



# OzonAction



A newsletter dedicated to the protection of the ozone layer and implementation of the Montreal Protocol

UNEP IE quarterly publication

OzonAction Programme under the Multilateral Fund

## View point

### *Preaching, yes! ... but practising?*



*HFC-134a system  
in Tour Mirabeau*

We all recognize that practising what you preach is a most difficult exercise. Since 1991, we have been providing useful services and advice to developing countries for the imple-

mentation of the Montreal Protocol through the OzonAction Programme. When I joined as Coordinator of the OzonAction team we did a self-analysis: were WE following our own advice?

On those rare occasions when we were not providing information services, conducting training, facilitating networks or assisting country studies, we examined how we as individuals 'practice' what we 'preach' to more than 120 developing countries on ozone layer protection. I am proud to share with you the modest but symbolically important results that we have achieved locally.

Firstly, we developed guidelines designed to initiate the phase-out of Ozone Depleting Substances (ODS) in the United Nations Offices. These guidelines detail the step-by-step process to eliminate ODS, with a case study of the UNEP Headquarters (Nairobi). The guidelines have been disseminated to all the UN Offices worldwide. Result: UN

Offices the world over have announced their commitment to eliminate ODS, and a number have begun ODS phase-out actions.

Secondly, we initiated and supported the phase-out of chlorofluorocarbons (CFCs) from the 18-floor building of which UNEP IE occupies part of one of the floors. We involved the building maintenance engineers, built their awareness about ozone depletion and provided technical advice for selecting ozone friendly alternatives. Result: during the winter of 1996 the air-conditioning system of the building was converted from CFC-11/CFC-114 refrigerants to ozone-friendly HFC-134a. Since the summer of 1997, nearly 2000 occupants of the building have experienced CFC-free air conditioning.

Although global problems have global solutions, the first step is made by individual actions at the local level. On the occasion of the 25th issue of the OzonAction Newsletter and completion of the 10th Anniversary of the Montreal Protocol, this is the message to our readers: With or without an anniversary, reflect on your own impact on the ozone layer, and take action to phase out ODS in your own lives and your local constituencies.

*Mr Rajendra Shende, Coordinator,  
UNEP IE OzonAction Programme*

*THE 1999 FREEZE IN PRODUCTION AND CONSUMPTION  
OF CFCs IN DEVELOPING COUNTRIES  
18 months to go*

## ExCom approves record US\$ 109 million for projects

The 23rd Meeting of the Executive Committee (ExCom) to the Montreal Protocol took place in Montreal, Canada, during 12–14 November 1997. A total of US\$109 million was approved to fund projects in developing countries aimed at phasing out the use of ozone-depleting substances (ODS). The most significant commitment involved the phase out of halons in China—a milestone for the global environment.

'The meeting agreed the largest annual

allocation of funding provided since the inception of the Multilateral Fund and constitutes an important milestone in the international effort to protect the Earth's fragile stratospheric ozone layer,' said Mr David Turner, ExCom Chairman.

The Chinese project will be aimed at halting the production and consumption of halons by 2010. The US\$62 million project developed by China and the World

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**Editorial Board:** Mrs J. Aloisi de Larderel, Dr S. Andersen, Dr S. Carvalho, Dr O. El-Arini, Mr P. Horwitz, Dr M. Kerr, Mrs I. Kökeritz, Dr L. Kuijpers, Mr G. Nardini, Mr K. M. Sarma, Mr R. Shende, Mr D. Stirpe, Mr M. Verhille, Mr J. Whitelaw, Mr Liu Yi

**Editor:** Robin Clarke

**Publication Manager:** Ms Cecilia Mercado

**Editorial Assistant:** Mr Jim Curlin

UNITED NATIONS ENVIRONMENT PROGRAMME  
INDUSTRY AND ENVIRONMENT (UNEP IE)  
OZONACTION PROGRAMME

Tour Mirabeau  
39-43 Quai Andre Citroën  
75739 Paris Cedex 15, France

TEL: +33 1 44 37 14 50 FAX: +33 1 44 37 14 74  
TELEX: 204 997 F CABLE: UNITERRA PARIS

E-MAIL: ozonaction@unep.fr  
http://www.unepie.org/ozonaction.html



*Maintenance team of Tour Mirabeau, where UNEP IE OzonAction Programme is housed. The building now has ozone friendly air-conditioning. 'Greening' your offices by eliminating ozone depleting substances (ODS) is explained in our useful Guidelines for phasing out ODS in UN offices.*

**Special detachable poster on  
pages 4-5 on the occasion of  
the 25th issue of the  
OzonAction  
Newsletter**

## News from international agencies



### *Fund Secretariat*

The 1997 Business Plan of the Multilateral Fund covered the regular annual allocation of the 1997–99 triennium of

US\$155 million as well as the carry-over of US\$74 million from the 1994–96 triennium. The Fund Secretariat prepared for the 23rd ExCom Meeting and reviewed 272 project proposals, including 21 requests for bilateral cooperation and 208 investment projects worth US\$157 million.

The Secretariat also reviewed three country programmes and the 1998 Business Plans of the implementing agencies. It prepared a number of policy papers for the 23rd ExCom and also collaborated with implementing agencies preparing documents for the meeting—for example, on the China halon strategy and refrigerant management plans.

**Contact:** Dr Omar El Arini, Secretariat of the Multilateral Fund, 1800 McGill College Avenue, 27th Floor, Montréal, Québec H3A 3J6, Canada  
Tel: +1 514 282 1122 Fax: +1 514 282 0068  
E-mail: secretariat@unmfs.org



### *UNEP IE OzonAction Programme*

The second annual meeting of the ODS Officers Network for West Asia was

held in Damascus, Syria, and the follow-up meeting of the ODS Officers Network for the Caribbean was held in Kingstown, St Vincent and the Grenadines (see page 7).

UNEP IE also organized a Regional Workshop on ODS Consumption and Monitoring in Syria (see page 9).

As a result of the 23rd ExCom Meeting, US\$3.95 million was approved for recurring costs for core clearinghouse activities and a number of country-specific activities within the 1998 work programme. Country programmes for Comoros, Georgia and Guyana, and country programmes and institutional-strengthening activities for Togo, were also approved.

UNEP also organized its 7th Informal Advisory Group Meeting, 8–9 January 1998, a consultative meeting on Methyl Bromide and a meeting of Regional Network Coordinators.

**Contact:** Mrs Jacqueline Aloisi de Lardere, UNEP IE, 39–43 quai André Citroën, 75739 Paris Cedex 15, France  
Tel: +33 1 44 37 14 50 Fax: +33 1 44 37 14 74  
E-mail: ozonaction@unep.fr  
<http://www.unepie.org/ozonaction.html>



### *UNEP Ozone Secretariat*

The Secretariat updated its Web site with the report on the 9th

Meeting of the Parties and other information. It contacted individuals and organizations that have carried out studies on the Protocol's Non-Compliance procedure; made preparations to start helping developing countries establish licensing systems; approved in consultation with TEAP the request from Poland for essential uses in an emergency situation; and edited the new ODS Data Forms.

The Secretariat participated in many workshops and conferences, including the African and West Asian Regional Workshops on Ozone Depletion and Management of ODS Phase-out in SMEs; the Sensitization Workshop on Methyl Bromide Use in Cut-flower Production; the Workshop on the Role of Military in the Implementation of the Montreal Protocol (see page 9); and the 23rd ExCom Meeting.

**Contact:** Mr K. M. Sarma, UNEP Ozone Secretariat, PO Box 30552, Nairobi, Kenya  
Tel: +254 2 623 885 Fax: +254 2 623 913  
E-mail: madhava.sarma@unep.org  
<http://www.unep.org/unep/secretar/ozone/home.htm>



### *UNDP*

At the 23rd ExCom Meeting

in November 1997, UNDP received US\$29.3 million in approvals covering 96 investment projects as well as US\$100 000 for an SME survey in Brazil and institutional-strengthening renewals in Indonesia, Iran and Sri Lanka. The 95 approved investment projects are in Argentina (6), Bahamas (1), Brazil (17), China (8), Cuba (1), Georgia (1), Guatemala (2), India (13), Indonesia (9), Malaysia (6), Mexico (5), Morocco (6), Nigeria (9), Paraguay (1), Philippines (2), Thailand (7) and Trinidad and Tobago (1) that will in total eliminate 4015 ODP tonnes.

Over the past few months, UNDP also completed 30 investment projects in Brazil (10), Colombia (6), India (2), Indonesia (2), Malaysia (4), Philippines (4), Sri Lanka (1) and Thailand (1), which eliminated a total of 795 ODP tonnes in the foams, solvents and refrigeration sectors. By the end of 1997, UNDP had

completed 129 investment projects eliminating 6029 ODP tonnes/annum.

**Contact:** Mr Frank Pinto, UNDP, 1 United Nations Plaza, New York, NY 10017, United States  
Tel: +1 212 906 5042 Fax: +1 212 906 6947  
E-mail: frank.pinto@undp.org



### *UNIDO*

The 23rd ExCom approved for UNIDO the implementation of 42 investment projects worth

nearly US\$23.9 million to phase out more than 3000 annual tonnes of ODS. Of the 17 new flexible foam projects, 8 will use liquid carbon dioxide. The meeting also approved two demonstration projects in the methyl bromide sector. Sixteen formulation projects were approved, seven of which will serve for the preparation of demonstration projects in the methyl bromide sector.

In 1997 UNIDO prepared 136 projects, of which 94 are investment projects and demonstration projects in the methyl bromide sector, with a total value of US\$45 million and an ODP potential of 7294 tonnes.

**Contact:** Angelo D'Ambrosio, UNIDO, PO Box 300, A-1400 Vienna, Austria  
Tel: +43 1 21131 5085 Fax: +43 1 21131 6853  
E-mail: adambrosio@unido.org



### *World Bank*

Investment projects for Argentina, China, India, Indonesia, Jordan, Pakistan, Thailand and Turkey were

submitted by the World Bank in November at the 23rd ExCom meeting. A total of US\$39.55 million was cleared for approval which will lead to the phase out of more than 25 000 ODP tonnes. Among these projects was the China Halon Sector Strategy which has been approved for a total of US\$62 million. This will phase out the consumption and production of halon-1202 and -1211 by 2006 and halon-1301 by 2010.

In November 1997, the Bank held a workshop for Financial Agents (the Bank's local partners in project implementation). Representatives from China, India, Indonesia, Malaysia, Mexico, Philippines, Thailand, Turkey and Uruguay attended.

**Contact:** Ms Jessica Poppele, World Bank, 1818 H. Street, N.W. Washington D.C. 20433, USA  
Tel: +1 202 477 1234 Fax: +1 202 522 3256  
E-mail: jpoppele@worldbank.org

## Industry and technology updates

### AEROSOLS AND MISCELLANEOUS USES

#### New asthma medication approved

IVAX Corporation's UK subsidiary, Norton Healthcare Ltd, has received marketing clearance in France and Ireland for what it claims is the world's first CFC-free metered-dose inhaler (MDI) for beclomethasone dipropionate, a corticosteroid used in the treatment of chronic bronchial asthma. The MDI uses a hydrofluoroalkane (HFA) in place of a CFC propellant.

**Contact:** Norton, tel: +44 1279 426666

### REFRIGERANTS

#### Solar-powered refrigerated transport



The UK food retailer Sainsbury has introduced what may be the world's first solar-powered refrigerated articulated vehicle. The vehicle, which is currently being used to carry fresh fruit and vegetables from a depot in London to stores in London, Kent and Sussex, uses solar cells mounted on the trailer's roof to generate power for the refrigeration unit. On-board batteries store excess power for use during the hours of darkness. The refrigeration system, which uses R-134a as refrigerant, can operate at temperatures down to +3°C. The development is a result of cooperation with several partners, including the Sustainable Energy Research Group at Southampton University, Low Energy Refrigeration Ltd, Chloride Motive Power, Montracon Refrigerated Vehicles, Neste Advanced Power Systems and Mason Paints.

**Contact:** Sainsbury, tel: +44 171 695 8447

#### New drop-in replacement for CFC-12

Solpower Australia Pty Ltd is marketing a new drop-in replacement for CFC-12, called Solpower SP34E. The product, originally discovered in Japan where it has been in use for more than two years,

is a blend containing 98 percent HFC-134a and 2 percent added hydrocarbons (ethanol and propanol). It is claimed that the additives lower head pressures and increase compatibility with mineral oil and other materials used in refrigeration and air-conditioning equipment. No oil change or system modifications are required.

**Contact:** Solpower, fax: +61 3 9532 5961

#### New infrared refrigerant leak detector

In the United States, Siebe Environmental Controls has introduced its new Arctic Fox refrigerant detection system. It uses an infrared analyser to detect leaks of 21 different refrigerants. The manufacturers claim that the system can be updated as new refrigerants become available and that users can monitor leaks at up to 31 detection points without buying additional equipment. Communications capabilities allow users to access the system information from remote sites.

**Contact:** Siebe, tel: +1 815 637 3119

e-mail: [mrehwald@siebe-ec.com](mailto:mrehwald@siebe-ec.com)

<http://www.siebe-env-controls.com/newspre2.htm#6197>

#### New guide to replacing chillers

The US Naval Facilities Engineering Service Center has produced a new technical data sheet which discusses the factors to be evaluated when deciding whether to retrofit an existing CFC chiller or replace it with a new non-CFC unit. The data sheet includes a sample calculation comparing the cost and payback period for a new chiller versus a retrofit. The data sheet can be obtained via the Internet at the address below.

**Contact:** NFESC, tel: +1 805 982 1453

<http://energy.navy.mil/publications/TechDataSheets/TDSindex.html>

#### Japanese firm switches to HFCs

Japan's largest manufacturer of domestic air conditioners, Matsushita Electric Industrial Co. Ltd, is to replace its use of HCFC-22 with R-410A by the year 2003. Under the Montreal Protocol, HCFCs are to be phased out for new equipment by 2020 in developed countries and by 2040 in developing countries; the EU has elected for 2015. R-410A, which has an ODP of zero but is a greenhouse gas, is a blend of HFC-32 and -125.

**Contact:** Matsushita, fax: +81 775 65 6796

### METHYL BROMIDE

#### Natural alternative to methyl bromide

The US firm Champon 100% Natural Products Inc. claims to have developed an alternative to soil fumigation with methyl bromide that is based entirely on natural products. In field tests conducted by an independent body, the product killed 99.9 percent of fungi and 90 percent of nematodes. The product is based on combinations of chilli, lemon, vegetable and mustard oils, and current production in the United States is more than 20 000 tonnes a year for use as a general animal repellent—against deer, dogs, rabbits and squirrels, for instance—and as an insecticide to treat fruit trees and vegetable crops. The product is claimed to be non-toxic to humans and to have an ODP of zero. In recent field tests, the product proved effective as a replacement for methyl bromide using existing spraying equipment on tomato plants.

**Contact:** Champon, fax: +1 954 283 1933

e-mail: [champon@ix.netcom.com](mailto:champon@ix.netcom.com)

### SOLVENTS

#### Carbon dioxide as a dry cleaner

MiCell™ Technologies Inc. of North Carolina, United States, has introduced a new line of cleaners based on combining liquid carbon dioxide with patented surfactant molecules. The new cleaners have been developed specifically for the dry cleaning of garments, where regulations threaten to make the continued use of perchloroethylene difficult, but also offer the possibility of cleaning machine parts and printed circuit boards.

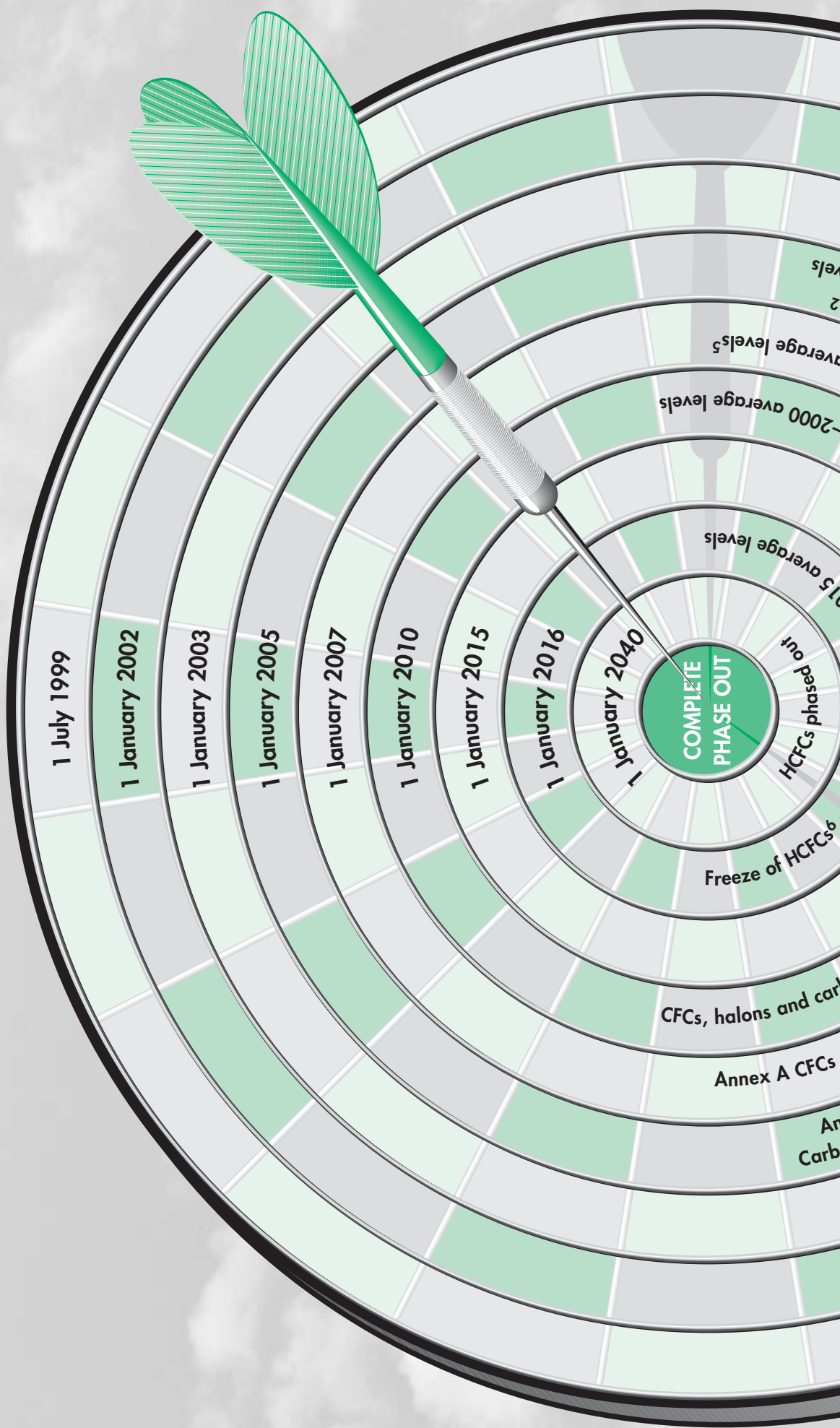
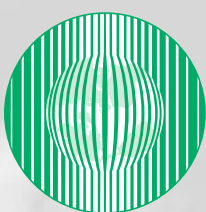
In dry cleaning applications, the new cleaners will require new machines capable of working under the pressures needed to liquefy carbon dioxide. One such machine is being built for MiCell by the American Dryer Corporation. Other machines, which dispense with a rotating basket (which is expensive to produce for high-pressure systems) and use jets of liquid carbon dioxide to cycle clothes round the outside of a fixed basket, are being developed by Global Technologies LLC.

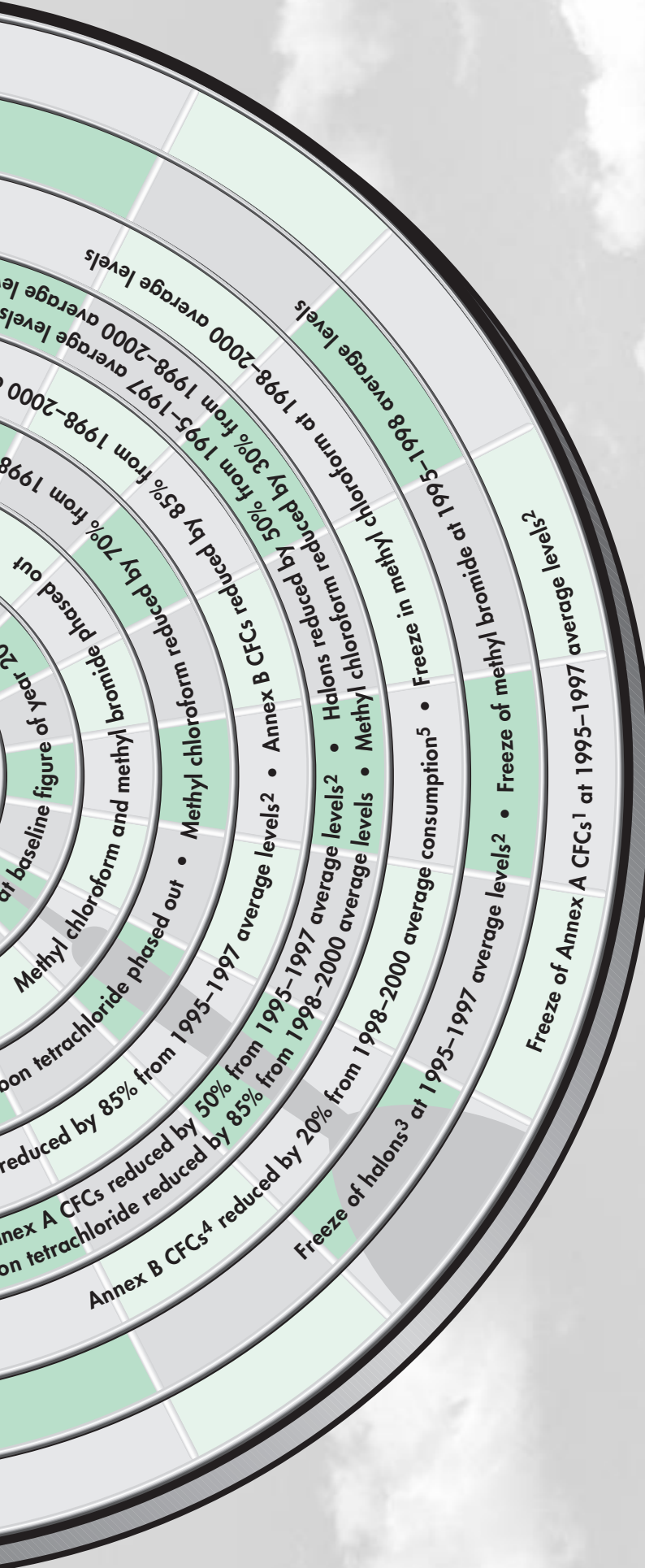
**Contact:** MiCell, tel: +1 919 513 7000

<http://www.micell.com>



# Right on Target





# Developing countries' ODS phase-out schedule

as agreed by the Parties to the Montreal Protocol at their 9th Meeting (Montreal, 15-17 September 1997)

Produced by the OzoneAction Programme on the occasion of the 25th issue of the OzoneAction Newsletter  
 More ozone protection information can be found at <http://www.unepie.org/ozonaction.html>

<sup>1</sup> Annex A: CFCs 11, 12, 113, 114, 115  
<sup>2</sup> calculated level of production of 0.3 kg/capita can also be used for calculation if lower  
<sup>3</sup> Halons 1211, 1301, 2402  
<sup>4</sup> Annex B: CFCs 13, 111, 112, 211, 212, 213, 214, 215, 216, 217  
<sup>5</sup> calculated level of production of 0.2 kg/capita can also be used for calculation if lower  
<sup>6</sup> 40 hydrochlorofluorocarbons

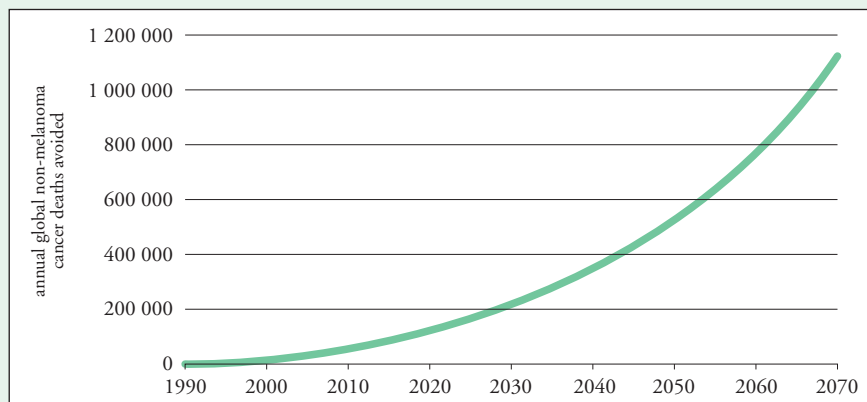
UNEP IE OzoneAction Programme  
 39-43 quai André Citroën  
 75739 Paris Cedex 15, France  
 Tel: +33 1 44 37 14 50  
 Fax: +33 1 44 37 14 74  
 E-mail: [ozonaction@unep.fr](mailto:ozonaction@unep.fr)

## Costs and benefits of the Montreal Protocol ...

The 25th issue of *OzonAction News* is an appropriate place to summarize the most recent analysis of the costs and benefits of the Montreal Protocol. The analysis was carried out by Applied Research Consultants for Environment Canada (*Global Benefits and Costs of the Montreal Protocol on Substances that Deplete the Ozone Layer*, ARC 1997) and the conclusions are summarized in *The Right Choice at the Right Time* (see page 10), published in English and French by Environment Canada for the 9th Meeting of the Parties in Montreal. Other cost/benefit analyses have been published by WRI and UNDP.

According to the Canadian report, the global benefits of the ODS phase out over the years 1987–2060 include:

- 19.1 million cases of non-melanoma skin cancer avoided;
- 1.5 million cases of melanoma skin cancer avoided, of which about 60 percent would have been in women;
- 333 500 skin cancer deaths avoided;
- 129 million cases of cataracts avoided;
- US\$238 000 million worth of damage to the world's fisheries avoided;
- US\$191 000 million worth of damage to agricultural production avoided;



Graph shows estimated annual global non-melanoma cancer deaths avoided during 1990–2070 as a result of the Montreal Protocol. During 1987–2060, an estimated total of 19.1 million deaths from this cause will be avoided.

- US\$30 000 million worth of damage to PVC plastic products in the building industry avoided.

The global costs of the ODS phase out are estimated at:

- US\$95 000 million for the phase out of CFCs in air conditioning and refrigeration;
- US\$48 000 million to eliminate methyl chloroform;
- US\$33 000 million to eliminate HCFCs;
- US\$19 000 million to eliminate CFC solvents, mainly in the electronics industry.

- although initial capital costs were incurred in switching from CFC aerosol propellants to hydrocarbons, the reduced material costs of hydrocarbons will result in savings of more than US\$5 300 million by the year 2060.

The net result is a US\$224 000 million saving, plus the health benefits listed above.

Contact: Environment Canada,  
fax: +1 819 953 7253

... net result: a saving of US\$224 000 million plus ...

### Phase-out successes under the Multilateral Fund

#### CFCs eliminated from domestic refrigeration in Colombia and Mexico

Through UNDP-assisted projects, CFCs have been completely eliminated from the domestic refrigerator manufacturing sector in Colombia and Mexico.

Funding was received from the Multilateral Fund for six companies in Colombia (Challenger, Comandinos, Haceb, Icasa, Corelsa-Indusel and Polarix-Mabe). In a meeting held at the local UNDP office in Bogota in February 1997, all companies and the Government agreed to a joint phase-out date of 15 October 1997. By then, all companies had stopped using CFC-11 and

-12 in their manufacturing operations, thereby eliminating 243 ODP tonnes/year. Comandinos also converted to non-CFC compressors as part of the same programme.

As for Mexico, a phase-out date of the end of August was agreed during a UNDP visit in June 1997 for the Mabe plants (Astral, Enresa) and for the Vitro plants (Supermatic and Erna). During a commissioning visit 10–21 September 1997, it was found that CFCs were no longer being used in manufacturing operations, and thus that 806 ODP tonnes/year has been eliminated. Mabe/Comasa also converted to non-CFC compressors.

#### Philippines phase out CFC use on slabstock foam production

Approved in July 1995 and completed in June 1997, a UNDP project in the Philippines (PHI/FOA/17/ INV/37) worth US\$217 000, provided by the Multilateral Fund, has eliminated the use of 80 tonnes/annum of CFC-11 in the manufacture of flexible foam slabstock at Mandaue Foam Industries. The company now uses methylene chloride for foam blowing.

Contact: UNDP, fax: +1 212 906 6947

## *HFC-134a and HFC-227ea: statement by PAFT*

A study by the Wright Patterson/Armstrong Laboratory in the United States recently showed unexpected changes in the heart rate and blood pressure of three volunteers during inhalation of levels of 4000 and 2000 parts per million (ppm) of HFC-134a and 6400 ppm of HFC-227ea. Since this result was not consistent with the overwhelming evidence from numerous previous peer reviewed studies, the new study was reviewed by a group led by members of the Toxicology Committee of the Programme for Alternative Fluorocarbon Toxicity Testing (PAFT). The group concluded the effects seen were probably not a direct result of the chemical exposure. Their conclusion was based on the fact that clinical studies conducted by the Consortium for Toxicology Testing (IPACT) and independent pharmaceutical companies have shown that the pulse and blood pressures of human volunteers exposed to HFC-134a and HFC-227ea at levels both above and below those in the Wright Patterson/Armstrong Laboratory study were unaltered. No adverse effects were found on animals at exposure levels at least 12 times higher than those used in the new study.

PAFT and other interested parties are commissioning a clinical study to extend information on prolonged human exposure to steady levels of HFC-134a and HFC-227ea. In the United States, a Workplace Environment Exposure Limit (WEEL) guide of 1000 ppm (based on an eight-hour time-weighted average per day) has been established for HFC-134a by the American Industrial Health Association (AIHA). The same occupational limit has been set by British and German governmental authorities and is recommended by companies around the world.

PAFT concluded that HFC-134a and HFC-227ea can continue to be used without changes in handling recommendations or safety guidelines.

**Contact:** PAFT, tel: +1 202 789 1206; **Internet:** <http://thor.he.net/~paft/index.html>

## *Ozone science news*

### **Ozone returns to the Antarctic**

The Antarctic spring ended in November 1997, with ozone values returning to near normal. During the spring, the average total ozone amount was about 33 percent less than it was in the late 1970s in the polar region (65–90°S). This is close to the largest deficiencies observed during the 1993 and 1996 seasons. Closer to the Pole, ozone deficiencies in late September and early October exceeded 50 percent. As in previous Antarctic springs, the major depletion was in the 12–20 km layer where ozone was nearly completely annihilated for more than 40 continuous days. Although the ozone hole disappeared before the end of November, ozone values below some 200 m atm cm were observed over an area larger than 10 million km<sup>2</sup> for more than 80 days. The maximum extent of more than 20 million km<sup>2</sup> lasted from mid-September to mid-October.

**Contact:** Dr R. D. Bojkov  
**fax:** +41 22 734 23 26;  
**e-mail:** [bojkov\\_r@gateway.wmo.ch](mailto:bojkov_r@gateway.wmo.ch)

### **UV-B may cause deformities in frogs**

Scientists from the US EPA Mid-continent Ecology Division laboratories in Duluth, Minnesota, United States, have found that nearly half of all leopard frog eggs exposed to UV radiation for more than two weeks

developed into frogs with deformed limbs. Frogs exposed to a mosquito-control pesticide but no UV showed no abnormalities.

The finding may explain why apparently increasing numbers of frogs with deformed limbs are being found in some areas of the United States and elsewhere. The North American Reporting Center for Amphibian Malformations has received reports of frog malformations from 3 Canadian provinces and 38 US States. Thinning of the ozone layer is causing increases of UV-B radiation of up to 15 percent in some high-latitude areas, mainly in the spring which is a critical time for amphibian reproduction.

**Contact:** EPA Duluth, tel: +1 218 529 5147  
**http:** <http://www.npsc.nbs.gov/narcam>

### **UK team to study effect of aircraft emissions on ozone layer**

The UK Natural Environment Research Council is to begin a five-year research programme aimed at determining the effects of emissions from high-flying aircraft on ozone depletion. The study will cost an estimated US\$14.3 million. International concern about ozone-layer depletion began in the early 1960s when American scientists feared that emissions from the then-expected large fleet of supersonic civil aircraft would cause significant ozone destruction.

**Contact:** NERC, tel: +44 1793 411513  
**http:** <http://www.nerc.ac.uk>

## **Network news**

### *The Caribbean*

The follow-up meeting of the ODS Officers network for the Caribbean was held in Kingstown, St Vincent and the Grenadines, 4–5 December 1997. ODS Officers from Jamaica, Bahamas, Barbados, St Lucia, St Kitts and Nevis, Dominica, Guyana, St Vincent and the Grenadines, Antigua and Barbuda, and Trinidad and Tobago participated, along with representatives from the UNEP IE OzonAction programme and the UNEP ROLAC office.

The meeting focussed its discussions on meeting the 1999 freeze of Annex A CFCs, with special emphasis on policy needs within country programmes. Participants also discussed the implementation of Refrigerant Management Plans, and the countries currently implementing them shared their experiences with the rest of the network. Information on country activities was also shared, and representatives had the opportunity to consult with one another and compare activities.

### *West Asia*

Eleven representatives from West Asian countries (Bahrain, Iran, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudia Arabia, Syria and Yemen) attended the second meeting of the West Asia ODS Officers Network which was held in Damascus, Syria, 16–17 December 1997.

Representatives from the implementing agencies, the Ozone Secretariat, the Fund Secretariat, Canada, France and Germany also participated.

The amendments and adjustments made to the Montreal Protocol during the 9th Meeting of the Parties and other decisions that affected the member countries were discussed in detail, especially their implications for national phase-out plans, particularly those for methyl bromide.

One of the recommendations to come out of the meeting was to establish a halon bank for West Asia. Countries also agreed to submit to UNEP their plans to meet the 1999 freeze of Annex A CFCs as soon as they are ready.

**Contact:** UNEP IE OzonAction Programme,  
**fax:** +33 1 44 37 14 74  
**http:** <http://www.unepie.org/ozonaction.html>

## SPECIAL FEATURE : *the National Ozone Unit interview*

• This is the first in a new series of articles featuring the views of national ODS Officers •

### *Lim Siak Heng*

**ODS Officer, Singapore**

● *What are the major achievements of your National Ozone Unit over the past three years?*

‘We succeeded in reducing CFC consumption by more than 80 percent by the end of 1995, prohibited the import of CFCs, carbon tetrachloride and methyl chloroform from 1 January 1996, introduced an accelerated depreciation allowance on the same date to encourage the replacement of inefficient refrigeration and air-conditioning equipment using CFCs, and contributed to a paper entitled *Singapore: a market-based approach for phasing out CFCs*, which was published in the 1997 TEAP Report.’

● *What have been the major difficulties in meeting your goals?*

‘The major hurdle was to convince industry of the need for a phase out. It also takes time for the public to accept products which do not contain ODS.’

This process was the most challenging and may take several years. Industry has also been rather cautious about making the switch to non-ODS processes for technical, safety, health and economic reasons. Another difficulty has been getting information to ODS end-users, particularly the SMEs, who need technical and financial support from the government to phase out their use of ODS.’

● *Can you identify the factors that have been most helpful to you in carrying out your responsibilities?*

‘Singapore is a small country, which makes the job easier. It also has the political will and stability needed for such action. We also have access to up-to-date information on the Montreal Protocol and on the availability of effective substitutes and alternative technologies.’

● *What steps are you taking to meet the 1999 freeze?*

‘Singapore has already fulfilled her obligations to meeting the 1999 freeze on CFC consumption.’

● *What lessons have you learned that could be helpful to other developing countries?*

‘To strike a balance between economic development and protection of the environment. It is essential to understand the extent of the Montreal Protocol and its impact on industry so that the country programme can be formulated to minimize impacts on industry. It would be useful to learn more about the strategies of the developed countries in phasing out ODS to see if these strategies could be adapted or modified to suit the needs of a developing country. ODS phase-out strategy should include both regulatory and fiscal measures to pre-empt increased reliance on ODS and promote the switch to non-ODS. The Regional Network of ODS Officers of the UNEP IE OzonAction Programme, supported by the Government of Sweden, and of which Singapore is a member, has provided an excellent opportunity for ODS Officers to share, learn and benefit from other members and technical experts on issues related to the phasing out of ODS.’

**Contact: NOU Singapore, fax: +65 731 9922  
e-mail: env.sprd@pacific.net.sg**

## National Ozone Units build their web sites

Several NOUs have now set up their own home pages on the web. Among the first three are the NOUs from Brazil, Costa Rica and Mexico. All these sites contain information about the nature of the ozone-depletion problem, what can be done about it and whom to contact in

the country concerned. Some describe projects undertaken, national regulations and their Country Programmes.

*OzonAction News* will feature more of these sites in the future, and invites NOUs to provide the addresses of their web sites as they become available. NOU

web site addresses can be found on the UNEP IE OzonAction Programme Home Page.

**Contact: UNEP IE OzonAction Programme,  
fax: +33 1 44 37 14 74  
http://www.unepie.org/ozonaction.html**



**Brazil:** <http://www.mma.gov.br/port/SMA/ozonio/ozonio.html>



**Costa Rica:** <http://163.178.56.21>



**Mexico:** <http://www.ine.gob.mx/ucci/upo/inicio.html>



## Meetings and workshops

### Alternatives to ozone-depleting solvents

The Indian Institute of Chemical Technology (IICT), in collaboration with UNEP's Technical Options Committee (TOC) and OzonAction Programme, conducted two workshops on Viable Alternatives to Ozone-depleting (OD) Solvents from 15–16 October and 20–21 October 1997, in Bangalore and New Delhi, India.

The workshops were designed to:

- pass on the benefits of phase-out experience of developed countries to the consumers in India;
- provide an update on the technical options already available; and
- provide an opportunity to explore the possibilities of technology transfer.

The fields covered were precision cleaning, metal cleaning, electronic and telecommunications, aircraft maintenance and thermal power plants. About 120 participants from small, medium and large industries as well as public undertakings and Government agencies attended. Both venues included panel discussions during which the following suggestions were made by the panel experts:

- sustained effort should be made to create awareness among small-scale industries on the possible adverse effect of using OD solvents and of the financial assistance available;
- there is a need for a database on the consumers, producers and traders who have to register with a government authority;
- progress towards phasing out OD solvents is slow—top management involvement is the key to speeding up progress, accompanied by an increase in the duty on OD solvents and a reduction on alternatives;
- a demonstration centre could be established in India to help select appropriate technologies.

**Contact: Dr Mohinder Malik, Co-chair Solvents TOC, fax: +49 40 50 70 14 11**

### Military workshop

The Third International US Department of Defense/US EPA/NATO Workshop on the Role of the Military in Implementing the Montreal Protocol was held in Dulles, Virginia, United States, 6–7 November 1997. The participants discussed what had been achieved so far, what remained to be done and what climate change issues would mean for military units. The US

Department of Defense has already phased out most 'non-essential' ODS uses; current efforts are focused on 'mission-critical' applications such as the use of halons in aviation, tanks, submarines, shelters, and command and control posts. Ways of reducing the use of ODS in these applications were discussed.

**Contact: Tom Morehouse, e-mail: emorehouse@ida.org**

### Methyl bromide progress reported in Kenyan workshop

The Sensitization Workshop on Existing and Potential Alternatives to Methyl Bromide Use in Cut Flower Production was held in Nairobi, Kenya, during 13–16 October 1997. The workshop was financed by the Danish government and organized jointly by Health and Environment Watch and the Pesticide Action Network, North America (PANNA).



*Demonstration plots of soil sterilization alternatives to methyl bromide in Kenya during the Sensitization Workshops.*

The workshop included presentations on the health and environmental effects of methyl bromide use, the use of methyl bromide in the cut flower industry in Kenya and Colombia, where experience has been particularly encouraging, and prospects for exports of methyl bromide-free products to Europe. Participants also visited the Navaisha-based Sulmac flower farm in Kenya, which used to use 80 tonnes a year of methyl bromide for soil fumigation. Methyl bromide use has now been reduced by 70 percent as a result of using alternatives such as dazomet. The firm intends to phase out methyl bromide use by June 1998.

Two papers on the Colombian experience spelled out the progress made in that country where methyl bromide use in agriculture has been eliminated except for quarantine applications—even though the country is a major exporter of cut

flowers, with some 400 growers operating over 4500 hectares. Progress has been mainly due to sound planning, the adoption of Integrated Pest Management, and the use of physical barriers to prevent soil infestation.

**Contact: UNEP Ozone Secretariat  
fax: +254 2 623 913  
e-mail: madhava.sarma@unep.org  
http://www.unep.org/unep/secretar/ozone/home.htm**

### African and West Asian workshops on control and monitoring of ODS consumption

#### *English-speaking Africa*

This workshop was organized by the UNEP IE OzonAction Programme and hosted by the Ugandan National Environment Management Authority in Kampala, Uganda, 1–3 July 1997. The aim was to enable participating countries to design and implement efficient systems to control and monitor their ODS consumption, in particular imports and exports, and to facilitate reporting of ODS consumption to the Ozone Secretariat and to the Multilateral Fund.

Some 47 participants attended the workshop which consisted of presentations and four working group sessions. Representatives from Mauritius, Uganda and Ghana described the existing systems in their countries. All participating countries prepared action plans to initiate the establishment of national import permit systems.

**Contact: Ugandan National Ozone Unit, fax: +256 41 234732**

#### *West Asia*

Organized by the UNEP IE OzonAction Programme and hosted by the Government of Syria, in Damascus, Syria, 13–15 December 1997, this workshop had the same aims at the workshop in Kampala. Some 30 participants attended the workshop from eight countries in the region, together with representatives from Egypt, Iran and two Non-Party countries (Iraq and Oman).

Experts from Poland and Canada delivered technical presentations and representatives from Syria and Jordan presented the details of systems in their countries. Thirteen participating countries prepared action plans for their national import permit systems.

**Contact: Syrian Ozone Focal Point  
fax: +963 11 33 14 393**

## Status of Ratification

(as at 31 January 1998)

### The Vienna Convention

166 Parties; no new Parties

### The Montreal Protocol

165 Parties; new Parties: Belize, Tajikistan

### The London Amendment

119 Parties; new Parties: Belize, Namibia, Tajikistan

### The Copenhagen Amendment

76 Parties; new Parties: Belize, Jamaica, Slovakia, Venezuela

### Classified:

Belize, Article 5 country

... continued from page 1

Bank is the first to tackle an entire industrial sector in a large country.

The 23rd ExCom meeting brought total funds for ODS elimination allocated in 1997 to US\$178 million for 440 projects and activities in developing countries, which will phase out about 30 000 tonnes of ODS. At their 1996 meeting in Costa Rica, developed countries agreed to provide an additional US\$466 million for the period 1997–99.

Contact: Multilateral Fund,

fax: +1 514 282 0068

E-mail: [secretariat@unmfs.org](mailto:secretariat@unmfs.org)

## World policy round-up

### British Columbia bans CFC recharge for vehicle air conditioners

The province of British Columbia, Canada, has become one of the first places to ban the use of CFC-12 for recharging air conditioners in vehicles. As from 1 October 1997, non-ODS such as HFC-134a must be used. While this requires some retrofitting on equipment not already converted, the change to non-ODS can be deferred until the air conditioner requires service.

Contact: Ministry of Environment, Lands and Parks  
tel: +1 250 387 9933

<http://www.env.gov.bc.ca/main/newsrel/fisc9798/october/nr061.htm>

### Voluntary CFC collection begins in Japan

Domestic companies in Japan are to begin the voluntary collection of CFCs in early 1998, according to the Ministry of International Trade and Industry (MITI). It is estimated that there are still 44 000 tonnes of CFCs to be collected in Japan, of which 21 000 tonnes are in vehicle air conditioners. Vehicle owners may have to pay as much as US\$35 to have CFCs removed from their vehicles. These CFCs will be collected first from vehicles in Tokyo and three neighbouring prefectures; the rest of Japan is expected to be covered by autumn 1998. CFCs will also be collected from domestic refrigerators, which will be replaced by gas absorption models. The manufacturers of industrial refrigerators and air conditioners will end their maintenance contracts with users, and their CFCs will be collected at the users' expense.

Contact: MITI, fax: +8 3 3501 1511

## Forthcoming meetings

Halons Technical Options Committee, UNESCO, Paris, 24–27 February 1998

Aviation and the Global Atmosphere, Virginia, United States, March 1998

Refrigeration Technical Options Committee, and Foams Technical Options Committee Meetings, New Delhi, India, 16–17 March 1998

Emerging Trends in Refrigeration and Air Conditioning, New Delhi, India, 18–20 March 1998

Aerosols Technical Options Committee Meeting, Mauritius, 19–23 March 1998

24th Executive Committee of the Multilateral Fund, Montreal, Canada, 23–27 March 1998

GEF General Assembly, New Delhi, India, 1–3 April 1998

World Bank, OORG Meeting, 4–5 May 1998

Halons Options Technical Working Conference, Albuquerque, New Mexico, United States, 12–14 May 1998

For additional information, see

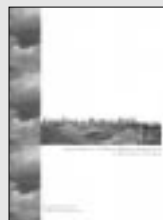
<http://www.unepie.org/ozonaction.html>

## Recent publications

*The Right Choice at the Right Time: highlights of the global benefits and costs of the Montreal Protocol*, Environment Canada, Montreal, Canada, 1997



*Funding a Better Ban: smart spending on methyl bromide alternatives in developing countries*, PANNA, San Francisco, United States, 1997



*Protecting the Ozone Layer: Vienna Convention and Montreal Protocol*, E&D File Treaty Series No. 9, New York, UN Non-governmental Liaison Service, 1997



## Belarus issues new ozone-protection stamps



Belarus is the latest country to have issued stamps to commemorate the 10th anniversary of the Montreal Protocol. Countries wanting to issue their own stamps may contact the Ozone Secretariat for design ideas. The new

stamps result from cooperation between the Ozone Secretariat and the International Postal Union.

UNEP Ozone Secretariat,  
fax: +254 2 623 913  
e-mail: [madhava.sarma@unep.org](mailto:madhava.sarma@unep.org)

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Please send comments and material for publication to Mr Rajendra Shende, Coordinator, OzonAction Programme, UNEP IE.

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