund is mainly limited to the Fund, reminding the NOU about its obligations should it fall behind on set phaseout times.

The relationship between the IA and NOU also appears to be very tenuous. This is in part explained by the fact that most of the projects that IAs deals with are investment projects. Uganda has received no funding at all for investment projects. The tenuous relationship between the IA and the NOU may be reflective of the general institutional weakness of the NOU itself.

### ***Implementing Agencies***

UNEP has been involved in an institutional strengthening project of the NOU. The UNDP is involved with the on-going preparation and implementation of a National Program for Recovery and Recycling of Refrigerants in Uganda in conjunction with UNARA, while UNIDO is active in project preparatory assistance in the methyl bromide sector together with The Uganda Flowers Exporters Association.

### ***Uganda National Association for Refrigerators and Air-Conditioners (UNARA)***

UNARA states that some of its aims, objectives, and roles are

1. to encourage members to keep good records of the qualities and type of refrigerants and equipment imported, purchased locally, sold, and used, and report these data and information periodically to the ODS Unit (NEMA);
2. to promote high-quality craftsmanship and standards related to the environment, safety, health, maintenance, and servicing of refrigeration and air-conditioning equipment;
3. to promote good practice for the prevention of refrigerant emission through recovery, recycling, and leak detection, to prevent unnecessary use of CFCs.
4. to create awareness among members through seminars, meetings, and audiovisuals; and
5. to serve as a source of information on leak detection and recycling/recovery equipment.

In order to meet these and other objectives, UNARA engages in public awareness and information exchange in the field of refrigeration and air conditioning. It also collaborates with the NOU in developing codes of good practice for refrigeration and air-conditioning personnel and enterprises. UNARA has also assisted in identifying and assisting NEMA on training needs of the refrigeration and air-conditioning sector. It participated in the formulation of the Refrigerant Management Plan and assists in attempts to implement it with “an emphasis on recovery/recycling and leakage detection.”

UNARA confirmed that it intends to conduct evening training classes in refrigeration at the Vocational Training Institute, Lugogo in Kampala. This training is to take place under the auspices of the Refrigerant Management Plan. The German Development Agency (GTZ) is providing the training equipment. In addition, UNARA is writing a national training program for recovery/recycling, which is funded in part by the UNDP.

Unfortunately, UNARA requires seed money to launch the training program. It is intended that recovery equipment be set up in four locations, namely Mbarara, Jinja, Kampala, and Entebbe. However, recycling will be done in Kampala. As is clear, UNARA plays a very significant role in ODS phaseout in Uganda. UNARA has not yet acquired offices, however, though it intends to

do so at the VTI in Kampala. This is due to financial constraints, and is perhaps a commentary on the fact that noninvestment measures such as the one UNARA engages in are not highly privileged or valued.

UNARA provides a focal point officer in the NOU who is an expert in refrigeration. He advises NEMA through the NOU on issues relating to ODS. UNARA may be said to have benefited from the Multilateral Fund in the form of enabling its officers to attend training workshops and conferences abroad. The training received from attending these courses and meetings has enabled UNARA to train others in safe refrigeration practice. The amount invested in training trainers in this way is ploughed back into ODS phaseout efforts sooner rather than later, which should make a stronger case for funding noninvestment measures.

### ***The Meteorological Department***

The Meteorological Department is in charge of climate change issues in Uganda. It has, however, monitored since the early 1990s the way the ozone layer affects the climate. However, their ability to collect comprehensive data and do other ozone-related activities is hampered by lack of funds. They report that they discuss ozone-related issues with the NOU “once in a while.” They were also quick to point out that they “just give advice and stop there.” Any policy issues have to go through “the normal channels, i.e., at the level of the Minister in Charge of the Environment.”

Thus there is no close contact between the Meteorological Department and the NOU. Clearly the NOU could benefit from such contact. The responses from this department give the impression that ODS phaseout issues are the “prerogative” of the NOU. This calls for a more concerted effort to spread the sense of “ownership” to other key stakeholders.

### ***Other Stakeholders***

As mentioned previously, the NOU has also collaborated with the German Development Agency, which is involved with training technicians in the refrigeration sector. The NOU named The Flower Growers Association as one of the private stakeholders that it consults with “as need arises.” However, it is not clear in what circumstances the need arises. This association together with the consumer organization, hotels, brewers, and prominent members of the fish industry were consulted during the writing of the Draft Ozone Management Regulations.

### ***Discussion, Conclusions, and Implications for Policy***

---

The first conclusion we can draw from this case is that “ownership” is a complex and multifarious concept—one that is best “bundled.” In other words, for ownership to be effective, it needs to be parceled out among the different stakeholders. Each of the stakeholders must have the capacity and the latitude to perform its role. The “ownership incidents” we described above, must be spread to all stakeholders involved in ODS phaseout. Ownership should not be

concentrated in any one of the actors. The question therefore should not be framed as one of ownership to the government *or* to the NOU but rather as ownership to the government *and* to the NOU *as well as* other stakeholders. All the levels of ownership are prerequisites for effective ODS phaseout strategies. The fact that one seems to mutually reinforce the others should be a further incentive to concentrate on them all and not just one.

Our second conclusion explains the somewhat paradoxical situation in Uganda where we observed a very strong sense of ownership at the national level but somewhat weak sense of ownership at the NOU level. In our view, this is explained by the existence of a very influential and powerful environmental agency. Contrary to expectations, when a country has a powerful and well-established environmental institution, it does not follow that ozone-related issues will receive as much attention as they should. We call this the “snob effect.” The fact is that the strong overall Environmental Authority dampens the functions and role of the NOU. The NOU becomes a far less important entity. The situation might be very different in a country where, for example, there is no powerful environmental organization and an NOU has been built “from scratch.” Such an NOU would not have to operate in the shadows of the overbearing larger organization. This conclusion may not apply to all NOUs. However, we think that it suggests the need to strengthen ownership at both the national and the NOU levels. In Uganda, placing an emphasis on ownership at the national level only might not improve the effectiveness of ODS phaseout strategies. If ownership needs to be strengthened at all in this case, it should be at the NOU level.

Our final point is more of a general speculation that would require more theoretical and experimental inquiry than we were able to do in this study. It relates to the oft-cited fact that 20 countries that consume more than 80% of CFCs in the developing world met their freeze requirement, and almost all of them are on their way to meeting the subsequent control measures. Looking at these facts, it is tempting to conclude that it is more cost-effective to spend Multilateral Fund funds on investment projects than noninvestment projects.<sup>46</sup>

However, this argument is not entirely correct. Given that most investment projects require installing alternative technology, the investments are really one-time unrepeatable changes as far as ODS phaseout is concerned. Hence, although they may initially yield spectacular outputs in terms of the ratio of investment dollars to ODS phaseout achieved, such a rate may not be sustainable. For small countries that consume and do not produce ODS, it is imperative that more funds be spent on noninvestment projects even though it may appear at first that the spent-dollar-to-ODS-phaseout ratio (or “output-per-input”) is less spectacular than that yielded by investment projects. This is because noninvestment measures have the capacity to yield repeatable and continuous effects. In any event, results of noninvestment measures such as capacity building, institutional strengthening, training and public awareness may take some time to emerge. There is a time-lag between, for example, training and awareness programs and the translation of that input (knowledge) into output (ODS phaseout). The long-term results thus may compensate for the initial lower output-per-input ratio.

---

<sup>46</sup> As Steve Gorman of the World Bank has correctly pointed out in private correspondence with Ambassador Rasmus Rasmusson, it is actually an unfortunate misnomer to distinguish these two genre of projects as “investment” and “noninvestment.” The terminology implies that the latter projects do not involve investment, which is, of course, untrue. Gorman prefers the term “capacity building” to “noninvestment.”

In other words, the output-per-input ratio for investment projects might be higher in the short term but three reasons suggest that we should continue to put more emphasis on noninvestment measures in small countries.

1. First, the reality is that most of the small countries that consume but do not produce ODS have limited abilities to concentrate on investment projects. This is especially so for countries that mainly consume methyl bromide, for which there is no alternative.
2. For most of these countries, the bulk of ODS is consumed in a much more dispersed and diffused form, hence a one-time investment project is likely to register much less success in terms of output-per-input ratio as compared to industrial countries where ODS consumption tends to be more concentrated.
3. Lastly, the law of diminishing returns implies that the spectacular output-per-input ratio associated with investment measures cannot be sustained in the long run although it may be necessary for some industries. Once a particular investment project has been finalized, no more output in the sense of ODS phaseout can be expected from that project. A noninvestment project, on the other hand, will continue yielding results for an extended period of time albeit after some delay in positive correlation.

In the end therefore, we believe it is best for Uganda (as for other A5Cs) to focus on noninvestment projects.

# Chapter 10

## Uganda Case Study

by Joel Ngugi<sup>1</sup>

### *Summary*

---

The in-depth study of the operations of stakeholders involved in ODS phaseout in Uganda has provided a valuable lesson. For ODS phaseout efforts to succeed, a very intricate balance needs to be struck in the relationships among all the actors and stakeholders. While ownership is obviously an important component for the success of ODS phaseout efforts, it is the way that ownership is parceled out among the different actors and stakeholders that ultimately determines how effective the efforts become. This issue of “parceling out” speaks directly to the question of the roles that the actors and stakeholders must play in the strategies. It also speaks directly to the question of how much they perceive themselves as being empowered and meaningful players in the process. This creates a very complex and delicate situation that requires clever balancing among the roles of all the stakeholders concerned. This is the valuable lesson that our in-depth study of ODS phaseout in Uganda has bequeathed to us.

To a lesser degree of certitude, there is a second important lesson from this study. It is that there is a lot of merit to the argument that, for countries whose ODS consumption totals are more a result of small to medium-sized enterprises than large enterprises, it is both effective and economical to rely heavily on noninvestment projects as an ODS phaseout strategy. This is because in many cases investment projects are really one-time, unrepeatable changes as far as ODS phaseout is concerned. Hence, although they may initially yield spectacular outputs in terms of the ratio of investment dollar to ODS phaseout achieved, such a ratio may not be sustainable. For small countries that consume and do not produce ODSs, it is imperative that more funds be spent on noninvestment projects, although it may appear at first that the spent-dollar to ODS phaseout ratio is less spectacular than that yielded by investment projects. This is because noninvestment measures have the capacity to yield repeatable and continuous changes and effects.

---

<sup>1</sup> We would like to thank our collaborator based in Uganda, Barbara Munube, for her invaluable contribution. She indefatigably conducted all the interviews, in no way a mean task considering the time constraint. It is her knowledge of how things are done locally in Uganda that helped get the information we wanted within such a short period. We would also like to thank all our respondents in Uganda who kindly agreed to be interviewed for this report. Special thanks must go to Professor John Okedi who warmly invited us to do a case study on Uganda and gave us all the assistance we needed. Though we received assistance from all these people, the sole responsibility for all the information and analysis in this report remains ours.

## ***Introduction***

---

In the pages that follow, we briefly present the results of the Uganda case study. We begin with a paragraph outlining the political and economic situation in Uganda. Next, we very briefly summarize the responses given by the Uganda National Ozone Unit to the formal questionnaire. We then sketch out the different actors that are involved with ODS phaseout efforts in Uganda, the different roles they play, and their interactions with each other. Most of the information in this section is from interviews that we conducted in Uganda and from documentary evidence collected during these interviews. We then briefly analyze these interactions and try to draw conclusions about how the nature and quality of these interactions implicates the concept of ownership. In the course of this discussion, we suggest why and how we came to the view that one lesson that we can draw from the Uganda case study is to view the concept of “ownership” as a bundle.<sup>2</sup> Viewing it as a bundle is preferable to seeing it as a singular monolithic concept that applies uniformly to all the stakeholders. In other words, we suggest that “ownership” in this sense can and should be parceled out between the different stakeholders for ODS phaseout strategies to be successful. In proffering this lesson, we simultaneously suggest the need to de-emphasize ownership at either the NOU level or at the country level as seems to be the orthodoxy at the moment. Rather, we suggest that ownership at both levels is not only essential and required but is mutually reinforcing.

## ***A Short Political and Economic History***

---

Uganda is located in the eastern region of Africa and occupies an area of about 241,500 square kilometers, of which 15.3% is open water, 3.0% permanent wetlands, and 9.4% seasonal wetlands. It is bordered by the Republic of Kenya in the east, Tanzania and Rwanda in the south, Democratic Republic of Congo (the former Zaire) in the west, and Sudan in the north.

Uganda is primarily an agrarian country, with agriculture contributing more than 50% of the gross domestic product (GDP). Agricultural activities are mainly supported by peasant (subsistence) farmers. The current government effort is towards modernizing agriculture, which entails transforming Ugandan society from agrarian to industrial. Apart from this major challenge, the transition period is certain to register both agricultural and industrial environmental problems.

The country’s average growth between 1966 and 1990 was the lowest in sub-Saharan Africa, basically due to political turmoil during this period. Furthermore, a high inflation rate undermined the economy. In 1996, the GNP per capita was estimated at only U.S.\$220. Thus, controlling the inflation rate has been a key preoccupation of government since 1986. Positive results have already been registered; for instance, the inflationary rate has been reduced from as high as 200% in 1987 to about 5% in 1996.

---

<sup>2</sup> Our conception of “ownership” as a “bundle” is no doubt influenced by the way modern lawyers think of property as a “bundle of rights” and not as most laypersons are likely to think of it as “thing-ownership.” This vocabulary in legal literature can be traced back to Wesley Newcomb Hohfeld, *Fundamental Legal Concepts as Applied in Judicial Reasoning and Other Legal Essays* (1923). For a modern explanation, see J.E. Penner, “The ‘Bundle of Rights’ Picture of Property,” 43 *University of California Law Review* 711, 1996.

Since 1987, the government of President Yoweri Museveni has been pursuing an economic reform program intended to achieve sustainable economic growth and stabilize the economy. The reform program seeks macroeconomic management with the objectives of bringing about financial stability by lowering the rate of inflation, reducing imbalances in external accounts, promoting economic growth, and instilling financial discipline. However, the government has also systematically put in place a very strong environmental aspect in its planning and structuring of the reforms.

### ***“In Their Own Words”: The Situation as Seen by the NOU***

---

This section is based on the Uganda NOU’s written response to our questionnaire. We have obtained the permission of the head of the NOU in Uganda to disclose it.

The NOU comes across as a self-confident institution that clearly understands its mandate. The response also gives the impression that the NOU is perched comfortably within the government hierarchy. The NOU reports, quite instructively, that its most important strength is the access it has to the top management of the National Environment Management Authority (NEMA) and other “top policy makers.” NEMA is the principal agency in Uganda for the management of the environment, and is mandated to coordinate, monitor, and supervise all activities relating to the environment. The NOU is a desk within NEMA. In terms of reputation, then, the NOU appears to enjoy the ready visibility that is crucial for some of the tasks that it has to carry out.

The NOU was created in 1992 and is a permanent entity but has no permanent staff. All the staff members who periodically work on NOU matters have other responsibilities within NEMA. The NOU names its most important and immediate priority as the enactment of ODS import/export licensing legislation. This will be part of “The Ozone-Depleting Substances Management Regulations, 2000” that is awaiting the approval of a cabinet committee on the environment. The regulations will also include a comprehensive licensing/permit system to curb the import of ODS into the country, especially as secondhand equipment. The legislation will require implementation by both the Customs Department and NEMA.

Among its greatest challenges, the NOU names lack of capacity and funds to do sufficient domestic networking and public awareness. It also quite truthfully mentions the need to involve all stakeholders in ODS phaseout efforts and the need to provide continuous training for refrigeration technicians and customs officials manning the major entry points. According to the NOU, there is also a need to enhance surveillance by the Anti-Smuggling Unit of the Uganda Police to detect illegal trade.

Both the NOU and the government were involved in writing the Country Program. UNEP contracted a consultant who worked with a national team that was constituted to collect basic data and information. The draft Country Program produced was studied and approved by the government before being submitted to the Multilateral Fund for funding. Clearly, there was a lot of involvement by both the government and the NOU right from the beginning. As it turns out, this set out the right level of engagement for the government and the NOU with ODS phaseout

strategies. To a great extent, this interaction between the implementing agency (UNEP), the NOU, the government, and other domestic stakeholders has persisted.

Two things in the questionnaire responses are striking, however. One is the low frequency of meetings between the NOU and other stakeholders domestically. The NOU only meets with these stakeholders “as need arises.” We interpreted this to mean that the NOU meets with the stakeholders only infrequently. Our interviews confirmed that meetings between the NOU and other stakeholders are indeed rare. This is surprising because, on a comparative basis, NOUs with far less a sense of ownership (judging from other parts of the questionnaire) have indicated that they have far more meetings than this. The second striking thing about the responses is that the NOU, though a permanent entity, has no permanent employees. Below, we deduce this is symptomatic of an uneven parceling of the bundle of “ownership.” A very strong constituency and awareness in environmental issues generally, quite paradoxically, might act to lessen rather than increase concern with the ozone layer. We explain why below.

### ***Stakeholders Involved in ODS Phaseout***

---

At least five actors/stakeholders are involved with ODS phaseout efforts in Uganda. Their roles and interactions with the NOU are described below. Where it seems appropriate, we supplement our observations with our analysis of what we thought was going on.

#### ***National Environment Management Authority (NEMA)***

Uganda is reputed to have some of the best environmental laws in Africa and possibly in the world. A number of African countries have adopted Uganda’s environmental laws, in particular the National Environment Statute 4 of 1995 (hereinafter NES).

NES’s Section 5 creates NEMA to be the principal agency in Uganda to coordinate, monitor, and supervise all activities in the environmental arena. Section 6 states that the main functions of NEMA *inter alia* are

1. to coordinate the implementation of government policy and decisions on the environment;
2. to ensure the integration of environmental concerns in overall national planning through coordination with the relevant ministries, departments and agencies of government;
3. to serve as liaison to the private sector and intergovernmental agencies of other states on issues relating to the environment;
4. to propose environmental policies and strategies to the Policy Committee;
5. to initiate legislative proposals, standards, and guidelines on the environment in accordance with this statute; and
6. to mobilize, expedite, and monitor resources for environmental management.

Section 51 imbues NEMA with the responsibility, in consultation with the lead agency, to undertake national studies and give due recognition to developments in scientific knowledge relating to substances, activities, and practices that deplete the stratospheric ozone layer and other components of the stratosphere to the detriment of human health. By dint of this section

also, NEMA is charged with making regulations, issuing guidelines, and instituting programs concerning

- the elimination of substances that deplete the ozone layer;
- management practices and activities likely to lead to the degradation of the ozone layer and the stratosphere; and
- the reduction and minimization of risks to human health created by the degradation of the ozone layer and the stratosphere.

Again, NEMA is required to consult with the lead agency in fulfilling its statutory functions under this part of Section 51. The lead agency in this case is the National Ozone Unit. In short, then, by virtue of Sections 5, 6, and 7, NEMA is the overall Authority responsible for all issues concerning the environment in Uganda. NEMA is headed by an Executive Director who reports to the administrative head of the ministry, the Permanent Secretary. Considering there are only five other Authorities within the ministry, it is clear that this is a very senior position within the ministry.

Ozone issues come directly under NEMA by virtue of Section 51. The NOU is created and vested with powers to act on ozone issues as the lead agency referred to in this section. This, in our analysis, has turned out to be both a blessing and a setback. It is profoundly helpful and effective that the NOU was created to fit within the contours of a larger statutory body that has both institutional and political clout. This is far better than in many countries that had to found NOUs “from scratch.” However, this advantage turns out to have a downside too. The existence of an institutionally powerful statutory body that has the broad mandate to deal with all environmental issues in the country also dampens the need to found an institutionally powerful NOU. This explains why the Uganda NOU is established as a “desk” within NEMA. Institutionally this makes sense, but in terms of the resources that are made available to the NOU itself to operate, it is somewhat problematic.

In our view, this situation explains both the profound sense of “ownership” that has been demonstrated by Uganda at the national level, and the apparently diluted sense of ownership seen at the NOU level. Nationally, NEMA is a powerful and instrumental player with clear statutory mandate that includes the ozone portfolio. Internally, however, the NOU is but one of the many tasks that NEMA must carry out within the constraint of time and resources, such as staffing. It is then no surprise why the NOU, though a permanent unit, is only manned by temporary staff. This also may explain the low frequency of meetings between the NOU and other stakeholders.

### ***National Ozone Unit***

In Uganda the NOU desk links Uganda/Uganda Government with the Secretariat of the Montreal Protocol. Its main focus is ODS phaseout. ODSs are used in various industries. According to the NOU, Uganda imports at least 15 metric tons of ODSs annually. It is noteworthy that Uganda does not produce ODSs, but rather consumes them. The NOU identifies the users of these substances and informs them of the phaseout period and what is expected from them in terms of reductions.

Because Uganda is a consumer of ODS, and not a producer, it appears obvious that the most effective way to phase out ODSs in the country would be to regulate the importation of ODS into the country. As indicated previously, such a regulation has already been drafted and is awaiting approval by a cabinet committee. However, the fact that it is not yet in place eight years after the formation of the NOU is not encouraging. There does appear to be a good explanation for the delay. The delay to enact the statute came as a result of the fact that there needed to be a change in the institutional arrangements. At that time, the Directorate of Environment, which was part of the Ministry of Natural Resources, was replaced by NEMA.

The drafting of the ozone regulations was funded in part by a UNEP project. The provisions, which relate to the permit system, were written after studying the regulations in Canada and Sweden as well as the Montreal Protocol and its amendments. According to the consultant who helped draft the regulations, work started as early as 1993.

The draft regulations themselves appear to be very well thought out. They reflect ownership, innovation and seriousness in two ways.

1. The regulations were drafted by consultants with heavy input from the NOU and many stakeholders. Since the regulations were drafted, two consultative meetings have been held. The first one, held in October 1999, involved members of the tourism sector, breweries, hotels, and the refrigeration industry. The second one took place last year. It was attended by permanent secretaries from Kenya, Tanzania, and Uganda. Hence, in the drafting of the draft regulations, very broad consultations have been made.
2. The draft regulations propose a twin system of import permits and tax incentives to control the importation of ODSs into the country. Both systems require the cooperation of importers and Customs authorities, so consensus building, domestic networking and public awareness are essential. A lot of training will be needed for Customs officers in order to equip them with the skills and capacity to detect ODSs at points of entry. Also, far more targeted and vigorous public awareness campaigns will have to be carried out to inform the importers about the tax incentives and penalties. Both these measures will be necessary to substantially alter behavior and patterns of ODS consumption. Also, both will require considerable noninvestment funding. Yet, owing to the fact that ODS concentrations in imported equipment tend to be dispersed, it is likely that the results of the efforts in terms of ODS phaseout might not register readily. We argue in our conclusions below that this kind of analysis, which has been advanced before to promote investment measures over noninvestment measures, is not necessarily sound.

We now briefly return to the issue of the interaction between the NOU and other stakeholders. The NOU is involved in public awareness campaigns and in training refrigeration and air-conditioning technicians. In this latter exercise, it acts in conjunction with the Uganda National Association of Refrigerators and Air Conditioners. Indeed, this stakeholder collaborates and interacts most closely with the NOU. The NOU also reported that it collaborates with the Multilateral Fund and the implementing agencies. However, the collaboration with the Multilateral Fund is mainly limited to the Fund, reminding the NOU about its obligations should it fall behind on set phaseout times.

The relationship between the IA and NOU also appears to be very tenuous. This is in part explained by the fact that most of the projects that IAs deals with are investment projects. Uganda has received no funding at all for investment projects. The tenuous relationship between the IA and the NOU may be reflective of the general institutional weakness of the NOU itself.

### ***Implementing Agencies***

UNEP has been involved in an institutional strengthening project of the NOU. The UNDP is involved with the on-going preparation and implementation of a National Program for Recovery and Recycling of Refrigerants in Uganda in conjunction with UNARA, while UNIDO is active in project preparatory assistance in the methyl bromide sector together with The Uganda Flowers Exporters Association.

### ***Uganda National Association for Refrigerators and Air-Conditioners (UNARA)***

UNARA states that some of its aims, objectives, and roles are

1. to encourage members to keep good records of the qualities and type of refrigerants and equipment imported, purchased locally, sold, and used, and report these data and information periodically to the ODS Unit (NEMA);
2. to promote high-quality craftsmanship and standards related to the environment, safety, health, maintenance, and servicing of refrigeration and air-conditioning equipment;
3. to promote good practice for the prevention of refrigerant emission through recovery, recycling, and leak detection, to prevent unnecessary use of CFCs.
4. to create awareness among members through seminars, meetings, and audiovisuals; and
5. to serve as a source of information on leak detection and recycling/recovery equipment.

In order to meet these and other objectives, UNARA engages in public awareness and information exchange in the field of refrigeration and air conditioning. It also collaborates with the NOU in developing codes of good practice for refrigeration and air-conditioning personnel and enterprises. UNARA has also assisted in identifying and assisting NEMA on training needs of the refrigeration and air-conditioning sector. It participated in the formulation of the Refrigerant Management Plan and assists in attempts to implement it with “an emphasis on recovery/recycling and leakage detection.”

UNARA confirmed that it intends to conduct evening training classes in refrigeration at the Vocational Training Institute, Lugogo in Kampala. This training is to take place under the auspices of the Refrigerant Management Plan. The German Development Agency (GTZ) is providing the training equipment. In addition, UNARA is writing a national training program for recovery/recycling, which is funded in part by the UNDP.

Unfortunately, UNARA requires seed money to launch the training program. It is intended that recovery equipment be set up in four locations, namely Mbarara, Jinja, Kampala, and Entebbe. However, recycling will be done in Kampala. As is clear, UNARA plays a very significant role in ODS phaseout in Uganda. UNARA has not yet acquired offices, however, though it intends to

do so at the VTI in Kampala. This is due to financial constraints, and is perhaps a commentary on the fact that noninvestment measures such as the one UNARA engages in are not highly privileged or valued.

UNARA provides a focal point officer in the NOU who is an expert in refrigeration. He advises NEMA through the NOU on issues relating to ODS. UNARA may be said to have benefited from the Multilateral Fund in the form of enabling its officers to attend training workshops and conferences abroad. The training received from attending these courses and meetings has enabled UNARA to train others in safe refrigeration practice. The amount invested in training trainers in this way is ploughed back into ODS phaseout efforts sooner rather than later, which should make a stronger case for funding noninvestment measures.

### ***The Meteorological Department***

The Meteorological Department is in charge of climate change issues in Uganda. It has, however, monitored since the early 1990s the way the ozone layer affects the climate. However, their ability to collect comprehensive data and do other ozone-related activities is hampered by lack of funds. They report that they discuss ozone-related issues with the NOU “once in a while.” They were also quick to point out that they “just give advice and stop there.” Any policy issues have to go through “the normal channels, i.e., at the level of the Minister in Charge of the Environment.”

Thus there is no close contact between the Meteorological Department and the NOU. Clearly the NOU could benefit from such contact. The responses from this department give the impression that ODS phaseout issues are the “prerogative” of the NOU. This calls for a more concerted effort to spread the sense of “ownership” to other key stakeholders.

### ***Other Stakeholders***

As mentioned previously, the NOU has also collaborated with the German Development Agency, which is involved with training technicians in the refrigeration sector. The NOU named The Flower Growers Association as one of the private stakeholders that it consults with “as need arises.” However, it is not clear in what circumstances the need arises. This association together with the consumer organization, hotels, brewers, and prominent members of the fish industry were consulted during the writing of the Draft Ozone Management Regulations.

### ***Discussion, Conclusions, and Implications for Policy***

---

The first conclusion we can draw from this case is that “ownership” is a complex and multifarious concept—one that is best “bundled.” In other words, for ownership to be effective, it needs to be parceled out among the different stakeholders. Each of the stakeholders must have the capacity and the latitude to perform its role. The “ownership incidents” we described above, must be spread to all stakeholders involved in ODS phaseout. Ownership should not be

concentrated in any one of the actors. The question therefore should not be framed as one of ownership to the government *or* to the NOU but rather as ownership to the government *and* to the NOU *as well as* other stakeholders. All the levels of ownership are prerequisites for effective ODS phaseout strategies. The fact that one seems to mutually reinforce the others should be a further incentive to concentrate on them all and not just one.

Our second conclusion explains the somewhat paradoxical situation in Uganda where we observed a very strong sense of ownership at the national level but somewhat weak sense of ownership at the NOU level. In our view, this is explained by the existence of a very influential and powerful environmental agency. Contrary to expectations, when a country has a powerful and well-established environmental institution, it does not follow that ozone-related issues will receive as much attention as they should. We call this the “snob effect.” The fact is that the strong overall Environmental Authority dampens the functions and role of the NOU. The NOU becomes a far less important entity. The situation might be very different in a country where, for example, there is no powerful environmental organization and an NOU has been built “from scratch.” Such an NOU would not have to operate in the shadows of the overbearing larger organization. This conclusion may not apply to all NOUs. However, we think that it suggests the need to strengthen ownership at both the national and the NOU levels. In Uganda, placing an emphasis on ownership at the national level only might not improve the effectiveness of ODS phaseout strategies. If ownership needs to be strengthened at all in this case, it should be at the NOU level.

Our final point is more of a general speculation that would require more theoretical and experimental inquiry than we were able to do in this study. It relates to the oft-cited fact that 20 countries that consume more than 80% of CFCs in the developing world met their freeze requirement, and almost all of them are on their way to meeting the subsequent control measures. Looking at these facts, it is tempting to conclude that it is more cost-effective to spend Multilateral Fund funds on investment projects than noninvestment projects.<sup>3</sup>

However, this argument is not entirely correct. Given that most investment projects require installing alternative technology, the investments are really one-time unrepeatable changes as far as ODS phaseout is concerned. Hence, although they may initially yield spectacular outputs in terms of the ratio of investment dollars to ODS phaseout achieved, such a rate may not be sustainable. For small countries that consume and do not produce ODS, it is imperative that more funds be spent on noninvestment projects even though it may appear at first that the spent-dollar-to-ODS-phaseout ratio (or “output-per-input”) is less spectacular than that yielded by investment projects. This is because noninvestment measures have the capacity to yield repeatable and continuous effects. In any event, results of noninvestment measures such as capacity building, institutional strengthening, training and public awareness may take some time to emerge. There is a time-lag between, for example, training and awareness programs and the translation of that input (knowledge) into output (ODS phaseout). The long-term results thus may compensate for the initial lower output-per-input ratio.

---

<sup>3</sup> As Steve Gorman of the World Bank has correctly pointed out in private correspondence with Ambassador Rasmus Rasmusson, it is actually an unfortunate misnomer to distinguish these two genre of projects as “investment” and “noninvestment.” The terminology implies that the latter projects do not involve investment, which is, of course, untrue. Gorman prefers the term “capacity building” to “noninvestment.”

In other words, the output-per-input ratio for investment projects might be higher in the short term but three reasons suggest that we should continue to put more emphasis on noninvestment measures in small countries.

1. First, the reality is that most of the small countries that consume but do not produce ODS have limited abilities to concentrate on investment projects. This is especially so for countries that mainly consume methyl bromide, for which there is no alternative.
2. For most of these countries, the bulk of ODS is consumed in a much more dispersed and diffused form, hence a one-time investment project is likely to register much less success in terms of output-per-input ratio as compared to industrial countries where ODS consumption tends to be more concentrated.
3. Lastly, the law of diminishing returns implies that the spectacular output-per-input ratio associated with investment measures cannot be sustained in the long run although it may be necessary for some industries. Once a particular investment project has been finalized, no more output in the sense of ODS phaseout can be expected from that project. A noninvestment project, on the other hand, will continue yielding results for an extended period of time albeit after some delay in positive correlation.

In the end therefore, we believe it is best for Uganda (as for other A5Cs) to focus on noninvestment projects.

# Chapter 11

## Brazil Case Study

*by Rasmus Rasmusson<sup>4</sup>*

### *Summary*

---

Brazil's main challenge regarding the phaseout of ozone-depleting substances is meeting its CFC reduction targets by 2005. To meet this challenge, Brazil must swiftly launch a Refrigeration Management Plan, determine training needs, and apply legislation and adequate resources to the reduction effort.

Also, the interministerial Executive Committee for Ozone Protection (PROZON) should now include the Ministry of Finance, for two reasons. First, the Ministry of Finance is responsible for Customs, and Customs officials must be trained to identify ODSs and enforce import/export legislation. Second, including the Ministry of Finance would improve the country's efforts to complement MLF funds with indigenous resources. These two actions would underline Brazilian ownership of phaseout.

The World Bank ceased activities in Brazil in 1997. This action was related to a disagreement over burden-sharing with the Bank's local counterpart, FINEPA. Having the Bank return as an implementing agency would increase Brazil's ability to meet phaseout deadlines.

Since most of the ODS reductions need to take place in small- and medium-sized enterprises, a sector approach is needed. This in turn requires local intermediaries of two kinds: first, associations of industry, consumers, and/or technicians, and second, financial institutions.

The Brazilian NOU is a confident, well-staffed, and proud unit with able leadership. It seeks partnerships with stakeholders, but needs to exercise caution to make sure those partners have the same agenda as the NOU. For example, an alliance with the Ministry of Health led to a very useful awareness campaign on TV about the dangers of skin cancer. A seminar with distributors, however, supported by an industry, suggested an ozone-damaging HCFC compound as an alternative to CFC. That was not the right message.

Considerable networking has taken place and the NOU feels good political support. In 1997, the NOU was transferred from the Ministry of Commerce and Industry to the Ministry of the Environment. It is more at home in the Ministry of Environment and receives more attention from the Minister.

---

<sup>4</sup> The author wishes to thank Fernando Vasconcelos de Araujo, head of the Brazilian NOU, and his collaborators Evandro Soares and Marcio Marques Perrut, for giving generously of their time and providing very useful information. The author remains, however, responsible for the observations, conclusions, and recommendations in this case study.

Brazil has within it great resources. Assistance from the Multilateral Fund could be complemented by the taxation of ODS use, focused on the well-to-do strata of the population. Also, now that Brazil's neighbors are unlikely enemies, resources for defense could be transferred to the defense of human life by engaging in measures that promote phaseout.

## ***Introduction***

---

Brazil is the largest and most populous South American country, with 169 million inhabitants. It is a federal nation in which the states have considerable autonomy. The states must, therefore, take greater responsibility for planning and implementing the phaseout of ozone-depleting substances in cases where the central government cannot exercise complete authority and control.

Brazil is the world's fifth most-populous country, after China, India, the U.S., and Indonesia. In January 2000, Brazil was classified as an upper-middle-income country, together for instance with Chile. IBRD 2000 World Development Indicators show a GNP for Brazil of U.S.\$767 billion, a per capita income of U.S.\$4,630, a PPP GNP per capita of U.S.\$6,460, and an annual growth rate of 1.7% from 1991 to 1998. Agriculture was only 8% of GDP. The average annual inflation between 1990 and 1998 was no less than 347%, but it has since stabilized.

Brazil, Argentina, Uruguay, and Paraguay together form the "Mercosur," moving towards a free trade area with intensified trade possibilities. Brazil's links with the north—including Venezuela and even the less-developed northern part of Brazil and the Amazonas—are weaker due to the distance. (Shipping from Venezuela to Amsterdam may be quicker than between Venezuela and Brazil.) The Andean range is also an obstacle to communication with the Andean pact countries such as Peru and Colombia.

After the demise of President Collor, who was persecuted for corruption in an evolution of stronger democratic institutions, the long reign of President Cardoso has promoted economic development and reforms at a reasonable and pragmatic pace. Extensive and intensive government participation in industrial and commercial ventures has been downsized. The large air industry firm Embraer is now doing well and is considered the third-largest producer, with a focus on smaller planes and combat aircraft. Inflation, as mentioned above, has been stalled.

The central government bureaucracy is given good marks for high standards. The Ministry for Foreign Affairs has remained professional through several changes of regime, including periods of military government.

## ***ODS Data for Brazil***

---

Brazil, China, India, and Indonesia are by far the biggest consumers of ozone-depleting substances in the developing world. China and India remain large producers of ODSs as well, while Brazil has phased out CFC production through an agreement between government and industry and now has only CTC production.

A government report of June 2000 identifies Brazil as the third-largest ODS consumer in the world after China and India, with an annual average consumption of some 65 gram per capita and a baseline consumption of Annex A Group 1 substances equal to 10,521 tons per year. Present consumption is approximated as follows. (The middle column contains 1998 data from the recently issued publication *BMZ/GTZ Production and Consumption of ODS 1986-98*. The right-hand column contains Brazil's own estimates for 1999. The difference in HCFC estimates is startling.)

ODS	BMZ/GTZ Data, 1998	Brazilian Data, 1999
CFC	9543	9127
Halon	10	10
CTC	-195	662
HCFC	485	7363
Methyl Bromide	578	459

- All data are in tons.

An overview of Multilateral Fund assistance indicates that Brazil has received slightly more than U.S.\$49 million for investment projects, U.S.\$6.5 million for noninvestment projects, and within that latter amount U.S.\$673,000 for institutional strengthening. Brazil and Indonesia appear to have received relatively less than other developing countries, whereas India, Egypt, and Argentina have received more (Argentina in absolute terms roughly at par with Brazil). The relatively low levels for Brazil might be explained, as is suggested in the Brazilian response to the questionnaire, by the absence of an IBRD presence in the country. (The IBRD is the largest implementing agency for the Montreal Protocol.) It should also be noted, however, that India, Egypt, and Argentina are large *producers* of ODS—India is the second-largest in the world after China—which may also explain the relative amounts disbursed.

### ***Basic Information from the NOU***

---

The survey response from Brazil identifies the NOU as part of the Ministry of the Environment. The NOU's immediate superior is a government Director, who in turn reports to the State Secretary immediately under the Minister of the Environment. The NOU has an Interministerial Committee for the Protection of the Ozone Layer (PROZON). The NOU is a permanent entity, created in October 1991, with two permanent staff members and three long-term consultants. It has a budget of its own, with the MLF as the main source of funding and the government contributing with logistics, facilities, and additional staff (the two permanent officers).

The NOU developed the latest Country Program with the support of consultants to each ODS consumer sector. These consultants were proposed by the relevant industrial associations and selected by the NOU on the basis of some familiarity with the Montreal Protocol. Thus, the NOU had a reasonable amount of ownership of this Country Program. According to the NOU, however, the Country Program now needs to be updated to include a precise strategy for phaseout. This will be an important opportunity to demonstrate ownership.

The NOU holds monthly stakeholder meetings with the Brazilian Association of the Industry of Polyurethane (ABRIPUR); quarterly meetings with other industry representatives, the Ministry of Industry, and chemical importers and suppliers; and annual meetings with the ODS Users Association. The NOU considers the Ministry of Industry (External Trade Secretariat) and the industry itself (producers and consumers of ODSs and industrial associations) as the most important stakeholders in cooperating with the NOU in phaseout. Remaining CFC production was phased out in August 1999. CTC production of an unknown quantity remains the only ODS production in the country. (CTC is used as feedstock in ODS production and as a solvent. Some 662 tons of CTC were estimated to be consumed as process agents in 1999, and 800 tons in 2000.)

The Brazilian survey response ranked the sectors in which phaseout is most difficult as follows. In some cases the important stakeholders relating to that sector are in parentheses.

1. CFCs in the refrigeration servicing sector (the most-frequent top alternative given by all respondents)
2. commercial refrigeration
3. processing agents (i.e., CTC)
4. foam (ABRIPUR)
5. aerosols (the Ministry of Health and the Brazilian Association of Pharmacies)
6. firefighting (the Brazilian Association of Fire Extinguishers)
7. methyl bromide/fumigants (the Brazilian Agricultural Research Corporation)
8. solvents (the Brazilian Industry Association of Chemicals)

It should be noted that while phasing out CFCs might cost U.S.\$5 per kilo, phasing out CTC costs about U.S.\$18 per kilo. So the phasing out of CTC appears to be a considerable challenge in terms of getting a handle on producers and financing the costs of phaseout. Also, methyl bromide is well down on the list due, most likely, to the fact that agriculture is a small part of Brazil's GDP and there has been good progress in introducing ozone-friendly alternatives.

In its narrative on obstacles to ODS phaseout, the NOU places insufficient funds from the Multilateral Fund in first place. (Bear in mind that Brazil is a high-volume consuming country and that the IBRD is not working as an IA in Brazil at present.) In a subsequent dialogue with the NOU, a third, possibly overwhelming, obstacle was identified: the lack of a refrigeration management plan to tackle CFC consumption in the refrigeration sector. This resulted from the lateness of the Executive Committee in deciding on guidelines for RMPs for high-volume consuming countries. Only at the ExCom meeting in December 2000 were funds approved for an RMP for Brazil. It might take two years to design an RMP, and only thereafter could the phaseout work commence, involving for instance the training of tens of thousands of technicians. The tentative conclusion of these observations is that an RMP must be jump-started if Brazil is to have a chance to meet the 2005 deadline of a 50% reduction in CFCs. At the same time great efforts are needed to identify and "harness" all those whose methods are to be changed. This will require ownership at many levels.

The NOU named the Brazilian ratification(s) of (the Vienna Protocol and) the Montreal Protocol in 1990 as the most effective initiatives aiding the phaseout of ODSs. These ratifications are said to have contributed to several activities before the formal adhesion act. Other initiatives

mentioned by the NOU include the Country Program of 1994, the phaseout of the CFC production sector in 1999, ODS phaseout in mobile air conditioning in 1987, ODS phaseout in the aerosol sector in 1989 and 1990 (apparently an initiative of industry itself at an early stage), and ODS phaseout in the solvent sector in 1997 and 1998.

The Brazilian NOU's view of regional network meetings, in this case the meetings of the South American and Caribbean Regional Network, is not unambiguously positive. There are a number of natural explanations for this, one being that Brazil is very large and may not be able to benefit from the experience of smaller countries.

An external trade/commerce control system was established in 1998 by the Ministry of Industry. However, as long as the Customs Service and its officers are not trained, it is doubtful that loopholes in the system can really be closed.

In September 2000, a resolution by the National Council for the Environment (CONAMA) prohibiting the use of certain substances and including a phaseout plan was approved after a year and a half of negotiations. CONAMA meets four times a year and has some six additional meetings. It has the special capacity to pass laws, and it appears to include almost all major stakeholders, including state governments, the private sector, NGOs, and so forth. The NOU attaches great importance to CONAMA, and attributes considerable democratic qualities to it. The Minister of the Environment, acting for the NOU, can introduce proposals in CONAMA. CONAMA has many competing environmental concerns on its agenda, however.

The Interministerial Executive Committee (PROZON) is coordinated and chaired by the Minister of the Environment, and was created by a Presidential Decree of December 19, 1995. It includes representative of six other ministries:

- Development, Industry, and External Trade,
- Foreign Affairs,
- Science and Technology,
- Planning,
- Health, and
- Agriculture.

PROZON has regular meetings to advise and guide the NOU. Some sharing of executive responsibilities between ministries takes place at these meetings, which are recorded.

Another important body in networking, ownership, and control is the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), the only organization that can register and approve firms applying for permission to import or export ODSs. Data on ODSs is supplied by IBAMA, the industry, and the Ministry of Commerce and Industry. The NOU reviews these data critically, and attempts to crosscheck them. It would appear, however, that with three bodies or groups responsible for reporting, there may be both overlaps and omissions.

It is likely that all of the organizations mentioned in this section must network more in order to fill possible gaps in the design and implementation of laws, and in the identification of ODS sources and their phaseout—a mammoth task in a big country like Brazil.

In summary, the NOU is of the opinion that the biggest challenges now can be ranked thus:

- Secure a refrigeration management plan as the blueprint for action in phasing out CFCs in the refrigeration sector.
- Abolish the implementing agency shares so that the IBRD can again become active in Brazil
- Approve new investment projects to phase out about 5000 tons of ODSs in order to be in compliance with the obligation to reduce CFCs by 50% by 2005.

Brazil seeks institutional strengthening support in order to reduce some 4,500 tons of ODP by 2005 to meet the 50% reduction by that year. It appears that CONAMA needs to improve ODS import restrictions (and other legislation) to which the institutional strengthening project would contribute.

Refrigeration servicing stands out as a challenge of prime importance. This is the biggest sector that has increased its CFC 12 consumption. Since no project in this respect seems to have been approved, further progress seems critical.

A most important legislative instrument is the 1988 government decree prohibiting the use of ODSs in aerosols and the 1998 official communication no. 37/98 creating a system for regulating the import and export of ODS. After this came the 14 September 2000 law (Resolution) of CONAMA updating the phaseout deadlines and certifying ODS import restrictions. This law, however, took a year and a half to process..

Phaseout is mainly assisted by UNDP and UNIDO. The IBRD ended its involvement in Brazil in 1998. It appears that this cessation of cooperation had to do with a difference of opinion on the role and costs of the Brazilian Financial Agent or intermediary, FINEP. The IBRD normally works through such a national agency as an expression of wanting to transfer “ownership” to the developing country. The difficulties in agreeing are not quite clear, but had to do with the level of servicing charge of FINEP, and the Bank wanting legislation. Finally, Brazil will consider, when appropriate, increasing the price of CFC through taxation.

## ***Observations from the Visit to Brasilia***

---

### ***Ownership, Awareness Raising, and the Promotion of Alternatives to ODSs***

A visitor arriving in Rio de Janeiro in the height of summer will certainly be struck by a most important aspects of Brazilian life and culture: worshipping the sun on the beaches of Copacabana and Ipanema. Here the Brazilian upper and middle classes, representatives of the perhaps 100 million Brazilians who in many cases enjoy standards of living well at par, and in some cases far above, those in Europe and North America, enjoy their vacation or their weekends. Are they aware of the risk of skin cancer because of the increased ultraviolet rays of the sun, due to the thinning of the ozone layer? Would they be willing, in order to protect themselves and their lifestyle, to contribute in some manner to ODS phaseout, as a matter of their own self-interest?

The first question was partly answered by the Brazilian NOU. The NOU secured from the Ministry of Health a contribution of U.S.\$25,000 to create an informative film on sunbathing and the ozone layer, which is now freely available and frequently shown on television. Hence, an important awareness campaign had been started, reflecting an important partnership between two ministries, Health and Environment. The Ozone National Day celebrations, involving the press, industry, and the Green Party, is another important partnership.

The second question is more difficult to answer. The NOU referred to the seeking of partnerships with enterprises who could contribute to awareness-raising seminars of the type recently arranged by the NOU and DuPont. There were three seminars involving some 60% of all distributors. With a total of 150 distributors covering 40 technicians each, we have a target group of 6000. At one of these seminars, at which one of the officers of the NOU was present, the group discussed alternatives to CFC. The alternative promoted by DuPont was an HCFC compound of low ODS value but still subject to future phaseout obligations.

The following reflections on resources for ODS phaseout through other partnerships come from the author and do not reflect suggestions of the NOU.

1. *Levy a tax on ODSs and employ other measures to increase the price of CFCs.* In this way, Brazil could use the power of the market to help phase out CFCs. The cost of CFC can be raised in two ways. One is through taxation of its use, affecting the well-to-do strata of the country (since poor people do not use ODSs). The other is by implementing strictly the import control licensing system now functioning at the Brazilian Institute of the Environment and Natural Resources, IBAMA, whereby all CFC imports must be authorized, and quotas to each importing company established. The corresponding resolution of CONAMA would for its full implementation presuppose training of Customs Officers. The two measures taken together should raise CFC prices and increase internal resources for phaseout.
2. *Reallocate some Armed Forces expenditures towards the protection of human life, in view of the decreasing threat of war.* Such partial reallocation could free resources for urgently needed awareness raising and other measures to counter the use of ODSs, in the interest of protecting the health of citizens. The world is already used to the military engaging in environmental protection in some countries, or mitigating the effects of environmental disasters. The Brazilian military could now pave the way for a philosophy of defense of the well-being of the individual, whose security the military is responsible for.

### ***Ownership and SMEs***

Small and medium-sized enterprises, SMEs, consume as much as 67% of all ODSs in Brazil. The NOU is busy trying to find methods to reach this large strata of entrepreneurs in the refrigeration, solvent, and foam sectors. The Brazilian Service to Support Micro and Small Enterprises (SEBRAE) is focused on increasing the competitiveness of SME products and services. With adequate pressure for market preferences for non-ODS products, SEBRAE could help phaseout. SMEs probably have a share of 77% of total ODSs consumed in the refrigeration sector, 66% in the solvent sector, and 53% in the foam sector. It is believed that there may be altogether some 8,000 small enterprises utilizing ODSs. A sample of 5% of those has been made to estimate their

consumption, and from that estimate an opinion can be formed about total consumption. Taking the three sectors one by one gives the following openings for ownership promotion through intermediary action.

With some 150 refrigeration distributors working with some 40 technicians/companies each, that makes a total of 6,000 refrigeration servicing firms to reach out to. Another estimate says there are 4,000 firms in commercial refrigeration and domestic refrigeration and air conditioning (some of them in both sectors), with another 2,000 firms dealing with the servicing of mobile air conditioning. The additional question is, how big is the informal sector in servicing, and how can they be reached? Magnifying the sample, it is estimated that the refrigeration and refrigeration servicing sector of small firms (excluding the informal sector?) consume some 4,500 tons per year, with the large part, more than 4,000 tons, referring to servicing.

The solvent sector was, according to previous information, heavily squashed in a rapid ODS phaseout some years ago. It is now estimated to encompass some 600 firms (or 400, depending on the source) who are still using, it is presumed, ozone-depleting solvents for cleaning purposes. They are estimated to have an annual consumption of 50 tons. As a comparison, China is estimated to have some 7,000 firms active in solvents use, an indication that the solvent-using sector in Brazil has been drastically reduced.

The SME foam sector remains large. It produces refrigerators, automotive refrigeration, and furniture and bedding. It is the second-largest sector in Brazil with some 35% of ODP consumption. This consumption may amount to something like 3,600 tons per year, and most of this is within refrigeration. Out of about 600 firms in this sector, some 500 are SMEs.

The challenge, then, is twofold. The first challenge is finding channels to reach all these units with information, suggestions, technology, and finally conversion. The second is to finance these operations.

It has already been stated that it took a long time for the Executive Committee to establish guidelines for refrigeration management plans for higher-volume consuming countries like Brazil. Only now is there the go-ahead to make such a plan. If it were to take two years to develop the plan (a likely guess), Brazil would already be behind schedule in phaseout. A possible remedy for greater speed is that proposed in Chapter 5 of this report, mobilizing two kind of intermediaries.

- The first is “association” intermediaries like SEBRAE and associations of the different firms by sector. The challenge here is great. Even a small country like Sweden once had problems in arranging this, and identifying for instance all refrigeration technicians. Such associations can channel and spread advice on technology, based on “the stick and the carrot.” To put this in concrete terms: Firms transferring to non-ODSs before a certain date will receive assistance, while those after will be fined and possibly not receive assistance.
- The second is financing intermediaries who can help the government and its NOU channel resources for conversion, and seeing to it that milestones are met. Such arrangements are favored by the World Bank.

Ownership constitutes the ability to start such a process of consultations and implementation, with all parties playing their roles in tandem. It will need strong involvement also of the states, and it will need the pressure of an informed public. Here is a great challenge for the government and its NOU in “bundling out” ownership.

### ***Production of CTC***

As mentioned previously, Brazil has phased out all CFC production. Production of CTC remains. Brazil is obliged to phase out 85% of this consumption, measured as 1998-2000 average level, by January 1, 2005. In 2000, consumption was estimated at nearly 800 tons after growth for a few years. CTC is used as a process agent, and is produced by only one company.

### ***Stakeholders Outside the Nation***

As for indigenous alternatives to ODSs, the NOU notes that the MLF Secretariat does not encourage such inclusion in Country Programs. If the Secretariat were to encourage this, it would promote ownership and in a big country like Brazil, it seems likely that some useful solutions could be presented.

A bilateral Halon Bank project with Canada did not work because a state government that had engaged Canada was not able to deal with national priorities. This may have been an example of lack of communication between states and central government. The state concerned should have informed the government of its interesting and useful dialogue with Canada, so that the venture could have been given national significance, even if started on a test basis at a state level. One could also argue that attempts should have been made to elevate these proceedings to the central government level, and utilize the momentum gained.

Bilateral contacts are now sought with Germany.



# Chapter 12

## India Case Study

*by Chitra M. Kumar  
with the assistance of Archana Negi*

Throughout the Montreal Protocol negotiation and implementation process, India has argued that the terms of the agreement are biased against developing countries. Phaseout timetables, though slightly more lenient for A5Cs than for developed nations, penalize countries with historically miniscule amounts of ODS consumption to counteract the environmental damage caused by developed countries. Further, patent laws perpetuate the existing institutional inequalities by allowing multinational corporations (MNCs) based in developed countries to monopolize the market for non-ODS products, claiming scientific developments as proprietary.

Despite India's vocal opposition to the bias in the terms of technology transfer and the like, little has been done to meet India's remaining phaseout needs. Trade policies are particularly important for India because it is an ODS producer as well as consumer. Implementing agencies insist that they are unable to mandate changes in the actions of private industries and instead look for alternative resolutions, such as funding and political incentives to promote timely, cost-effective phaseout.

Nonetheless, at the national level, India has taken its responsibilities as a signatory to the Montreal Protocol and London Amendments very seriously and has displayed significant commitment, or ownership, to its phaseout strategy. The NOU as well as the government has repeatedly reiterated India's commitment to meeting its obligations under the Protocol. Various Ministers of Environment and Forests have stressed India's commitment to the protection of the ozone layer on the occasion of the International Ozone Day. Indeed, India's success at reducing ODS consumption thus far has enabled the NOU, referred to as the Ozone Cell (OC), to identify phaseout hurdles early enough to confront them before the 2010 target date.

This case study was carried out to facilitate understanding of the NOUs control over treaty implementation and addresses the following:

1. The successes and challenges of India's Ozone Cell with relation to ownership
2. Proposes steps that ExCom and the MLF Secretariat can take to support India's phaseout efforts more effectively

As the second most populous nation in the world harboring potential for tremendous ODS consumption, India's needs can hardly be ignored. Leveling the playing field in whatever means possible is vital to achieving the Montreal Protocol's goals.

### ***General Background on India and the Case Study***

---

India, the seventh largest country in the world (by area), covers 32,87,263 square kilometers. It lies entirely in the northern hemisphere and its mainland extends between latitudes 8°4' and 37°

6° north, longitudes 68° 7' and 97° 25' east and measures about 3,214 km from north to south between the extreme latitudes and about 2,933 km from east to west between the extreme longitudes. It has a land frontier of about 15,200 km and a coastline of 7,517 km. Countries that share a common border with India are Afghanistan and Pakistan to the northwest, China, Bhutan and Nepal to the north, and Bhutan and Bangladesh to the east. Sri Lanka is separated from India by a narrow channel of sea—the Palk Strait. The mainland comprises four physical regions, namely the great mountain zone, the plains of the Ganges and the Indus, the desert region and the southern peninsula. The climate of India may be broadly described as “tropical monsoon.” With a wide range of climatic conditions from the torrid to the arctic, India has rich and varied vegetation divided in eight distinct floristic regions. India is ranked tenth in the world and fourth in Asia in plant diversity. India also has a great variety of faunas, numbering 81,251 identified species.

India's population as of 1 March 1991 (i.e., according to the last census) stood at 846.30 million with 439.23 males and 407.07 million females (it has now crossed 1 billion). The second most populous country in the world, India accounts for only 2.42% of the total world land area but is home to about 17% of the world's population. The population density was 267 persons per square kilometer in 1991. The 10 heavily populated districts of the country are Calcutta, Chennai, Greater Mumbai, Hyderabad, Delhi, Chandigarh, Mahe, Howrah, Kanpur and Bangalore (average density of these districts is 6,888 persons per kilometer).

India is a Sovereign Socialist Secular Democratic Republic with a parliamentary system of government. The country gained its independence from British colonial rule on 15 August 1947. The Republic is now governed by the Constitution, which was adopted by the Constituent Assembly on 26 November 1949 and came into force on 26 January 1950.

Indian economy is still predominantly agricultural. About one-third of the national income is derived from agriculture and allied activities employing about two-thirds of the workforce. The national income in 1996-97 was 10,08,188 crore rupees (approximately U.S.\$252 billion, using U.S.\$1 = 40 rupees). India has taken major initiatives to diversify its export base. Exports cover over 7,500 commodities to about 190 countries, covering a wide range of items of agricultural and industrial sectors as also various handicrafts, handloom, cottage, and craft articles. Imports take place from about 140 countries and have also increased substantially. The bulk of imports comprise items like petroleum, petroleum products, fertilizers, precious stones, raw materials, consumables, and intermediates for industrial production and technological upgrade. The value of total trade was about INR 2,77,839.28 crore (approximately U.S.\$69.46 billion) in 1997-98.

### ***The National Ozone Unit: History and Functioning***

Consequent to its accession to the Montreal Protocol, India decided that the Ministry of Environment and Forests (MoEF) should be the nodal agency for implementing the Montreal Protocol. Since the responsibility for implementing all international environmental agreements rests with the MoEF, it was the natural choice for such an appointment. In 1993, the ExCom of the Multilateral Fund decided to finance the establishment of a National Ozone Unit through the *Institutional Strengthening Project* (IND/92/G61-ISP). So, in March 1993, the Government of

India (GoI) got a project of U.S.\$430,000 (implemented through the UNDP) to set up the Ozone Cell, which would administratively be housed in the MoEF.

Although the OC formally is a part of the MoEF, the physical location of its office is outside the MoEF, which has turned out to be an asset. While the MoEF resides in a building that is very difficult to gain access to for security reasons, and has offices interspersed with other ministries' offices, the OC is located at a visitor-friendly building, the India Habitat Center. There visitors, whether industry members asking for instructions to apply for project funding or NGOs assisting with awareness campaigns, can enter freely and locate the office easily. This logistic has made the OC more approachable and accessible and its functioning smoother. According to the UNDP-India office, it was an important decision to have the OC placed outside the MoEF as it has given the OC a large measure of independence.

### ***Country Program***

The Ministry of Industry set up a Task Force in May 1991 to formulate the national strategy for phasing out ODSs and adopting substitute substances with related technologies. The Task Force had three subcommittees, as follows: refrigeration and air conditioning; firefighting; and electronics, foams, and aerosols. These subcommittees submitted their reports in December 1991. The subcommittee reports were incorporated into the Task Force report and submitted to the Government of India (GoI) in March 1992. Based on this report, the government decided to ratify the Montreal Protocol. The final report was submitted to GoI in March 1993.

During the creation of the Country Program, India showed the first signs of its level of ownership of the Montreal Protocol. The NOU was set up *before* the Country Program and was appointed by MoEF as the National Lead agency to draft the Country Program. With the assistance of UNDP, 13 government ministries,<sup>5</sup> Tata Energy Research Institute (TERI), and representatives of industry and scientific institutions, the Country Program was written and then approved in November 1993. The Country Program reflects the recommendations given in the Task Force Report written prior to Montreal Protocol ratification. The NOU was responsible for placing the Country Program at the ExCom for approval.

A revision of the Country Program was scheduled to be completed in 1999 and then pushed to 2000. The updated version has yet to be approved for reasons discussed later in this report.

### ***NOU Evolution and Functioning***

The OC is guided by an Empowered Steering Committee on which are represented all related line ministries. Secretary, MoEF is the chairman of this Committee. Four scientific experts and some industry associations are also represented in this Committee. Since this "empowered" committee was constituted by the cabinet, its decisions are final and do not require further

---

<sup>5</sup> The 13 government ministries included the following: Ministry of Science and Technology, Ministry of Defense, Ministry of External Affairs, Department of Economic Affairs, Ministry of Agriculture, Department of Industrial Development, Department of Small Scale Industries, Department of Chemicals and Petrochemicals, Department of Electronics, Department of Telecommunications, Ministry of Commerce, Ministry of Petroleum and Natural Gas, and Ministry of Home Affairs.

approval. The Ozone Cell is supported by four Standing Committees on (i) Technology and Finance, (ii) Small Scale and Informal Sector, (iii) Monitoring and Evaluation, and (iv) Implementation of ODS Phase Out Projects.

The NOU itself employs three professional full-time staff and a support staff of around eight people hired on a temporary, contractual basis. The OC is headed by a Director and aided by a Deputy/Joint Director and a Secretary to Director. It is funded jointly by the Multilateral Fund and the Indian government (MoEF). The MoEF provides the salary and allowances of the core staff at the NOU (Director, Deputy Director, and Secretary to Director) while salaries for support staff and one professional consultant are drawn from a MLF grant. MLF grants are channeled through UNDP (ISP) and used to organize all activities under the Montreal Protocol. Though its support staff is sufficient, OC claims that it could use more technical expertise, considering its large workload and nature of work. IAs and industry actors report that OC staff are suitably qualified and experienced.

Because it is considered prestigious to work with the OC, it is not difficult to attract well-qualified staff. According to NGOs and other outsiders, OC positions are prestigious because of the “international” nature of the job, entailing foreign travel and exposure. OC staff, however, argue that it is prestigious to be associated with the OC since it deals with an issue of pressing concern and global impact.

According to OC staff, the workload as well as working hours at the OC are greater than any other division of the MoEF, although the salary range of OC staff is the same as any other government official of the MoEF. A prevailing sense of dedication to work—rather than economic perks—motivates employees. None of the present staff was involved with the development of the Country Program because leadership and staff at the OC has changed. This is because an Indian Administrative Service (IAS) officer whose tenure is limited, based on the rules of IAS service, heads the OC.

The NOU is a permanent unit but its future is subject to the renewal of grants. According to OC officers, the Ozone Unit in present form may continue for another 4-5 years. After the funding ceases, it may be incorporated within the MoEF again and limited to only one officer.

Currently, the OC works closely with various other arms of the government and is responsible for coordinating work with various other ministries such as Ministry of Industry, Ministry of Commerce, Ministry of Science and Technology, Ministry of Chemicals and Fertilizers, Ministry of Petroleum and Natural Gas, and others. The Directorate General of Foreign Trade (DGFT), Development Commissioner for Small-Scale Industries (DCSSI) report good working relations with the OC with regular interaction and frequent exchange of views. The OC has direct access to the MLF as India has been a member of the ExCom since 1994 (except for one year), and last year India chaired the ExCom.

Furthermore, the OC has very good relations with IAs. It meets with the IAs once a month to discuss the progress of project implementation. Technical problems relating to a project are handled by the IAs whereas administrative problems are addressed by the OC. The NOU also

reports a positive working relationship with bilateral donors such as Switzerland and Germany under the ECOFRIG Project.

### ***Short Background of India's ODS Phaseout Efforts***

---

#### ***Production and Consumption of ODSs in India:***

India's per capita consumption of ODSs is far less (less than 3 grams) than the 300 grams permitted under the Protocol for a country to qualify as an A5C.

Of the 20 substances controlled under the Montreal Protocol, India produces and uses seven:

1. CFC-11
2. CFC-12
3. CFC-113
4. Halon-1211
5. Halon-1301
6. Carbon Tetrachloride
7. Methyl Chloroform

India produces around 16% of global ODSs and, in 1998, exported around 60% of its total production, making India a very large exporter of ODSs. The total production and consumption of ODSs in India as of September 2000 is given in Tables 1 and 2 below. In 1998, India produced over 39,000 metric tons (MT) and used only just over 15,500 MT for domestic consumption, and although ODS consumption has fallen since 1996, ODS production has not.

**Table 1. Production of ODS in India (in MT)**

<b>ODS</b>	<b>1991</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
<b>CFC-11</b>	1,450.0	6,607.5	7,282.0	8,635.0	6,291.0
<b>CFC-12</b>	328.0	15,042.0	15,176.0	15,024.0	13,721.0
<b>CFC-113</b>	40.0	162.0	2.0	-	-
<b>H-1211</b>	50.0	77.3	100.0	106.0	-
<b>H-1301</b>	0.0	1.0	0.5	0.3	-
<b>CTC</b>	3,920.0	7,968.0	12,101.0	15,718.0	19,225.0
<b>MCF*</b>	540.0	-	-	-	-
<b>Total</b>	<b>6,328.0</b>	<b>29,857.8</b>	<b>34,661.5</b>	<b>39,483.3</b>	<b>39,237.0</b>

*Source: The Montreal Protocol: India's Success Story, Ozone Cell, MoEF, September 2000 p.9.*

\* Production of Methyl Chloroform ceased in September 1993.

**Table 2. Consumption of ODS in India (in MT)**

ODS	1991	1995	1996	1997	1998
CFC-11	1,900.0	6,608.50	6,831.00	7,058.45	7,049.53
CFC-12	2,850.0	3,740.00	4,159.90	3,710.21	2,697.12
CFC-113	320.0	154.00	26.00	12.00	-
CFC-114	-	4.00	-	-	-
CFC-115	-	2.00	-	-	-
CFC-1211	550.0	206.40	167.60	162.00	79.20
CFC-1301	200.0	89.56	66.00	58.50	26.00
CTC	4,000.0	2,829.00	7,978.00	7,159.00	57,00.00
MCF	550.0	1,358.00	1,415.00	-	-
<b>Total</b>	<b>10,370.0</b>	<b>14,991.46</b>	<b>20,643.00</b>	<b>18,160.16</b>	<b>15,551.85</b>

*Source: The Montreal Protocol: India's Success Story, Ozone Cell,, MoEF, September 2000, p.10.*

There are six consuming sectors. Consumption of ODSs by various sectors, in decreasing magnitude, both in ODS as well as ODP terms, is as follows:

1. Solvents
2. Refrigeration & air conditioning
3. Foams
4. Aerosols
5. Fire extinguishers

### ***Stakeholders***

There are many stakeholders in each ODS consuming sector ranging from large industries to small- and medium-sized enterprises (SMEs). Large companies like Godrej, Voltas, Electrolux, BPL, Videocon that are involved in domestic refrigeration, are well aware of the Montreal Protocol's implications and are in touch with the OC. However, many SMEs that are involved in commercial refrigeration have yet to be inclusively identified and registered by the OC. The large number and dispersion of these small enterprises presents a formidable and expensive task for the three-person full-time staff to handle. However, the Development Commissioner for Small Scale Industries (DCSSI) is actively working with the OC to formulate strategies to target SMEs in all sectors.

Other major stakeholders include several government ministries (MoEF, Ministry of Industry, Ministry of Petroleum and Natural Gas, Ministry of Chemicals and Fertilizers, Ministry of Science and Technology, Ministry of Commerce, DCSSI, etc.), the three implementing agencies with a presence in India (World Bank, UNDP, UNIDO), industry associations (Confederation of Indian Industry, Refrigerant Gas Manufacturers Association, Indian Chemicals Manufacturers Association, etc.), and NGOs (TERI, Center for Science and Environment, Development Alternatives, etc.) In addition, CFCs, HCFCs and CTC producers have a voice in phaseout strategy creation. These producers are SRF Ltd., Gujarat Fluorocarbons, Navin Fluorines, and Sunmar Chemplasts. India's strong internal connections have assisted its role in the regional

networks as well, as is described later in this report. The interaction of these players has created a network of concerned and knowledgeable conduits for awareness raising and information sharing.

India's success in reducing ODS consumption can be seen in a few sectors, especially. The aerosol sector is a small sector comprising 200 large, medium, and small industries, most of which have switched over to hydrocarbon technology because of market pressure. Of the 200 businesses, only 24 received financial assistance from the Multilateral Fund; many others were funded, with the help the Ozone Cell, through IA projects. In the foam sector, 90% of the industries have been funded to phaseout, while a few small-scale industries continue to consume ODS. The fire extinguisher sector comprises 18 small- and medium-sized industries, which have all converted away from CFCs.

### ***Imports/Exports***

As a producer of ODSs, export as well as import legislation has been important for India's phaseout efforts. India exports CFC-11, CFC-12, CTC, and HCFC to other countries. India imports CFC-113 and CFC-114 (used as solvents; their import is negligible now). It also imports halons to meet domestic needs since production of halons has been suspended since 1998 (Halon-12 and Halon-13). It imports CTC also for feedstock use (for manufacture of CFC-11 and CFC-12). Consumption of CTC, reported as of 2000, is approximately 7000 MT,<sup>6</sup> and only 1000 MT has been charted to be reduced, which is a source of concern. In addition, although India does not produce methyl chloroform, it does import and export it.

### ***India at the International Ozone Negotiations***

At the international negotiations, India, along with China, has consistently taken the lead in placing forth the arguments of the G-77 (i.e. "Developed countries are responsible for the ozone problem as they emit 80% of all ODS. Since developing countries only emit 20% ODS, why should they bear the burden entailed by phaseout?"). India's refusal to sign the Montreal Protocol to a large extent contributed to the adoption of a provision for financial and technical assistance for developing countries.

At the Copenhagen MOP in 1992, India had also raised objections when the annexure treating HCFCs as transitional (Annexure D) was eliminated and HCFCs were then included as controlled substances. Nevertheless, a compromise was reached on this issue.

According to the OC, once India ratifies a treaty, it takes those commitments very seriously and tries to create a Country Program that is representative of that seriousness. The desire to include implications of changes in India's ratification status is one reason given for the prolonged delay of the Country Program revision. It is also likely that since the OC is currently busy with the

---

<sup>6</sup> The base year for CTC consumption is 1998-2000. Therefore, average consumption has yet to be determined and will be calculated in 2001.

Amendment ratification process, the Country Program update will receive full attention only once the ratifications are complete.

### ***Ratification by India***

**Table 3. India's Dates of Ratification of Ozone Talks**

<b>Instrument</b>	<b>Ratification</b>	<b>Entry into Force</b>
Vienna Convention 1985	18 March 1991	16 June 1991
Montreal Protocol 1987	19 June 1992	17 September 1992
London Amendment 1990	19 June 1992	17 September 1992
Copenhagen Amendment 1992	not yet ratified	-
Montreal Amendment 1997	not yet ratified	-
Beijing Amendment 1999	not yet ratified	-

The process of ratification is a time-consuming. First, the implications of ratification (advantages/disadvantages of ratification; advantages/disadvantages of nonratification; additional compliance requirements under the amendments; India's ability to comply; problem areas; impact on trade, etc.) are discussed within the Ozone Cell. Then the Ozone Cell prepares a report to be placed before the government that contains information regarding the provisions of the protocol and amendments and their implications for India. After approval by the Minister for Environment and Forests, a cabinet note is prepared for the cabinet committee and is circulated to all line ministries. Their comments are incorporated in a new report prepared for the cabinet. The cabinet then considers the proposal and gives its response, either recommending changes or expressing its satisfaction. After cabinet approval, a formal letter goes from the Minister for Environment & Forests to the Ministry of External Affairs (MEA). The MEA can notify the Ozone Secretariat that India has ratified. Within 90 days, the Ozone Cell must submit data as required to the Ozone Secretariat and meet all the compliance requirements under the amendment. According to the Ozone Cell, there is continuous pressure from the Ozone Secretariat to ratify amendments and at every MOP, they must provide reasons for nonratification.

India has ratified the Vienna Convention, the Montreal Protocol, and the London Amendment so far. Until 1997, India had a problem with ratifying the Copenhagen Amendment. Many policy issues such as funding and technology transfer were not clear to India. According to the OC, the Montreal Amendment and the Beijing Amendment will ensure ratification of the Copenhagen Amendment by many developing countries. The Montreal Amendment stipulates a total ban of import or export of HCFCs to nonparties as of 2004. If India does not ratify the Copenhagen Amendment it will be treated as nonparty for HCFCs.

Because India is dependent on HCFCs as an interim substitute for CFCs and simultaneously is a producer and exporter of HCFCs, nonratification of the Copenhagen Amendment would hamper flow of imports and exports. According to Indian industry, India must ratify the Amendments at the earliest to avoid a negative impact on trade. All of these factors are weighed while considering ratification of the Copenhagen Amendment.

Production control measures for HCFCs were introduced in the Beijing Amendment. The Agreement mentions that while reducing CFC production, India has to simultaneously reduce HCFC production, however, it provides no special or additional funding for HCFC production reduction. This does not seem to present a problem for plants that are only now beginning their phaseout effort because CFC production plants in India are swing plants, i.e. they can provide both CFCs as well as HCFCs. Therefore, if CFC production capacity is reduced (for which funding is available), this also counts as a credit for reduction of HCFC production capacity. On the other hand, industries that previously received funding for switching from CFC to HCFC production, will receive no compensation for subsequent conversion to ozone-friendly substances.

The negotiation process of these recent amendments might suggest another example of developing countries being “bullied” into compliance with an international treaty without adequate compensation for negative economic impacts. The fact that large companies support ratification tells nothing of the effects that ratification will have on SMEs and other struggling ODS users. It is possible that India has relied heavily on HCFC’s as a CFC substitute because the technology was available domestically. Once this capacity has been reduced or fully taken away, technology transfer with knowledge transfer will be of heightened importance to provide economically viable alternatives to HCFC and CFC use.

### ***Policy Setting within the Ozone Cell***

---

OC is the administrative body of MoEF for managing Montreal Protocol-related activities including:

- monitoring of ODS phaseout in the country
- coordination with the steering committee, including sector subcommittees
- coordination with other ministries responsible for implementation
- formulation of overall phaseout policies (based on recommendations of sector Working Groups)
- implementation and monitoring of various policy measures relating to ODS phaseout
- getting approval of phaseout project proposals at ExCom
- monitoring of phaseout projects
- compilation of project completion and commissioning reports for submission to ExCom
- registration of ODS producers
- compilation/scrutiny of ODS production, import, and export data (based on annual reports from producers and quarterly reports from importers/exporters)
- compilation of consumption data
- reporting data to Montreal Protocol Secretariat
- dissemination of information and creation of general public awareness

In nearly all of these responsibilities, the OC has shown ownership.

The director of the OC is the initiator of the policy process and policy is set as per the action plan outlined in the Country Program. Given this protocol, it is of great consequence that the Country Program has not been updated since its original version from 1993. The task of reviewing and updating the Country Plan was entrusted by OC to the Environment Management Division of the Confederation of Indian Industry (CII). CII formed a consortium with Optima Tech and Indian Institute of Technology Delhi and constituted a Review Group chaired by a former Secretary of the MoEF. According to the OC, CII submitted a draft of the updated Country Program for review to the OC. The draft has already been reviewed in the Technical and Finance Standing Committee but the OC felt that some more information needed to be incorporated. Now, the updated Country Program has been left for the MoEF to review and submit to the Multilateral Fund ExCom.

It is unclear why this process is taking so long, considering the updated Country Program has been awaited for several years. According to OC, the new format for Country Programs recently introduced by the Multilateral Fund Secretariat may be causing an additional delay. India's intent to sign on to the Copenhagen and Beijing Amendments may have encouraged the Country Program's authors to incorporate elements of the Amendments' implications, as well. Still, it seems unlikely that the new format is the sole cause for the time lag. Meanwhile, there are many phaseout issues that badly need to be addressed, and there are few solid guidelines for new OC staff or new initiatives to follow. However, many phaseout issues have been addressed by the OC in its *ODS (Regulation) Rules, 2000*.

### ***Data Collection***

NOU compiles its own data, based on annual reports from producers and quarterly reports from importers/exporters. Directorate General of Commercial Intelligence & Studies provides data on all export/import transactions including that of ODSs. DCSSI collects data on SMEs. CII, which represents mainly the large industries, keeps track of the data on volume and kind of ODS.

### ***Incentives/Disincentives***

GoI has introduced fiscal incentives; it has granted full exemption from payment of Customs and Excise duties on capital goods required for ODS phaseout projects funded by the Multilateral Fund. GoI has also decided to extend the benefit of customs and excise duty exemption for ODS phaseout projects which were eligible for funding under the MLF, whether or not such enterprises actually sought assistance from the MLF. The benefit of duty exemption has been extended for new capacity with non-ODS technology. According to CII, these fiscal incentives have worked very successfully. Also, the Tariff Advisory Committee (TAC) has decided to grant suitable discounts on fire insurance premiums if alternative agents are used to replace halons. In addition, Indian financial institutions have decided not to finance/refinance new ODS producing/consuming enterprises in order to create a disincentive for ODS use.

## ***Legislative Framework***

OC has notified the *Ozone Depleting Substances (Regulation) Rules* on 19 July 2000 under the Environment (Protection) Act 1986, in order to meet its commitments under Montreal Protocol. OC initiated legislative measures in 1998 when it notified the Draft *Ozone Depleting Substances (Regulation) Rules, 1998* (notified on 28 April 1998, S.O. 947). The comments received on the draft were examined and summarized and an interministerial meeting was organized. During discussion, the NOU was advised to redraft the Rules. Revised Draft ODS Rules were notified in January 2000 (25 January 2000.S.O.69(E)) and after incorporating feedback and comments, the final Rules were notified in July.

## ***Licensing Regulations***

All ODSs are regulated by a licensing regime since March 1996. The Directorate General of Foreign Trade issues licenses through two special licensing committees—one for import and one for export. Import and export licenses are issued on the basis of recommendations of the Ozone Cell. Export license is granted on the basis of export performance of the last year. If an enterprise has exported 100 MT of ODSs in the previous year, a license is issued for 90 MT (10% less). An annual bulk license is granted and a pass book system is followed. 90% of the previous year's export is permitted; after that, an additional license is granted. The licensing system aims to regulate ODS trade to be reported to Secretariat under Article 7. According to OC, the system of licensing has functioned satisfactorily from 1996 onwards to date. For import, 90% of average production of the last three years is advised. Traders have a reporting mechanism to DGFT. An officer at NOU is a permanent member of the licensing committee set up by DGFT; no license is issued without the OC's recommendation.

## ***Awareness Campaigns***

The OC has been involved in awareness generation in various ways, such as:

- Newsletter VATIS on *Ozone Layer Protection* published once in two months and distributed to individuals and institutions
- Information dissemination package for school teachers and NGOs prepared by Centre for Environment Education and launched on 16 September 1998 and distributed in workshops held in Calcutta, Delhi, Pune, and Chennai
- Reports of Meetings of Parties and Meetings of the ExCom sent on a regular basis to industry, government departments, and other stakeholders
- Painting competitions organized on International Ozone Day
- Car bumper sticker brought out for distribution on every International Ozone Day
- Ozone-friendly equipment and products displayed in exhibitions during Ozone Day
- Regular workshops and seminars with government departments/ministries, NGOs, and large industries.

Also, industry associations like the CII and NGOs work on awareness campaigns for industry and general outreach. CII has used advertising and regular workshops/seminars to educate the industry about the importance of Montreal Protocol compliance and other, more technical issues. One example of OC collaboration on awareness raising is that the OC sponsored CEE's work on an information package about ozone, which was prepared in 1998.

Nonetheless, NGOs' studies report that there is a lack of motivation, awareness, and understanding of the gravity of consequences of technicians carrying out the wrong or incomplete services. This is especially true for technicians in SMEs who are less likely to receive adequate or up-to-date training. Greater funding needs to be given for the express purpose of training manufacture, installation and service personnel. Investment in training the trainers by utilizing Indian Technical Institutes would create a multiplier effect needed to disseminate information to all sectors.

Moreover, Training of NOU personnel as institutional strengthening would be a welcome assistance, especially since industry and the OC have identified greater technical expertise as an area for improvement. Currently, training is extended as and when there is an opportunity, but this does not happen very often. This is a constraint to India's ownership ability.

### ***Networking and Consensus Building***

---

The OC has put particular emphasis on building consensus among various stakeholders. One of the strong points of the OC has been its ability to establish good working relations with the various stakeholders like the IAs, industry, and NGOs. Industry has been very forthcoming in helping collect data on ODSs. In addition, the OC has shown its dedication to the phaseout cause by being involved in training other NOUs of smaller neighboring countries.

International networks have played an important role for Montreal Protocol implementation in developing countries. There is a South Asian Regional Network comprising China, India, Sri Lanka, Bangladesh, Pakistan, Nepal, Maldives, Bhutan, and Iran. Ex-OC Director Anil Aggarwal struggled to establish this network of heterogeneous members. Two ExCom Members are involved. According to the OC, members benefit greatly from this network because regional action is facilitated. For example, Nepal does not have licensing requirements, and, therefore, Indo-Nepal smuggling is a problem. In these meetings, such mutual problems are discussed in the presence of representatives of IAs, the Ozone Secretariat, and the Multilateral Fund. Direct interaction with international actors is especially helpful in seeking out clarifications on procedural policy issues and the functioning of the MLF.

These meetings are interactive and cooperative bringing to light various phaseout methodologies and allowing members to learn from each other's experiences. One interesting example of information sharing highlighted the difference between India's approach to ODS phaseout versus China's strategy. China has opted for sector-wise phaseout whereas India has used project-wise phaseout. Recently, however, India has turned to a sectoral approach of seeking out umbrella organizations of SMEs to apply for project funding. Regional networking, no doubt, helped to

bring about this solution and gave India confidence to proceed even without completing the Country Program or receiving MLF support.

### ***ODS Challenges and Policy Recommendations for Executive Committee***

The OC has a clear perception of its successes and its challenges of phaseout. India's total consumption of ODSs is under 16,000 MT, out of which 8,000 MT has been covered by investment projects. To date, it is in a comfortable phaseout position as far as CFCs are concerned. Phaseout of halons does not seem to be a problem; and most large and medium-sized industries are fully funded for phaseout. Moreover, sufficient policy measures have already been adopted.

The challenges that the Ozone Cell faces are legitimate constraints to its ownership ability. India's hurdles and recommendations of ways for ExCom to help India address those problematic issues follow:

1. In the case of CTC, India faces a challenge. A large segment of its CTC is in the so-called "potential" process agents (PA) category, meaning that currently the emissions and discharges from the use are too high and the use cannot be classified as PA and thus are termed solvents until a time countermeasures are taken. Irrespectively, investments have to be made to rationalize the use, phase out, and/or reduce the emissions of CTC. India's progress in this respect appears slow and may imply difficulties to meet obligations under the Montreal Protocol.

Thus, increased attention to lowering use and emissions from CTC are urgent and require investment by all parties.

2. Small enterprises are difficult to reach because they are many in number and very dispersed. Also, many do not want to register or face a board. Although most have been notified of ozone rules, monitoring and regulation is a challenge. The NOU needs the help of provincial governments, concerned departments and officials to be effective, and coordination problems are probable. India's OC is actively pursuing solutions to this problem but finds itself short-handed when it comes to training, monitoring, and providing expertise to lay the infrastructure for a sectoral approach.

ExCom and the GoI should jointly seek more resources to create the infrastructure for umbrella organizations that facilitate information dissemination, technical training, technology transfer, and funds transfer to SMEs.

3. Early phaseout because of economic/trade pressures causes industry to bear higher incremental operating costs. This has many adverse economic impacts for India and creates an atmosphere of antagonism and resentment by industries towards the global environmental treaty regime. This also stifles developing countries' efforts to excel beyond the treaty's expectations, which is undesirable from an institutional, as well as environmental, standpoint.

Since early phaseout should be promoted rather than penalized, measures should be considered to improve A5C industries' access to non-ODS technology, e.g. through greater participation in the Technical and Economic Assessment Panel and its Technical Options Committees, and financing of technology transfer costs as part of incremental costs.

4. Attempts to develop indigenous technologies as alternatives to ODSs have not been as fruitful as possible. The government and industries have contributed nearly six crore rupees (U.S.\$60 million) to the Indian Institute of Chemical Technology for research and development activities, and a plant has been set up there. Indian industries have had some success in developing HCFC technology as a CFC substitute but is now faced with having to phase that out as well. In addition, MNC patents on other non-ODS materials, much to India's opposition, have ignored Article 10A<sup>7</sup>—that of ready technology and knowledge transfer from developed nations to A5C. India's financial investment (as required by the World Bank) has shown its commitment to finding domestic alternatives to ODSs, but it is struggling to complete its mission on its own.

ExCom needs to direct its attention again both to the promotion of indigenous ODS-friendly technology in A5C and to the improvements necessary in transfer of technology. In order to economize on incremental costs in phaseout, support to development of such indigenous ODS-friendly technology and lowering of transaction costs appear as urgent tasks for ExCom to consider.

## ***Conclusion***

---

Overall, the Indian Ozone Cell can be said to “own” its phaseout program, which has contributed greatly to its success up until now. The problems that India has faced, including reaching SME's, updating the Country Program, and switching away from HCFCs are indicative of the need for a shift from the *status quo* at the NOU. Targeting these issues is the most difficult though crucial dynamic that India and its donors have yet to face.

The key to reaching this goal is proper funding and support for training, technology, and knowledge transfer, especially for SMEs. Assistance in developing financial mechanisms for institutional strengthening and general knowledge transfer will help India build greater trust and confidence in the treaty regime. It is equally important for the Indian government to find innovative ways to enlist the help of local, state, and municipal agencies to effectively implement phaseout of the 50% of ODS that remains, if it wants to gain the trust and encouragement of the Executive Committee and implementing agencies. A strong partnership between the NOU, local agencies, and international supporters is the cornerstone of this process.

---

<sup>7</sup> “Article 10A: *Transfer of Technology*. Each party shall take every practicable step, consistent with the programs supported by the financial mechanism, to ensure: (a) that the best available, environmentally safe substitutes and related technologies are expeditiously transferred to Parties operating under paragraph 1 of Article 5; and (b) that the transfers referred to in subparagraph (a) occur under fair and most favorable conditions.”

# Chapter 13

## Iran Case Study

*by Seyed Mohammad Mussavi-Rizi*

This case study comprises a section of a comprehensive policy analysis that seeks to reinterpret the relation between the degree of ownership a developing nation exercises on the formulation and implementation of the Country Program to phase out ozone-depleting substances and the phaseout performance of such a program.

This case study on Iran promises numerous insights and poses several challenges. Iran represents an unusually complex setting for environmental policy making. It faces a two-fold environmental-organizational challenge. Waves of fresh environmental problems have tended to engulf the already overloaded public administration that strives to mobilize and direct resources to tackle other pressing old issues.

Environmental issues target the public policy administration at regional and domestic levels. Regionally, the Caspian Sea presents an apparently intractable environmental dilemma. Cash-hungry and underdeveloped, other newly independent littoral states have fervently exploited the Caspian Sea fishery, oil, and gas resources. Excluding the protection of the Caspian Sea marine environment and resources from the development policy menu, they have created an “eternally temporary” situation where they need to demonstrate competence in elevating citizens’ standard of living immediately. Environmental considerations in development policy making may well appear irrelevantly luxurious for the states that are battling for immediate legitimacy. In the Persian Gulf, water pollution has jeopardized marine bio-diversity and has undermined the sustainability of the already thinning fishery resources. In both cases, regional politics may have played a sterile role. No institutionalized mechanism for regional environmental agenda setting and consensus building exists. Bilateral and multilateral environmental negotiations have so far failed to produce effective tangible results.

Domestically, Tehran often ranks high on global pollution charts. Desertification, deforestation, and water are critical environmental concerns. Iran experienced explosive population growth in the last two decades. While the demand for water in residential, agricultural, and industrial sectors has increased dramatically, water resource management has yet to produce a comprehensive water strategy. A case study on such a sophisticated milieu may produce relevant insights into the dynamics of ODS phaseout in other nations in the Middle East.

The case study attempts to provide a detailed picture of the National Ozone Unit in Iran. This picture includes the NOU history, operational environment, organizational structure, role allocation and differentiation, and decision-making process. To sketch a portrait of the NOU in Iran as accurately as possible, the study introduces a generic model of organizational behavior. The model functions as the analytical framework to direct data interpretation and the drawing of conclusions.

## ***Discussion***

---

### ***The Framework***

The framework consists of concepts and assumptions. Since this study seeks to determine the link between Country Program ownership and ODS phaseout performance, we will start building the framework by defining these two concepts conceptually and operationally.

Conceptually, ownership demonstrates the extent to which an agent may undertake a certain activity. This definition entails two broad consequences. Ownership may be found both in the structure of any action system where agents interact and in the intention of the agents. Therefore, ownership stems from the interplay of two sets of variables: the variables that relate to agents and those that belong to the structure where agents act. Structures constrain what agents may achieve. They influence agents' ability to reach certain goals. Intentions illustrate what agents may need and/or want. They mold agents' objectives.

Operationally, ownership may be found in the Country Program formulation and implementation. More ownership tends to shift the locus of Country Program formulation from the ExCom of the Multilateral Fund to A5Cs, encouraging a more country-driven approach to Country Program formulation. Corresponding to the specific needs of every A5C, country-driven Country Programs would demonstrate more diversity. The country-driven approach to ODS phaseout deems the NOUs better positioned to define phaseout priorities. It calls for the MLF Secretariat and the implementing agencies to empower the NOUs in A5Cs with the know-how and expertise that they have accumulated in implementing sector plans and projects. Such an information-sharing mechanism enhances ownership and may bridge the information gap that has plagued the less resourceful A5C NOUs. Ownership in formulation also implies that NOUs may be able to determine what strategic path to phaseout they opt for, i.e., a project or sector-oriented approach. Ownership in implementation re-characterizes IAs' role from NOUs' superiors to their partners. More ownership would allow the NOUs to select partners according to the IAs experience and expertise, tending to create a flexible-share system rather than a fixed share of funds for every IA.

Defining performance might seem a less difficult conceptual exercise. Performance may be measured against pre-decided criteria or a general benchmark noting that evaluation of phaseout performance may be carried out at global, country and project levels. This case study equates ODS phaseout performance with the extent Iran has achieved phaseout in the projects already being implemented. This definition may look debatable, but it boasts quantifiability, an advantage other definitions might lack. Combining the phaseout performance with a qualitative understanding of the context in which the NOU has operated may lead to a rather comprehensive assessment of the NOU's achievements. The paper rests on a single assumption; namely that ownership and performance influence one another.

## ***The Socio-Political Background***

The contemporary history of environmental policy making in Iran may be analyzed in four distinct periods: the revolution in 1979, the war from 1980 to 1988, reconstruction from 1990 to 1997, and political reformation from 1997 to 2001.

Environment could not constitute a policy priority for the combatant clerics who ended the regal rule in 1979. In the first years of the new political system, the government had to foil several coups, quash the mushrooming growth of separatist insurgents, and counter urban violence to consolidate power. Tackling these major security issues barely left sufficient time or resources for the revolutionary government to pay attention to politics in such lower levels as the environment, had it intended to do so.

Iraq invaded Iran in 1980. The ensuing war took eight years to reach a bitter stalemate. The war effort expended the Iranian financial resources. Many pressing future environmental problems, such as chronic under-budgeting, originated from the government's environmental policy during the war, namely that of relative forced neglect.

A new administration took office on a reconstruction mandate in 1991. The economy monopolized the government policy-making agenda at the expense of the environment and political development. The reconstruction period tended to shift the core of the public policy from the politics of security to the economics of growth. Except for overpopulation, the new development plan scarcely addressed emerging environmental issues such as deforestation, desertification, and water scarcity systematically.

Mohammad Khatami won the presidential office in a landslide victory in 1997. He championed a détente campaign in Iranian foreign policy in a bid to reintegrate Iran into the international system. Although President Khatami emphasized that development—the ultimate goal of his administration—is a multifaceted concept composed of different issue areas such as politics, economy and the environment, the government's environmental policy was not much altered. Nonetheless, the President appointed Dr. Masume Ebtekar, a manager reputed to hold avant-garde environmentalist views, to head the Department of Environment (DOE).

To summarize, successive administrations in Iran have placed the environment on the margin of the development policy agenda in the past two decades. They have been unable to meaningfully incorporate the environment into models for economic growth or national security, because external circumstances have imposed other immediate priorities on the development agenda.

## ***The National Environmental Decision-Making Structure***

The structure of the governmental policy-making agencies that deal with the environment reinforces this poignant observation. A Vice President heads the DOE. As the chief executive, the President is elected by universal suffrage. He runs the executive branch through the Ministers' cabinet and several Vice Presidents. The Vice Presidents sit in the Ministers' cabinet. Organizationally, however, they head departments or offices not ministries. In theory, the

President may appoint the Vice Presidents at his or her own discretion, since the constitution does not require the Vice Presidents to obtain votes of confidence from the Parliament.

This legal framework coupled with the internal dynamics of legislation in the Parliament has thus far resulted in the marginalization of the environment. Most environmental issues, particularly ODS phaseout, do not fall within the constituency of influential Members of Parliament (MP). Therefore, the DOE may not appeal to the leadership of several parliamentary factions who prefer to either follow up on the local problems of their constituencies or to spare legislative effort on more prestigious issues such as national security, budget, and culture. Thus the DOE, relatively deprived of a dynamic parliamentary lobby, may be unable to forge the same symbiotic relations with the MPs as other ministries. This inability might partly explain the chronic under-budgeting of the DOE. The politics of environment in Iran take other twists and turns. I refrain from further analysis, because understanding the basic dynamics of the politics of environment in Iran sheds enough light on the NOU performance to allow us to explain it.

### ***The ODS Phaseout Decision-Making Structure***

This section describes the internal NOU structure, then proceeds to explain the NOU's role in the ODS phaseout policy making, and finally provides a brief account of the categories of the NOU activities to date.

As the relevant national focal point on environmental issues, the DOE established the NOU, internally known as the Ozone Office, as a temporary unit to coordinate the implementation of the ODS phaseout effectively. The NOU, though created and supervised by the DOE, does not formally constitute a part of the DOE. The NOU started functioning in October 1994.

The NOU recruited eight permanent staff and two consultants who, except for the caretaker, all hold college and advanced degrees. The NOU operates within an MLF-funded institutional strengthening project run by the UNDP. The number of staffers at the Iranian NOU is high compared to other NOUs. The bloated bureaucracy in Iran and/or the magnitude and the versatility of the functions of the Iranian NOU may explain the NOU's size. The NOU falls under the supervision of the DOE Deputy for Human Environment who is also the Ozone Project Director (see figure below). The MLF has allocated funds to the UNDP to finance the NOU's operating budget. The MLF fund covers operating expenses, including staff salaries, transportation, and communication. The NOU does not seem to represent a major financial burden on the DOE, although the DOE has provided the NOU with a suitable office space.

### The NOU Organizational Structure

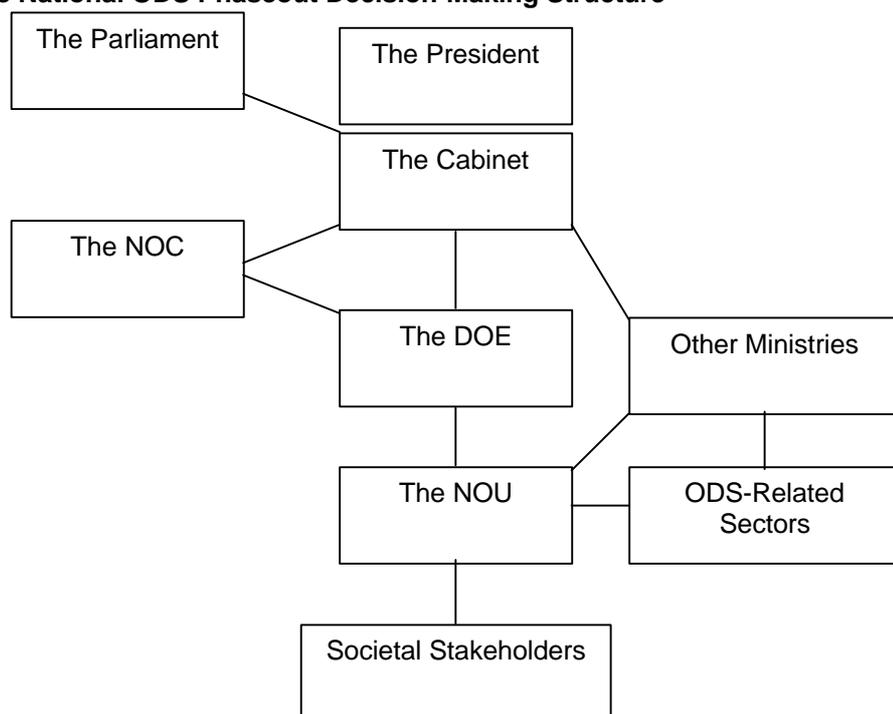
<b>The President</b>	<i>The Chief Executive</i>
<b>The Vice President for the Environment: The DOE Head</b>	<i>Cabinet Minister</i>
<b>Deputy Head for Human Environment</b>	<i>Deputy Minister</i>
<b>The NOU Head</b>	

The NOU position in the ODS phaseout policy-making structure reflects the prevalent disintegrated, consensus-based, political decision-making system in Iran. As for decision making in several other Iranian public policy agencies, an advisory body consisting of major governmental stakeholders formulates the NOU’s strategic vision to ensure broad-based consensus. The advisory body, called the National Ozone Committee (NOC), usually holds regular monthly sessions to draw the ODS phaseout strategy. The NOC is the highest executive body dealing with phaseout that makes binding decisions. It includes representatives from the NOU and the ministries of industry, commerce, agriculture, and foreign affairs. The DOE Deputy for Human Environment—the direct superior to the NOU—heads the NOC.

The NOC internal functioning process may reveal some decision-making nuances and partly explain the current phaseout performance. The DOE Deputy Head for Human Environment who heads the NOC is traditionally considered predominant within the DOE. Stakeholders attend the sessions at different levels, based on the importance and the relevance they attach to the issues they are scheduled to discuss and the decisions they are expected to make. Nonetheless, members often participate in the NOC meetings at the expert level.

The NOC decision making follows two distinct patterns. The NOU feeds a policy line to the DOE and other relevant ministries and organizations. These organizations modify the proposal according to their sectoral viewpoint and hand it back to the NOU. The NOU hosts an NOC session where the final version of the proposal is adopted and enacted through binding directives and circulars. If the proposal deals with the ODS phaseout strategy (i.e., guidelines for ODS import and consumption), the NOC sends it to the Cabinet. The Cabinet may approve the proposal and pass it to the Parliament as a bill (i.e., the Ozone Law, see figure below).

### The National ODS Phaseout Decision-Making Structure



The NOC's composition coupled with the frequency of its meetings may transform the meetings into bureaucratic sessions where achieving consensus on priorities and action plans can become an intricate process. Consensus may be built from the bottom to top or vice versa. An all-expert meeting where participants reach consensus based on technical discussions is an example of consensus from the bottom. A meeting of high-ranking representatives where participants arrive at the meeting with technical expertise embedded in their positions shows consensus from the top. The NOC sessions aspire for both, but at times may achieve neither, since the level of attendants from any given stakeholder may not match the level of commitment required for that stakeholder to enforce the decisions. Reliable data collection is a case in point. Apparently the NOC enjoys authority over several governmental stakeholders. Yet, the NOU suffers from lack of coordination among governmental agencies responsible for collecting and furnishing ODS-related data.

The NOC's composition may also institutionalize the current sectoral priority of ODS phaseout and send false signals on where the phaseout effort should be heading by stifling other significant stakeholders' participation. These latter shareholders may raise the issues that have consistently escaped systematic treatment (i.e., the small and medium-sized enterprises). The MPs' and consequently the customs officials' exclusion from the NOC on the governmental side and the industry representatives on the private-sector side may have diminished the effectiveness of the NOC initiatives on ODS phaseout.

Besides hosting the NOC sessions, the NOU also holds monthly sessions with other stakeholders that are not clustered around the NOC, such as local government bodies, industry associations, and the chamber of commerce. It consults industrial establishments and consumer groups on an as-needed basis. Again the environmental NGOs and other advocacy groups who may play a key

role in raising public awareness about ODS phaseout effort are absent from the list of the players that the NOU has sought to include in the process. Nonetheless, the NOU has started to attract occasional media coverage. It has prepared several TV and radio interviews and published three informational bulletins and numerous articles in the press on the ozone layer. The NOU also issued a stamp commemorating the 10<sup>th</sup> anniversary of the Montreal Protocol.

The importance of establishing a network of societal support for ODS phaseout may be highlighted when we note that any ODS phaseout strategy has to deal with both the supply and the demand side of ODSs concurrently. Spotting the ODS producing-consuming industrial plants and equipping them with non-ODS technology merely tackles the supply side of the phaseout effort. Informing the public about the dangers that ODSs pose on the human environment and convincing them to gradually abandon using the residual ODSs incorporated into home appliances and industrial machinery constitutes the other prong of the phaseout strategy. For example, household refrigeration appliances tend to enjoy a rather long life cycle in Iran, since appliances are usually repaired rather than replaced, due to the nation's relatively low purchasing power.

### *The NOU Phaseout Effort*

Iran ratified the Vienna Convention and the Montreal Protocol in March 1990 and became a party to the Protocol in June 1990. The UNDP prepared the initial Country Program in May 1993 and the ExCom approved it in June 1993. Evidently, the Iranian government played a confined role in the preparation of the initial Country Program (i.e., visiting the ODS consuming sites), since the NOU was established only after the ExCom approved the initial Country Program. The NOU set out to formulate a new version of the Country Program that reflects updated estimates on ODS consumption.

Iran merely consumes imported ODS. In 1991, the UNDP estimated the total ODS consumption in Iran at 2,445 tons, or 42 grams per capita. Therefore, per paragraph 1 of Article 5 in the Montreal Protocol, Iran was granted a grace period of ten years for complete phaseout. The initial Country Program estimated the ODS consumption at 2,750 tons in 1993. Later the NOU released an updated estimate of ODS consumption. Reflecting more than 91% increase in the ODS consumption, the revised estimate reported that Iran may actually have consumed 5,250 tons of ODS in 1993. Many factors may explain the discrepancy between the Country Program estimates and actual ODS consumption. Informal networks of small and medium-sized enterprises that may account for a substantial portion of the difference effectively fall beyond government environmental regulation, reporting scrutiny, and fiscal oversight. They constitute a highly diffuse structure for the refrigeration sector where according to the prevailing culture people may tend not to volunteer reliable personal data. The disintegrated structure of the ODS-consuming industries in Iran operates along with a corresponding structure in the government agencies dealing with the ODS consumption.

The initial Country Program targeted two major industrial consumers of the ODS: refrigeration and the PU foam industry. In the refrigeration industry, household refrigeration allocated the highest share of ODS consumption to itself. In the foam sector, the rigid PU foam consumed the

most. Therefore, the initial Country Program gave these two sectors phaseout priority. It is interesting to note that sectoral and project priority was granted solely according to ODS consumption at the time the initial Country Program was formulated, not on a comparative estimate of the future growth rate of any one of the ODS-consuming sectors, thus their future relevance for phaseout.

In domestic refrigeration sectors, manufacturers fell into two categories of large and small. The number of large producers was five and that of small ones was six. The UNIDO as the IA for both groups drafted phaseout programs. The large-scale projects aimed at phasing out 785 tons of ODS, estimated to be 65% of ODS use in the domestic refrigeration sector, or about 15% of total ODS consumption in Iran at the time the projects were drawn. These phaseout projects required system redesign, retrofitting, installation of new machinery, prototyping, optimization, pilot-scale manufacturing and testing, safety measures and hands-on labor training. The small-scale projects sought to phase out 372 tons of ODS. In 1996 a proposal to phase out 122 tons of CFC used in commercial, industrial, and transport refrigeration was also submitted.

The foam industry in Iran produces both rigid and flexible PU foams. Total CFC11 consumption in the foam sector was estimated at 2,430 tons, 67% of which belongs to the rigid PU foam production enterprises, with the rest used in the flexible PU foam sector. Five major CFC11 consumers in the foam industry with the consumption of 1,200 tons, roughly 50% of CFC11 consumption in the foam sector, were chosen for phaseout. In 1996 the UNIDO prepared a proposal to phase out 750 tons of CFC used in both rigid and flexible PU foam enterprises of small and medium size.

The most recent data (November 2000) estimates current ODS consumption in Iran in the vicinity of 7,000 tons. While to date, Iran has submitted proposals to phase out close to 8,300 tons of ODSs, the NOU has phased out almost 1,300 tons of ODS. Projects to phase out the remaining 7,000 tons are being implemented by the UNIDO, UNDP and the French Development Agency. With 41 projects finished or under implementation, the UNIDO by far exceeds the UNDP (15) and FDA (4). These projects have employed a variety of phaseout technologies. The large-scale projects in the foam and refrigeration sectors have already converted to hydrocarbon technology. The small and medium-scale projects have opted for HCFC. This technological choice seems inevitable. Size has proven to be the determining factor in the choice of phaseout technology. Small and medium-sized ODS-consuming plants in Iran are neither large enough to continue economically viable operations, nor are organizationally sophisticated enough to address safety issues, nor can afford the counterpart funding the MLF requires to select hydrocarbon technologies. Furthermore, while the NOU and the IAs suggest that the MLF would not approve a project whose cost has substantially increased due to the choice of technology, they both point out that the net impact of the residual HCFC emission for Iran as compared with other ODS is negligible.

### ***Concluding Remarks***

---

The NOU's phaseout performance should be assessed against the public policy structure in which it operates. As in several other A5Cs, the public administration in Iran does not enjoy an

optimal problem-solving capability in dealing with environmental issues. Therefore, we may indicate that the NOU's achievements in covering various segments of the ODS market to sketch a comprehensive ODS consumption map has been remarkable. For example, the NOU formulated a project implemented by the FDA to phase out 2,434 tons of ODS used in the fire departments. This quantity is almost equal to the initial Country Program phaseout target. The current structure of ODS phaseout decision making has attempted to increase efficiency in the phaseout effort through two organizational arrangements. The NOU operates as an independent unit from the DOE, and the NOC seeks to establish consensus among various stakeholders.

The NOU, however, faces several challenges in two spheres: data gathering and consensus building. Part of the data-gathering problem may be solved by formally broadening the NOU mandate through the NOC into other government agencies, requiring them to cooperate with the NOU in data-gathering. Such schemes, however, do not address the deeper issue of consensus building. Reliable data may not be made available until the NOC informs other influential governmental and nongovernmental stakeholders of the decision making process, thus including them in the phaseout strategy. For example, although the NOC deals primarily with the executive phaseout decisions that do not require legislation, including several MPs in the NOC meetings may significantly improve the legislation process of the bills that the NOC proposes to the Parliament. It is expected that the legislature would approve the Ozone Law in the coming year. The law that will ban ODS import may help Iran reach CFC freeze level sooner than previously predicted.



# Chapter 14

## Egypt Case Study

by Roni Zirinski

This case study suggests three ways to enhance the effectiveness of all NOUs' operations. Each of these three suggestions is a commentary on the concept of ownership. If implemented, these suggestions will not only improve the performance of NOUs', but will strengthen the NOUs and enhance their sense of ownership of their phaseout programs.

The first suggestion is to improve public awareness programs through marketing (as a noninvestment activity, but with more resources). The case study reveals the need to use culturally tailored policies and the need for a professional marketing specialist. Better marketing, in this sense, leads to pressure on stakeholders from below, and to more ownership of the “freed” NOU.

Second, the case study suggests the need to improve the structural organization of each NOU and its relationships with other NOUs. These changes might strengthen the ownership of many different NOUs (without transforming them into a “system” and, thus, erasing them). We mean here three kinds of relationships.

- *Regional relationships*—in the Egyptian case, both among Arab countries and among other North African countries.
- *Structural relationships*—relationships with NOUs in countries that either export to or import from Egypt. We stress here the importance of gathering export data for the use of other NOUs. The case study also shows the structural change that is needed to fulfill this goal, and suggests the need to open offices in the main harbor city.
- *Problem-oriented relationships*—relationships with countries that have the same main problems with phaseout.

Finally, this case suggests a novel way to tackle ODS phaseout—that is, by granting NOUs some judicial prerogatives that would enable them to investigate cases and enforce the law relating to ODS phaseout matters. We tentatively suggest here, without developing a formal model, granting some judicial prerogatives to NOUs through an international agreement. Such prerogatives may be fashioned after antitrust tribunals or anticorruption authorities in some countries.

This case includes detail on each of these suggestions, after first providing an overview of the Egyptian NOU.

### ***The Egyptian National Ozone Unit: An Overview***

---

Egypt has a very hardworking and highly professional National Ozone Unit. Those who remember the 1998 Meeting of the Parties held in Cairo probably also remember the

thoroughness and meticulousness with which they handled the details of that meeting. In 1994, Cairo was the host of the International Conference on Population and Development, and exhibited the same hard efforts. The NOU was also enthusiastic about and willing to help in our study. This same spirit has been demonstrated in several of the NOU's phaseout activities, particularly in pushing innovations such as the import/export licensing system it established in collaboration with the Custom and Excise Department. That initiative was undertaken in order to ensure the monitoring, control, and reporting of ODS consumption to the Ozone Secretariat. The system, which will go into effect in 2002, is an important example of the type of initiative that an NOU is likely to take upon itself if it assumes enough ownership for the phaseout process.

The OEP, within the Egyptian Environment Affairs Agency, is Dr. Ibrahim Abdel-Gelil. The head of the NOU is the Ozone Unit Coordinator Salwa El-Tayeb. The NOU was created in 1993 as a permanent entity. It has a consultative body, created by a ministerial decree on July 24, 1993 (no. 93), with the intent to form a National Multisectoral Ozone Panel composed of representatives from competent ministries and consumers (e.g., the Ministry of Industry, Egyptian Federation for Industries, Ministry of Foreign Affairs, Ministry of Finance (Customs Authority), and the Ministry of Economy and Foreign Trade).

The NOU's staff, and related staff, includes seven employees, as follows.

<u>Description</u>	<u>Title/Name</u>	<u>Years in the Department</u>
Coordinator	Eng. Salwa El-Tayeb	9 years
Technical Advisor	Chemist Hazem Abdel Fattah Meligy	1 year
Cooling & Refr. Engineer	Eng. Ahmed S. El-Korashy	1.5 years
Technical Support	Chemist Marwa Loutfy Moussa Bayoumi	1 year
Administrative Assistant	Ms. Soha Taher	5 years
Technical Secretary	Ms. Amani Salah	3.5 years
Messenger	Mr. Antar El-Soudany	

The current distribution of responsibilities is as follows.

#### Coordinator

- Manages the implementation of the investment projects in all industrial sectors (foam, refrigeration, solvents, halons, and methyl bromide)
- Serves as rapporteur of the ozone panel, which is in charge of stating regulations and legislation to implement the Montreal Protocol decisions
- Head of the sub-panel responsible for controlling ODS imports
- Prepares a program for implementing the Egyptian obligations toward the Montreal Protocol, which include freezing the consumption of ODSs at July 1999 levels, and beginning partial reductions by 2002
- Reports data on ODSs to the MLF secretariat and Ozone Secretariat in Nairobi
- Does technical editing of the OzonAction Newsletter after translating it into Arabic
- Participates in the African ODS officers network
- Participates in technical assessment panels of the open-ended Meetings of the Parties of the Montreal Protocol

- Prepare s the annual celebration of International Ozone Day

Technical Advisor:

- Assists in developing training programs for formal and informal maintenance sectors according to the refrigeration management plan
- Assists in preparing technical materials for vocational training centers
- Helps to support up-to-date technological information, alternative substances, and alternative technologies
- Provides support in workshops and meetings for national and regional events

Cooling & Refrigeration Engineer:

- Oversees the destruction of old equipment from completed projects, according to Montreal Protocol regulations
- Assists in following up on the implementation of the remaining investment projects

Technical Support:

- Prepares awareness building materials (e.g., booklets, brochures)
- Prepares the database, which was established for the notification samples of the imported products and substances

Administrative Assistant:

- Assists in reporting data on ODSs to the Multilateral Fund Secretariat and Ozone Secretariat in Nairobi
- Revises the OzonAction Newsletter after translating it into Arabic
- Co-organizes any workshops, seminars, celebrations, etc., undertaken by the unit
- Assists in handling the financial reports
- Assists in drafting any reports demanded from any authority or agency

Technical Secretary:

- Prepares the layout of the OzonAction Newsletter after translation into Arabic
- Prepares for the ozone panel and the sub-panel on controlling ODS imports
- Prepares the layout of any booklet, book, etc., that is demanded from the unit
- Co-organizes any workshops, seminars, celebrations, etc., undertaken by the unit

There are also two National Consultants, whose responsibilities include mainly the following.

National Expert in Thematic Awareness Related to Ozone Depletion

- Supports the preparation of video presentations for each stage of ODS phaseout
- Supports the organization of roundtable workshops and meetings for national and regional ecological associations, university students and staff, industries (especially small and medium-sized enterprises), customs authorities, chambers of commerce, chambers of industry, and any other relevant associations and nongovernmental organizations
- Supports the organization of seminars, alternative substances, and alternative technologies
- Assists in workshops at the different customs sites (Alexandria, Cairo, and Port Said) to introduce the concept of measures to control the import of ODSs into Egypt

- Prepares awareness program for the public and specialists in the sectors of foam, refrigeration, and halons

National Legal Expert:

- Reviews and compiles all the local legislation related to the control and phaseout of ODSs.
- Identifies all the obstacles to applying the existing legislation and suggests procedures to overcome them
- Assists in preparing draft legislation and decrees to enable the enforcement of the approved system
- Supports the organization of roundtable workshops and meetings for national and regional ecological associations, industries (especially small and medium-sized enterprises), customs authorities, chambers of commerce, chambers of industry, and any relevant associations and NGOs
- Prepares a technical report at the end of the assignment, including findings, activities, and individual documents compiled as well as any recommendations for future activities.

The NOU has an independent budget coming mainly from the Multilateral Fund. Specifically, the Multilateral Fund approved U.S.\$175,000 for the ISOU (Phase III). That amount covers staff incentives, project travel, office supplies (e.g., stationary, awareness materials, computer supporting operational material, and computer maintenance), awareness training, telecommunications, and miscellaneous charges. The government of Egypt contributed L.E. 200000. Approximately 75% of that is in-kind donations of office space and furniture, while 25% covers awareness raising activities and basic salaries.

Egypt's Country Program was drafted mainly by a consultant from the World Bank, who was responsible for collecting data from the industrial sector, relevant ministries, and governmental bodies. The NOU had only a secondary role as a participant in drafting the proposal.

Among the legislative initiatives to phaseout ODSs, the most important ones are as follows.

- Ministerial Decree No. 977, issued in 1989, banned the use of CFCs in the new aerosols industries starting 1991.
- Ministerial Decree No. 633, issued in 1994 by the Minister of Economy and Foreign Trade, banned the import and use of ODSs in the manufacturing of air conditioning, refrigeration, and aerosols equipment, except for medical uses. This decree serves as a notification for all ministries and institutions to take the articles of the Montreal Protocol and its amendments into consideration when formulating their own policy action and to notify the Egyptian Environment Affairs Agency (EEAA).
- Ministerial Decree no. 77, issued in 2000 by the Minister of State for Environmental Affairs, includes the list of ozone-depleting substances according to Montreal Protocol regulations and amendments. This decree prohibits the import of these controlled substances without notifying the NOU or the EEAA. Since issuing the decree, the NOU has received nearly 1500 notifications from importers (for both substances and equipment).

The Egyptian NOU said the problem of phasing out methyl bromide is its most difficult to solve. Methyl bromide alternatives can vary from one country to another and from one application to another. Also, technical and economic alternatives for methyl bromide are not readily available.

Egypt has started demonstration projects, which are close to finalization. Investment projects for phasing out methyl bromide in the soil fumigation sector will be implemented within the next five years. The acute problem seems to be finalizing the investment project for phasing out methyl bromide in the grain storage sector according to the ExCom rules.

The significance of the methyl bromide problem in Egypt is not surprising given the importance of agriculture to the Egyptian economy, and its contribution to the country's gross domestic product and gross national product. More than one-third of the Egyptian labor force is employed in agriculture. This is in a country that is struggling with unemployment and has to provide enough food for its large and growing population. The combination of the importance of agriculture and the growing population is a unique feature of Egypt and a few other A5 countries. Egypt's industrial sector is also different from those of other countries. In general, the vast differences between each country and its economic factors is another good reason to ensure that NOUs have autonomy and ownership of their ODS phaseout programs. Because each country is facing different problems, each must come up with different solutions.

### ***Better Marketing: Putting Culture to Work***

---

One of the main problems in the work of the Egyptian NOU is the lack of marketing activities. There are several reasons for this:

- Lack of awareness materials for different target groups
- Insufficient resources
- Overworked employees
- The absence of a marketing specialist
- Lack of sufficient creativity in reaching the general public

All of these problems are indicative of a fundamental lack of ownership on the part of the NOU.

We argue that more ownership by the NOU is necessary if marketing activities are to take place in a culturally sensitive way. Indeed, the autonomy of an NOU should be based on, among other things, its capability to harness the country's culture to help solve the problem of ozone depletion. The history of each country, we argue, contains already, a priori, some of the medicines needed to cure this "air sickness." The local NOU is the best equipped to use culture in its broadest sense, and reshape policies in the image of that culture.

The NOU can do the best local research and the best marketing if it has enough resources. The connection between a lack of resources and a lack of marketing skills can be seen clearly in the case of Egypt. The Egyptian NOU was not able to publish enough advertising material in Arabic. The material that was published is "old fashioned" and simply a copy of international pamphlets; it is not material that will really connect with or have an effect on Egyptians. The Egyptian NOU itself pointed to this problem in the survey, and connected it to a lack of sufficient funds. This lack of funds clearly has a negative effect on an NOU's endeavors.

In our so-called global village, effective marketing and advertising is all about appealing directly to the appropriate subsets of people—the appropriate "clans" within the village. In Egypt, international organizations cannot mobilize local actors to act, since they cannot advertise to

local actors effectively. Therefore, it is important to help each NOU (including the Egyptian one) hire a marketing specialist of its own, and give it enough funds for specific marketing initiatives. Without influential marketing, the whole endeavor is ineffective. Strengthening the NOU in this way will probably prove to be the cheapest means for raising the awareness of the urgency of the ozone situation. It will be much cheaper than hiring an outside marketing specialist and much more effective than building a global strategy from a Western base.

The Egyptian NOU tries to use a “national specialist” who has, among other activities, some responsibility for marketing and education. But this is insufficient. There is still a lack of noninvestment resources and a lack of creativity in creating a real public impact.

Money is not all that is needed. Egypt should get more funds for marketing activities, but the Egyptian NOU did not use the available resources as well as it could have. Its awareness building efforts could use more creativity and new ideas on a regular basis. For example, the NOU is not using an influential website in Arabic to advertise its activities and keep in touch with stakeholders. Importers, exporters, and manufacturers are among the first to use the Internet today. It also seems that the NOU did not initiate enough educational programs, at all levels of education, aimed to strengthen and build awareness. Thus it seems that success in marketing has as much to do with openness, creativity, and awareness as it does funding.

*We therefore recommend that each NOU have a professional marketing specialist to be in charge of initiating and coordinating marketing activities. It is also advisable to conduct marketing workshops and seminars within the NOU. It is certainly recommended that more funds be allocated to this goal.*

The NOU is in the best position to consider local sensitivities and tastes in marketing and advertising efforts. For example, it can take into account religion and West-East relations and tensions. In Egypt, environmental policies are sometimes perceived by the general public, as well as by a few of the stakeholders, as another effort by the imperialistic, Christian West to impose its ideals and/or restrictions on the Islamic East. This problem is connected, of course, to issues of environmental justice, where less privileged countries or areas are treated, or sometimes regard themselves as being treated, as “the world’s garbage can.” At the last MESA convention (a gathering of Middle Eastern Studies experts), which was held in Orlando, Florida last year, an entire session was devoted to this problem. Environmental policies are thus becoming just another battleground between East and West, or in the Egyptian case sometimes between Islam and Christianity. In our view, it is essential to try to keep environmental protection efforts “above the fray.” This is where the NOU has to come into the picture, both as an active translator-interpreter and as a marketer. In Egypt, and other countries with diverse populations, it is important to shape different messages to different groups within the country—to wrap the message in different wrappings, so to speak. For example, it is essential to speak not only in a “modern scientific” language, but also with the “right” cultural vocabulary, or the “right” religious discourse. This is where statistics must give the stage sometimes, not always, to “old-fashioned” discourses.

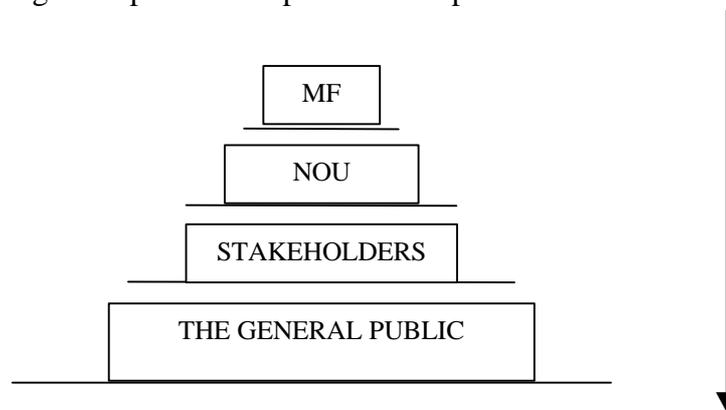
Geneive Abdo, among other authors, argues in a recent book that a certain form of moderate but political Islam is successfully challenging the central government in Egypt. An important

implication of this process was seen recently (December 2000), when members of the Muslim Brotherhood were elected to the Egyptian parliament. Diah Rachman, from Egypt's Al Aharam Center for Political and Strategic Studies, argues that "For the government, it will be very difficult to continue the strategy of pressure.... The two parties will try to have a kind of compromise"<sup>8</sup>. Whether or not this view is right, it is certainly important not to ignore it, and to give different groups a place in shaping environmental policies. We can certainly agree that *it is important to convince Islamic leaders that preserving the environment is a basic Islamic notion, and not just another import from the West*. It is important to broaden the political consent over this issue. Forming an alliance with Islamic movements has the potential to be very fruitful in mobilizing public opinion in Egyptian society.

The need for the broader involvement of different layers of Egyptian society is strongly connected to the problem of methyl bromide and the agricultural sector. Those who work in the agricultural sector tend sometimes to be more religious, or more connected to their traditional roots. In many instances they also have less accessibility to channels of information.

The need for the involvement of all aspects of Egyptian society can be explained with the help of a Pyramid Model. In this model, the international community, or the Multilateral Fund and the implementing agencies, are at the narrow top. The NOU comes after it in the hierarchy, then the stakeholders, and then the general public. The programmed ideas about how to phase out ODSs are being dictated from top to bottom. Those at the very bottom of the pyramid are totally uninvolved in the decision-making process. It seems reasonable to turn the pyramid upside down, or to incorporate greater parts of the public in the process.

*The Pyramid Today*



Turning the pyramid on its head, making the general public much more involved and aware of the process, will put constant pressure from two different directions on those who violate the international standard set by the Protocol and Egyptian laws formed in accordance with it. This goal can only be achieved with stronger and sharper marketing skills, reaching a broad population. The establishment of a powerful marketing channel, through the NOU, which bypasses direct stakeholders, might create public support that will, in turn, create political and economic pressure on the stakeholders. The boycotting of certain merchandise is one example of how the public might exert such pressure. By convincing broader parts of the society to actively participate in the effort, it is possible to pressure the stakeholders much more easily. The pressure should come, not only from the NOU, but also from below.

<sup>8</sup> *Boston Sunday Globe*, December 10, 2000, p. A35.

## ***Structural Changes***

---

One of the main problems of the Egyptian NOU (as with others elsewhere) is that it is totally dependent on information from stakeholders and allocations from the international organizations. The NOU is squeezed in the middle. One of the things this chapter is trying to show is how it can be possible to loosen this pressure, and to shift it onto the stakeholders—meaning mostly the importers, exporters, and marketers of the damaging substances—and in the process allow the NOU to take more ownership. The first point was therefore improving the marketing tactics.

Another way to deal with this dependency could be the establishment of an autonomous research department, i.e., hiring research specialists. This strategy seems to be unrealistic, however.

Yet another strategy that is more realistic, however, is to strengthen the relationships between different NOUs. The connections between NOUs should not be limited to grand annual meetings or formal conferences. NOUs should be in a close, day-to-day relationship with other NOUs in their region and in their special import-export arena. They should also be in touch occasionally with NOUs that face the same main problems they do. These three sets of relationships, which we discuss separately below, will strengthen each one of them individually.

## ***Regional Relationship***

Egypt could be much more active in promoting cooperation among Arab countries. An Executive Committee for Coordination Mechanism between Arab Countries was established in collaboration with the Arab League to conduct under-controlled substances within Montreal Protocol regulations, to settle a cooperation system between Arab countries, and to coordinate the implementation of the Montreal Protocol. Egypt is playing an important role in preparing an information database to benefit this objective, and sharing knowledge with NOUs. It is important to see that this cooperation would not be limited to “translating international documents to the benefit of other Arab countries,” as the Egyptian NOU stated in the survey, but to be broaden also to gathering data and “comparing notes” on a regular basis (see below the importance of gathering data on exported materials).

More cooperation on a regular basis with other Arab countries could be an important resource in the realm of marketing. Although each Arab country is unique, many communication materials and channels are common to the Arab world. Forming a stage for cooperation with Arab countries can lead to new ideas, and to cheapening costs. The regional cooperation with the Arab countries should also, and sometimes mostly, be on a bilateral basis according to changing needs.

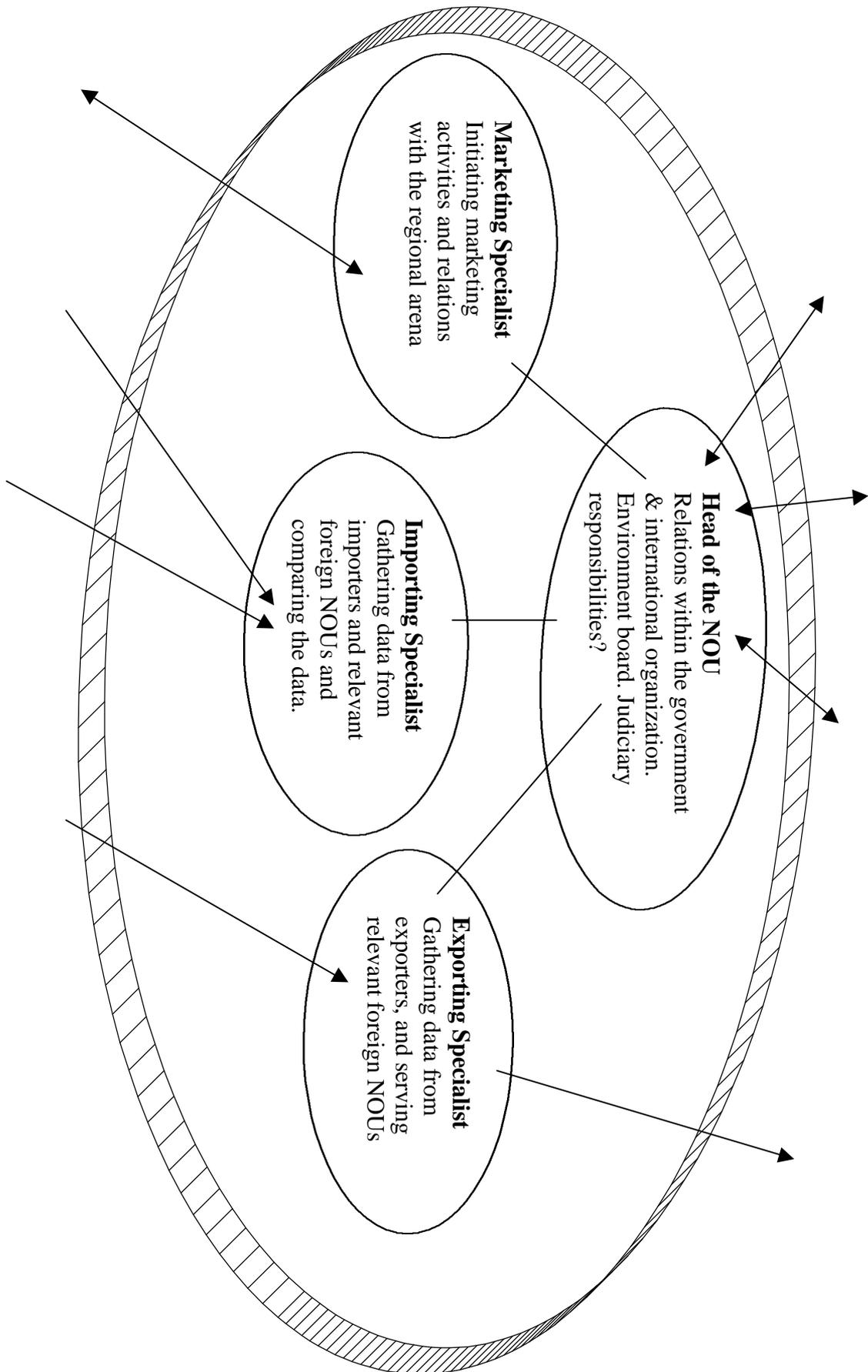
Another Regional Relationship, which should be fostered, is Egypt role as a leader in the North African region. Egypt has strong commercial relationships with Tunisia, Algeria, Libya, Chad, and Sudan. But, as the Egyptian NOU mention, the meetings of the ODS Officers Network for Africa (ODSONET AF/E) seems fruitless, due the different agendas of the participants. In the African case, and without the advantage of language as a common tool, it seems most appropriate that the cooperation will be on a bilateral basis, based on similar features.

### ***Functional Relationship***

No less important here is the Functional Relationship. This relationship could be very useful in breaking dependency on the Egyptian importers when gathering data. Looking at data regarding the principal trading partners with Egypt shows that most of the imported goods arrive from Europe, the Americas (the U.S., Argentina, and Brazil), the Far East (China, India, Japan, Korea, and Malaysia), and Australia. The only Arab country that is a principal trading partner of Egypt is Saudi Arabia, mostly due to oil imports and salaries sent back home by Egyptian workers. Therefore, the main arena for getting relevant export data is not the regional arena, neither the Arab countries nor the African countries, but the functional arena, which includes the relevant contributing countries. In this sense it is important for Egypt to get current data from its relevant trading partners. This includes, in addition to the above-mentioned countries, the following: Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Romania, Russia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

This analysis can also explain why Egyptian NOU officials feel that the regional meetings are unsatisfying. In the Egyptian case, the regional arena, whether it is a cooperation with the Arab countries or the African countries, can only be based on promoting marketing activities and area cooperation. This is very important, as was stressed throughout this chapter, but it cannot be “satisfying.” Egypt does not import much from Jordan or Sudan. It does import a lot from Germany, France, and the U.S. A meaningful cooperation, in the importing-data field, has to be tailored by each NOU for itself. The list of the important countries with which a certain NOU has to be in touch with changes from country to country. The list can, of course, be further narrowed: a more thorough analysis should reveal what is being imported from each country, and therefore help to determine which foreign NOU one has to be in touch with on a day-to-day basis.

It is clear, too, that the circles of import and export are not necessarily overlapping. Egypt does export extensively to Jordan, Lebanon, Libya, Syria, and Israel (mostly oil and gas). When acting as a source of information, an NOU has to work with other NOUs, than when importing (both merchandise and knowledge). It is therefore important to separate the two functions of a given NOU. The officials who are currently dealing with gathering data from importers should also serve relevant foreign NOUs. A different part of the unit should act as a customer of knowledge and gather data from, sometimes different, relevant NOUs. This does not mean necessarily a bigger unit, or a gigantic bureaucratic apparatus, but mostly a better structuring and reorganizations of the NOU. This reorganization is necessary in order for it to better exercise its ownership. The new proposed structure of the Egyptian NOU is summarized in the next page. This chart can be applied to many different NOUs.



In many cases, both on the regional level and the functional level, every NOU is doing the work alone. In this respect the NOU deals mostly with imported, locally manufactured and distributed materials. There is not enough stress on inspecting and supervising exported materials. This stress on the local creates a system where every NOU stands alone, and the international actors are expected to look for “the global.” It is important that every NOU gathers much more data on export. As is well known, exporting data and quantities of chemical substances are in many cases different from the importing data. Something strange is happening to chemical substances while at sea, the quantities change when arriving to the other end. How to put it? They sometimes become fluid. It is therefore necessary to widen the picture and look also at substances that are going out of the country, to “other” jurisdictions. *This collected data should not be transferred only to an international databank, but directly to the relevant NOU in the other end.* Comparing the exported data with the importer’s statements will reveal in many cases interesting results. Activities such as this should not be sporadic, but on a regular, not to say regulated, basis.

In order to achieve this goal it seems important that the NOU be closer to the field itself, and therefore *maintain offices not only in Cairo, but in at least one big harbor city. The best locations would probably be Alexandria, Port Said, or both.* It seems *important to allocate enough resources for that goal.* For gathering exporting (and importing) data it is also important that the NOU be in permanent and continuous relationship with the Alexandria Port Authority (Chair Administrator, Hassan Hosni Amin; Vice Chair Administrator, Kamal A. Al-Nahta), and with the Suez Canal Authority (Chair Administrator, Ahmad Ali Fadel).

It is important to stress that dealing with the “global” in the model offered here does not harm the NOU’s ownership. On the contrary, it strengthens it. Here the NOU is getting more authority and is dealing with the “international” from its perspective. More ownership has nothing to do with partiality and “losing the global picture.”

### ***Problem-Oriented Relationship***

Another aspect of the foreign relationship should be problem-oriented cooperation. In addition to Egypt – the countries of Yemen, Zambia, Jordan, and Solomon Islands see also their main problem as the phase out of methyl bromide. Cooperation with these countries on both bilateral or multilateral basis could therefore be very beneficial in term of idea exchange.

### ***Considering Judicial Prerogatives***

---

As it sometimes seems that the NOUs lacks sufficient strength and authority while dealing with stakeholders, a byproduct of the case study on Egypt was the thinking about granting NOUs some judicial prerogatives, based on the model of the anti-trust authorities in few countries (including in the Middle East). This means the establishment of a sub-unit within the NOU that would serve as a “fast ozone court” (maybe with representatives of the industrial organizations). A unit like that could be very useful in fining and restricting violations of the fine legislation in Egypt regarding ODSs. The idea will not be fully developed here, but it might worth thinking in this direction, as another way to strengthen the NOU’s ownership. A move like that will have to

be done, of course, with the consent of the governments, and maybe as an amendment to the Montreal Protocol.

# Chapter 15

## Asia Case Studies

*by Olga Gassan-zade*

### ***Country A***

---

The NOU in Country A was set up in 1994 as a permanent unit under a Ministry of Science, Technology, and Environment. It is five people strong—three are permanent staff and two are temporary. At the moment it operates on MLF funds, but the NOU also notes in-kind support from the government. It also appears that the steering committee is involved in forming the policies pursued by the NOU. For example, the Country Program was prepared by a consultant, but with participation from the NOU, related government agencies, stakeholders, and NGOs. It was finally adopted by the National Steering Committee for the Protection of the Ozone Layer after a series of consultations.

Though the NOU did not indicate a high frequency of meeting with stakeholders (yearly or as required), it appeared to demonstrate good knowledge and understanding of the stakeholders, and a higher frequency did not seem to be necessary. The survey indicates that a huge amount of work has already been completed, and now the most challenging tasks remain. In particular, the obstacles that the NOU mentions deal with residual ODS consumption in the manufacturing sector, phaseout in the mobile air-conditioning sector, and illegal trade and mislabeling of ODS, in particular CFC12. The mention of illegal trade and mislabeling is particularly indicative of the strong ownership the NOU feels about what it is doing, since illegal activities are normally outside what NOUs are willing to disclose. Out of 76 respondents, only 3 felt secure enough to come out with the issue of illegal trade as their major obstacle on the way to implementation. As in many other countries, the problem of phasing out CFCs for servicing in the refrigeration sector remains to be mastered in Country A.

Overall, Country A appears to have strong ownership. Based on the information available in the questionnaire, it is probable that the roots of such ownership lie in the formulation of the Country Program. In fact, the formulation of the Country Program is listed in the questionnaire as the most successful initiative for ODS phaseout in A. In particular, the responsibility was shared between the government and the private sector, giving the private sector a prominent role in formulating strategies and raising awareness through Industrial Working Groups envisaged by the Country Program. An interesting detail in this story of ownership is that the NOU finds network meetings extremely useful. As a general trend, the NOUs with ownership find their networking experiences valuable, since they do not feel overwhelmed with their task and have stories of success to offer and a good grasp of the issue to seek experiences and cooperation of other NOUs on some specific issues.

In the case of A, ownership can be clearly correlated to success. The NOU appears to have a good grasp of the issue and of the stakeholders. There has been an import/export licensing system in place since 1994. CFC consumption in A has already been reduced by more than one-

third (against 1995-97 baseline), and given all the planned projects are implemented it is ready to meet 50% CFC reduction, it will even be almost 600 ODS tons ahead of the 50% reduction requirement. In the face of the recent adoption of new, more stringent ODS control regulations, A's request for extra manpower and equipment for its enforcement is both reasonable and justified. Also, the NOU has a clear idea of capacity-building measures needed to prevent further and tackle existing illegal trade, though the NOU lacks funds and manpower for their implementation.

A's example is also proving that ownership is a virtuous circle. Inclusion and broad participation that gave rise to ownership in the period of Country Program formulation made successful phaseout possible, and now, according to the NOU itself "the NOU is functioning well" and "has full support of the government, the industries, and the people."

### ***Country B***

---

The NOU in Country B was set up in 1990 in a Department of Environment and Natural Resources as a temporary unit with two permanent and six temporary staff. It has an interagency committee tasked to develop, formulate, and evaluate proposed policies for implementation of the ODS phaseout strategies. As with most of the Article 5 countries, the NOU does not have a budget of its own and received financial support from the MLF, with the World Bank as the implementing agency.

The survey response created an impression of strong ownership of the phaseout in the country, which can be traced to the time of creation of the Country Program. In 1992/93, when the original Country Program was drafted, the department had only a Montreal Protocol Desk, which served as a forum for coordination between different divisions that were involved in Montreal Protocol issues and projects. Despite the fact that the original Country Program was prepared by a European consultant with only limited involvement of the Montreal Protocol Desk, the participation in the network and good general support internally contributed to the sense of ownership at that time. The Country Program was updated by the NOU in the late 1990s based on a survey and existing data. The draft of the program was circulated to the interagency committee for input and comments, and a public consultation for stakeholders was also provided. After inclusion of the comments, a new copy was circulated to the concerned agencies for endorsement. The final duty of signing and adopting the Country Program resided with the department at the Secretary level. The importance of such an inclusive process can be observed in the fact that the NOU lists the consultations with the stakeholders and their involvement in the formulation of the Country Program as the most successful initiative in the country. In the case of Country B, just as it was in case of Country A, the NOU found regional workshops to be of great use and significance. B also was among the three countries that felt secure enough to mention illegal trade as a problem. In fact, it is the single major obstacle that the NOU in Country B sees in the way of implementation.

In Country B ownership also can be easily correlated with success. B's Ozone Desk has completed 95% of the approved investment projects and is in compliance with the CFC freeze. It has put in place a number of regulatory tools covering the ODS phaseout schedule, importer

registration, accreditation of service providers, and an import licensing system. B has covered phaseout in most of its manufacturing industries through investment projects, of which 95% are now successfully completed. The remaining CFC consumption consist primarily of CFCs for servicing in the refrigeration sector. The NOU is addressing this sector through a refrigeration management plan (with a European development cooperation agency). An implementing agency will address the remaining users in the manufacturing sectors (expected to consist of a number of small enterprises).

## ***Country C***

---

The NOU in Country C was set up in 1996 as a temporary unit in a Ministry of Environment, Local Government, and Rural Development under an institutional strengthening project with financial assistance of the Multilateral Fund administered by an implementing agency. It has no permanent staff and only four temporary officers.

Unlike A and B, the NOU in C is not so confident and appears to be overwhelmed by its task. The NOU complains that its complete dependence on foreign assistance and its temporary status cause its fragility and vulnerability. However, when we look back at the example of the NOU in A, we see that it too, was set up as a temporary unit, and that in no way prevented it from being successful. The cause seems again to be the formulation of the Country Program. In the case of C, the NOU received the draft of the Program, which was prepared by a local consultant from the Ministry. The program was discussed and analyzed in a national workshop organized by the NOU in 1996 and then submitted to an implementing agency. It is easily seen that this process left much less room for inclusion and participation than the previous two cases, resulting in lower ownership.

Here again, ownership can be linked to success, this time low ownership with low results. Country C has not yet phased out any ODSs, though there are approved projects to be implemented. Another, characteristic feature is that the NOU is much less enthusiastic about regional meetings. The case might be that it feels that meetings are detached from their local reality and even though, it's nice to be there, it does not help in tackling their biggest challenges.

C's case demonstrates the need for ownership on a broad national level and proves that absence of ownership can also result in a vicious circle. The absence of ownership at the time of Country Program formation led to poor results, decreased the NOU's confidence and further lowered ownership of the implementation processes. The NOU feels insecure and consequently requests to extend the completion of the institutional strengthening project, which should wind up in June 2001, for another five years.

However, C's case also gives hope for the future. The only sector where ODSs need to be phased out is the refrigeration management sector, and the NOU's hard work to tackle it should be noted. Specifically, the NOU meets weekly with the Ministry of Commerce and yearly with about 50 ODS importers. The NOU was successful in mobilizing a stakeholder (the Chairman of a manufacturers association of C) to help solve their major obstacle in formulating a refrigeration policy: higher cost of non-CFC products in the refrigeration sector. In particular, he assisted the

NOU by supporting the proposed ban on the import of secondhand compressors, refrigerators and air-conditioners, which is currently under consideration. Among other positive factors is the import licensing system that has been in place since 1998 and a 13-member steering committee that brings together representatives of ten governmental agencies and three international organizations.

# Chapter 16

## Mexico and Turkey Short Case Studies

*by Rasmus Rasmussen*

The point made in this chapter is that criteria, decisions, and procedures of the Executive Committee, and the Multilateral Fund Secretariat preparing them, do not seem to reward countries that want to phase out earlier than obliged. Above all, lack of action or decision by the Executive Committee puts a government and its NOU on hold and in a difficult position after lengthy discussions and negotiations with national stakeholders on how to achieve phaseout.

Such ExCom delays, and actual lack of policies, may thus be criticized. They may, on the other hand, emanate from a sincere concern to use scarce funds only for the purpose of allowing compliance, no more, and only in a specific and carefully directed fashion. The point then is, what is best for the ozone layer?

### ***Mexico***

---

Mexico established its NOU in 1991. It is within the Ministry of the Environment, Natural Resources, and Fisheries, and has four permanent officers and a budget of its own. The immediate superiors are the Chairman of the National Ecological Institute of the said Ministry, and the Director General of Environmental Regulation. A set of local costs are provided for by the Ministry. The first Country Program was done in 1992 by the NOU assisted by U.S. Environmental Protection Agency. A revised Country Program is in an advanced stage, done by the NOU and to be finalized in the fall of 2001, beginning 2002.

Networking with stakeholders is intensive/high frequency. There are, for instance, daily contacts with one of the immediate superiors, the Environmental Regulation General Director, industry, and importers/suppliers such as Dupont and Quimobasicos, and weekly contacts with producers and importers of ODSs.

In its reply to what the major problems are in achieving phaseout, the NOU lists three items without any internal order of difficulty or priority: Elimination of methyl bromide, elimination of CFCs in refrigeration servicing, and decreasing funding as a result of Mexico's successes hitherto. Basically, Mexico feels the ExCom does not appreciate Mexico's rapid progress. It appears that the government and the NOU have negotiated an agreement with industry, but then finds itself in the position of not having support through an Executive Committee decision, and hence possibly losing credibility with the national stakeholders with whom an agreement on substance and procedures has been negotiated.

Mexico had an import regulation in place already in January 1989 and will, according to the information given, apply export control beginning in 2001.

On the final questions about strengths and challenges, the NOU underlines again that its early performance is perceived to be punished by the ExCom and that these policies should be adjusted.

This narrative was in many ways confirmed through proceedings at the Executive Committee meeting of late March 2000. On that occasion, it was suggested that Mexico should not be compensated for phasing out CFC since they had done so through consumption quotas that indirectly produces a “market mechanism,” which in turn indirectly increases CFC prices. Some 8,000 tons have been duly eliminated through this strategy, which would amount to a savings of at least U.S.\$60 million to the Multilateral Fund for the conversion to non-ODS use of some industries in various sectors. Mexico reduced its national consumption from 14,500 tons in 1989 (base-line year) to 3,000 tons in 1999. Some regression emerged in 2000, in which consumption is estimated at between 3,500 and 4,000 tons, as a result of the reduction of project flows and some loss of credibility with certain industrial groups.

After a somewhat heated exchange of views at the ExCom meeting of March 2000, this seemingly unsatisfactory situation was rectified, to a great extent, it appears, through the intervention of an influential EU member delegation. For the world, the important matter is that ODS use is phased out. If a country uses a specific strategy to do this, and in fact accomplishes phaseout, requesting only the basic resources for a more project-wise approach, it should not be in a worse off situation than if it chooses the path of a “conventional recipient” (reducing only the quantities funded by the Multilateral Fund). Naturally, phaseout has not been without alternative costs in terms of providing necessary equipment and realignment of industry, administrative cost, establishment of institutions and systems, and more manpower time.

The story we read reflects apparently the commitment of the government of Mexico in wanting to contribute to the solution of an important environmental problem. This situation led to an accelerated phaseout by utilizing a highly restrictive quota mechanism. All this enabled Mexico to take a lead in phaseout. This adjustment process certainly had its costs, but the fact that Mexico chose this path made it, according to ExCom rules and procedures, a victim of forfeited assistance. To sum up, the present plethora of ExCom decisions with incremental cost calculus as the basis, leads or may lead to “assistant-prone,” costly phase out, and primarily at only the rate stipulated by meeting Protocol obligations. Surely, the ozone layer benefits more from early phaseout. Such phaseout is practiced only by a few countries. The Mexican case could potentially reduce this number.

Putting this in “ownership” terms, the story appears to be the following. An NOU, established at an early stage, networked with stakeholders and got legislation—or an unwritten agreement with industry—in place, resulting in increased scarcity of CFCs and concomitant price increases. Hence, we had an impetus to early phaseout. Since the MLF Secretariat and the ExCom works on the incremental cost model, had Mexico instead pursued a more piecemeal approach, characterized by less “ownership” and the submission of individual projects up to the end of 2010, Mexico could well have been assisted for such project-wise phaseout. Instead, Mexico imposed an advanced strategy approach by applying a highly restrictive quota system, achieving more of a sector approach, and indeed carrying industry with it. In the end, “ownership” looked as if it was going to be punished in terms of resources allocated by the MLF. With the

intervention inter alia from a major EU member of ExCom, Mexico had its case reviewed and did end up with a final sector-approach program. The greatest obstacle to such a solution appears to be existing ExCom rules, procedures, and many past decisions.

## ***Turkey***

---

We move now to Turkey.

Turkey's NOU was established in 1991, and is permanent with five permanent staff. It is the Air Management Department, Trans-boundary Air Pollution Division within the Ministry of Environment that acts as an NOU. Within this Division, two officers work fully on ozone matters. The immediate superior of the Division is the Director General of Environmental Pollution and Control. The Division has an Ozone Panel as a steering committee, consisting of the representatives of concerned industrial sectors, government institutions, and universities. The main contributor to the budget of the unit is the Ministry of the Environment—most naturally since the Division forms part of that Ministry. So integration/ownership in this respect appears strong.

The Country Program of 1991 was formulated by the Ministry and the World Bank. A National Ozone Policy was formulated after intensive negotiations with all parties concerned under the Ozone Panel meetings.

To expand on this point, before the National Ozone Policy was introduced (with its phaseout schedules for Annex A and B substances, and other necessary measures and instruments for phaseout), intense negotiations and regular meetings were held with other government departments such as the Undersecretariat for Foreign Trade, Treasury, Customs, and the Ministries of Finance, Industry, and Trade; and industry associations such as the White Appliances Manufacturers Association, Aerosol Manufacturers Association, industrial establishments in foam and refrigerants, chambers of commerce, and importers of chemicals. All these stakeholders are represented in the Ozone Panel. Meetings are held when necessary, sometimes every month, sometimes quarterly. The Panel meetings are annual. We see a commitment at the country level with open-ended negotiations with industry on the phaseout schedule to be attained. It is reported that there were few complaints from industry concerning the quantity restrictions introduced on imports, and the banning of ODS equipment.

This is a portrait of cohesive national networking, very much with ownership at the total national level, of all stakeholders. The respondent points especially to the importance of the Ozone Panel in the formulation of national phaseout schedules, and close collaboration between the Ministries of the Environment and Foreign Trade in introducing trade measures under the Montreal Protocol. Import of all Annex A, B, and C substances has been subject to licensing by the Ministry of the Environment since 1993. Quantity restrictions were imposed for Annex A and B Group I and II substances, those also being subject to Ministry of Foreign Trade licensing. In short, control machinery was well in place at an early stage, signifying considerable political will and cohesive national networking.

Sectors for phaseout are ranked in the following order in terms of the challenges posed: CFCs in the refrigeration servicing sector (where a large number of workshops are held), foam (where small-scale foam manufacturers are prominent), firefighting (where industry and defense are the stakeholders), and methyl bromide, where farmers are the stakeholders. Since aerosol has been phased out, this poses no problems. (CFC production has never existed in Turkey)

Turkey had to adopt an early phaseout because of its geographic location and trade partners. While most Article 5 countries have entered the CFC freeze at July 1, 1999 levels, Turkey has already achieved a 50% reduction from the baseline. Turkey in fact received a reward in 1997 from the Montreal Protocol as one of the nine most successful countries, out of 49, in implementing the Protocol.

Like Mexico, Turkey got caught in a situation when existing procedures and decisions of the ExCom blocked progress for an early starter, keen to phase out more quickly than obliged by the Protocol. After its first phase, Turkey was faced with a Refrigeration sector, including service and maintenance operations. But the ExCom had not made decisions on refrigeration management plan guidelines for high-volume consuming countries, of which Turkey is one. This situation is quoted as *the* major obstacle now faced. The focus of the ExCom on funding incremental operating cost claims and late or no response to needs or ambitions of early phaseout of the kind desired or achieved by Mexico and Turkey has thus a negative effect on attaining complete phaseout.

Termed differently, the Turkish dilemma can be put thus. Reluctance from the Executive Committee to allow funding for refrigeration management plans in large volume consuming countries in the refrigeration servicing sector stalled Turkish endeavors. The reluctance of the Executive Committee might reflect a cautious approach to venturing into new and costly areas. ExCom wished first to observe results of three test cases for three continents, one of them being Pakistan, unfortunately with a lack of progress on which to base conclusions. Secondly, the reluctance of ExCom might reflect insufficient understanding of the great difficulties and time lags in achieving reductions in a large sector with many actors, many of them unidentified and in the informal sector. *Being an "early starter" might in fact be necessary to achieve phaseout of CFC in time to meet obligations.*

Tentatively, the situations described for Mexico and Turkey indicate that modest application of noninvestment assistance and early introduction of sectoral approaches to support countries that want to advance more rapidly, may indeed give a very high pay-off in terms of achieved phaseout volumes. The lack of guidelines to implement such funding decisions may reflect an urge to 'save money' to secure funds for obligatory phaseout in other countries close to their deadlines, but this lack appears counter to efforts to maximize protection of the ozone layer. The cautious approach might also represent insufficient recognition of the need to tackle large sectors that will take a very long time to deal with.

(We turn now to material on the Turkish issue provided by IBRD, quoted together with UNIDO as supportive in providing assistance. The Bank, in accordance with its procedures, gives support through a financial intermediary, the Turkish Technology Development Foundation).

A Refrigeration ODS Phaseout Sector Plan covering remaining conversion of Turkey's refrigeration industry, dated August 1999, was held in abeyance because of ExCom decision 29/26, Phaseout in the Refrigeration Sector. This decision "requests the Secretariat, in conjunction with the implementing agencies, and consulting relevant bilateral donors, to prepare a paper on prerequisites and guidelines for terminal phaseout projects in the refrigeration sector, including complete CFC phaseout proposals, for *submission to a future meeting*." The Sector Plan appears to have considerable likeness to an RMP, a refrigeration management plan. It refers to Turkey's decision in accordance with the Country Program on an accelerated ODS phaseout schedule including elimination of ODS imports from January 1, 2000 (a date we have now passed by more than one year) with the interesting question whether this political decision could be implemented in the absence of a decision on funding by ExCom of the said Sector Plan. In the Country Program of 1992, Turkey had decided to aim for 2000 as the year of total phaseout of CFC for new refrigeration products. With the government having necessary policies and regulations in place, including an import quota system, the Sector Plan was to allow the industry to convert to non-ODS. Ownership at the national level is illustrated by the government endorsing the Sector Plan, apparently by confirmation in letter to the Multilateral Fund.

Among the many activities proposed in the Sector Plan we note Customs Training, necessary since Turkey is surrounded by countries where the usage of ODS may be allowed for another 10 years. So effective border control is necessary to reduce illegal trade.

To sum up, it appears that the lack of an ExCom decision based on guidelines still outstanding prevented Turkey from making the start need to phase out early *or in time to meet actual commitments*. As in the case of Mexico, the government/NOU and a designated intermediary, the Technology Development Foundation loses credibility with users and the general public. Indeed, time may now be short for timely fulfillment of Montreal Protocol obligations.

## ***Conclusions***

---

These two country-level narratives suggest four things:

- Sectoral approaches reduce the importance of distinguishing between investment and noninvestment costs
- However, noninvestment as earlier defined will play an important role, and with it the strengthening of ownership at different levels, partly preceding the suggested sectoral approach
- Present ExCom guidelines and decisions, focusing on incremental cost calculated at the project level, appear to hinder appropriate early starts, needed also because of the very long time it takes to tackle widely spread consumption of CFC in refrigeration.
- Lack of ExCom decisions may put governments and their NOUs in positions of lacking credibility towards national stakeholders with whom tentative phaseout arrangements have been negotiated. This may harm ownership previously generated.



# Chapter 17

## Italy Case Study

by Etienne Gonin<sup>9</sup>

### ***Summary***

---

Italy is one of the major European actors in ODS phaseout. Its performance has been diverse: remarkably rapid for halons, more problematic for methyl bromide. One of the distinctive aspects of the Italian policy is its refusal to encourage a rapid phaseout of HCFCs. Italy has not developed a structured bilateral program for ODS phaseout in developing countries, mainly due to difficulties in securing parliamentary approval for contributions to the Multilateral Fund. Italy is now considering using its share for bilateral policies, and particularly intends to assist Eastern European countries. Its experience with methyl bromide, smuggling, and recycling operations could allow positive developments for developing countries and encourage them in developing their own solutions to ODS phaseout.

### ***Italy and the Montreal Protocol***

---

Italy belongs to the largest European constituency represented at the ExCom, together with Germany, France and Britain. These countries may have had differing views at the launch of the Montreal Protocol on the desirability of ODS phaseout, but they are now in a more collaborative phase of integration as to implementing the Montreal Protocol obligations.

Italy has had recurrent problems securing its contribution to the Multilateral Fund on time. Most of its arrears can be explained by a long and intricate parliamentary procedure for approval of the payments. Although these difficulties do not mirror a lack of commitment by the Italian government, it might signal that ozone depletion is not at the top of the environmental priorities for the Italian legislative body—and possibly of its constituents. Delays may have fanned criticism by developing countries of donor countries not meeting their obligations in time. The point made by Article 5 (developing) countries is that such delays retard the fulfillment of ODS phaseout in the developing world, the Multilateral Fund lacking the resources it should have.

### ***Domestic Compliance with Montreal Obligations***

---

Italy complied with the 1996 phaseout deadline for ODS, especially CFCs. Italy points out in its compliance report that it is particularly in advance regarding halon phaseout.<sup>10</sup> By contrast, the

---

<sup>9</sup> The cooperation of Ms. Federica Fricano was very beneficial to this country case study. Her explanations and the information received from the Italian Ministry of Environment were extremely useful to our research. The sole responsibility for all the information and analysis remains the author's and the views expressed in this document do not necessarily reflect the official position of the Italian government or of any related Italian governmental agencies.

consumption of HCFCs is still substantial: it increased between 1997 and 1998, and had only been reduced by 3% in 1998 compared to the base years for the Montreal Protocol (1989).<sup>11</sup> One of the explanations is that Italy is a major producer of HCFCs in the world; Italian production increased by 130% between the base year and 1999. Thus HCFCs have been the primary alternative to CFCs. This explains a certain tension with other countries, especially from Northern Europe, which are strong advocates of a rapid HCFC phaseout.

Phasing out methyl bromide is another acute problem for Italy. A large share of Italian agricultural production is fruit and vegetable farming, which still uses a large amount of methyl bromide, as in many regions of the world, including developing countries. Italy is the second largest consumer of methyl bromide in the world (with about 12% of the world consumption) and the second in Europe (47% of consumption). The Ozone Department of the Italian Ministry of the Environment considers methyl bromide to be the primary compliance issue for Italy. Indeed, the competition in agriculture makes any new regulation a politically sensitive issue. European agriculture is generally highly protected, and associations of producers are reluctant to adopt constraints that could hurt their competitive position. Consensus on the availability of competitive alternatives to methyl bromide does not seem to be established yet. Universities in Italy contribute to research in this field, especially the DIVAPRA agricultural institute at the Torino University. Workshops and publications have been devised to inform on alternatives to the use of methyl bromide, especially non-chemical ones. As in many developed countries, the Ministry of Environment is in favor of a rapid change in production techniques, whereas association of producers and other ministries in the government are opposing far-reaching phaseout.<sup>12</sup>

The Ministry of the Environment, the National Agency for Protection of the Environment, and the customs authorities are responsible for enforcing the ozone regulations. The Italian policy is largely based on regulatory rather than market-based mechanisms. However, it also includes some voluntary agreements between companies and the government (both at the central and local levels).

### ***A Renewed Interest in Bilateral Action***

---

It appears that the situation regarding the payment of the Italian contributions has changed in recent years and that payments will be timelier in the future.<sup>13</sup> This might illustrate a stronger emphasis of the Italian global environmental policy on ozone issues.

One of the main consequences of this modification is that Italy is currently considering setting up a more structured bilateral ozone policy. Until now, Italy has worked on ad hoc workshops but did not have a permanent program. Interestingly, Italy built on the experience it had with phasing

---

<sup>10</sup> A decree of the Ministry of the Environment was issued on 26 March 1996, setting that halons should be replaced by the end of 2000—an objective that was achieved, according to Italian reports of activity on ODS phaseout. There are still halon stocks in Italy, of about 3,843 metric tons (1999 estimate).

<sup>11</sup> The level allowed by the Montreal Protocol is the following: 2.8% of the 1989 ODP-weighted CFC consumption plus the ODP-weighted level of the 1989 HCFC consumption..

<sup>12</sup> The situation is the same in France and to a certain extent in the United States.

<sup>13</sup> Letter to the MLF from the Italian Ministry of Environment for the 1999 budget year.

out methyl bromide to set up a workshop in Africa on the issue of methyl bromide. This will be a central issue in ODS phaseout in agricultural developing countries, so a focus of the Italian bilateral policy on it would be positive. Ugandan ozone officials mentioned this past workshop (organized with UNEP) as one example of the bilateral meetings they went to as part of their training (see the case study on Uganda in this report).

Italy does not seem to have a marked regional focus in its environmental development policy. Any action on ozone done in the past by Italy in developing countries has been outside of MLF funds. One of the countries with which it has developed the strongest relationship is China. This work is part of a larger effort on the environment rather than a specific focus on ozone.

One of Italy's first priorities in terms of environmental policy is to assist Eastern European candidates to the European Union. Italy's goal is to advise on how to adapt environmental regulations in Eastern European countries in accordance with EU legislation. Accordingly, this could be one of Italy's regional priorities were it to develop long-term bilateral programs for ODS phaseout.

Finally, the role of Italian technicians and consultants should be mentioned. Implementing agencies mention that they have had numerous contracts with Italian companies for the implementation of ODS phaseout projects in developing countries. The action of donor countries is not limited to governmental actions: Italian experience, consultants, and hardware deliveries have without doubt played a substantial role in implementing phaseout among the Article 5 countries.

### ***The Question of Alternatives to CFCs: A Differing View on HCFCs***

Many European countries have now warned against the tendency to move from CFCs to HCFCs and to consider HCFCs as long-term alternatives. HCFCs, although having a smaller immediate impact on the ozone layer, are still ODSs. The transition to HCFCs was encouraged as a matter of urgency when the first ODS phaseout projects were set up, as little was known about other CFC alternatives. One of the reasons for the relative support of the chemical industry to CFC phaseout was the fact that there was a market for the transformation of CFCs to HCFCs—this was taken into account in their financial forecast of what the CFC phaseout would cost.

The issue of financing phaseout of HCFCs comes up regularly in the ExCom, and Italy is reluctant to encourage the rapid phaseout of HCFCs. Its point is that the main alternative to HCFC is HFC, which is a greenhouse gas. In the Italian view, the assessment of alternatives should thus take into account the Kyoto Protocol as much as the Montreal obligations, an analysis which leads to delaying HCFC phaseout. Phaseout of HCFCs cannot currently be financed by the Multilateral Fund.

The Italian argument on alternatives to HCFCs can be debated, but it points at what could be one of the most constructive aspects of the Italian view on ODS phaseout: it calls for an integration of the ozone and the climate conventions. It will be interesting to see how these two issues are

linked in the future bilateral policy of Italy, and whether it leads to creative projects in developing countries.

### **Other Possible Insights from Italy for ODS Phaseout in Developing Countries**

Italy has to face two other major challenges in its ODS phaseout effort, and both can be tackled by enhanced regional cooperation. These two issues are smuggling of ODSs at the borders and regeneration/destruction of ODSs.

Smuggling has been a central problem in ODS phaseout. Italy has implemented a regulatory system at the border, initiated at the EU level through a licensing mechanism and operated through domestic law. In Italy, criminal sanctions on ODS smuggling can amount to imprisonment of up to two years and fines of up to three times the value of the smuggled substances. There are difficulties in harmonizing customs procedures between European countries. The task is made more complex by the fact that new EU regulations have to be put in place as part of the Shengen accords (which organizes customs coordination between signatories and suppresses controls within the Shengen area).<sup>14</sup>

Smuggling, and more broadly, customs regulation, was cited as one of the main challenges by developing countries responding to our survey. The European example demonstrates how essential it is to organize regional coordination to enforce customs regulations.

Another area where Italy has needed regional coordination is the recycling and destruction of ODSs. Italy does not have sufficient equipment to cope with these operations and has to send the substances to neighboring European countries. This requires regional integration – another demonstration of the benefits of tackling ODS phaseout on a regional basis. It is interesting to consider how Italy will make developing countries benefit from its own experience with ODS phaseout. For instance, the issue of destruction of existing ODS stocks will arise both in developing countries and developed countries such as Italy.

---

<sup>14</sup> Not all EU countries are signatories to the Shengen accords.

# Chapter 18

## France Case Study

by Etienne Gonin<sup>15</sup>

### *Summary*

---

France has developed a substantial bilateral policy for ODS phaseout based on its experience with other environmental and development institutions within its administration. Although France has some distinctive national interests, especially in terms of methyl bromide production, it seems to be in accord with the general policies of the EU at the ExCom of the Multilateral Fund. In its bilateral approach, France focuses on its priority regions for development assistance: the Middle East and Africa (which, as low-consuming countries, are not the first priorities of the MLF). France does not finance a high number of institutional strengthening and country programming, but rather focuses on technical assistance. Its recent projects seem to take into account some demands of A5 countries as expressed in responses to our questionnaire (such as encouraging training of technicians or regional and sectoral approaches). These bilateral policies also offer interesting initiatives in terms of coordination between environmental conventions.

### *Introduction*

---

France uses the 20% share allocated to bilateral assistance within the contribution to the Multilateral Fund. This share currently represents about U.S.\$2 million per year.<sup>16</sup> The declared aim of the French policy in this regard is to focus on priority regions such as Africa and the Middle East—which happen to be small ODS consumers—and to start implementing an integrated approach with the projects dealing with global warming.

In this case study, we will focus on the bilateral aspects of the French policy more than on the implementation of the Montreal Protocol within France. This case will also try to draw links with other case studies presented in this report. Iran, for instance, is one of the A5 countries with which France has developed the most substantial assistance for ODS phaseout.

The plan of this chapter:

- The organizational framework of the French bilateral policy
- Features in the techniques of funding for French bilateral projects
- The position of France within the Montreal institutions and towards the Montreal Protocol

---

<sup>15</sup> This country case study benefited greatly from the information shared graciously by M. Mustapha Kleiche. The documents provided by the secretariat of the FFEM were extremely useful. The sole responsibility for all the information and analysis remains the author's, and the views expressed in this document do not necessarily reflect the official position of the French government or of any related French governmental agencies.

<sup>16</sup> Hence U.S.\$6 million for 2000-2002. Source: *Annual Report of the FFEM*, 1999.

- A few examples of strategies for ODS phaseout in France—and possible inspirations for assistance of A5 countries
- An overview of French bilateral projects as they stood at the beginning of 2000<sup>17</sup>
- Towards an integrated approach with global warming at the regional level? Analysis of a project of refrigeration technique assessment in Western Africa.

### ***Organization of French Bilateral Assistance in the Montreal Framework***

---

France created in 1994 its own fund for environmental bilateral assistance: the Fonds Français pour l'Environnement Mondial (FFEM, French Global Environmental Facility). It is modeled after multilateral assistance funds, more particularly the Global Environmental Facility. Its purpose is to “encourage the inclusion of measures to protect the global environment in development projects.”

#### ***Issues Covered***

The main issues covered by the FFEM are global warming, biodiversity, and, to a lesser extent, protection of international waters. Ozone issues are dealt with by the Secretariat of the FFEM but are treated separately from the three other categories. Indeed, the money going to the ozone projects is part of the French contribution to the Multilateral Fund. This bilateral aid thus has to comply with the specific approval procedures of the MLF. Although people at the FFEM are specialized in different environmental issues, the integration into one entity—the secretariat of the FFEM—may be a positive factor for issue-linkage between various environmental conventions. For instance, it is currently debated whether the persistent organic pollutants-related projects will be added to the FFEM tasks.

#### ***Implementation Agency - Secretaries and Political Choices***

The secretariat of the FFEM is located within the French agency for development (AFD, *Agence Française de Développement*). The latter, created after World War II, is in charge of financing the French policy for Development (*la Coopération*). It uses grants and loans to states (on the model of the World Bank) and to private actors (as does the International Finance Corporation at the multilateral level). It has implementing agencies in about 50 countries.<sup>18</sup> It reports to the Ministries of Finance and Foreign Affairs; the Ministry of Environment is also determining policy for the FFEM.

---

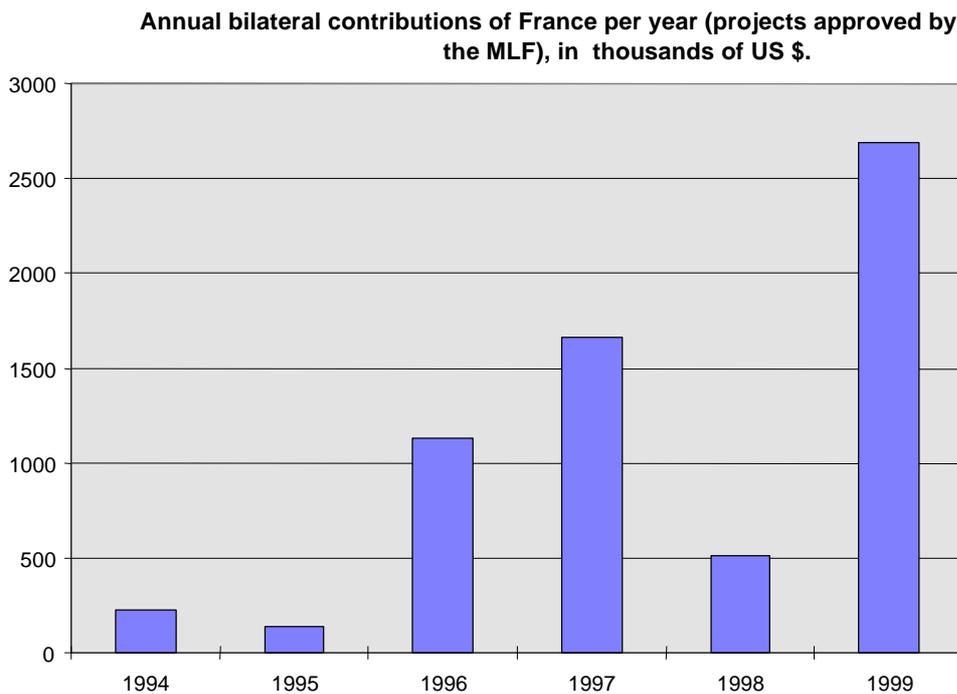
<sup>17</sup> We only had access to the 1999 report to the MLF on French bilateral activities. These reflect however the main trends of the French bilateral policies, and are complemented by our analysis of a project in Western Africa presented for approval at the end of 2000.

<sup>18</sup> The last two offices opened for the Palestinian territories (the offices are located in Jerusalem) and in Lebanon.

### *Funds Disbursed and Priorities*

The AFD has a priority area for action, defined by the government as the *priority solidarity area* (*Zone de solidarité prioritaire*). It is made up of countries from the “Africa Caribbean Pacific” region, plus countries in the Middle East and Southeast Asia. The FFEM tends to concentrate on this area—although the FFEM is not restricted by its statutes to a specific region.<sup>19</sup> Its role is to assist countries for which the GEF—or, in the case of ozone, the MLF—cannot give as much attention as for bigger countries. This is relevant in the case of ozone because many countries in the French priority area for assistance are low-consuming countries that have not been specifically targeted by MLF investment funding. French bilateral programs do not cover the region of Eastern European countries and former USSR republics (CEITs).

As of 31 December 1999, the Executive Committee of the Montreal Protocol had approved 62 activities as bilateral contributions of the French government. The 62 approved projects represented U.S.\$6.3 million at the end of 1999, of which U.S.\$1.6 million had been disbursed. The disbursement rate (excluding projects approved in 1999) amounted to 44%. The graph below illustrates what amounts were approved each year for French bilateral projects. It displays a high variability from one year to another.<sup>20</sup>



Data available at the end of 1999.

<sup>19</sup> About 60-70% of the activity of the FFEM takes place within the priority area.

<sup>20</sup> *French report on bilateral activities in the Montreal Protocol* as of 31 December 1999. The figures slightly differ in the *Annual Report of the FFEM* (1999), which mentions 66 approved projects as of 31 December 1999, for example. However, the general trends drawn from both documents are similar.

## ***Features in the Techniques of Funding for French Bilateral Projects***

---

### ***Conditions for Funding***

The eligibility conditions for FFEM funds are threefold:

1. be a developing country, according to the UN classification;
2. have ratified the Vienna Convention, the Montreal Protocol, and the London and Copenhagen amendments; and
3. have an ODS consumption below or equal to 0.3 kg per capita.

The last point is a condition for being considered an “Article 5 country” in the Montreal Protocol. The second one is a measure of commitment to ozone issues in the assisted country.

The French bilateral aid complies with the MLF principle which limits funding to incremental cost, i.e., costs “incurred by firms in shifting to non-ODS technologies with no clear return for the additional expenditure.”<sup>21</sup> Two other criteria are taken into account in funding decisions. First, the FFEM covers only additional expenses, i.e., projects or parts of projects that did not find financing through more traditional multilateral mechanisms. Second, the FFEM seeks a demonstration effect through its projects—be it in institutional or technological terms.<sup>22</sup> The Executive Committee of the FFEM makes the decision to fund projects. Representatives of the ministries (Foreign Affairs, Treasury, and Environment) are on this committee.

### ***Impediments to Coordination with IAs***

The rules regarding the disbursement and proper use of money in French development projects are strict. The ministries to which the AFD reports determine these rules. Some of these clauses, which are very close to the World Bank’s principles for funding, are not compatible with UN agencies’ rules. This limits the cooperation between the FFEM and UN implementing agencies for the Montreal Protocol. Three types of problems arise:

- which jurisdiction should be applicable in case of dispute (French ones versus international ones);
- the rules regarding the reimbursement of funds not properly used; and
- the right to audit projects at any time.

The FFEM still has some projects in common with implementing agencies, especially UNEP, but this coordination is hindered by the legal incompatibilities mentioned above. Both UN and French agencies are currently working to solve these legal issues.

---

<sup>21</sup> Elisabeth R. DeSombre and Joanne Kauffman, “The Montreal Protocol Multilateral Fund: Partial Success Story,” in Robert O. Keohane and Marc A. Levy, *Institutions for Environmental Aid* (Cambridge, MA: MIT Press, 1996), p. 109.

<sup>22</sup> This principle is also part of the Swedish bilateral policy, which is described later in this report. However, the figures displayed further in this case study show that France has never directly financed any “demonstration project.” It rather intends to include demonstration effects in other types of projects.

## ***Relationships with Article 5 (Developing) Countries***

The countries assisted have a special relationship to France, since they most of the time receive development assistance from France in other areas. If the country assisted by the FFEM belongs to the AFD's priority area, the supervision of the project can be led by the local AFD agency. However, the general principle is that the direct involvement of the French agency should be minimal—accordingly, most of the activities are subcontracted. The FFEM signs a funding convention with a company, a nongovernmental organization, or the state. Most of the time, it does not acquire equipment itself or hire consultants directly.

This might be an indication of how local ownership is essential to make projects successful. An active and empowered NOU can be a crucial stakeholder in helping devise the development project with the representatives of the FFEM. The NOU can especially benefit from a dense domestic network of involved stakeholders, both in the public and private sectors.

## ***Nature of the French Position towards the Montreal Protocol***

---

### ***Representation at the MLF ExCom***

There is a rotation for representation of different countries of the European Union at the Executive Committee. Germany is currently holding the seat for the group to which France belongs. A representative of the FFEM sits with the German, British, and Italian delegates of the constituency. There seems to be good coordination between France and Germany especially. For example, France and Germany currently have a bilateral project in common in Lebanon, dealing with the refrigeration management plan and a project for reduction of CFC emissions in centrifugal chillers.<sup>23</sup> France also takes part in a German-led project on halon-banking management in four countries of the Middle East.<sup>24</sup> It does not seem that marked national interests hinder coordinated action at the EU level.

### ***The French View on MLF Funding Priorities***

France is involved in the current debate on the need to adapt the funding priorities of the MLF, but its position does not differ from the EU common policy. It shares the concerns about HCFCs—for instance, the fact that there are too many projects supporting HCFCs technologies funded by the MLF. France seems to emphasize the need to move from a project-based approach to sectoral strategies. It tends to welcome the idea of reinforcing local capabilities; it combines this with an apparent interest in reinforcing regional cooperation within A5Cs phasing out ODSs and integrating global warming concerns within ODS phaseout strategies. These points are illustrated by the example of a project in Western Africa presented in the last part of this case study.

---

<sup>23</sup> Project LEB/REF/28/TAS/29

<sup>24</sup> Project ASP/HAL/28/TAS/29

## ***Lessons from Domestic Phaseout?***

---

### ***France and International Agreements on the Protection of the Ozone Layer***

As with most donor members of the MLF, France was compliant with the freezing requirements on ODSs. France plans to ratify the Montreal and the Beijing Amendments before the end of 2001. It seems simpler to ratify jointly both amendments.

Most of the phasing out measures are taken at the European level, and France can only choose which implementation method it will use to reach this goal.

### ***Elements of the Refrigeration Plan***

There were some specific concerns in the refrigeration management plan France implemented. The transition towards more ozone-friendly techniques was made difficult in France by the fire-related risks of the substitutes to CFCs. The French distribution industry has been questioning a quick transition from CFCs in refrigeration, especially because the insurance premiums were increased due to the adoption of CFC substitutes. Moreover, the French public opinion tends to be less sensitive to the ozone issue than in other EU nations such as Germany or the Scandinavian countries.

The strategy used for refrigeration technicians was to create a new certification. Technicians can obtain this certification through their diploma or an equivalent professional experience. There is thus an official list of certified technicians that can be consulted on the Internet or on the French “Minitel” network.

CFCs are collected in one of the two centers for regeneration (but not recycling). People bringing CFCs that can be regenerated get paid.<sup>25</sup> In industrial refrigeration, if there is a leaking incident, the owner of the equipment can be held responsible if the company did not use certified technicians.

This experience helps France devise its bilateral programs supporting refrigeration management plans in A5 countries. Mustapha Kleiche explained that in many A5 countries, devising a training program can have a negative side effect.<sup>26</sup> The certification becomes a barrier to enter into the profession: new technicians cannot access the market if they are not certified. It is thus essential to develop training programs locally, which can continue to operate once the bilateral project reaches an end. This is another illustration of how ownership by local stakeholders is essential in the success of a phaseout project.

---

<sup>25</sup> There is also a general tax on CFCs, but the fact of bringing CFCs to the regeneration center is encouraged by this payment.

<sup>26</sup> Interview at the AFD on 11 January 2001.

## ***Other National Policies***

France does not differ from the EU for most policies on ODS phaseout. Import and export regulations exist regarding ODSs and are determined at the EU level. The awareness campaigns focused more on professionals than on the public opinion. To favor the collection of ODSs, the French Agency for Environment and the Management of Energy developed a label (“la marque Retour”). It is granted to manufacturers that ensure that their product containing ODSs can be returned and collected after use.

France distinguishes itself in at least one important manner though: it is the only EU country producing methyl bromide. European negotiators have been influenced in the past by European ODS producers, such as Atochem, Imperial Chemical Industry, Montefluos, and Hoechst. In the international negotiations about methyl bromide, France has to take into account that methyl bromide is produced on its territory. It does not seem though that these private interests taint the French policies too negatively. The best counter-example is the project approved in November 1999 to phase out methyl bromide in the Moroccan flower and banana production industry. The approved funding amounted to more than U.S.\$1 million and was the largest French bilateral project approved by the MLF as of December 1999.<sup>27</sup>

France, however, is not a major user of methyl bromide compared to other European countries. Its use is concentrated regionally—mainly to the few departments that specialize in strawberry growing. The ministry of agriculture trains technicians and delivers licenses for use. The position of the industry is that a careful use of methyl bromide creates very little emission of damaging substances. The French ministry for the environment challenges this view.

The next part will provide an overview of the French projects as they stood by the end of 1999.

## ***Review of Bilateral Projects by 1999***

---

As mentioned above, 62 projects had been approved by the MLF Executive Committee as of December 31, 1999.

### ***Regions***

There is a focus on the Middle East and on Africa, which belong to the French priority Area for development assistance. Countries assisted in Southeastern Asia—i.e. not in this area—are Malaysia, Vietnam, Thailand, Laos, and China (the latter for its report on compliance with the Country Program). Below is a breakdown of the projects by regions and a detail by country for the Middle East (excluding Northern Africa) and Africa.

The breakdown by countries shows that France focuses its action on a rather small number of countries and tries to develop a somewhat long-term relationship with the domestic actors. One

---

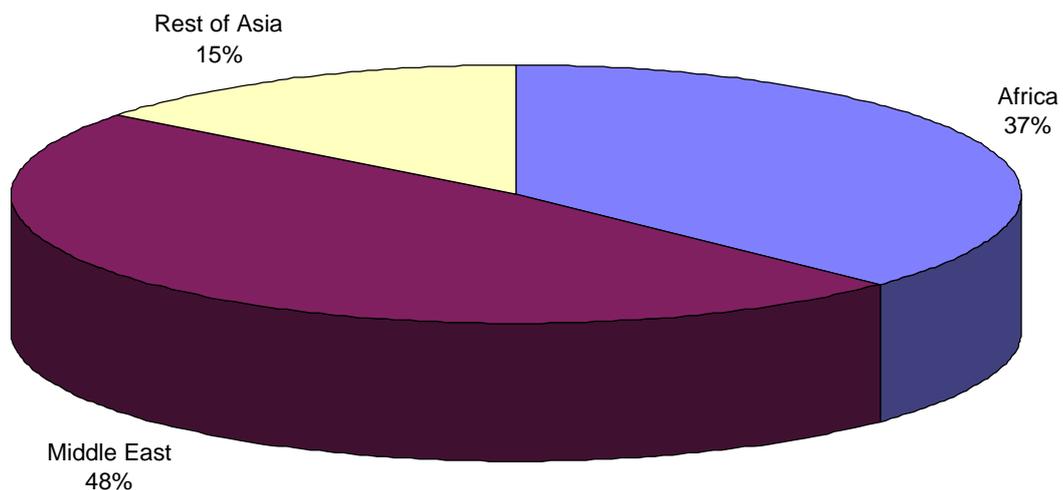
<sup>27</sup> Project MOR/FUM/29/INV/37.

of the countries most substantially assisted has been Lebanon, with 13 projects as of 1999. They came in three bunches: seven in 1996, three in 1997, and three in 1999. The overall approved funds amounted to about U.S.\$1.5 million (not all of which had been disbursed by 1999). The biggest operation had been a technical assistance project (for an amount of 1999 U.S.\$425,289) on the implementation of an ODS recovery and recycling network, approved in November 1997. It consisted of a training of technicians and the preparation of a new ODS regulation. It is supposed to be completed by November 2002. Interestingly, training was cited as one of the first priorities by NOUs in response to our questionnaire. The action of France in Lebanon may hint that France is responsive to demands by NOUs—although only a more thorough review could test this assumption. Most of the other projects consisted of investment projects for the conversion of production facilities in the foam industry to non-CFC technologies.

Another priority country is Iran—which is the subject of another case study in this report. The approved amount was about U.S.\$1.3 million at the end of 1999—of which only U.S.\$73,000 had been disbursed at that date. Many of the bigger projects had only been approved in 1999, so the small amount disbursed cannot by itself mean delay in implementation. But a substantial delay appeared for at least one project: the setup of a national program of recovery and recycling of CFC12 (a pilot project in Tehran).<sup>28</sup> The project was supposed to be completed by the end of 1999, and actually had only started at that date.<sup>29</sup>

The biggest project by 1999 in Iran was a halon management project, approved in July 1999. It represents an assistance of U.S.\$511,175 and is supposed to be completed by 2003. Overall, the cooperation seems to have moved from small preparation projects to larger investment projects including technical assistance.

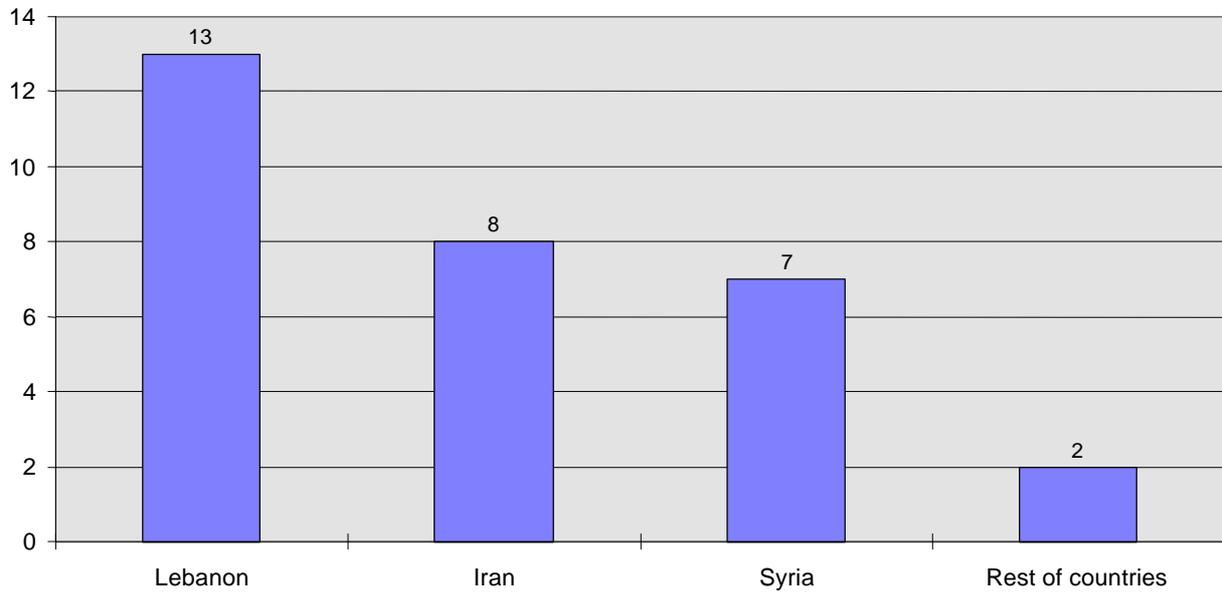
**Regional distribution of French bilateral projects (number of projects)**



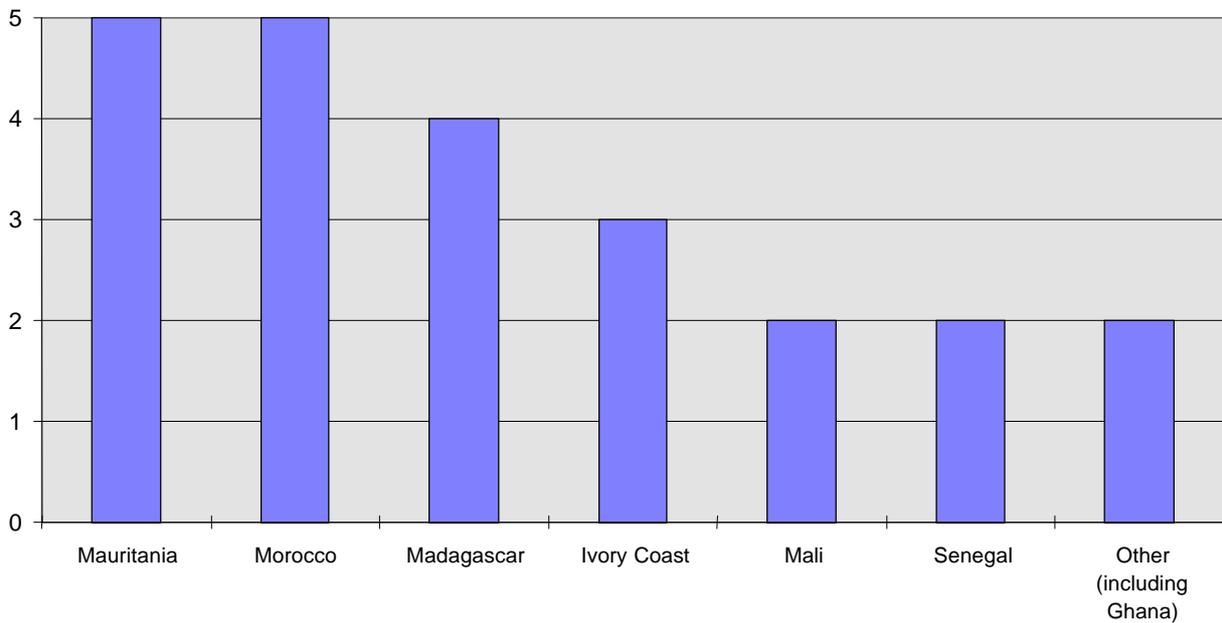
<sup>28</sup> Project IRA/REF/23/INV/31.

<sup>29</sup> Delays may be due to changes in personnel.

**Number of French bilateral projects in the Middle East, by countries (as of Dec. 1999)**



**Number of French bilateral projects in Africa, by countries (as of Dec. 1999)**



## *Activities*

The breakdown by activities is not as clear-cut as shown on the following graph. Some of the projects relate to several activities. Thus, technical assistance projects can have contributed to the design of the Country Program (as is the case for a project funded in Laos).<sup>30</sup> Other technical assistance projects covered training activities, as was mentioned in the previous paragraph in the case of Lebanon.

In the following graph, it appears that France focused more on projects of technical assistance and of Investment projects than on Country Program support or institutional strengthening. This last category in particular seems minor. The only project supported by 1999 had been a project proposal in Mauritania. This early project (approved in 1994) was transferred in 1997 to UNEP for supervision. As to Country Program support, France assisted three countries: Mauritania, Vietnam, and Madagascar. For the latter, the Country Program assistance was coupled with a refrigeration management program. This was followed in 2000 by the creation of the Madagascar NOU.

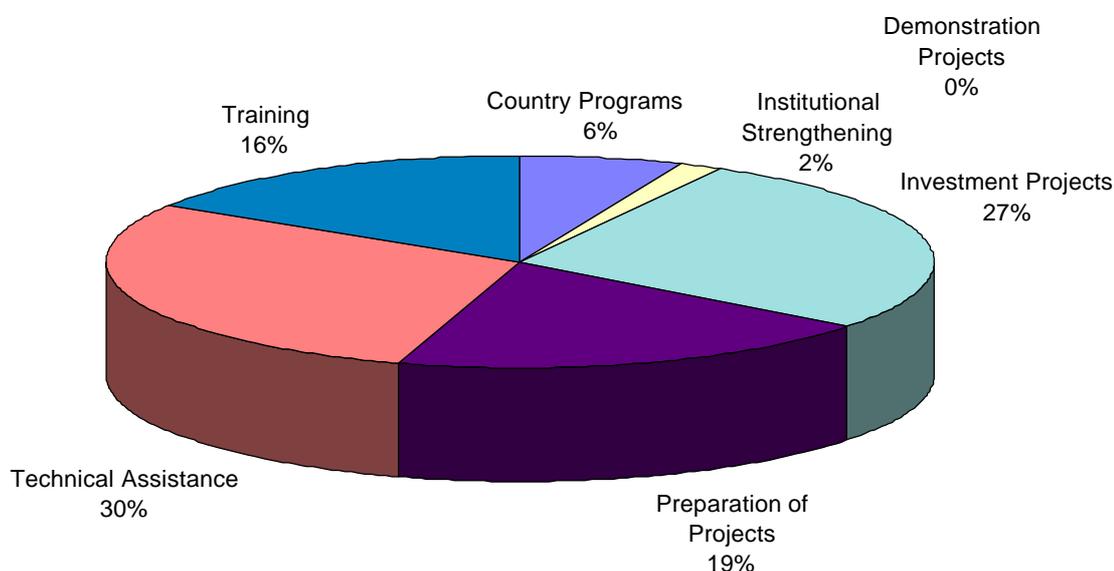
The combined weakness of institutional strengthening and Country Program support may indicate that France did not prioritize noninvestment projects until 1999. Generally speaking, the AFD and the FFEM do not really have the capacity to invest in the personnel required for this type of investments.

However, technical assistance and training—two categories prioritized by the French aid—were in high demand in A5 countries that responded to our questionnaire, especially in French-speaking Africa. Moreover, this type of support seems to have included substantial technological transfers from France to the A5 countries. Supporting ownership of projects by Article 5 countries certainly does not imply that only institutional strengthening and Country Program assistance should be encouraged. It appeared from our survey that all types of projects can both benefit and reinforce domestic ownership of ODS phaseout. If France has encouraged ownership in A5 countries—which seems to be the case—it is rather through technical assistance projects than institutional strengthening or Country Program projects.

---

<sup>30</sup> Project LAO/SEV/27/TAS/02.

French bilateral projects, by type of support (as of 1999)



### **Case Study: Refrigeration Sector in the UEMOA Economic Area (West Africa)**

This French project was recently presented for approval to the Executive Committee of the MLF. UEMOA is an integrated economic area, which uses a common currency (the Franc CFA) and has economic and trade agreements. It is composed of eight countries: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. They belong to the priority area for French development policy. The purpose of the project is to study an integrated approach to phasing out ODSs and greenhouse gases (GHGs) in the area in the most energy-efficient way—laying out technological alternatives and funding mechanisms.

#### ***Elements of Ownership***

- It follows a regional approach. Many French-speaking African countries pointed out in their responses to our questionnaire that having a regional approach would be extremely positive. Of course, this response from A5Cs might have been encouraged by the French policies, which leaned towards this regional approach. Nevertheless, the fact that we notice a response to A5 countries demands in the French-supported project is a positive point in terms of ownership.
- The focus of the project on trade regulations regarding ODS is also an element that was frequently required by A5 countries. Indeed, the training of customs officials was often cited as one of the most successful initiatives by NOUs in the region.<sup>31</sup>

<sup>31</sup> A harmonization of tax rules is also envisioned.

- Finally, it is interesting to notice that two countries in the UEMOA (Niger and Senegal) have a coordinated office for ODS and GHG emissions. This might have encouraged the proposal for an integrated approach between ODS and GHG phaseouts.

### ***Coordination Between Environmental Conventions***

In relation to another point in our report, we notice that this project supports an integrated approach between different environmental conventions. First, it is pointed out in the proposal that the aim is to build on the cooperation already existing in the UEMOA on the desertification issues.

Second, it aims to fill some gaps in the Kyoto and Montreal frameworks. For instance, the GEF does not focus primarily on refrigeration issues in the region, but rather on wood heating and introduction of renewable energies. Indeed, refrigeration is seen as a prerogative of the Montreal institutions. However, these regions are only small consumers of ODS compared to bigger and more industrialized A5 countries, and they are not priorities for the MLF secretariat. Consequently, very little has been done to study the best energy mix for refrigeration—in terms of efficiency and of protection of ozone and CO<sub>2</sub> emissions.

The substitution to CFCs has been done in the region mainly towards two types of gases.

- For refrigeration units consuming high levels of energy, the substitution was done in favor of HCFCs.
- For domestic refrigeration and air conditioning in vehicles, HFCs have been used as substitutes. This has an obvious negative effect on CO<sub>2</sub> emissions.

There are high potential gains in integrating the approach for ODS and GHG. Finally, one of the purposes is to encourage investments region-wide, to benefit from economies of scale.

### ***A Sectoral Approach***

The pre-study differentiates between the various consuming sectors (domestic and commercial refrigeration, transportation, warehouses, air conditioning) and identifies which gases are the most commonly used in each of them. It also prioritizes which sectors are the most damaging in terms of ODSs and GHGs. It leans towards targeting commercial refrigeration as the most feasible action to take in the first time (since it is a more concentrated sector than individual refrigeration). This approach by sector is also one of the trademarks of the French assistance in A5 countries.

As a *conclusion*, this project (although a small one in terms of funding) seems a fair illustration of what the French contribution to ODS phaseout prioritizes. Although there is no certainty that the input from local NOUs has been substantial, it seems that the project responds to some of the needs of these NOUs. It also sketches an effort at efficiently tackling the coordination of environmental policies.

# Chapter 19

## Sweden Short Case Study

*by Rasmus Rasmusson*

Sweden participated actively in the small group of like-minded countries during the preparatory discussions and negotiations that lead to the Montreal Protocol. This was a reflection of the traditional strong Swedish stands on environmental matters running from the Stockholm Conference in 1972.

This early engagement helped foster Swedish capacity in ozone affairs, particularly within the Environmental Protection Agency. The ministries of central government are fairly small, concentrating efforts on preparing government regulations, legislation and budgets to be placed before Parliament. The agencies work freely during a year on the basis of instructions received annually after Parliamentary approval of the budget, in the form of “regleringsbrevet,” the regulatory letter from the ministry responsible for the pertinent agency, in this case the Ministry of the Environment.

Early contacts were also created with industry and consumers, facilitating subsequent Swedish phaseout of ODSs. Between 1988 and 1994, the use of ODSs in Sweden decreased by 93%, from about 8,000 tons to about 550 tons per year. Phaseout was estimated to cost about SEK 280 million per year (U.S.\$28 million at the current rate of exchange). The majority of these costs were passed on to the consumer in the form of higher prices on goods.

The phaseout of CFCs in refrigeration did pose capacity and organizational problems. Over 1,000 companies working on the service and installation of refrigeration equipment and heat pumps had to be “organized and apprehended.” This was solved by initiating cooperation with three trade associations which were encouraged to form the Refrigeration Industry Cooperative Foundation, with the stated objective of working towards a high quality of technical craftsmanship with regard to health, environment, and safety, and to cooperate with relevant government authorities in this regard; an interesting approach also for many A5Cs.

The officer in charge of ozone issues at the Swedish Environment Protection Agency soon found it necessary to establish informal cooperation with Nordic colleagues in the same situation, to share experience and ideas, including to evaluate to what extent claims from the industry on difficulties in phasing out ODSs were valid or not. This cooperation became very effective and has later become the source of inspiration for the establishment of the ODS Officers Networks (ODSONET). The first network, the one in Southeast Asia, is still paid by Sweden on top of its contributions to the Multilateral Fund, while the other networks are financed by the Fund.

Based on this experience, Sweden has in the work of the Executive Committee of the Multilateral Fund, often together with other smaller countries, for instance Switzerland in the same ExCom constituency, sometimes in dialogue with A5Cs, taken initiatives that it has

deemed appropriate in order to meet increasing or new challenges to the Protocol's implementation. To mention a few:

- Pleading for the need for long-term, strategic planning.
- Pleading for more noninvestment activities in view of the increasing importance of tackling widely spread consumption among small and medium-sized enterprises, inter alia in the refrigeration sector; and in view of meager resources devoted to noninvestment generally.
- Arguing that ozone-damaging HCFC was unduly favored as a substitute for CFC, through the procedures and calculations of ExCom; excluding for instance the secondary conversion costs
- Suggesting that the matter of all-encompassing and thus adequate refrigeration management plans was a matter of great urgency to meet CFC phaseout deadlines, in view of the very long time lags in implementing such phaseout involving large numbers of small enterprises, difficult to identify and engage. This involved also criticizing ongoing piecemeal approaches.
- Arguing that National Ozone Units must be given more leeway to manage their own affairs in "ownership" and that institutional strengthening must be "tailor-made" to varying national situations. Thus, institutional strengthening agreements should not detail work plans of NOUs.

Over time, most of these initiatives have borne fruit in improving operations of the Protocol and the Fund.

Sweden wanted to promote noninvestment by launching an innovative, model, bilateral program within the 20% of its annual contribution to the Fund, permitted by the rules. Drafting guidelines for such a program took quite some time because of differences of opinion between agencies concerned. After some time, principles were established, and the first bilateral projects were launched, and approved by the Executive Committee in December 1999. Characteristically, one of them was for all practical purposes a refrigeration management plan (RMP, see above on Swedish "pet subjects") for the Philippines, based on a dialogue with the Department of Environment and Natural Resources of that country, to make sure that it was well embedded in the structures of that government. The project was approved by ExCom 30 in December 1999 for bilateral implementation utilizing the Swedish contribution to the Fund.

In planing and implementing the bilateral program, Sida capacity has been stretched by using the Stockholm Environment Institute as a consultant.

**PART E**

**APPENDICES**

---



# Appendix 1

## Terms of Reference

The study shall illustrate the conditions, inside and outside an A5C, that facilitate fulfillment of obligations in accordance with the Montreal Protocol and its Amendments.

The resources/capacity, position, and role in networking of stakeholders, of National Ozone Units (NOUs), and attitudes of important surrounding elements to these NOUs is the focus of inquiry. A first broad study involving questionnaires to some 100 respondents is to produce data that can help categorize conditions in this respect in different countries.

A sample of some six A5Cs will be selected for in-depth study of the following conditions that are assumed to be relevant in facilitating fulfillment of obligations:

- Clarity of perceptions on the ODS challenges to be met and means, methods of doing so (“What are actually our targets, measured for instance in ODS tons by specific dates? What is the challenge”?)
- Cooperative relationships with all actors within the country that have a stake in ODSs and their phaseout (e.g., producers, consumers, legislators, importers, exporters, opinion leaders, the political leadership, etc). Has industry cooperated in mapping the size and nature of national ODS?
- Has adequate import and export regulation been put in place?
- “Ownership” in relation to important outside actors such as the implementing agencies (IBRD, UNDP, UNIDO, UNEP), bilateral donors, and the Multilateral Fund Secretariat, especially in terms of the Country Program and its evolution, securing appropriate support, and so forth
- Success in gaining experience and catching ideas through participation in regional network meetings of NOUs
- Operational/administrative autonomy, financial sustainability and staffing, including placement within organization structures of government

The observations may result in suggestions or recommendations on how deficiencies can be dealt with so as to improve conditions for NOUs in their task of enabling governments to fulfil their obligations.

The six or so country case studies will then be “distilled” to produce generic observations that can be relevant also for other environmental conventions, for instance a future POPs convention.

The performance and attitudes of developed countries also contribute to the conditions under which A5Cs and NOUs work. Therefore, case studies on the policies and implementation of two developed countries will be produced.



## Appendix 2

### Cover Letter

Dear Sir/Madam:

The Swedish government, as a party to the Montreal Protocol and a member of the Executive Committee of the Multilateral Fund, would like to assist you in your efforts to protect the ozone layer. The Swedish government has assigned me to the Weatherhead Center for International Affairs at Harvard to better understand how to assist NOUs in their efforts to control ozone-depleting substances. I understand the problems faced by National Ozone Units in controlling the production and consumption of ODSs. I respect your vital role in protecting the ozone layer, and believe there is no better way to assist you to reach your goals than to ask you directly about issues relating to your work

I have enclosed a brief questionnaire, reviewed by UNEP/DTIE, asking you to describe your challenges, obstacles, and initiatives. We would like to better understand your mandate, your situation within your government, and whether you are able to gather the information and elicit the needed actions from stakeholders involved in the production or consumption of ODSs; in sum, what are the conditions for doing your job.

I know that you have many demands on your time. I believe you will find filling out this questionnaire worth while. Your detailed responses will greatly influence Sweden's recommendations and actions in the Executive Committee to promote your ability to be an autonomous and empowered actor.

We kindly ask you to reply to this questionnaire by *Tuesday, October 24*, by whatever means is most convenient (e-mail, fax, or mail). If you have any questions or comments, please do not hesitate to contact me or my research assistants.

I look forward to hearing from you and, hopefully, having the pleasure of meeting you on a later occasion.

Yours faithfully,

Rasmus Rasmusson  
Officer at Harvard and Ambassador  
Member of the Executive Committee of the Multilateral Fund

Enclosure



# Appendix 3

## Questionnaire

*(If you hand-write your response, please print clearly)*

1. A) Is the NOU located within a Ministry? (please circle correct alternative) *Yes No*  
If yes, which Ministry?

If no, please specify the NOU's position within the government:

- B) The immediate superior of the NOU is (circle): *Cabinet minister Permanent secretary Head of department*  
Other (write function or title)

- C) Does the NOU have a consultative body or steering committee? (circle) *Yes No*  
Please describe:

- D) In which year was the NOU created?  
Is the NOU a permanent or temporary entity?  
Number of permanent NOU staff:  
Number of temporary NOU staff:

2. Does the NOU have a budget of its own? (circle) *Yes No*

The main contributor to this budget is (check a box):

- The Multilateral Fund (MLF)  
 The Ministry of Finance or Treasury  
 The Ministry of the Environment  
 Other Ministry/Contributor (specify):

Comment:

3. What degree of involvement did the NOU have in formulating the latest Country Program? (check a box)

- NOU formulated it
- NOU participated in drafting
- NOU received it for comments (from whom \_\_\_\_\_)

Please briefly describe the process of writing and finalizing the Country Program.

4. A) Please indicate meetings and other substantive contacts with stakeholders in your country during 1999 and 2000, and their frequency, by naming the entity and placing a check in the appropriate column:

		Frequency of meeting or contact					
Type of Entity	Specify Stakeholder(s)	Daily	Weekly	Monthly	Quarterly	Yearly	Other
Other government department(s)	#1:						
	#2:						
Local government body(s)	#1:						
	#2:						
Industry association(s)	#1:						
	#2:						
Industry/ industrial establishment(s)	#1:						
	#2:						
Chamber(s) of Commerce	#1:						
	#2:						
Consumer group or association(s)	#1:						
	#2:						
Chemical importer or supplier(s)	#1:						
	#2:						
Other entities	#1:						
	#2:						

B) Which is the most important stakeholder in terms of assisting you to implement the Montreal Protocol?  
Please specify how they assisted.

5. A) Please rank the sectors in the order in which phaseout is most difficult, by placing numbers in front of the suggestions below, with the number one (1) being the most difficult. If a stakeholder helped you (or could help you) in overcoming the problem, please specify the stakeholder.

**Rank Sector**

- Phasing out Methyl Bromide/Fumigants. *Stakeholder:*
  
- Phasing out CFC Manufacturing. *Stakeholder:*
  
- Phasing out CFC in the Refrigeration Servicing Sector. *Stakeholder:*
  
- Phasing out Foam. *Stakeholder:*
  
- Phasing out Aerosol. *Stakeholder:*
  
- Phasing out Solvents. *Stakeholder:*
  
- Phasing out ODS in firefighting. *Stakeholder:*
  
- Other problem(s)

- B) What other major obstacles/challenges do you face in achieving ODS phaseout? If a stakeholder helped you (or could help you) in overcoming the problem, please specify the stakeholder.

1<sup>st</sup> *obstacle*)

*Stakeholder:*

2<sup>nd</sup> *obstacle*)

*Stakeholder:*

3<sup>rd</sup> *obstacle*)

*Stakeholder:*

C) What was the most effective initiative to phase out ODS in your country?

6. If you have participated in a UNEP Regional Networks Meeting, have you found them to be useful? Please specify or provide an example of how they were useful. If they were not useful, why not?

7. Please characterize the status of ODS import and export licensing requirements in your country (check one box):

- Work has not yet been undertaken
- Considered by NOU but no action yet
- Currently being drafted
- Drafting completed but waiting for approval by Ministry of \_\_\_\_\_
- Awaiting approval of Parliament (please specify year and month \_\_\_\_\_)
- In place (please specify year and month \_\_\_\_\_)

Other comments on the status of licensing, and its application/implementation:

**A) In summary, how would you describe the current situation, strengths, and challenges of the National Ozone Unit in your country:**

**B) What could be done to improve this situation or these strengths, or address the challenges?**

**If you have any readily available documentation on the specifics of ODS phaseout in your country, we kindly ask you to attach it to this questionnaire.**

**Thank you for responding!** You can reply by airmailing the questionnaire in the enclosed envelope, by faxing your reply to Rasmus Rasmusson, 1-617-459-8292 or by e-mailing it to [rasmus@cfia.harvard.edu](mailto:rasmus@cfia.harvard.edu)



## Appendix 4

### Response to Questionnaire by Region

<b>French-Speaking Africa</b>	<b>English-Speaking Africa</b>	<b>Asia and the Pacific</b>	<b>Latin America and the Caribbean</b>
<i>22 Surveys Sent 14 Responses</i>	<i>20 Surveys Sent 14 Responses</i>	<i>37 Surveys Sent 22 Responses</i>	<i>32 Surveys Sent 25 Responses</i>
Algeria Benin Burkina Faso Burundi Chad Comoros Congo/Brazzaville Gabon Guinea Ivory Coast Madagascar Niger Senegal Togo	Botswana Egypt Gambia Ghana Kenya Lesotho Namibia Nigeria Seychelles South Africa Sudan Uganda Zambia Zimbabwe	Bahrain Bangladesh <b>China</b> Fiji <b>India</b> <b>Indonesia</b> Iran Kiribati Kuwait Lebanon Malaysia Mongolia Nepal Oman Pakistan Philippines Samoa Sri Lanka Turkey Vietnam Yemen	Antigua and Barbuda Bahamas Belize Bolivia <b>Brazil</b> Chile Colombia Costa Rica Cuba Dominica El Salvador Guyana Haiti Jamaica Mexico Nicaragua Panama Paraguay Peru St. Kitts and Nevis St. Lucia St. Vincent/Grenadines Trinidad and Tobago Uruguay Venezuela

**Notes:**

Croatia also responded

Respondents in **bold** are large countries



## **Appendix 5**

### **Advisory Body Members**

Dr. Joanne Kauffmann, Deputy Director, Center for Environmental Initiatives, Massachusetts Institute of Technology

Professor William Moomaw, Director, International Environment and Resource Policy Program, The Fletcher School of Law and Diplomacy, Tufts University

Professor Mark J. Mwandosya, University of Dar es Salaam, Tanzania

Dr. Kilaparti Ramakrishna, Deputy Director, The Woods Hole Research Center, Woods Hole

Professor Lawrence Susskind, Department of Urban Studies and Planning, The Massachusetts Institute of Technology, and The Consensus Building Institute, Cambridge



## **Appendix 6**

# **Methodology for Determining the Strength of Domestic Networking**

In this study, we used the frequency of meetings between NOUs and government agencies and nongovernmental stakeholders as a proxy to measure the strength of connections and amount of networking with stakeholders. However, there are typically fewer government agencies with which an NOU could meet than there are private stakeholders. As a result, our findings make it appear that NOUs meet with government agencies less often than private stakeholders.

We split responses into three categories, using the following criteria.

- High frequency: meetings with more than four parties on at least a daily or monthly basis
- Medium frequency: meetings with between two and four parties on at least a monthly or quarterly basis
- Low frequency: meetings with two or fewer parties on a quarterly or less frequent interval

These definitions are somewhat arbitrary, and were derived to split the meeting frequency into three categories that each had sufficient responses to analyze. There were several responses that did not fall strictly into these categories (for example, when an NOU met with five stakeholders on a quarterly basis). In these cases, we used our best judgment, and weighted the meetings more heavily if they were with a stakeholder the NOU described as being important.



## Appendix 7

### Tables of Clustered Responses to Questions 5 and 8

In order to analyze several of the open-ended questions in the survey, similar responses were clustered into groups. The following tables show, in the left-hand column, the name given to the cluster, and in the right-hand column, the actual responses from survey participants that were included in that cluster.

***Table 1. Obstacles and Stakeholders (Q 5b)***

<p><i>Cluster 1:</i>  <b>Difficulty in identifying and collecting data on ODS consumption</b>  <i>(13)</i></p>	<p>Identify the users of ODS  Lack of information—hard to identify ODS consumption  No survey resources to determine ODS to be phased out  Obtaining reliable data on the consumption ODSs (3)  Collecting data from importers and consumers (2)  ODS importers are scattered, problem monitoring them  Unstructured refrigeration sector: informal sector, although informed, does not respect regulations  Informal sector (NOU tries to organize it) (2)  Lack of training for refrigeration technicians</p>
<p><i>Cluster 2:</i>  <b>Problems with ODS legislation</b>  <i>(11)</i></p>	<p>Lack of import legislation (3)  Need to amend the major regulation on ODS phaseout  Control of ODS and ODS-containing equipment  Slow drafting of ODS legislation  Low priority of ozone in all levels of government, regulatory measurements and amendments difficult  No laws/regulations yet, in spite of NOU proposals  Presidential decree recently went against import quota law  Need cabinet support to enact and implement legislation  Poor implementation of ODS legislation</p>
<p><i>Cluster 5:</i>  <b>Problems of planning and implementation (IAs, MLF, gov.)</b>  <i>(8)</i></p>	<p>Devising comprehensive plans  Need national action plan—Ministry should facilitate  Long and rigid procedures of implementing agencies  Implementation of individual projects  MLF assigning projects in fridge and aerosols (not enough?)  Servicing of existing installations  Fishing industry (probably CFC)  No activity yet to phase out ODSs</p>

<p><i>Cluster 3:</i> <b>Lack of funds/resources</b> (7)</p>	<p>Funds for projects MP funds are insufficient Low funds for activities Low funds from MLF for IS Technology Transfer Lack of staff Diminishing projects (ExCom does not appreciate progress) Pest control (MBr) and lack of funding to phase out MBr.</p>
<p><i>Cluster 4:</i> <b>Cost or availability of alternative technologies</b> (6)</p>	<p>Non-ODSs expensive (respons. of producing countries) (2) Very high cost of alternative products—government could reduce import Taxes on these products. High cost of alternative technology Lack of knowledge and understanding of alt. technologies No alternatives to CTC in activated charcoal production</p>
<p><i>Cluster 6:</i> <b>Smuggling of ODS and technology dumping</b> (5)</p>	<p>Illegal trafficking of ODS (3) Controlling importation of used systems using ODS (3) Dumping CFC-laden equipment Import conditions Second-hand products from importers</p>
<p><i>Cluster 7:</i> <b>Uninformed or unwilling stakeholders</b> (4)</p>	<p>Lack of awareness of among policy makers and public Hard to educate public because of budget constraints Ignorance/unwillingness of SMEs Sensitize informal sector</p>

***Table 2. Most effective initiative (Q 5C)***

<p><i>Cluster 1:</i> <b>Implementation of conversion projects, technical and financial assistance</b> (19)</p>	<p>Industrial re-conversion projects (2) Conversion of important industrial machine to phase out CFC (and alternative technology) Conversion of fridge production systems Giving incentives to foam industry to develop alt. technology To strengthen alternative technology (Hydrocarbon) Recovery and recycling project (alternative technology) (2) Auto AC recycling Retrofitting fridge manufacturing sector to 134a Demonstration projects on methyl bromide MLF-sponsored phaseout in aerosol sector. Halons are not used from 1995. MBr from 1996. “Grand project” of elimination of ODS in domestic refrigeration MLF funding (2) Investment projects (3) Technical and financial assistance to the industrial sector Those with implementing agency support</p>
--	---

<p><b>Cluster 2:</b> <b>Public awareness raising</b> (18)</p>	<p>Awareness on all levels, collaboration by policy makers, voluntary industrial programs Public awareness, and information dissemination campaigns (14) Same, and getting funds for it Vigorous public awareness campaign on refrigeration sector Awareness plan, and 10-year deadline</p>
<p><b>Cluster 3:</b> <b>Getting legislation relating to import licensing and banning of ODS</b> (16)</p>	<p>Import licensing regime, special import authorization (7) Ministerial decree banning certain ODSs, and import/export control Government legislation Regulating freezing and decreasing consumption Licensing control regulation (4) Trade restrictions and quota system (2)</p>
<p><b>Cluster 4:</b> <b>Consensus-building and coordination at the national level</b> (11)</p>	<p>Synchronization of phase/out in production, consumption, and production of alternatives Country Program suggested shared responsibilities of government and private sectors. Industrial groups played important role in formulating strategies and awareness. Consultations with stakeholders and their involvement in Country Program formulation Establishment of Government Ozone Commission, better coordination Consensus built between NOU, government, and industry enabled voluntary programs—obeyed by industry Establishing close relationship with relevant agencies, suppliers, main users, international organizations, other countries The support of the government as part of the Rio Conference; laws and regulations in place. Arranged meetings with stakeholders and kept good communication. Moral commitment at the country level, open-ended negotiations, great assistance from UNIDO, IBRD, and IBRD financial intermediaries Country Program and refrigeration management plan. Drawback: no legislation yet.</p>
<p><b>Cluster 5:</b> <b>Training of customs officials and refrigeration technicians</b> (7)</p>	<p>Training of refrigeration maintenance technicians (5) Training of technicians and provision of equipment Training of customs officers and refrigeration technicians (2) Training customs staff</p>
<p><b>Cluster 8:</b> <b>ODS consumption monitoring</b> (3)</p>	<p>Measuring ODS consumption Identifying ODS users Monitoring project implementation</p>
<p><b>Cluster 7:</b> <b>No initiatives</b> (3)</p>	<p>None yet, just started No ODS phaseout so far Not yet. Customs control would be the strongest.</p>

***Table 3. The situation, strengths, and challenges of the NOU (Q 8A)***

<p><i>Cluster 1:</i>  <b>Support received from government</b>  (12)</p>	<p>Strong government support (2)  Unit has political support  Valued highly by Ministry of Atmospheric Pollution  NOU respected within the Ministry  Strong institutional and legal support  Aims to update the Country Program and become a permanent unit  Organizational position for consensus building and policy formulation  Functions well and has support from government, industry, and the people  NOU central in influencing decision by the government and especially ratification of amendments to the Protocol  Well placed in government  Access to leadership</p>
<p><i>Cluster 2:</i>  <b>Achievements in terms of securing phaseout</b>  (12)</p>	<p>Good situation for CFC freeze  Keeping deadlines for phaseout  CFC freeze at level of 1995-97 reached  Voluntary phaseout for methyl bromide anticipated for 2002  ODS consumption dropping  Completed 95% of phaseout projects  Targets being met  Most ODS phased out already  Has achieved 50% reduction  Alternative technology found to phase out CFC  Ready to go forward for training  Identifying and educating maintenance technicians</p>
<p><i>Cluster 3:</i>  <b>NOU capacity</b>  (11)</p>	<p>Knowledge acquired by the NOU  Capability of NOU, with logistics, database, active internationally, running awareness campaigns  Experience of many years, working with four implementing agencies, NOU status  Experienced staff (2)  Old and strong unit  NOU a credible actor  Institutional strengthening project carried out (2)  Better data on ODS due to institutional strengthening  Developing a database</p>
<p><i>Cluster 4:</i>  <b>Public awareness achievements</b>  (6)</p>	<p>Public awareness program (2)  Continue public awareness campaign especially in the institutional strengthening initiative  Strong public awareness (2)  Good awareness in fridge industry</p>

<i>Cluster 5:</i> <b>Introducing and enforcing legislation</b> (5)	Enforcing import quotas and follow-up Has introduced legislation and ensured its enforcement Licensing and quota system Implementing permits Regulations in place
<i>Cluster 6:</i> <b>Support from the UN and related systems</b> (5)	Award from Montreal Protocol as one of the nine most successful A5Cs Strong backing from United Nations Funds received from bilateral agency for training of refrigeration technicians and from UNEP for institutional strengthening Good support from UNEP Funding from MLF and help from implementing agencies
<i>Cluster 5:</i> <b>Support received from stakeholders in industry</b> (5)	Good impact in business sector Good relations with industry Cordial relations with government and stakeholders (2) Good communication with all users
<i>Cluster 6:</i> <b>Help from active steering committees</b> (4)	Dynamic steering committee (2) NOU mainstreamed in Ministry and guided by high-powered steering committee Strong unit, good advisory body

***Table 4. Improving the situation, or strengths, or challenges (Q 8B)***

<i>Cluster 1:</i> <b>Increasing NOU capacity.</b> (20)	Build more NOU capacity More institutional strengthening (6) NOU to small and with limited budget (2) Provide vehicles and adequate funding for NOU Training for NOU staff A new institutional strengthening project focused on updating the Country Program Support from MLF for IT for communication, networking and website Three-quarters of documents are in English (more in French/Spanish/Arabic?) More NOU staff NOU staff underpaid More funds to keep staff Bonuses to motivate employees Create a steering committee Need to coordinate all stakeholders
--	---

<p><i>Cluster 2:</i> <b>Greater involvement and commitment of government</b> (13)</p>	<p>Minimal political impact, limited state participation More support from politicians Government to show more ownership commitment; increase NOU staff Improve national implementation National capacity building Get authorities more involved Accelerating process of enacting regulations Approval of legislation</p> <hr/> <p>NOU has fragile status because it is temporary/part-time and depends on foreign assistance (3) Poor infrastructure for NOU Make NOU more independent</p>
<p><i>Cluster 3:</i> <b>Need to diversify and increase outside funding</b> (12)</p>	<p>More funds from implementing agencies and develop bilateral support, and improve training (2) More MLF funds Approval of more investment projects More flexible funding from MLF</p> <hr/> <p>More funds for NOU for a set of specified activities Support and projects in refrigeration and air-conditioning sectors from the MLF (3) Funding for recovery and recycling More resources for import/export licensing Funding to finance alternatives to methyl bromide</p>
<p><i>Cluster 4:</i> <b>Regulatory measures</b> (11)</p>	<p>Reduce unauthorized imports, establish a better record for fraud in imports (2) Amend regulation to stop illegal trade and import of secondhand equipment Need for licensing (5) Legislation for methyl bromide Get help for revising licensing Reduce supply of imported CFC; after 2010, need to reduce HCFCs</p>
<p><i>Cluster 5:</i> <b>Public awareness</b> (11)</p>	<p>More public awareness needed (9) More funding for awareness campaigns (2)</p>
<p><i>Cluster 6:</i> <b>Handling Refrigeration (Servicing) Sector</b> (10)</p>	<p>Controlling refrigeration sector—corner workshops; training 3000 technicians (TV could help) Having a refrigeration management plan as soon as possible A Refrigeration Association needed (2) New policy on refrigeration sector Develop training for refrigeration technicians (3) Rewards to volunteering industry from UNEP</p>

<p><i>Cluster 7:</i> <b>Obstruction by IA and MLF</b> (8)</p>	<p>Implement decided projects Improve communication with implementing agencies and timely release of funds by IAs (2) Educate “insensitive” implementing agency officers and address delays in disbursement of funds MLF funding for projects submitted Do not sanction countries for over-compliance ExCom should find ways to react to the needs of countries wishing to go one step ahead and refrain from contradictory decisions More MLF oversight of implementing agencies</p>
<p><i>Cluster 8:</i> <b>Alternatives/ technology transfer</b> (6)</p>	<p>Reduce cost of ODS-friendly products Find alternative production Help with re-conversion programs (3) Technical bodies such as TEAP (Technical and Economic Assessment Panel) to transfer technical expertise to A5C</p>
<p><i>Cluster 9:</i> <b>Customs training</b> (4)</p>	<p>Better training and empowerment of Customs and Excise Officers to identify ODS Training for Customs officers (2) Capacity-building for controlling agencies</p>
<p><i>Cluster 10:</i> <b>Country Program</b> (3)</p>	<p>Study distribution of consumption in order to better focus NOU efforts Poorly measured ODS consumption—correcting Country Program Consultant needed to review Country Program</p>



## Appendix 8

### Table of Correlations and Vitiating Factors

Country	CP Formulation	Govt Meetings	Private Meetings	Imp/Exp Law	Public Awareness	Vitiating Factor
1	+	+	+	?	-	_(INT)
2	-	-	-	++	+	_(NB)
3	++	-	-	-	-	NIL
4	+	-	+	++	++	NIL
5	+	+	+	++	++	_(TE)
6	+	-	-	-	-	_(NA),_(INT)
7	+	-	++	+	+	NIL
8	++	+	++	+	-	_(NA),_(INT)
9	+	-	-	+	++	_(NA)
10	+	-	-	++	-	_(INT)
11	++	-	+	++	+	NIL
12	+	-	++	++	++	_(INT)
13	+	-	+	-	-	_(TE),_(NB)
14	+	-	+	+	++	NIL
15	+	++	++	+	++	_(NA)
16	++	++	++	++	+	_(NA)
17	++	++	++	++	+	_(NA),_(INT)
18	-	-	-	+	-	_(NN)
19	+	+	+	+	+	NIL
20	+	+	++	+	++	NIL
21	+	+	++	++	+	_(NA)
22	+	+	++	+	+	NIL
23	++	++	+	++	-	_(INT)
24	+	++	+	++	-	_(INT)
25	+	+	++	++	-	NIL
26	+	+	+	+	++	_(TE),_(NA)
27	+	-	-	-	-	_(NB),_(NA)
28	++	++	+	++	-	_(TE)
29	+	-	-	+	++	_(NA)
30	-	-	+	+	+	_(NA)
31	-	++	++	+	+	_(TE),_(INT)
32	-	-	-	-	-	_(NA),_(INT)
33	-	-	++	++	-	_(NB),_(INT)
34	+	+	+	-	++	_(TE),_(NB)
35	+	+	+	+	++	_(TE),_(NB)
36	-	-	-	++	+	_(TE),_(INT)
37	+	++	++	++	+	_(INT)
38	-	-	-	-	-	_(NN)
39	+	+	-	++	++	_(NB)
40	++	+	++	+	+	_(NA)
41	+	-	+	+	+	_(NA),_(INT)
42	++	+	++	+	++	NIL
43	+	+	-	++	++	NIL

44	++	++	++	++	++	_(INT)
45	-	-	-	++	+	_(TE),_(NB)
46	+	-	-	-	+	_(NA),_(INT)
47	-	-	+	++	-	NIL
48	++	-	-	-	-	_(NA),_(INT)
49	+	+	+	+	+	_(INT)
50	+	-	+	-	+	_(NA)
51	+	-	-	+	+	_(NB)
52	+	++	-	++	-	_(TE)
53	+	+	++	+	+	_(TE)
54	+	+	++	+	-	_(NA)
55	++	-	-	-	-	_(TE)
56	+	-	-	++	++	_(TE),_(NB)
57	++	+	+	+	+	_(TE)
58	++	-	+	+	++	_(INT)
59	+	+	+	++	+	_(INT)
60	+	+	+	++	++	_(INT)
61	+	+	+	++	+	_(TE)
62	+	+	+	+	++	NIL
63	+	+	+	+	++	NIL
64	+	-	+	-	+	_(TE),_(NA)
65	+	-	++	+	+	_(NA),_(INT)
66	++	+	++	+	+	_(NB),_(NA)
67	+	-	+	-	-	_(TE),_(NB)
68	++	++	++	++	++	_(INT)
69	+	-	-	+	++	_(NA)
70	++	-	++	+		NIL
71	++	+	++	++	++	NIL
72	+	++	-	+	+	NIL
73	++	+	+	-	+	_(NA)
74	+	+	++	-	+	_(NB),_(INT)
75	+	+	+	+	+	_(INT)

## **Appendix 9**

# **Methodology and Results of ODS Phaseout Correlations**

### ***CFC Consumption Phaseout***

---

21 countries increased CFC consumption, and 3 had no change in consumption  
27 decreased CFC consumption by 0-33%  
22 decreased CFC consumption by 33-119%  
2 did not report any CFC consumption data

### ***Correlation of CFC Phaseout with Meetings with Government Agencies***

There was a strong correlation between meeting frequency with government and success in the phaseout of CFCs.

*Of the 24 countries with an increase or no change in CFC consumption:*

11 Low frequency of meetings  
9 Medium frequency of meetings  
1 High frequency of meetings  
3 Unclear/No response

*Of the 27 countries that decreased CFC consumption by 0-33%:*

10 Low  
9 Medium  
6 High  
2 Unclear/ No response/As needed

*Of the 22 countries that decreased CFC consumption by more than 33%:*

3 Low  
11 Medium  
5 High (2 of which are medium-high)  
3 Unclear/ No response/As needed

*The two countries that reported no data:*

2 Low

### ***Correlation of CFC Phaseout with Meetings with Private Stakeholders***

There was a moderate correlation between meetings with private stakeholders and CFC phaseout.

*Of the 24 countries with an increase or no change in CFC consumption:*

6 Low  
10 Medium  
6 High (2 of which are medium-high)  
2 Unclear/No response/As needed

*Of the 27 countries that decreased CFC consumption by 0-33%:*

5 Low  
10 Medium  
9 High (1 of which is medium-high)  
3 Unclear/No response/As needed

*Of the 22 countries that decreased CFC consumption by more than 33%:*

3 Low  
7 Medium  
9 High (1 of which is high-medium)  
3 Unclear/No response/As needed

*The two countries that reported no data:*

2 Low

### ***Correlation of CFC Phaseout with Status of Import License Regime***

There was a strong correlation between a country's import/export regime and its success in reducing CFC consumption.

*Of the 24 countries with an increase or no change in CFC consumption:*

6 No action yet on import/export licensing  
4 Currently being drafted  
6 Awaiting approval  
7 In place  
1 Unclear/No Response

*Of the 27 countries that decreased CFC consumption by 0-33%:*

5 No action yet  
2 Currently being drafted  
7 Awaiting approval  
12 In place  
1 Unclear/No Response

*Of the 22 countries that decreased CFC consumption by more than 33%:*

- 1 No action yet
- 4 Currently being drafted
- 4 Awaiting approval
- 13 In place

*The two countries that reported no data:*

- 1 No action yet
- 1 Awaiting approval

### ***Halon Consumption Phaseout***

---

8 countries increased halon consumption, and 1 had no change in consumption (11%)  
40 had no halon consumption (or less than 0.3 tons) (55%)  
23 decreased halon consumption (31%) (15 eliminated it, 7 reduced from 8-89%)  
3 reported no data (4%)

### ***Correlation of Halon Phaseout with Meetings with Government Agencies***

There was no apparent correlation between halon phaseout and meetings with government agencies.

*Of the 9 countries that increased halon consumption, or had no change:*

- 4 High frequency of meetings with government agencies
- 3 Medium frequency of meetings with government agencies
- 2 Low frequency of meetings with government agencies

*Of the 23 countries that had decreased halon consumption:*

- 3 High
- 8 Medium
- 7 Low
- 5 Unclear/ No response/Meet when necessary

*Of the 41 countries that had no halon consumption:*

- 3 High
- 20 Medium
- 16 Low
- 2 Unclear/No response/Meet when necessary

*Of the 3 countries with no data on halon consumption:*

- 1 Medium
- 2 Low

### ***Correlation of Halon Phaseout with Meetings with Private Stakeholders***

There is apparently a slight tendency that countries with higher meeting frequency achieved greater phaseout.

*Of the 9 countries that increased halon consumption, or had no change:*

- 2 High frequency of meeting with private stakeholders
- 4 Medium frequency of meetings with private stakeholders
- 3 Low frequency of meetings with private stakeholders

*Of the 23 countries that had decreased halon consumption:*

- 8 High
- 7 Medium
- 4 Low
- 4 Unclear/No response/Meet when necessary

*Of the 41 countries that had no halon consumption:*

- 12 High
- 18 Medium
- 8 Low
- 3 Unclear/No response/Meet when necessary

*Of the 3 countries with no data on halon consumption:*

- 1 High
- 2 Low

### ***Correlation of Halon Phaseout with Status of Import License Regime***

There was a strong correlation between the existence of an import license regime and decreasing halon consumption.

*Of the 9 countries that increased halon consumption, or had no change:*

- 2 No action yet on an import licensing regime
- 2 Currently being drafted
- 2 Awaiting approval
- 3 In place

*Of the 23 countries that had decreased halon consumption:*

- 2 No action yet
- 2 Currently being drafted
- 4 Awaiting approval
- 15 In place

*Of the 41 countries that had no halon consumption:*

- 10 No action yet

- 8 Currently being drafted
- 9 Awaiting approval
- 12 In place
- 2 Unclear/No response

*Of the 3 countries with no data on halon consumption:*

- 1 No action yet
- 2 Awaiting approval

### ***Methyl Bromide Consumption Phaseout***

---

- 23 countries increased methyl bromide (MBr) consumption, or had no change
- 19 had no MBr consumption
- 21 decreased their MBr consumption
- 12 had no data reported (usually base year)

### ***Correlation of MBr Phaseout with Meetings with Government Agencies***

There was a slight correlation between meeting frequency with government agencies and greater MBr consumption.

*Of the 23 with increased MBr consumption, or no change:*

- 8 Low frequency of meetings with government (35%)
- 9 Medium frequency of meetings with government (39%)
- 4 High frequency of meetings with government (17%)
- 2 Unclear/No response

*Of the 21 with decreased MBr consumption:*

- 2 Low (10%)
- 10 Medium (48%)
- 6 High (26%)
- 3 Unclear/No response

*Of the 19 with no MBr consumption:*

- 9 Low (47%)
- 7 Medium (37%)
- 1 High (5%)
- 2 Unclear/No response

*Of the 12 with no data reported:*

- 8 Low
- 4 Medium
- 0 High

### ***Correlation of MBr Phaseout with Meetings with Private Stakeholders***

There was no apparent correlation between MBr phaseout and the frequency of meetings with private stakeholders.

*Of the 23 with increased MBr consumption, or no change:*

- 3 Low frequency of meetings with private stakeholders
- 6 Medium frequency of meetings with private stakeholders
- 11 High frequency of meetings with private stakeholders
- 3 Unclear/No response

*Of the 21 with decreased MBr consumption:*

- 3 Low
- 5 Medium
- 10 High
- 3 Unclear/No response

*Of the 19 with no MBr consumption:*

- 4 Low
- 11 Medium
- 3 High
- 1 Unclear/No response

*Of the 12 with no data reported:*

- 3 Low
- 6 Medium
- 1 High
- 2 Unclear/ No response

### ***Correlation of MBr Phaseout with Status of Import License Regime***

There was no apparent correlation between MBr phaseout and the status of an import license regime. However, countries with no data on MBr consumption are significantly behind in their progress toward an import license regime.

*Of the 23 with increased MBr consumption, or no change:*

- 3 No action yet on an import license regime
- 1 Currently being drafted
- 7 Awaiting approval
- 10 In place
- 1 Unclear/ No response

*Of the 21 with decreased MBr consumption:*

2 No action yet  
3 Currently being drafted  
5 Awaiting approval  
11 In place

*Of the 19 with no MBr consumption:*

4 No action yet  
3 Currently being drafted  
3 Awaiting approval  
9 In place

*Of the 12 with no data reported:*

5 No action yet  
2 Currently being drafted  
2 Awaiting approval  
2 In place  
1 Unclear/ No response



## **Appendix 10**

# **Questions on the Ozone-Climate Change Connection**

1. Has an organizational link been created in your country between ozone layer protection issues and climate change issues?
2. How was the organizational connection between ozone and climate created? (i.e., through ministerial decree, informal process, etc.)
3. How would you characterize the functional connection between ozone and climate issues? For example, is there one organization, with one staff, working with a unified approach to reducing both greenhouse gases (GHGs) and ODSs, or does the connection exist principally in concept at this stage?
4. What work is currently being done on climate change and reducing GHGs? Do you mostly address gases that are both GHGs and ODSs, such as hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs)?
5. What does having the organizational connection help you accomplish?
6. What difficulties does it present?
7. Is the consumption or production of HFCs and PFCs significant in your country? In what sectors? What are the difficulties to phasing them out?
8. The IPCC of the Climate Convention and the TEAP of the Montreal Protocol have begun joint work to find common ground between the conventions. Should this work be strengthened, and do you have any proposals on how, and what further tasks should be undertaken?

9.

# Appendix 11

## Tables from the CEITs Chapter

**Table 8.3. Status of the ratification of the Vienna Convention, the Montreal Protocol and its Amendments in the CEITs.**

	Signature	Signature	Ratification*	Ratification*	Ratification*	Ratification*	Ratification*	Ratification*	Ratification*
	Vienna Convention	Montreal Protocol	Vienna Convention	Montreal Protocol	London Amendment	Copenhagen Amendment	Montreal Amendment	Beijing Amendment	
Country									
1	Albania			8.10.1999(Ac)	8.10.1999(Ac)				
2	Armenia			1.10.1999(Ac)	1.10.1999(Ac)				
3	Azerbaijan			12.6.1996(Ac)	12.6.1996(Ac)	12.6.1996(Ac)	12.6.1996(Ac)		
4	Belarus	22.3.1985	22.1.1988	20.6.1986(At)	31.10.1988(At)	10.6.1996(R)			
5	Bosnia and Herzegovina			6.3.1992(Sc)	6.3.1992(Sc)				
6	Bulgaria			20.11.1990(Ac)	20.11.1990(Ac)	28.4.1999(R)	28.4.1999(R)	24.11.1999(R)	
7	Croatia			8.10.1991(Sc)	8.10.1991(Sc)	15.10.1993(R)	11.2.1997(R)		
8	Czech Republic			1.1.1993(Sc)	1.1.1993(Sc)	18.12.1996(Ac)	18.12.1996(Ac)	5.11.1999(Ap)	
9	Estonia			17.10.1996(Ac)	17.10.1996(Ac)	12.4.1999(R)	12.4.1999(R)		
10	Georgia			21.3.1996(Ac)	21.3.1996(Ac)	12.7.2000(Ac)	12.7.2000(Ac)	12.7.2000(Ac)	
11	Hungary			4.5.1988(Ac)	20.4.1989(Ac)	9.11.1993(Ap)	17.5.1994(Ac)	26.7.1999(R)	
12	Kazakhstan			26.8.1998(Ac)	26.8.1998(Ac)				
13	Kyrgyzstan			31.5.2000(Ac)	31.5.2000(Ac)				
14	Latvia			28.4.1995(Ac)	28.4.1995(Ac)	2.11.1998(At)	2.11.1998(At)		
15	Lithuania			18.1.1995(Ac)	18.1.1995(Ac)	3.2.1998(R)	3.2.1998(R)		
16	Moldova			24.10.1996(Ac)	24.10.1996(Ac)				
17	Poland			13.7.1990(Ac)	13.7.1990(Ac)	2.10.1996(Ac)	2.10.1996(Ac)	6.12.1999(R)	
18	Romania			27.1.1993(Ac)	27.1.1993(Ac)	27.1.1993(Ac)			
19	Russian Federation	22.3.1985	29.12.1987	18.6.1986(At)	10.11.1988(At)	13.1.1992(Ac)			
20	Slovakia			28.5.1993(Sc)	28.5.1993(Sc)	15.4.1994(Ap)	9.1.1998(Ac)	3.11.1999(Ap)	
21	Slovenia			6.7.1992(Sc)	6.7.1992(Sc)	8.12.1992(At)	13.11.1998(At)	15.11.1999(R)	
22	Tajikistan			6.5.1996(Ac)	7.1.1998(Ac)	7.1.1998(Ac)			
23	The Former Yugoslav Republic of Macedonia			10.3.1994(Sc)	10.3.1994(Sc)	9.11.1998(R)	9.11.1998(R)	31.8.1999(Ac)	
24	Turkmenistan			18.11.1993(Ac)	18.11.1993(Ac)	15.3.1994(Ac)			
25	Ukraine	22.3.1985	18.2.1988	18.6.1986(At)	20.9.1988(At)	6.2.1997(R)			
26	Uzbekistan			18.5.1993(Ac)	18.5.1993(Ac)	10.6.1998(Ac)	10.6.1998(Ac)		
27	Yugoslavia			16.4.1990(Ac)	3.1.1991(Ac)				
	Vienna Convention	Montreal Protocol	Vienna Convention	Montreal Protocol	London Amendment	Copenhagen Amendment	Montreal Amendment	Beijing Amendment	
Total, CEITs	3	3	27	27	20	14	8	0	
Total <sup>32</sup>	28	46	176	175	144	111	46	5	

<sup>32</sup> As of February 9, 2001. Ozone Secretariat.

**Table 8.4. Consumption reduction by the CEITs Parties in 1998<sup>33</sup>.**

	Party	Substance and reduction						Comments
		AI	All	BI	BII	BIII	EI	
	Reduction required for non-A5Cs	-100% (1996)	-100% (1994)	-100% (1996)	-100% (1996)	-100% (1996)	Freeze (1995)	
1	Azerbaijan	-62%						Phaseout plan began in 2000
2	Belarus	-90%	-93%	-65%		-91%		Phaseout plan was to be completed in 2000
3	Bulgaria	-100%						
4	Czech Republic	-99.9%						Laboratory use
5	Estonia	-63%		Increase				Phaseout plan was to begin in 1999
6	Hungary	-99.9%						Approved essential use
7	Kazakhstan	-15%	-17%		-62%	-83%		No decision on a phaseout plan
8	Latvia	-99.9%						Phaseout plan began in 1999
9	Lithuania	-98%			94%			Phaseout plan began in 2000
10	Poland	-94%			99.3%			Approved essential use and process agents
11	Russian Federation	-88%	-99%	-96%	-98%			According to benchmark in the phaseout plan and approved essential use
12	Slovakia	-99.9%			-99.9%			Laboratory use
13	Turkmenistan	-85%						Phaseout plan began in 1999
14	Ukraine	-77%		+31%	Increase	Increase	Increase	Phaseout began 2000
15	Uzbekistan	-93%						Phaseout plan began in 1999
	Required	Freeze (1999) -50% (2005)	Freeze (2002) -50% (2005)	-20% (2003)	-85% (2005)	Freeze (2003)	Freeze (2002)	
16	Croatia	- 61%	-23%		- 98.2%		-37%	
17	Georgia	+ 15%						
18	Moldova	-45%					-93.3%	
19	FYR Macedonia	- 88%					+5.7%	
20	Romania	-14%	-68%		-13.9%		-7.9	
21	Slovenia	-99.9%						
22	FR Yugoslavia	-39%	Increase					

Albania, Armenia, Bosnia and Herzegovina, Kyrgyzstan, Tajikistan did not report base-year or 1998 data or both.

<sup>33</sup> Data on non-A5 CEITs are taken from *Report of the Secretariat on Information Provided by the Parties in Accordance With Article 7 of the Montreal Protocol on Substances that Deplete the Ozone Layer*. UNEP/OzL.Pro.12/4, 17 October 2000. Data on A5 CEITs are calculated on the basis of the same report.

**Table 8.5. Production reduction by non-Article CEITs<sup>34</sup> by 1998.**

Party	Substance and reduction						Comments
	AI	AII	BI	BII	BIII	EI	
Czech Repub.	-99.9%			-99%			Laboratory use
Poland				-100%			
Russian Federation	-87%	-98%	-96%	-99.9%	-100%		According to benchmark in phaseout plan and approved essential use
Ukraine				Increase			No provision in phaseout plan for production

**Table 8.6. Policies and Measures in non-A5 CEITs**

	Economic Instruments	Import/ Export licensing system	Import quotas	Import ban	Use ban
Azerbaijan	(✓)	(✓)	For CFCs	on halons (on products)	
Belarus	✓	✓ ODS and products	✓		(✓ on Annex A and B substances)
				✓ on Annex A and B substances and products	
Czech Republic		✓	✓ ODS and products	✓ on CFCs and related products	✓ on CFCs and HCFC aerosols
Estonia		(✓)			
Hungary	✓	✓	✓		✓ on ODS as aerosols
Latvia	✓	✓ imports only	✓	✓ on halons	
Lithuania		✓	(✓ for certain products)	(✓ on certain products)	✓ on ODS in certain sectors
Poland	✓	✓	✓ for CFCs	✓ on certain products	✓ on certain products
Russian Federation	(✓)	✓ on ODS and products			
Slovakia	✓	✓	✓	✓ except for HCFCs and methyl bromide	✓ except for HCFCs and methyl bromide
Slovenia		✓		✓ except for HCFCs and methyl bromide	
Turkmenistan	(✓)	(✓ imports only)		(✓ on products)	
Ukraine	(✓)	✓ on ODS and products			
Uzbekistan	(✓)	(✓ on ODS and products)	(✓ for CFCs and B substances)	(✓ on halons and certain CFCs/ products)	

<sup>34</sup> Taken from *Report of the Secretariat on Information Provided by the Parties in Accordance With Article 7 of the Montreal Protocol on Substances that Deplete the Ozone Layer*. UNEP/OzL.Pro.12/4, 17 October 2000.

**Table 8.7. Clustered responses on the major encountered obstacles<sup>35</sup>**

<b>Problems of implementation</b>	<b>Need for additional institutional strengthening</b>
<p>Illegal import of secondhand equip. (spec. HCFCs). Consumption grew up 3 times in the last 5 years No monitoring of ODS consumption and ODS equipment Lack of resources for retrofitting (fridge)</p>	<p>IS Project doesn't pay for vehicles or offices. Lack of trained regional staff (Customs and MNR&amp;EP) - need money for workshops Big distances, many consumers Need ODS detectors for customs</p>
<p>Lack of technically and financially affordable alternatives to MBr. Tough phaseout timetable Need financing until full phaseout Active opposition from air-conditioning Industry using HCFCs</p>	<p>Need ODS detectors Need training for customers</p>
<p>Expensive and low-quality alternatives MLF assessment doesn't cover all phaseout No Professional Association, but planned Int'l codes for ozone friendly substances</p>	<p>NOU is not financed until London Amendment is ratified and institutional strengthening project is disbursed</p>
<b>Lack of information</b>	<b>Lack of governmental support</b>
<p>Lack of information on alternatives (esp. for various fridge types) Information exchange is the main problem Receive all of its information from UNEP Want more contact with experienced and compliant countries Lack of technical information on modern fridges</p>	<p>NOU is not part of the ministry, difficult to complete the yearly plan Institutional strengthening project should envisage better coordination</p>
<p>Want to learn the experiences of the developed countries Need funds to participate</p>	<p>Limited liability of NOU prevents it from certain actions, which it is capable of performing Ministerial structures that should assume this liability don't have adequate capacity. Licensing is still not in place</p>
<b>Awareness problems</b>	<b>Other</b>
<p>Consumers are not aware of Montreal Protocol ODS Regulating legislation is too long with the government Not enough understanding Lack of public awareness publications</p>	<p>Economic situation Economic survival priority in the industry</p>
	<p>There were no major obstacles in any sector when supported by MLF and technically assisted by UNIDO.</p>

<sup>35</sup> Taken verbatim from the questionnaires.

**Table 8.8. Most effective initiative.**<sup>36</sup>

<p><b>Awareness raising</b></p> <ul style="list-style-type: none"> <li>- Awareness raising.(5)</li> <li>- Awareness raising among stakeholders.</li> <li>- Public awareness.</li> <li>- Awareness raising and workshops.</li> <li>- Regional and local workshops.</li> <li>- Close contact with Industry and government.</li> </ul>	<p><b>Country Program</b></p> <ul style="list-style-type: none"> <li>- Preparation of the Country Program - a chance to inform users.</li> <li>- Country Program.</li> <li>- CP with UNIDO, COWI.</li> <li>- Defining the CP.</li> </ul>	<p><b>Alternatives</b></p> <ul style="list-style-type: none"> <li>- Replacement with alt.</li> <li>- Retrofitting.</li> <li>- Converted 3 co.'s, recycling CFC-12.</li> <li>- Production phaseout.</li> <li>- Retrofitting servicing stations.</li> <li>- Stable supply of alternatives.</li> <li>- Introducing alternative technologies.</li> </ul>	<p><b>International Assistance</b></p> <ul style="list-style-type: none"> <li>- GEF support.</li> <li>- GEF investment, UNEP DTIE technical assistance.</li> <li>- MLF Financial Assistance, UNIDO Technical Assistance.</li> <li>- UNIDO technical assistance/ institutional strengthening</li> </ul>
<p><b>Legislation</b></p> <ul style="list-style-type: none"> <li>- Appropriate legislation.</li> <li>- Licensing.</li> <li>- Development of legislation.</li> <li>- Creating appropriate legislative framework.</li> </ul>	<p><b>Institutional Strengthening</b></p> <ul style="list-style-type: none"> <li>- Setting up NOU, Institutional Strength.</li> </ul>	<p><b>Market</b></p> <ul style="list-style-type: none"> <li>- Price drop on new fridge equipment.</li> <li>- Market incentives from EU.</li> </ul>	<p><b>Training</b></p> <ul style="list-style-type: none"> <li>- Training servicing technicians.</li> </ul>

**Table 8.9. Suggested improvements.**<sup>37</sup>

<p><b>More funding</b></p>	<p><b>More staff</b></p>	<p><b>Government and stakeholder commitment</b></p>	<p><b>Networking</b></p>
<ul style="list-style-type: none"> <li>- Need ODS monitoring, ask money.</li> <li>- Need money.</li> <li>- Additional funding. Strongly complement UNIDO.</li> <li>- Need technical and possibly financial assistance.</li> <li>- Support to phase out the rest 20%</li> <li>- Help.</li> </ul>	<ul style="list-style-type: none"> <li>- One more person on staff.</li> <li>- Expand staff for one more unit</li> <li>- Est. and Finance NOU.</li> <li>- Want more than 1 person staff, their own budget.</li> <li>- Want more staff and Center more under their control.</li> </ul>	<ul style="list-style-type: none"> <li>- Establish stronger communications with stakeholders.</li> <li>- More awareness raising efforts to focus on governmental officials.</li> <li>- Licensing will improve our work.</li> <li>- Permanent status.</li> </ul>	<ul style="list-style-type: none"> <li>- Improve information exchange and networking.</li> <li>- Share experience of developed countries in Fridge, MBr and Solvents.</li> <li>- Create UNEP regional office in Central Asia.</li> <li>- Establish regional network for Central Asia.</li> </ul>

<sup>36</sup> Taken verbatim from the questionnaires.

<sup>37</sup> Taken verbatim from the questionnaires.



## Appendix 12

### Acronyms

A2Cs	Article 2 countries, i.e., developed countries as defined in Article 2 of the Montreal Protocol
A5Cs	Article 5 countries, i.e., developing countries as defined in Article 5 of the Montreal Protocol
ABRIPUR	Association of the Industry of Polyurethane (Brazil)
AFD	French agency for development
CBI	Consensus Building Institute (U.S.)
CEIT	Countries with Economies in Transition (e.g., in Eastern Europe and the former USSR)
CFCs	chlorofluorocarbons
CII	Confederation of Indian Industry
CONAMA	National Council for the Environment (Brazil)
CP	Country Program
CTC	carbon tetrachloride
DCSSI	Development Commission for Small-Scale Industries (India)
DOE	Department of the Environment (Iran)
EEAA	Egyptian Environmental Affairs Agency
EU	European Union
ExCom	Executive Committee of the Multilateral Fund
FGEM	French global environment facility
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GoI	government of India
GTZ	German development agency
HCFC	hydrochlorofluorocarbons
HFC	hydrofluorocarbons
IAS	implementing agencies (in this case the IBRD, UNDP, UNIDO, and UNEP)
IAS	Indian Administrative Service
IBAMA	Institute of the Environment and Renewable Natural Resources (Brazil)

IBRD	International Bank for Reconstruction and Development (part of the World Bank)
ICMA	Indian Chemicals Manufacturers Association
IPCC	Intergovernmental Panel on Climate Change
IS	institutional strengthening
MBr	methyl bromide
MIT	Massachusetts Institute of Technology
MLF	Multilateral Fund of the Montreal Protocol
MNC	multinational corporation
MoEF	Ministry of Environment and Forests (India)
MoP	Meeting of the Parties of the Montreal Protocol
MP	Montreal Protocol
NARWOA	National Air-Conditioning and Refrigeration Workshop Owners Association (Ghana)
NEMA	National Environmental Management Authority (Uganda)
NES	National Environmental Statute 4 of 1995 (Uganda)
NGO	nongovernmental organization
NIS	newly independent states
NOC	National Ozone Committee (Iran)
NOU	National Ozone Unit
OC	Ozone Cell (India)
ODP	ozone-depletion potential
ODS	ozone-depleting substance
ODSONET	ODS Officers' Network (Africa)
OECD	Organization of Economic Cooperation and Development
OEWG	Open-Ended Working Group of the Meeting of Parties
PFC	perfluorocarbons
PPP	purchasing power parity
PROZON	Interministerial Executive Committee (Brazil)
PRSC	Project Review Sub-Committee of the Executive Committee
QPS	quarantine and pre-shipment
RMP	refrigeration management plan
SCMEF	Sub-Committee on Monitoring, Evaluation, and Finance of the Executive Committee

SEBRAE	Service to Support Micro and Small Enterprises (Brazil)
SMEs	Small and Medium-sized Enterprises (increasingly taken to include micro enterprises)
TAC	Tariff Advisory Committee (India)
TCA	1,1,1-trichloroethane
TEAP	Technical and Economic Assessment Panel of the Meeting of Parties
TERI	Tata Energy Research Institute (India)
TOCs	Technical Options Committees of the Meeting of Parties
UNARA	Uganda National Association of Refrigerators and Air-Conditioners
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNIDO	United Nations Industrial Development Organization
UNOPS	United Nations Office for Project Services