



The health of the ozone layer

Scientists indicate that recovery of the ozone layer may be expected by around 2050. However, the ozone holes in both hemispheres are reaching record proportions. Are reports about the health of the ozone layer contradictory? Our feature, by Dr Paul Fraser, Chief Research Scientist at CSIRO Atmospheric Research, Australia, Member of the UNEP Scientific Assessment Panel, clarifies the situation.

Decreasing levels of ODS

For the first time in the past 50–100 years, the abundance of total ozone-depleting substances (ODS) in the atmosphere is in decline. Such conclusions were drawn from data collected by UNEP and verified by such programmes as the Advanced Global Atmospheric Gases Experiment. The data show that ODS emissions have declined to the point where the atmosphere is now destroying ODS faster than their total production.

A historical analysis of ODS in the atmosphere indicates that ODS levels peaked in the mid-1990s and are now slowly decreasing. Figure 1a shows the history together with future predictions of ODS levels assuming sustained adherence to the Montreal Protocol by all countries.

But in spite of the good news on ODS, record ozone losses were detected over high-latitude regions of the Northern Hemisphere

in March 2000, and a record area ozone hole was found over Antarctica in September 2000, casting possible doubt on the claimed success of the Montreal Protocol.

Indicators of the 'health' of the ozone layer

The area, depth and duration of the Antarctic ozone hole are indicators used to gauge the 'health' of the ozone layer. 'Area' in this instance means the size of the region with total ozone below 220 Dobson Units (DU), while for 'depth', the October mean total column ozone amount above Halley Bay, Antarctica (Figure 1b) and the minimum total column ozone amount above the South Pole are often cited. 'Duration', of course, refers to the period for which the phenomenon persists.

The 2000 Antarctic ozone hole

In early September 2000, the area of the

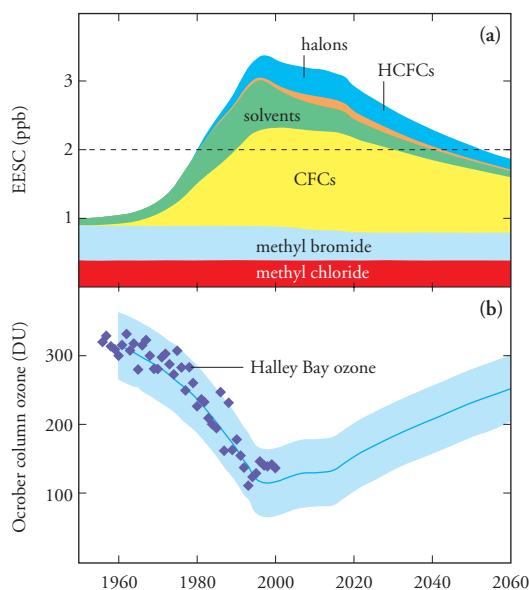


Figure 1a. The contribution of various ODS to equivalent effective stratospheric chlorine (EESC, ppb), assuming global compliance to the Montreal Protocol (1997) and 15% additional CFC production in developed countries for use in developing countries (scenario A3, Madronich and Velders, 1999; solvents = methyl chloroform + carbon tetrachloride). Dashed line at 2, existing ppb EESC when the ozone hole emerged in 1980.

Figure 1b. October mean total column ozone (Dobson Units, DU) at Halley Bay, Antarctica (J. Shanklin, BAS, 2000) with ± 50 DU variability interval (maximum inter-annual variability). Prior to 1997 the solid line is a best fit to the ozone data, after 1997 the solid line is the modelled ozone response to EESC scenario A3 (Hoffman and Pyle, 1999).

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Antarctic ozone hole reached a record 27–28 million km². The area of the previous largest hole was 26–27 million km², observed in mid-September 1998. In 2000 the ozone hole lasted 15 weeks, from early August to mid-November, about 3–4 weeks less than ozone holes in recent years, which typically broke up in early December.

In terms of depth, Table 1 shows that the ozone hole was similar to that of 1999, but less than the record depth of the 1993 hole, which was affected by volcanic aerosol from the eruption of Mount Pinatubo in the Philippines during 1991.

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Table 1. Ozone observations over Halley Bay and South Pole Antarctica (J. Shanklin, BAS, 2000; NOAA-CMDL, 2000).

Year	Halley Bay Oct. mean (DU)	South Pole minimum (DU)
1993	112	88
1999	143	90
2000	137	98

Note: DU = Dobson Unit. Lower DU indicates lower concentration of ozone in the stratosphere or higher depletion of the ozone layer.

News from international agencies



Fund Secretariat

The Fund Secretariat prepared more than 70 technical and policy documents for the 32nd

Executive Committee (ExCom) Meeting held in Ouagadougou, Burkina Faso, 2–8 December 2000. This included work on the 'Draft Framework on the Objective, Priorities and Modalities for Strategic Planning of the Multilateral Fund in the Compliance Period'. The Draft was discussed at an informal meeting prior to the ExCom Meeting, and was subsequently adopted.

The ExCom also approved the Libya and Oman country programmes and US\$50.9 million for the implementation of 144 projects and activities in 46 countries, that will phase out more than 7550 ODP tonnes of controlled substances, all of which were subject to prior review by the Secretariat. Approvals included US\$2.4 million to continue institutional strengthening efforts in 21 countries.

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UNEP DTIE OzonAction Programme

The 32nd ExCom Meeting approved US\$2.241 million for UNEP's recurring work programme for 2001. As part of a reprioritization exercise, the ExCom also requested that UNEP set aside part of its approved budget for regional awareness activities to be decided through regional networks.

UNEP participated actively in an exhibition held back-to-back with the 12th Meeting of the Parties, in Burkina Faso. Some new products were launched on this occasion: a new version of the OASIS CD-ROM; a booklet entitled *Patterns of Success: Africa and the Montreal Protocol*; and a video: *Back to Future: Working Safely with Hydrocarbons* with accompanying booklet. (See pages 7–8).

The annual meeting of the Regional Network Coordinators was held in Paris in early January, to decide on the network's programme for 2001. UNEP also continued its training activities with a training session for customs officers in Bahrain (see page 6).

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UNEP Ozone Secretariat

In October and November 2000, members of the Ozone Secretariat attended ODS

Network meetings and workshops throughout the world. Events included: the SPARC Meeting in Mar del Plata, Argentina; the Caribbean Region's ODS Workshop, in Belmopan, Belize; a Regional Workshop to control ODS imports in Dalian, China; the GEF Council Meeting, in Washington D.C., USA; the UNU/MIT/UNEP Multilateral Environment Agreement Workshop, Boston, USA; and the West-Asia Region's ODS Network Workshop, in Yemen, among others.

The Ozone Secretariat serviced the 12th Meeting of the Parties in Ouagadougou (11–14 December 2000) (see also page 7).

The Secretariat has also received data on production and consumption of ODS, under reporting requirements. At 15 January 2001, the reporting status was as follows: 154 Parties have reported data for 1998; 117 Parties have reported data for 1999; and 1 Party has reported for 2000. For the baseline years (1995–97), 158 Parties have reported for 1995; 160 for 1996 and 1997.

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UNDP

The 32nd ExCom Meeting, approved US\$13.5 million for UNDP projects that will phase out 2,163 ODP tonnes/year. Approvals included foam conversion projects for Argentina, Benin, Brazil, Colombia, India, Iran, Libya and Morocco. UNDP also cooperated with Japan to formulate foam projects for Nigeria, approved as bilateral projects to be implemented by UNDP. Refrigeration conversion projects were approved for China, India, Malaysia and Syria, and Refrigerant Management Plans were prepared for Ghana, Paraguay and Sri Lanka. UNDP also received approval for an innovative scheme for the refrigeration servicing sectors in Burkina Faso, Ghana and Sri Lanka. A halon banking project was approved for Egypt, as were projects to eliminate use of methyl bromide in Malawi and Chile, and institutional

strengthening projects for Brazil, China, Ghana, Indonesia, Iran, Kenya, Malaysia, and Trinidad and Tobago.

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UNIDO

The 32nd ExCom Meeting approved implementation of 26

UNIDO projects in several sectors. Two institutional strengthening projects to set up National Ozone Units in Oman and Libya were also approved.

In Oman, the strategy for phase out of ODS consumption is based on containment, recovery and recycling of refrigerants. The National Ozone Unit, within the Air and Noise Pollution Section of the Ministry of Regional Municipalities and Environment, will be the focal point for all activities.

In Libya, the thrust is towards conversion of foam and refrigerator manufacturing plants in the public sector to non-CFC technologies, with funding from the Multilateral Fund (MF). An Executive Office of the National Committee for Climate Change will be established as a focal point for all activities related to the Montreal Protocol.

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World Bank

The World Bank held its 17th Ozone Operations Resource Group (OORG)

Meeting in November 2000, where OORG experts and several country representatives, Bank Project Managers, Multilateral Fund Secretariat representatives and implementing agencies discussed the latest developments in ExCom policies and developments in relevant industry sectors.

In response to the ExCom's request for work on the foam density study, the OORG set up a working group back to back with its own meeting. The foam study is expected to be completed in the near future as a result of the working group's discussions.

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TECH TALK

UNEP DTIE welcomes information from industry and will mention as many new technologies and products as possible in this newsletter.

REFRIGERANTS

New CFC and HCFC disposal service introduced

The Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) has launched a new programme to provide an industry-driven solution to the future disposal of surplus CFC and HCFC refrigerants. Under the programme, known as Refrigerant Management Canada (RMC), a free disposal service will be provided to refrigerant owners and others in the supply chain in the stationary refrigeration and air conditioning sectors.

Disposal operations will be funded from a voluntary, industry-sponsored levy or fee on all virgin and reclaimed HCFC or HCFC blend refrigerants sold by manufacturers, importers and reclaimers on the Canadian stationary refrigeration and air conditioning market.

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HALONS

China's government takes action on halons

Environmental officials in China recently announced the closure of eight facilities producing halon-1211 and 38 plants manufacturing halon-containing fire extinguishers. The closure of these facilities is part of the project funded by the Multilateral Fund of the Montreal Protocol.

Under a phase-out plan issued in 1997, China intends to phase out use of halon-1211 by the end of 2005 and use of halon-1301 by the start of 2010. According to officials, China has made 'substantial progress' in reducing use of halons.

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METHYL BROMIDE

Sulphuryl fluoride a potential replacement for methyl bromide

Sulphuryl fluoride may be a replacement for



Furniture beetle can now be fumigated with sulphuryl fluoride

methyl bromide as a post-harvest fumigant in the near future. Marketed under the trade name of Vikane, this gas fumigant is currently registered with the US EPA for fumigation of structures to combat wood-boring beetles and termites. Its maker, Dow Agro Sciences, is now seeking to register a reformulated version of the product, to be known as ProFume, for post-harvest fumigation of dry fruits, tree nuts and cereal grains. The company's researchers are also examining ways to optimize fumigation efficiency by improving sealing techniques and use of heat to increase susceptibility of pests to the gas.

Contact: Ms. Adriana Dykzeul, Dow, tel: +1 317 337 4139, <http://www.dowagrosciences.com>

Fungus to control weeds

Researchers at the US Department of Agriculture (USDA) have found that a fungus known as *Dactylaria higginsii* can be used as an alternative to methyl bromide in controlling purple and yellow nutsedge, a troublesome weed affecting crops such as tomatoes, peppers and strawberries. A greenhouse study showed that treatment of nutsedge with *D. higginsii* gave tomato yields equal to those obtained in weed-free conditions.

According to USDA researchers, 'it is sometime forgotten that weeds can have such a big impact on production systems. This is still an area we need to address.'

Contact: USDA <http://www.ars.usda.gov>

Espumas Oeste, Brazil: proactive role in development

Espumas Oeste, a Brazilian molder of flexible foam automotive seating, flexible integral skin furniture components, and rigid foam coolers recently completed the phase out of CFC as a blowing agent in the production of foam. The project, prepared by UNDP and implemented by UNOPS, will eliminate 16.9 ODP tonnes of CFCs.

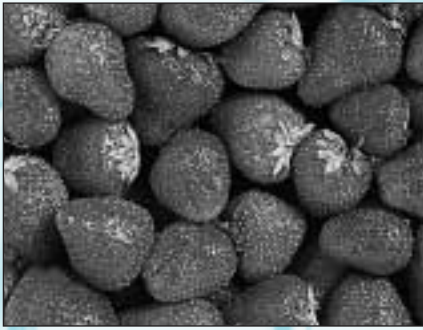
Foaming by water was the choice for both the flexible molded and the rigid foam coolers. A combination of water and HCFC-141b was selected for the flexible skin foam. HCFC-141b, a replacement product with an ODP of 0.11, will be used only until water or water/MeCl₂ foams are approved by Espumas Oeste's customer, a multinational automotive manufacturer. The company is currently developing a proprietary water blown flexible integral skin foam which will totally eliminate use of HCFC-141b.



The Espumas Oeste blender

This project is representative of several others in which the receiving company's proactive roll in development of the technology (while simultaneously reducing project costs for local and international experts) has been of paramount importance for success in phase out of ODS.

Contact: UNDP **fax:** +1 212 906 6947, <http://www.undp.org>



Irrigation lines can deliver alternatives for strawberries

Scientists at the USDA Agricultural Research Service (ARS) are evaluating the effectiveness of using irrigation lines to deliver alternatives to methyl bromide to strawberry fields. The most promising system tested so far—known as 'InLine'—produces marketable yields of strawberries of 95–110 per cent of those from fields treated with reduced methyl bromide applied in combination with chloropicrin.

Contact: USDA
<http://www.ars.usda.gov>

AEROSOLS

Environmentally safe MDIs receive new patents

Two patents have been granted in the USA for environmentally safe

formulation technologies applicable to a wide range of medications in pressurized metered-dose inhalers (MDI) devices. The technologies—developed by Aeropharm, a subsidiary of Kos Pharmaceuticals—are aerosol applications for delivery of pharmaceutical agents to the respiratory airways with inhalers using non-ozone-depleting propellants. The company plans to apply the technologies to a broad range of agents.

Contact: Kos Pharmaceuticals, website:
<http://www.kospharm.com>

Non-CFC inhalers perform as well as models with CFCs

A recent comparative test of inhalers using CFC propellants with those using non-ozone-depleting propellants has shown that the environmentally sound inhalers are every bit as effective in delivering treatment for asthma. In a two-week, randomized, double-blind, placebo-controlled clinical trial, children of between four and 11 years of age were given treatment using Glaxo Wellcome's Ventolin HFA and Ventolin CFC inhalers to deliver Ventolin, or a placebo. The Ventolin HFA inhaler uses hydrofluoroalkane (HFA)-134a as propellant.

During the trial, researchers found that increases in predicted peak expiratory flow were almost identical for the Ventolin HFA and Ventolin CFC groups

Ozone science news

Rice paddies release ozone-depleting gases

A study by researchers at the University of California at Irvine (UCI) has shown that the world's rice paddies emit 'a small but significant' amount of methyl halide gases (including methyl bromide) that contribute to depletion of the ozone layer.

The study, the first to monitor methyl halide gas emissions over a full season, has estimated the amounts of gases contributed by rice farming. The researchers have calculated that worldwide rice farming contributes 1 per cent of the atmospheric load of methyl bromide and 5 per cent of methyl iodide.

Contact: <http://www.uci.edu/instruction/>

and were significantly higher than for the placebo group. The researchers concluded that 'Ventolin HFA is clinically comparable to Ventolin formulated with the conventional CFC-containing propellant when administered to children with asthma'.

Contact: Glaxo Wellcome, website:
<http://www.glaxowellcome.co.uk>

ODS allowances for 2001 proposed by US EPA

The US EPA recently announced its proposed allowances for ODS for essential uses for 2001, as well as changes that would allow for transfer of allowances.

For CFCs to be used in metered dose inhalers, the EPA proposed an allowance of 3,098.67 tonnes for 2001, distributed among 10 companies. The companies would be allowed to transfer allowances among themselves.

For methyl chloroform, EPA proposed allowances totalling 6.01 tonnes to be used by NASA and the US Air Force, for Space Shuttle and Titan rocket applications.

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Using alternatives safely: new videos released

'Back to the Future: Working Safely with Hydrocarbons' is a 20-minute video that will help developing-country users to understand and use hydrocarbons as an alternative to CFC, HCFC and HFC for domestic and small commercial refrigeration applications, with a special emphasis on safety. The video, a co-production from UNEP, GTZ and Greenpeace International, is accompanied by a booklet and is available in Arabic, Chinese, English, French, Russian, Spanish and Portuguese.

The *Safe Sprays* video, from UNEP DTIE, provides small aerosol fillers with an overview of the safety considerations in use of hydrocarbon aerosol propellants (HAPs) as an alternative to CFCs and helps them to ensure that due care is taken in the filling process.

These two videos are part of UNEP's multimedia campaign for safe use of hydrocarbons as alternatives to CFCs.



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NETWORK NEWS

Large consumer and producer countries working alongside small countries

Within the South Asia Network of Ozone Officers, large consuming countries such as India and China—which also produce ODS—work together with very low-volume consuming countries (LVCs) like the Maldives or Mongolia. Similarly, experience of the Ozone Officers varies considerably: while one country started implementation in the early years of the Multilateral Fund, others have assumed their functions only recently. These major differences within the network pose a major challenge, but also offer valuable opportunities to its members.

The commitment of India and China to phase out the production of ODS has consequences for all countries in the Region. Their projects to phase out CFC production have already begun. In this

context, the network allows these major producers of CFCs to keep other members informed about their policy on production phase out, and provides a forum for discussions and recommendations on related issues such as availability of ODS and alternatives, pricing policies, etc.

With the general objective of building the capacity of national ozone officers, networking offers an opportunity for ozone officers to exchange ideas, share problems and suggest possible solutions. Other concerns needing attention are technology choice, destruction of obsolete substances, illegal trade, halon bank management, and the role of the military. The UK, as non-Article 5 member of the network, gives valuable input to these discussions based on its experience in phasing out ODS, and provides information on different

Comments from Dr Sita Ram Joshi, NOU Nepal

'Much CFC consumption in this region is in SMEs, lacking financial and technical resources. Sharing of experience between countries is essential to find viable solutions.'

'Exchange of ideas on dumping of products containing/relying on ODS, awareness-raising, and ODS legislation are especially fruitful for those countries that have just started to phase out ODS.'

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technologies and on design and implementation of regulatory measures.

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WORLD POLICY ROUNDUP

China: new ODS import and export regulations

China has introduced new regulations on the import and export of ODS. The country's State Environmental Protection Agency (SEPA), Ministry of Foreign Trade and Economic Cooperation (MOFTEC) and General Administration of Customs will share the responsibility for implementing and enforcing the new regulations. The main provisions of these are: the introduction of a list of ODS subject to import and export controls; a permitting system; and a list of ODS for which import and export is forbidden. The text of the regulations is available on Internet at: <http://www.tradeport.org/ts/countries/china/mrr/mark0046.html>
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European Union: 'green light' to Montreal Amendment

The EU Council of Ministers recently approved a decision whereby the European

Union will adopt the Montreal Amendment, the third Amendment to Montreal Protocol. The 1997 Montreal Amendment introduced three new measures into the Montreal Protocol: a ban on imports and exports of methyl bromide to and from countries signatory to the Copenhagen Amendment of the Montreal Protocol; a requirement that parties in non-compliance with the production requirements of the Protocol ban exports of recycled substances; and a compulsory system banning imports and exports of ODS.

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USA: methyl bromide phase-out dates modified

The USA recently adopted a rule pushing back the phase out of methyl bromide in the USA until 2005. Under a US EPA final rule of December 1993, methyl bromide was scheduled to be phased out in the USA by January 2001, four years earlier than the deadline set for industrialized countries by the Montreal Protocol. However, in 1999 Congress directed the EPA to bring the US phase out in line with other countries. Agricultural groups want the phase-out

deadline postponed because of their concerns that premature phase out would place them at a competitive disadvantage.

The US is also considering a related EPA proposal to exempt quarantine and pre-shipment uses in the same manner allowed under the Montreal Protocol. Current US rules do not provide for such exemptions.

Contact: US EPA, fax: +1 202 2096

Peru: ODS-free certificates for equipment introduced

The Peruvian Government has recently issued a Supreme Decree requiring that all refrigeration, freezing and air-conditioning equipment, and cooling appliances—new and second hand—be covered by a certificate indicating that they do not contain or require ODS.

The certificates are to be issued by equipment producers, in their countries, and endorsed by the authorities in those countries responsible for implementation of the Montreal Protocol.

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ExCom holds its 32nd meeting in Ouagadougou

A draft framework on the objectives, priorities, problems and modalities for strategic planning of the Multilateral Fund in the compliance period was adopted during the 32nd Meeting of the Executive Committee (ExCom), held in Ouagadougou on 6–8 December 2000. Although the draft framework still needs further elaboration, the move was agreed by the ExCom in order to have a solid basis for formulating implementable strategic planning as soon as possible. Further discussions and refinement of the framework will be undertaken at the 33rd ExCom Meeting, to be held on 28–30 March 2001, in Montreal, Canada.

It was also agreed that the Chair and Vice-Chair should give consideration to opportunities to attend regional meetings of environment ministers, to encourage compliance with the Montreal Protocol at a high level.

The 32nd Meeting also discussed and considered the draft Business Plans of the implementing agencies and bilateral agencies, and requested them to finalize

these, according to comments made, for approval at the 33rd Meeting.

Other decisions made during the 32nd Meeting included the following:

- Specific actions on projects with implementation delays.
- Agreement on revised guidelines for methyl bromide projects.
- Model agreements with governments and implementing agencies on new and renewed institutional strengthening projects.
- Part of UNEP's work programme for 2001 covering recurring costs.
- Adoption of recommendations contained in the report on evaluation of training projects.
- Endorsement of a new overall assessment scheme for Project Completion Reports (PCRs) to be used from January 2001.
- Agreement on a schedule for outstanding PCRs in 2001.

Contact: Multilateral Fund Secretariat
(see page 2 for contact details)

WORKSHOPS

Prevention of illegal trade: customs training in Bahrain

Bahrain recently hosted a training session for its customs officers, the third of its kind and the first for the West Asia region. The session focused on providing customs officers and other relevant stakeholders with the skills they will need to monitor and control imports and exports of ODS and products containing them.

The event was attended by 22 customs officers, parcel clearance officers, port inspection officers, business representatives, and members from the Ministry of Commerce, Bahrain Defence Force, and Ministry of Defence Services. In addition to

the training, participants were made aware of the harmful consequences of depletion of the ozone layer, of the regional context of illegal trade, and of methods for identifying ODS and ODS-containing equipment. They were also given some practical hands-on experience of ODS identification. A further aim of the workshop was to produce available trained customs officers and key stakeholders able to train their colleagues.

Held on 20–22 January 2001, in Manama, the workshop was organized by UNEP DTIE and the World Customs Organization.

Contact: UNEP DTIE OzonAction Programme
(please see page 2)



Participants to the Bahrain workshop

Melanoma: a reality

I have a malignant melanoma. Or to be more exact, I had one. A plastic surgeon has deeply excised the offending mole but, at this stage, it is not known if the accompanying malignancy remains in my system.

Although it is unlikely that my condition is due to ozone depletion—more likely due to my being a Celt living at low latitude and high altitude—there is a certain irony in my condition. For more than 20 years I have been associated with the problems and risks of ozone depletion, working with UNEP and participating in the international meetings as the Vienna Convention and Montreal Protocol were negotiated. I was therefore acutely aware of the risks of skin cancer, especially that of melanoma. Nevertheless, in spite of every precaution, I have developed the most basic form of skin cancer on my hands and face. Most recently, the more serious manifestation appeared, unnoticed, on my back.

There is no doubt in my mind that the cause of my own affliction is exposure to solar ultraviolet radiation, and it seems likely that an increasing number of melanoma sufferers will positively identify their condition with decreasing amounts of stratospheric ozone depleted by chemical emissions. We are all aware that the tobacco industry is paying for damages to the victims of smoking. Will the CFC and methyl bromide industry—including companies in CEIT and Article 5(1) countries—also be held responsible for the health and environmental affects of ozone layer depletion? Or, will victims and governments be satisfied with the strong support from industry in finishing the phase out? Without a doubt, implementation of the treaties and phasing out of ozone-depleting chemicals will save many lives that might otherwise have been lost. Nevertheless, harm has been done and redress may well be due. I trust that I will live long enough to see how matters develop.

Peter Usher
Former chief of UNEP's Atmosphere Unit
and member of the UNEP Environmental
Effects Panel

12th Meeting of the Parties urged to tighten controls

At their 12th Meeting of the Parties (MOP), held on 11–14 December 2000, in Ouagadougou, Burkina Faso, the Parties to the Montreal Protocol discussed major issues as well as proposals to bring forward phase-out deadlines and assist Parties in moving away from dependency on CFCs in certain sectors. The MOP, attended by around 400 delegates from 86 countries, comprised a Preparatory Segment (11–12 December) and a High-Level Segment (13–14 December).

At the Preparatory Segment the Parties discussed the following matters:

- A proposal from the European Community (EC) for an accelerated phase out of HCFCs for developing country Parties. At present, developing countries have a phase-out target for HCFCs of 2040, with a freeze on consumption in 2016, and no intermediate steps to guide them. Under the EC's proposal, the freeze would have been brought forward to 2007 and interim targets would be introduced, leading to full phase out in 2040. Given the financial and technical implications of such a move, the Parties did not reach a decision. Instead it was agreed to forward a draft decision for consideration by an expert group.
- Another EC proposal resulted in a decision on metered dose inhalers (MDIs) using CFCs. As alternatives are increasingly becoming available, developed countries will now be required to prepare strategies for transition to CFC-free MDIs by 2002, developing countries were encouraged to do so by 2005. Funding to assist developing countries with transition will be considered later.
- A proposed technical adjustment to the Montreal Protocol relating to methyl bromide.

Other issues discussed included: prevention of illegal trade in ODS by means of international customs codes; prevention of dumping of CFC-containing equipment in developing countries; establishment of a task force on ODS destruction technologies; and a suggestion by the NGO Greenpeace for a rapid phase

out of hexachlorobutadiene, a chemical used as an intermediate and pesticide, and recently identified as an ozone depleter. In all, the Preparatory Segment of the MOP forwarded 17 draft decisions on these issues to the High Level Segment.

After the welcome address of H.E. Mr Blaise Compaore, President of Burkina Faso, and statements made by Dr Klaus Töpfer, Executive Director of UNEP, Mr Roberto Stadthagen-Vogel, President of the 11th MOP, and Mr Zephirin Diabre, Associate Administrator of UNDP, the 12th MOP, debated and adopted the 17 draft decisions forwarded to it from the Preparatory Segment, with some minor changes.

The full text of the MOP reports are available on the Ozone Secretariat website: <http://www.unep.org/ozone>



Opening ceremony for the 12th Meeting of the Parties. From left to right: Mr Roberto Stadthagen-Vogel, President of the Bureau (Nicaragua), Dr Klaus Töpfer, UNEP Executive Director and Mr Blaise Compaore, President of Burkina Faso.

Ouagadougou Declaration

at the Twelfth Meeting of the Parties to the Montreal Protocol

- We, Ministers of Environment and heads of delegations of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer;
- Having accepted the invitation of the Government of Burkina Faso to the High-Level Segment of the Twelfth Meeting of the Parties to the Montreal Protocol in Ouagadougou, from 13 to 14 December 2000;

Declare the following:

- We encourage all Parties to take the necessary steps to prevent illegal production, consumption, and trade in ozone-depleting substances and equipment and products containing them;
- We encourage strong international cooperation and national action in the areas of:
 - transfer of technology;
 - know-how and capacity-building, and
 - harmonization of customs codes;
- We appeal for the timely payment of agreed national contributions to the Multilateral Fund for the implementation of the Montreal Protocol;
- We encourage all Parties to ratify and implement in full the amendments to the Montreal Protocol;
- We invite the Parties to integrate ozone layer protection into socio-economic development programmes;
- We encourage all Parties to adopt and apply regulations and pursue awareness-raising campaigns for the public and all stakeholders who use ozone-depleting substances, and encourage the adoption of more environmentally sound alternatives;
- We encourage Regional Ozone Networks to continue to assist National Ozone Units.

Full text available at <http://www.unep.org/ozone>

... 12th Meeting of the Parties urged to tighten controls (continued)



Far left: UNEP's stand at the exhibition organized for the 12th Meeting of the Parties in Burkina Faso



Left: Mr Marongwe presenting challenges and successes of Zimbabwe. From left to right: Dr Omar El Arini, Chief Officer, Multilateral Fund; Dr Klaus Töpfer, Executive Director, UNEP; H.E. Fidele Hein, Minister of the Environment, Burkina Faso

Implementation of the Montreal Protocol: Africa's achievements

The Minister of Environment of Burkina Faso Mr Fidele Hein, led the launching of a booklet entitled *'Patterns of Achievement: Africa and the Montreal Protocol'* acknowledging and celebrating Africa's courageous response to the Montreal Protocol. The booklet, prepared by UNEP, describes how African countries have, proportionally, one of the best records in ratifying the Protocol and its amendments, and have shown strong commitment to its implementation.

The booklet is available from the OzonAction Programme website: <http://www.uneptie.org/ozonaction.html>



Three Outstanding National Ozone Units for 2000

The National Ozone Units (NOUs) of Bahrain, Burkina Faso and Uruguay were chosen by UNEP as the Outstanding Ozone Units for 2000. Representatives of the three countries received certificates of appreciation from UNEP's Executive Director, Dr Klaus Töpfer. The ODS Officers for these three countries are Jameel Eksail (Bahrain), Victor Yameogo (Burkina Faso) and Luis Santos (Uruguay).



Catalytic effect of UNEP's poster: Graphic designers in Ouagadougou painting the UNEP poster on to a billboard. The poster was used as a logo for the Meeting of the Parties.



The finished billboard featuring the design on UNEP's poster: a way of sharing ideas on awareness raising! The poster was seen everywhere in Ouagadougou.

Launch of OASIS CD-ROM

Dr Klaus Töpfer, Executive Director of UNEP, launched the 2000 version of OASIS CD-ROM at the UNEP booth during the Ouagadougou Meeting. OASIS is an updated version of the OzonAction Strategic Information System (OASIS) 2000, an electronic reference tool that supports compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer. This CD-ROM provides developing countries with the strategic information they need to make good decisions about technical and policy issues. (For more information about OASIS please see OzonAction Newsletter 36.)

VIEWPOINT

Continued cooperation for a strategic approach to phase out



Dr Heinrich W. Kraus, Chair, Executive Committee, Head of Division Protection of the Ozone Layer, Federal Ministry for the Environment, Nature Conservation and Reactor Safety

In 2001, at the dawn of the third millennium, the Multilateral Fund is celebrating its 10th Anniversary. There is no doubt that the developments we have experienced in the implementation of the Montreal Protocol since the Financial Mechanism was set up, in 1991, can be seen as an environmental success story.

The past year has brought new and additional challenges, notably the end of the grace period for Article 5 countries and the beginning of compliance. Many countries

are meeting their CFC freeze obligations, and efforts are being made to ensure that subsequent control measures are introduced. While some Article 5 countries are lagging behind, a good number of them have shown—and were already showing during the grace period—that they are able to fulfil their commitments.

I believe that the spirit of cooperation which we experienced when the Multilateral Fund was first set up should be strengthened and enhanced. Cooperation should be bi-directional with partners performing actions jointly. South-South cooperation and regional cooperation are also needed, since regional problems are similar. A comprehensive description of the process I would like to see is: a process within a partnership, driven by countries and by regional demand. And, of course, such a very complex process needs the full support of the Multilateral Fund.

As most of the larger enterprises in Article 5 countries have already received

assistance from the Fund in phasing out their consumption of ODS, the remaining smaller enterprises could be the subject of a sectoral approach, allowing phase out to be implemented holistically. This would also ease the task of planning for the Fund, ensuring that its scarce resources are directed where they are needed most.

The Multilateral Fund has proved to be the most important instrument for the worldwide abolition of ODS. I am very grateful for this. I would like to take this opportunity to thank all those involved for the close and fruitful cooperation and mutual trust we have experienced thus far, and which I am sure will continue in the future. And, finally, it would be wrong of me to conclude without offering heartfelt thanks to the Secretariat of the Multilateral Fund. The 10th Anniversary of the Fund, in 2001, would not have been possible without the continued and repeated efforts of the Chief Officer, Dr Omar E. El-Arini, and the members of the Fund Secretariat.

... continued from page 1

In summary, the Antarctic ozone hole in the year 2000 was bigger in peak area, but not as deep or long-lasting as typical ozone holes of the late 1990s.

The important point here is that year-to-year fluctuations in the size, depth and duration of the ozone hole are related to meteorological factors such as stratospheric temperature and wind strength, not to variations in the amount of ODS in the atmosphere. The 1999–2000 differences at Halley Bay and the South Pole are well within the long-term inter-annual variability in ozone observed at these sites.

Yearly fluctuations and prediction of ozone layer recovery

Despite the current evidence of declining ODS levels in the atmosphere, the large year-to-year variability of ozone in the stratosphere means that detection of ozone layer recovery is not expected until 2010–15. Full ozone recovery is not expected until 2050–60 and could be delayed further if there are larger-than-expected emissions of ODS over the next 10–15 years. In addition, greenhouse gas emissions may cause progressive stratospheric cooling leading to increased ozone depletion.

WEB Watch



The TEAP website

The UNEP Technology and Economic Assessment Panel's (TEAP) website provides technical information on alternative technologies used to make possible elimination of CFCs and halons. The site provides many reports and documents that will assist researchers and all other interested parties.
<http://www.teap.org>

DENIX on the web

The Defense Environmental Network & Information eXchange (DENIX) is the first of a number of environmental initiatives launched by the US Department of Defense (DoD). It provides a central electronic 'meeting place' for environmental professionals to exchange information. The site contains numerous reports and descriptions of DoD initiatives on stratospheric ozone protection.
<http://www.denix.osd.mil>



The National Ozone Unit Interview

This is one of a series of articles featuring the views of national ODS Officers

Nirupa Ram



**Project Officer,
ODS Unit,
Department of
Environment,
Ministry of
Housing and Urban
Development,
Suva, Fiji**

Based on the current data that UNEP has, Fiji's consumption of Annex A CFCs is way below the freeze limit for your country. However, for a certain period, your consumption rose to a high level (in 1996) and then dropped off drastically. Can you describe the conditions that allowed you to reduce your CFC consumption so quickly?

The sudden rise and decline in CFC consumption was greatly dependent on government policy for industry, especially as industry people are key players in the CFC trade. For them, there were three critical issues of concern: global shortage of CFC; the imminent possibility of ODS legislation; and a Fiji Government ban on all CFC imports and exports in the year 2000. Stockpiling began in 1996, and there was then a drop in imports three years later.

Fiji has faced a number of political problems lately. Did that affect the way the ODS phase-out programme was implemented? What is your advice to other developing countries that may be in a similar situation?

We were lucky not to be in the middle of implementation of a project at the time, so we did not face any major problems. However, we did get slightly behind schedule, which meant putting in extra hours of work. Once our policy of ODS phase out had been firmly established, it was not difficult to revive public interest, which usually dwindles during a crisis. **Patience and good governance will always help the people of any country, including Fiji, to achieve phase out.**

You are currently in the process of implementing your Refrigerant Management Plan (RMP), and training for refrigeration and Customs will be held in Fiji around March/April 2001. How will this training contribute to the phase out of CFCs in the sector?

The Customs training will give us the capacity to actually prevent imports and exports of CFCs. The refrigeration training will help the industry to prepare for change to using alternatives to CFCs and will also help to reduce unnecessary emissions of CFCs.

As an ODS Officer of a small country, can you describe the main constraints that you face in implementing your projects and meeting your targets? How do you overcome these? Can you identify the factors that have been most helpful to you in carrying out your responsibilities?

In the last year or so, the number of activities in the NOU has increased, due to new project proposals and ODS legislation. Being a small country, Fiji's IS project only allowed us to allocate one ODS officer. Over time, it became difficult to keep pace with increased activities. So, in the process of renewing the IS Project, I requested that an administrative assistance allocation be included in it. **I think that what helped me most was the overall support from colleagues within the entire Ozone Network.**

You have been very active in the Regional Network for ODS Officers for SEAP. How has the network contributed to your phase-out activities? Can you cite specific examples?

The Network is a great forum. I can relate to everyone and we are all trying to achieve the same goal.

I can give two examples of network contributions. First, when I started work back in November 1998, I was not very sure what I was dealing with. My first Network meeting was an eye opener. When I returned, the first thing I tackled was the Copenhagen Amendment! Then, colleagues in Fiji dearly wanted some form of training on ODS monitoring. Luckily this idea had already begun to surface at SEAP Network meetings. By late 1999 we were told that discussions looked promising. On 22 May 2000 the SEAP countries attended their first ever workshop on Monitoring and Consumption of ODS. I went to the workshop with two participants; it was the missing link between having a policy and implementing one.

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Forthcoming meetings

21st Open-ended Working Group Meeting of the Parties to the Montreal Protocol, 24–26 July, Montreal, Canada

International Institute of Refrigeration Conference on Refrigerant Management and Destruction Technologies of CFCs, 29–31 August, Dubrovnik, Croatia

Status of Ratification

(as at 31 December 2001)

The Vienna Convention
176 parties. No new parties*

The Montreal Protocol
175 Parties. No new parties*

The London Amendment
144 Parties. New Party: Gabon

The Copenhagen Amendment
118 parties. New Parties: Bahrain, Haiti
Gabon, South Africa

The Montreal Amendment
52 parties. New Parties: Argentina, Bahrain,
Gabon, Haiti

The Beijing Amendment
5 Parties. New Parties: Canada, Gabon,
Jordan, Luxembourg

*since the last issue of the *OzonAction Newsletter*

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