



zonAction



UNEP TIE quarterly publication • OzonAction Programme under the Multilateral Fund

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

ISSN 1020-1602

View point

On target for our final goal



Mr Jukka Uosukainen, Co-chair, OEWG Meeting

In recent years we have become more and more concerned about the continuing overall trend towards deterioration of the global environment. With many of the major initiatives and conventions making only slow progress, people involved with

a whole range of global environmental issues are becoming increasingly frustrated by the inability of governments to combat the most serious problems of our time.

Among these disappointments, the Montreal Protocol is an exception. Here we have an effective Protocol in place, to which all Parties are committed, and which has allowed them to set up decision-making processes aided by Assessment Panels, an Implementation Committee and funding mechanisms. More importantly, these bodies participate actively in helping to build consensus.

We can be proud of our achievements. Over 10 years—with the assistance of the Multilateral Fund—annual consumption of up to 100,000 tonnes of ozone-depleting substances (ODS) has been avoided in developing countries. The same period has also seen reductions of

around 1 million tonnes of ODS in industrialized countries, leaving only about 200,000 tonnes to be reduced or kept for essential uses. This is an amazing testimony to mankind's ability to react if there is the will!

Nevertheless, more must be done to put the ozone layer on a faster track to recovery, as it is in these years that ozone depletion is greatest. New amendments, adjustments and decisions have accordingly been proposed by the Parties for our next meeting in Beijing this year. The main questions facing us are: Should we now place a limit on the production of the transitional controlled substances, HCFCs? Should we fix a time and set levels for a freeze in the consumption of methyl bromide for pre-shipment and quarantine purposes? Should we establish a timetable to end the production of CFCs in developed countries? And, finally, how can we plan to accelerate phase out of new ODS? As well as these questions, the Beijing Meeting of the Parties will have another important issue to consider: the level of replenishment of the Multilateral Fund for the years 2000–2002.

I feel that there is now sufficient confidence and trust between the Parties to lead them to confirmed efforts, and that there is now a possibility for them to undertake additional commitments to support programmes and projects to protect the ozone layer.

Contents

View point	1
OEWG moves to strengthen Montreal Protocol	1
News from international agencies	2
Industry and technology updates	3
Phase-out successes	4
In brief ...	5
Success in compliance reported by Implementation Committee	5
Network news	6
UNEP catalyses South–South cooperation	6
Web Watch	7
Update on methyl bromide demonstration projects	7
World policy round-up	7
SPECIAL FEATURE: Summary of Assessment Panel Reports	8
Children's painting competition	9
The National Ozone Unit Interview	10
New publications	10
Forthcoming meetings	10
Status of Ratification	10

None of these issues is simple or easy to negotiate, or to adopt. However, I hope that, with the unique spirit of the Montreal Protocol, we will once again achieve a common solution.

Mr Jukka Uosukainen is Deputy Director, International Affairs, Ministry of the Environment, Finland



Freeze on Annex A CFCs: 1 July 1999

Freeze on halons and methyl bromide: 30 months to go

50 per cent reduction in Annex A CFCs: 66 months to go

OEWG moves to strengthen Montreal Protocol

The 19th Meeting of the Open-ended Working Group (OEWG) of the Parties to the Montreal Protocol took place in Geneva, on 15–18 June 1999. At the meeting, representatives from more than 100 governments and international organizations prepared recommendations for strengthening the Montreal Protocol on Substances that Deplete the Ozone

Layer and for funding of national efforts to eliminate ODS.

This 19th meeting was held at a time of growing concern that global warming may be making ozone depletion worse than predicted. It is now thought that warming in the troposphere may be leading to lower temperatures in the stratosphere, a

continued on page 5 ...

Special feature:
Summary of Assessment
Panel Reports—see page 8

AND ...

Cut-out poster—first of the four
winning entries to our children's
painting competition—
see page 9

Also in this issue

News from the international agencies



Fund Secretariat

The Fund Secretariat communicated the decisions of the 27th Executive Committee (ExCom)

Meeting to relevant governments, and arranged transfer of resources to the implementing agencies. In accordance with ExCom Decision 27/86, it also convened a meeting of international experts on methyl bromide alternatives, in Montreal. The Secretariat undertook preparations for the 28th ExCom and Subcommittees, reviewing 170 investment projects submitted by UNDP, UNIDO and the World Bank, and preparing several policy papers and reports. With the cooperation of the Regional Network Coordinators, the Secretariat organized sector-based data reporting of ODS by Article 5 countries for 1998 and for the baseline years (1995–97) of Annex A substances.

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UNEP TIE OzonAction Programme

In June, UNEP TIE organized four national training courses in the Caribbean (St Kitts and Nevis, St Lucia, Antigua and Barbuda) on the theme of 'good practices in refrigeration'. The courses were organized under the Refrigerant Management Plans for those countries. A pilot training course on refrigeration was also begun in Argentina, with a first workshop being held in Buenos Aires in July.

Throughout the month of May, meetings of the ODS Officers Networks were held: in Togo for French-speaking Africa; in Mexico for Central America, Spanish-speaking Caribbean and South America; in Jordan for West Asia; and in Nepal for South Asia (see page 6 for details).

UNEP TIE has also recently released the following publications: *Handbook on Data Reporting under the Montreal Protocol*; *Avoiding a Double Phase Out: Alternative Technologies to HCFCs*; and *Study on the Potential for Hydrocarbon Replacements in Existing Domestic and Small Commercial Refrigeration Appliances*.

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UNEP Ozone Secretariat

The Secretariat, in coordination with the World Meteorological

Organization (WMO), held the Fourth Meeting of the Ozone Research Managers to the Vienna Convention, in Geneva, on 28–30 April 1999. Fifty-eight scientists, experts and managers from 50 countries, UNEP and WMO participated in the meeting. The Secretariat also held the First Meeting of the Bureau of the Fourth Meeting of the Conference of the Parties to the Vienna Convention, on 30 April 1999.

The Secretariat participated in the GEF Council Meeting (April 1999). The Council approved the project to co-fund monitoring closure of production facilities in the Russian Federation.

The Secretariat also participated in the Joint Session of WGI and III of the IPCC, San José, Costa Rica, on 11–14 April 1999, and in the Joint Expert Meeting on options for limitation of HFC and PFC emissions, in Petten, Netherlands, 26–28 May 1999.

The Secretariat serviced the meetings of the Implementation Committee, Bureau of MP, the Ad Hoc Group on Replenishment and the 19th meeting of the OEWG, on 15–18 June in Geneva.

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UNDP

UNDP submitted 56 investment projects with a total budget of US\$17.25 million to the Secretariat for consideration at the 28th ExCom Meeting in July 1999. These 56 projects would eliminate 2138 ODP tonnes in the aerosols, foams, halons, refrigeration and solvent sectors. The countries covered are Argentina, Benin, Brazil, China, Fiji, India, Iran, Lebanon, Malaysia, Nepal, Nigeria and Syria. Based on UNDP's 1998 Progress Report submitted to the 28th ExCom meeting, UNDP had, by the end of 1998, eliminated 11,639 ODP tonnes by 202

completed and several partially completed projects in the aerosols, foams, halons, refrigeration and solvent sectors in 29 countries. By that same date, UNDP had disbursed US\$120 million and completed 461 of the total 876 approved projects.

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UNIDO

UNIDO will be submitting the Refrigerant Management Plans for

Cameroon, Croatia, Jordan, Honduras, Macedonia, Romania, Sudan and Tunisia for consideration by the 28th ExCom.

In accordance with its approved 1999 Business Plan, UNIDO will submit 65 projects with a value of US\$44 million which will phase out 3908 ODP tonnes. UNIDO also participated in the network meetings organized by UNEP for West Asia, South Asia and Latin America.

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World Bank

In May 1999, a sum of US\$8.5 million was approved by the GEF for the Russia Production Closure Project. This funding will complement the US\$19 million already awarded by bilateral donors to the project.

In that same month, the Bank hosted the 14th OORG meeting at which each of the OORG's technical experts reported on their respective sectors. A highly informative report was also presented to the meeting, on the subject of completion reports and lessons learned. Copies of this presentation can be obtained from the Bank by e-mail at: MUnit1@worldbank.org.

In June, the Bank submitted its annual report to the ExCom for approval. The 1997–98 report indicates that the Bank completed 78 projects and phased out over 31,765 tonnes of ODS during that period.

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Industry and technology updates

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

REFRIGERANTS/AIR CONDITIONING

Mitsubishi develops alternative to HCFC-22

Mitsubishi Heavy Industries (MHI) has produced a multi air conditioner for buildings that uses R-407C (blend of HFC-32/HFC-125/HFC-134a), a new HFC-based refrigerant with an ozone depletion potential (ODP) of zero. The new refrigerant was developed as an alternative to the current HCFC-based refrigerant R-22.

In developing the new refrigerant series, MHI had to make a number of design changes, including developing a new scroll compressor, improving heat exchange performance, increasing design pressure, and improving the high-pressure protection controller. A new refrigerating machine oil also had to be developed for the new

refrigerant, to allow MHI to produce a high-performance and reliable air conditioner on a par with conventional products.

Four advanced models have been produced, between 2.8 and 7.5 kW, marketed as the KX2 New Refrigerant Series. Starting with these new multi air conditioners for buildings, MHI plans to switch all of its package air conditioner models to the new refrigerant by the year 2003.

Contact: Mitsubishi
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Ozone- and climate-friendly cooling by natural gas

When the directors of the Main Library in Little Rock, Arkansas, United States, decided to rehabilitate their premises—a former warehouse—they undertook to be environmentally responsible, urging consulting architects and engineers to practise 'green architecture' using only environmentally-friendly materials and systems.

After studying five energy options, the consulting engineers recommended natural gas absorption chillers and boilers. The library's directors agreed to an all-gas system because, in addition to environmental benefits, natural gas systems also provide favourable life-cycle costs and low annual utility costs.

Two 180-tonne York®, Millenium™ direct-fired, double-effect absorption chiller/heaters, model YPC-DF-12SC, were installed. Millenium™ units use a chilled water/lithium bromide solution instead of ozone-depleting refrigerants.

Rehabilitation increased the library surface area from 7900 square metres to 12,000 square metres. However, in spite of this additional space, energy bills are slightly lower than previously and staff report a very high level of comfort throughout the building.

Contact: York, fax: +1 717 771 6820
http://www.york.com

Report says 'hydrocarbon refrigerants are better environmental solution than HFCs'

'Hydrocarbon refrigerants, used in a package chiller designed for their use are, without a doubt, a far better environmental solution than the current HFC alternative'—this was the conclusion to a recent report on trials of an air-conditioning system

Jordan—CFC eliminated from mattress manufacture



The Kolaghassi Foam and Mattress Factory Co. (Amman, Jordan) demonstrating the manufacture of non-CFC flexible polyurethane foams for mattresses to members of the West Asia Network of ODS Officers. This completed investment project, replacing CFC-11 with methylene chloride (JOR/FOA/07/INV/08), was implemented by the World Bank and resulted in the elimination of 20 tonnes of CFC consumption.

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Non-HCFC technologies and policies showcased at Geneva Workshop

Experts at the HCFC Alternatives Workshop at the OEWG, held recently in Geneva, emphasized that conversion from CFCs to HCFCs and new investment in HCFC technology should be limited to cases where no non-ODS alternatives are available, even though HCFCs are accepted alternatives under the Montreal Protocol.

The Workshop, held on 13 June 1999, was the first of its kind to provide up-to-date information on technically and economically feasible alternatives to HCFCs in the refrigeration and foam sectors. The event, sponsored by Switzerland and the Economic Community, was attended by more than 90 participants from both developed and developing countries. Experts and industry representatives from Sweden, India, Denmark and the United Kingdom presented cases of conversion to non-HCFC technologies in the commercial and air-conditioning sectors, including in small- and medium-sized enterprises (SMEs). Policy experts from developed countries also presented their existing policies on HCFCs, aimed at phasing out this substance well ahead of the Montreal Protocol schedule.

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installed by Maplin Mechanical Services Ltd. (United Kingdom) for Barclays Bank.

Barclays commissioned Maplin to design and install an air-conditioning system for Barclays' Eastern Region offices in Colchester (United Kingdom). The system was designed around seven IMI King 14-kW chilled water cassettes and two nominal 50-kW Maplin MACH50 modular air chillers. One chiller module was run using R-407C, a blend of HFC-32, HFC-125 and HFC-134a, known under the trade names of Suva® 9000 and Klea™ 66. The other used CARE 50, a blend of propane and ethane, manufactured by Calor. With R-407C the system suffered a capacity shortfall, whereas CARE 50 provided more cooling per kWh input and was 12 per cent more efficient when operating at normal air-conditioning system temperatures. CARE also has a negligible Global Warming Potential (GWP) and zero Ozone Depleting Potential (ODP).

Contact: Calor, fax: +44 1926 318706

FOAMS

New factory to produce ozone-safe insulated panels

Agile Building Systems is currently constructing a new manufacturing facility in Williamsport, Pennsylvania, United States, which is believed to be the first in the country to produce structural insulated panels with poly-isocyanurate cores without damaging the ozone layer. The new plant will, initially, use HCFC-141b as blowing agent, but it is being built so that it can be converted to pentane. Progressive conversion is then planned once any 'bugs' have been taken out of the manufacturing system operating with 141b.

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METHYL BROMIDE

Peach pits may provide alternative to methyl bromide

A chemical which can be produced easily from peach pits may be the source of an alternative to methyl bromide for some soil and fumigation applications. Researchers at the USDA's Agricultural Research Service (ARS) have found that benzaldehyde, a component of essential oils distilled from peach pits and some other fruits, can be used to control several soil pathogens and may be a promising alternative to methyl bromide for some fumigation applications. The chemical is inexpensive to produce, easily biodegradable, and breaks down into non-toxic components.

ARS researchers have applied for a patent on a time-release formula of benzaldehyde for fumigation of fruit, grain and soil. They are collaborating with researchers in Israel and South Africa. Two companies in South African and one in Israel have already expressed interest in the research.

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SOLVENTS

US EPA calls for information on n-propyl bromide

The US EPA published an Advance Notice of Proposed Rulemaking in the US *Federal Register* in February 1999, requesting data on the chemical n-propyl bromide (nPB). US EPA has received petitions requesting that nPB be listed as

an acceptable alternative to ODS used in the solvents sector and for some aerosol and adhesive applications. The advance notice forms part of US EPA's process for determining nPB's acceptability as a substitute under the Significant New Alternatives Programme (SNAP).

Current research suggests that the ODP of nPB is in the 0.006 to 0.027 range, well below the US limit of 0.2 for substances specifically required to be phased out under the US Clean Air Act. However, nPB has an atmospheric lifetime of only 11 days and US EPA is concerned that current two-dimensional chemical models may not adequately determine its true ODP. Both US EPA and independent research scientists are attempting to improve models to better characterize the effects of short-lived chemicals on the ozone layer.

Furthermore, US EPA is investigating the toxicity of nPB and is inviting submissions from the public on this subject. It is also requesting information on anticipated uses, extent of use in various sectors, and estimated market potential.

Contact: US EPA, fax: +1 202 565 2096

New solvents discussion forum

A solvents discussion forum has recently come on line on the web providing information and guidance on the use and disposal of ozone-depleting solvents. The forum, sponsored by Protonique SA, Switzerland, is open to all without the need for a password or other form of identification. Users seeking advice on specific technical problems will find help or suggestions from experts, while those wishing to participate in the more general debate are also invited to contribute.

The forum address is http://www.protonique.com/solvents_forum.

Contact: Protonique SA,
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HALONS

Substitute for halon-1301 and 1211

A substitute for halon-1301 has been successfully tested for use in aircraft fire-fighting systems. Envirogel™ (HFC-134a with an additive) has been certified by the FAA for use in aircraft currently using halon-1301. However, this does not imply that the product can also replace halon-1301 in other cases, as tests on other applications have not yet been carried out.

This agent has also been tested in portable 1kg extinguishers using a blend of

FE-36/FE-13 with an additive, and tests on these have shown that it equalled or exceeded the performance of halon-1211 in FAA 'hidden fire' tests. The additive used in both cases is ammonium polyphosphate (APP), chosen because of its non-corrosive and non-toxic characteristics compared to other fire-fighting powders that attack class A, B and C fires.

The product has US EPA SNAP approval for streaming and use in unoccupied space, for both industrial and residential applications. Results of the tests indicate that this product may be used on an equivalent weight basis for specific cases that have been thoroughly tested.

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Phase-out successes

Successful projects in Indonesia, the Philippines, Turkey and Malaysia

In the second half of 1998 the World Bank completed 31 investment projects. The five most recent were completed in December 1998, in Indonesia (two projects), Malaysia, the Philippines and Turkey.

In Indonesia, one project to eliminate CFC in PS/FE foam manufacturing resulted in the phase out of 95 ODP tonnes. The original intention was to use HCFC-22 technology but the enterprise chose to by-pass this transition phase and went straight to hydrocarbon (LPG) technology, because of its long-term cost-effectiveness, zero ozone depleting potential and zero global warming potential. A second project in the domestic refrigeration sector phased out 72.3 ODP tonnes by converting an enterprise to HCFC-141b and HFC-134a technologies.

In the Philippines, in the solvent sector, a project for conversion to high-purity water cleaning led to the phase out of 14.6 ODP tonnes of CFC-113.

In Turkey, the conversion of one continuous and one discontinuous laminator to the use of pentane as a blowing agent for rigid polyurethane foam insulation panels resulted in the phase out of 250 ODP tonnes—70 tonnes more than originally planned.

And finally, in Malaysia, conversion of units in the MAC sector compatible with CFC-12 to units compatible with HFC-134a phased out 120 ODP tonnes.

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... continued from page 1

phenomenon which could accelerate the chemical processes that destroy ozone.

Prior to the meeting, the UNEP Assessment Panels had prepared their most extensive reviews to date of scientific, environmental, technical and economic issues surrounding the Montreal Protocol. Summaries of these reviews were presented to the meeting (see page 8 for more details).

Some of the main points discussed at the meeting were:

- amendments and adjustments to the phase-out schedules proposed by the European Community (EC), as well as other matters that must be prepared for November's Meeting of the Parties in Beijing, China;
- other amendments and adjustments proposed by the EC, including controls on HCFC production in both Article 5 and non-Article 5 countries, tighter controls on HCFC consumption, and a ban on trade in HCFCs with non-Parties;
- amendments and adjustments relating to methyl bromide, also proposed by the EC, and stressing the importance of mandatory reporting requirements for quarantine and pre-shipment (QPS) applications; and
- recommendations on QPS uses of methyl bromide, including removal of

the blanket exemption for QPS, placing a cap on QPS consumption, and further clarification of the definitions of 'quarantine' and 'pre-shipment'.

The following three reports were also considered:

- *The Report of the Technology and Economic Assessment Panel (TEAP) and its Replenishment Task Force on the 2000–2002 Replenishment of the Multilateral Fund.* The Parties examined this report and recommended that the Replenishment Task Force should complete a supplement to the report before the end of August 1999, and that this supplement should address the concerns raised by a number of Parties.
- An interim report on the work of the TEAP HFC/PFC Task Force on the implications for implementation of the Montreal Protocol of the inclusion of hydrochlorofluorocarbons (HFCs) and perfluorocarbons (PFCs) in the Kyoto Protocol to the UNFCCC.
- The report of the Implementation Committee.

Final decisions on the issues raised at the meeting will be made during the 11th Meeting of the Parties.

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In brief...

○ Illegal CFC trade

Ozone protection efforts are being seriously undermined by the illegal trade in CFCs, according to a report by a researcher at the Trent University, Canada. According to the report, while the ozone-protection regime has been successful in agreeing on measures to control production, use and trade in CFCs and other ODS, the economic incentives that foster the illegal CFC trade have made it difficult to ensure that control measures are actually implemented. The report also predicts that, as the global trade system becomes increasingly liberal and environmental treaties bring in more controls and restrictions, the illicit trade in environmentally-harmful substances will continue.

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<http://www.trentu.ca/>

○ The Netherlands

The Dutch authorities have recently prevented the export to Africa of several hundred used refrigerators using CFCs. National and international trade in refrigerators and freezers containing ODS has been forbidden under Dutch law since the beginning of 1999.

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SEPTEMBER

16

1999

THURSDAY

September 16 is the International Day for the Protection of the Ozone Layer. This year's theme is Save Our Skies: Be Ozone friendly (SO₃S). For details, please visit the UNEP TIE website under 'What's New!' and the Ozone Secretariat web page.

Success in compliance reported by Implementation Committee

The Implementation Committee under the Non-Compliance procedure for the Montreal Protocol held its 22nd meeting in Geneva on 14 June 1999.

The Committee highlighted successful cases of ODS phase out, taken from the data reports by Parties to the Protocol. These included:

- Full compliance by 104 Parties with the reporting requirements of Article 7 of the Montreal Protocol.
- Reduced consumption of CFCs for either four or five consecutive years up to 1997 by 11 Parties.
- Zero consumption of halons reported by 65 of the 100 Article 5 countries reporting data for 1997; 53 countries reported zero consumption of

carbon tetrachloride.

- 80 per cent reduction of ODS consumption in Costa Rica in 1996–97. In the same period Côte d'Ivoire, Lebanon and Sri Lanka reduced their consumption by 60 per cent. Bolivia, Fiji and Syria achieved 40 per cent reductions.
- Globally, total consumption of CFCs decreased between 1994 and 1997.

The Committee noted the improvement in data collection, analysis and presentation, and commended the organizations involved on their cooperation which is ensuring that data comparison is done in real time.

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Lebanon raises UV awareness

A UV metre card has been produced by Lebanon's National Ozone Unit as part of its national awareness campaign. The card was modelled on a similar one from the OzonAction Programme.



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Network news

West Asia Network Meeting

The 5th Annual Meeting of the Regional Network of ODS Officers was hosted by the Government of Jordan on 5–7 May 1999. The main results from the meeting included recommendations that member countries be encouraged to submit their Article 7 data to the Ozone Secretariat as soon as possible; that the RNC prepare a contact list of national experts from each member country, to be used as a source for future meetings; that the second issue of the Regional Newsletter be published by June; and that ratification of the Copenhagen and Montreal Amendments be encouraged.

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South Asia ODS Officers Meeting

The ODS Officers network for South Asia held its second annual meeting in Kathmandu, Nepal, on 17–20 May 1999. Participants exchanged information on a number of issues, including those to be discussed at the forthcoming OEWG Meeting.

The network members recognized that SMEs pose a common problem in the region and that this is a difficult issue, especially for India and China. They therefore recommended that implementing agencies make greater efforts in getting SME projects approved; that the ExCom should define a new approach to SMEs consistent with present conditions in member countries; and that a broad survey



South Asia ODS Officers and experts at their recent meeting in Nepal

of SMEs should be made as soon as possible to identify the most appropriate ways of assisting them with ODS phase out.

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Latin America and the Caribbean network

The Latin American and Caribbean network meeting was attended by representatives from 19 countries, together with representatives from UNIDO, UNEP, UNDP, World Bank, GEF and the German development agency GTZ.



Mexico meeting of ODS Officers from Latin America and the Caribbean, 6–8 May 1999

The meeting reached conclusions and made recommendations on, amongst other things: rationalizing of equipment for customs officers and the need to define the type of equipment required; the importance of developing projects that effectively support SMEs; and the possibility of giving more technical and financial support to the development of projects involving other issues, such as energy savings, and in which ozone depletion and climate change are viewed holistically.

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Main meeting of the ODS Officers network for French-speaking Africa

The meeting of ODS Officers from French-speaking Africa provided a forum for participants from 18 countries to share ideas and experiences of implementation of the Montreal Protocol.

In particular, the participants discussed problems relating to imports of ODS and equipment containing ODS, both new and second hand. The recommendations resulting from their discussion included: measures to assist customs officers in drafting harmonized texts for the sub-region; acceleration of introduction of licensing systems as a means of alleviating the difficulties of drafting legal texts; and awareness-raising measures regarding the disadvantages of importing second-hand equipment requiring ODS.

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UNEP catalyses South-South cooperation

In a spirit of regional cooperation, and within the context of its networking activities, UNEP encourages mutual assistance between countries in a region in order to accelerate progress in implementation of their activities. Examples of this kind of cooperation are:

Zambia and Zimbabwe

Through the network of ODS Officers for Africa, UNEP arranged for the ODS Officer of Zimbabwe to assist the Government of Zambia in reactivating its institutional-strengthening project and with implementation of its Montreal Protocol activities. Activities included, amongst others, further briefing on data

collection and data reporting.

St Lucia and Antigua

The National Ozone Unit of St Lucia assisted the Government of Antigua and Barbuda in data collection and in finalizing of the country programme submitted and approved at the 26th ExCom Meeting.

India and the Maldives

The ODS Officer of India will undertake a mission to the Maldives to assist with reactivation of the Maldives institutional-strengthening project and with implementation of other Montreal Protocol related activities. India's

experience with ODS phase-out projects makes this an ideal partnership.

Peru and Bolivia

The ODS Officer of Peru visited the Bolivian National Ozone Unit (NOU) in response to a request from the NOU. The purpose of the visit was to assist with implementation of Bolivia's institutional-strengthening project, after a change of ODS Officer and NOU in that country. Activities during the visit included data gathering and meetings with other members of the working group in Bolivia.

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Update on methyl bromide demonstration projects

In a recent report UNIDO indicates that seven of its demonstration projects under the Montreal Protocol's Multilateral Fund have implemented all of the activities planned for their first year. Examples of some of these successful projects are given below.

Brazil

In Brazil trials were completed in the tobacco sector using solarization, Dazomet, metham sodium, biofumigation, and low tunnel and high tunnel floating for soil fumigation as alternatives to methyl bromide. Soil-less cultivation trials are also expected to be completed by July 1999, and a national workshop is to be held in October 1999. Full project completion is scheduled for November 1999.

China

A project is in progress in China to test the alternatives of steam, low-dose chemicals, solarization and soil-less cultivation for tomatoes, ginseng, cucumbers, tobacco and strawberries. The project is expected to be completed by December 1999.

Guatemala

In Guatemala, low-dose chemicals (Telone, Basamid and Vapam), soil-less cultivation, solarization and steam have been tried as alternatives to methyl bromide for broccoli, tomatoes, melons and tobacco. Steam and soil-less cultivation trials for flowers are scheduled to run until September 1999, and a national workshop is envisaged for October 1999. Completion of the entire Guatemala project is expected by December 1999.

World policy round-up

India

The Government is to ban the manufacture and consumption of ODS. A draft notification has been finalized to be issued under the provisions of the Environment (Protection) Act of 1986. The new rules would ban production of CFCs such as CFC-11, -12, -13, -111, -112, -113, -114, -115, -211, -212 and -213 as well as halons-1211, -1301 and -2402.

Exemptions would be granted only to firms registered with specified authorities. After the freeze, production would be gradually reduced in phases and stopped completely by 2010. Restrictions are also introduced on export and import of these substances.

As a further measure to encourage elimination of ODS, India's Tariff Advisory Committee has decided to grant discounts on fire insurance premiums if alternative fire-fighting agents to halons are used.

Contact: Mr Atul Bagai, Director, Ozone Cell, New Delhi, fax: (9111) 463 1712

Venezuela

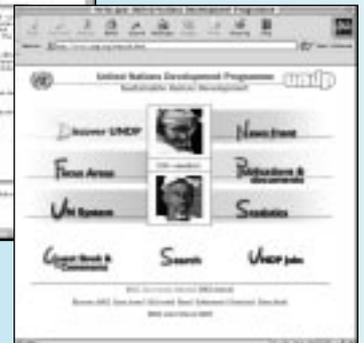
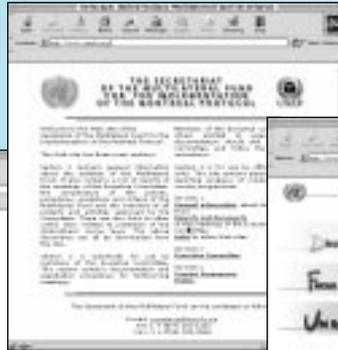
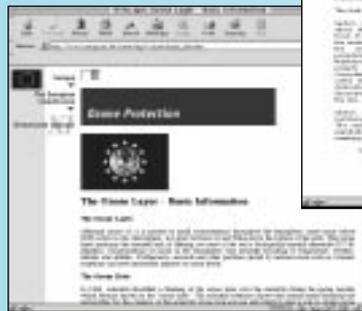
The Government has enacted a decree, recently published in its Official Gazette, setting conditions to control the production, import and export of ODS in the country. The decree also includes the freeze levels that Venezuela established in accordance with decisions of the Montreal Protocol.

WEB Watch

Web Watch has identified the three sites shown below as useful sources of information on ozone depletion and measures to protect the ozone layer.

The Multilateral Fund (MLF) site (at <http://www.unmfs.org/>) gives general information on MLF activities as well as details of available (downloadable) documents.

The European Commission's Ozone Protection site, created by



Unit D3 of DGXI (at http://www.europa.eu.int/comm/dg11/ozone/basic_info.htm), gives an overview of the Commission's activities, legislation and policies on the ozone layer. Latest news and links to other sites are also included.

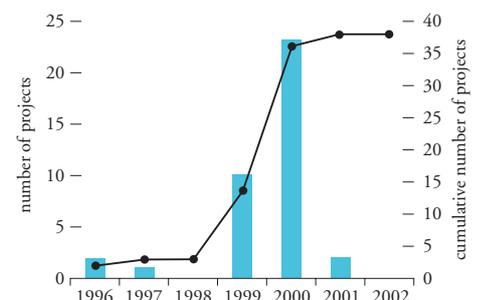
The UNDP site (at <http://www.undp.org/indexalt.html>) gives information on the organization's activities and links to other relevant sites.

Zimbabwe

The UNIDO project in Zimbabwe is engaged in trials on the use of low-dose chemicals and soil-less cultivation for tobacco seedbeds. The first year of the project saw the completion of testing of low-dose chemicals with plastic sheeting and soil-less cultivation, with and without *Trichoderma*. Soil-less alternatives in fixed seedbeds and for hardening of seedlings with different substrates will be tested by November 1999. The project is expected to be completed by March 2000.

Contact: UNIDO, tel: +431 26026 3782, fax: +431 26026 6804

Completion schedule for methyl bromide demonstration projects under the Multilateral Fund, January 1999



Source: TEAP Replenishment report

Contact: Ing. Luis Hernandez Muino, FONDOIN, tel/fax: +582 551 96 84

Trinidad and Tobago

The Government has established a system which came into effect on 1 May 1999 requiring all importers of domestic refrigerators, air conditioners and other CFC-containing equipment to obtain licences prior to imports. This licensing system is established for trade in ODS and for ODS-using technologies. It also requires listing of equipment that could contain such substances.

Contact: Artie Dubrie, Environmental Management Authority, Trinidad, fax: +1868 628 9122 9123, e-mail: adubrie@ema.co.tt

SPECIAL FEATURE

SUMMARY OF ASSESSMENT PANEL REPORTS

Scientific Assessment Panel

The main findings of the *Scientific Assessment of Ozone Depletion 1998* report include the conclusion that the total abundance of ODS in the lower atmosphere peaked in 1994 and is now slowly lessening, although halon gases are still increasing. Some of the principal issues discussed in the report include the Committee's findings on the role of methyl bromide as an ODS, following research results showing that oceans remove more methyl bromide from the atmosphere than had been previously reported. Methyl bromide's ozone-depleting potential is now revised downwards to 0.4 as compared to the earlier figure of 0.6. The Committee also presented its findings on the effects of aircraft (subsonic and supersonic jets) on climate and on the ozone layer, following the *Special Report on Aviation and the Global Atmosphere* prepared in collaboration with the IPCC.

Contact: Dr Dan Albritton,
co-chair Scientific Assessment Panel, NOAA
fax: +1 3030 497 5340

Environmental Effects Panel

The Committee's report points out that the effects of ozone depletion on skin cancer and eye cataracts can now be accurately quantified. It also concludes that, without the Montreal Protocol, there would have been 'runaway' excess cases of such illnesses in the early part of the next century. Information is also presented on the effects of increased ultraviolet radiation on terrestrial and aquatic systems, urban air quality and exposed materials.

Contact: Dr Jan van der Leun, Co-chair
Environmental Effects Panel, Utrecht University
fax +31 30 250 5404

Technology and Economic Assessment Panel (TEAP) and Technical Options Committees

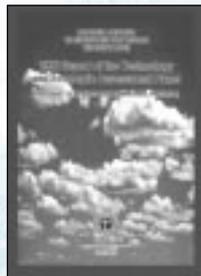
The TEAP report summarizes the process of preparing the 1998 assessments, and outlines the Panel's main findings which include the following:

- For aerosol products, other than metered-dose inhalers (MDIs), the Panel found no technical barriers to a global transition to alternatives.
- Virtually all Article 5 countries will comply with the 1999 freeze.
- The unexpected increase in atmospheric concentrations of

TEAP Replenishment Task Force: Assessment of the Funding Requirements for the Replenishment of the Multilateral Fund for 2000–2002

In accordance with Decision X/13 of the Meeting of the Parties in Cairo, 1998, The TEAP's Replenishment Task Force carried out a study and prepared a report on the funding requirement for the replenishment of the Multilateral Fund for the 2000–2002 period.

The Task Force estimated that US\$306 million would be necessary. This was termed the 'Base Case for the 2000–2002 Replenishment' and represents the minimum funding required for strict compliance covering all controlled substances, including methyl bromide. Looking ahead to the 2003–2005 replenishment of the



Multilateral Fund, calculations show that the requirement would be for around US\$870 million, substantially greater than the 2000–2002 requirement.

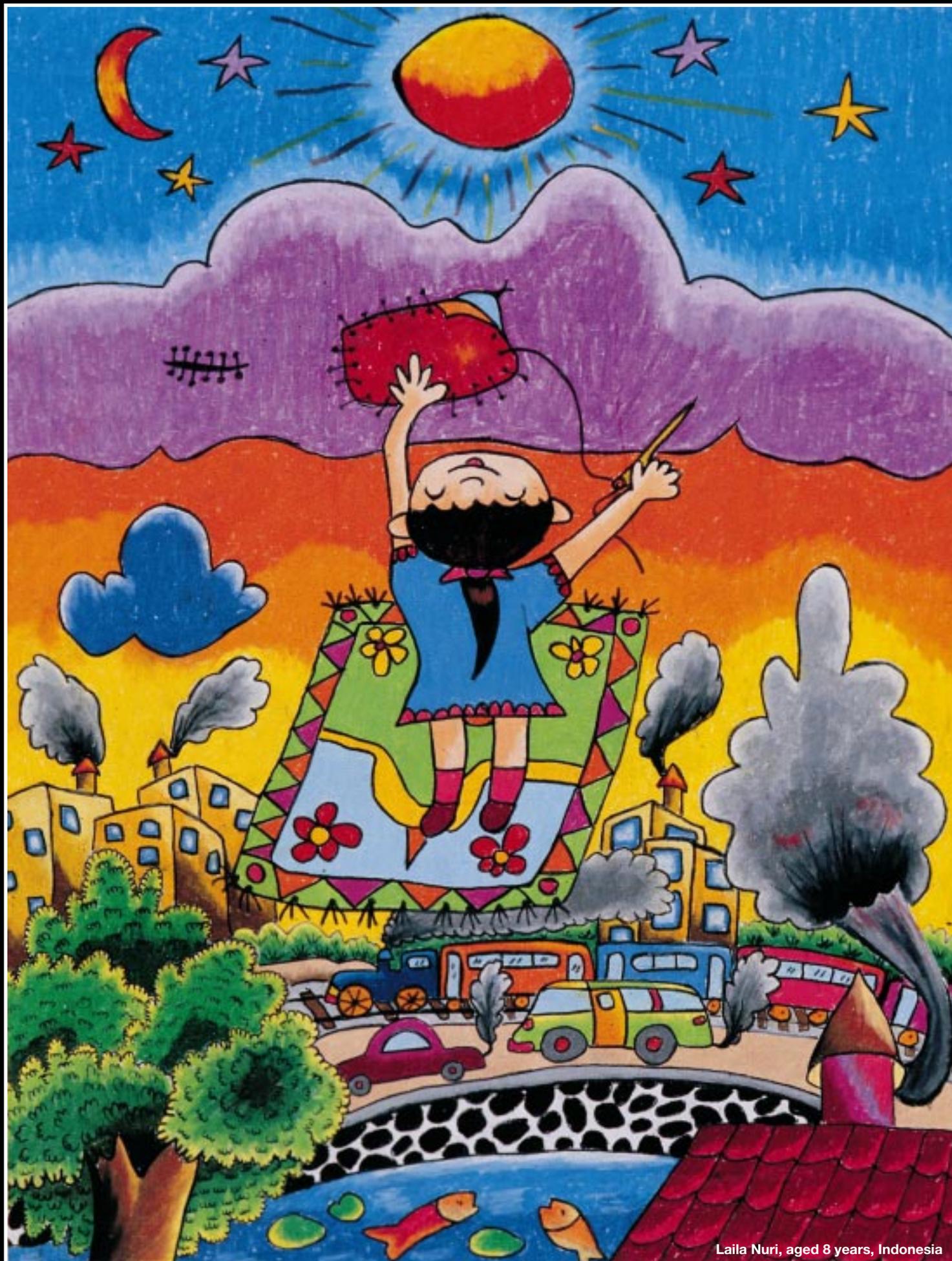
As this represents such a sharp increase in relation to the 2000–2002 period, the TEAP suggested an approach which would level out the financial burden on donor countries and which would also impact positively on the programming of the implementing agencies. The TEAP's proposal, known as the 'Advanced Funding Case for the 2000–2002 Replenishment', was that US\$200 million should be advanced to the 2000–2002 period from the US\$870 million required for 2003–2005. Under this Advanced Funding Case the 2000–2002 replenishment requirement would therefore be around US\$500 million.

Contact: Dr Lambert Kuijpers, co-chair,
TEAP, fax +31 40 246 6627

halon-1202 was probably the result of inadvertent production and release during halon-1211 production in Article 5 countries.

- The Methyl Bromide Technical Options Committee (MBTOC) reported that alternatives to methyl bromide were available for more than 95 per cent of current uses. In addition, the MBTOC was unable to identify any crop that needed to be grown with methyl bromide treatments.
- HCFCs and HFCs are still the primary substitutes for CFCs in the refrigeration and air-conditioning sector in both Article 5 and non-Article 5 countries.
- The TEAP recommended approval of applications for essential use nominations from the European Union, Japan, Hungary, the United States and the Russian Federation for critical uses.
- Due to incomplete technical information, TEAP was unable to recommend nomination by Poland for use of CFC-113 for torpedo maintenance. The OEWG forwarded the nomination to the Parties for decision.
- For global laboratory and analytical use exemption, the TEAP recommended that the global exemption for oil in water, road tar and finger printing should cease. However, Parties may apply for exemption if necessary due to special circumstances.
- There could be shortages of CFC exports to meet basic domestic needs after 2004/2005 if production is only from Article 5 countries. However, continued production in non-Article 5 countries with accelerated production phase out in Article 5 countries is an adequate option to avoid regional shortages.
- In its report, the Solvents Technical Options Committee (STOC) expressed its concern on the increased marketing of n-propyl bromide (n-PB). This chemical, which has ODP and is used as an alternative to ozone-depleting solvents, is not yet controlled by the Montreal Protocol

Contact: Dr Lambert Kuijpers, co-chair, TEAP
fax +31 40 246 6627



Laila Nuri, aged 8 years, Indonesia

The National Ozone Unit Interview

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

Mr Ghazi Odat

ODS Officer, Jordan

As an ODS Officer, can you summarize the major achievements of your National Ozone Unit over the past two years?

Our Ozone Office has formulated more than 13 investment projects in the various ODS-using sectors including methyl bromide. We now have seven projects completed, and our target is to ensure that most of the 13 projects are completed by July 1999, to meet the 1999 freeze. Jordan's average consumption of Annex A CFCs for 1995–97 is 675 tonnes, but the projects that are ongoing will lead to a reduction of 450 tonnes in 1999.

What have been your major difficulties in meeting your goals?

The main difficulties we faced during the past five years were mostly internal administrative and legal ones. However, the rules and regulations and the bureaucracy of implementing agencies also contributed to slowing down our work.

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

Our Ozone Office has worked very well because of team work. One other important aspect is the cooperation we have established with industry. As industry is not very aware of the ozone problem, our meetings with industrialists have ensured that they understand what they have to do to phase out ODS. This has contributed to the development of investment projects in the country.

What, in your opinion, are the main challenges facing the West Asia region in phasing out ODS?

The main challenge is still access to financial assistance for some countries. However, one of the issues that has emerged from the Network meetings is the concern that old CFC-containing equipment could be dumped on developing countries in the region which will nullify our phase-out efforts.

What lessons have you learned as an ODS Officer that will be helpful to other developing countries in meeting Protocol targets?

The main lessons include planning ahead to meet set goals, ensuring that follow-up activities are implemented after each major meeting, and maintaining good relations and coordination with industries that use ODS.

How has Jordan worked with other countries in the West Asian region to support implementation of the Montreal Protocol?

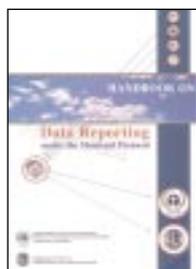
Jordan played a major role in the establishment of the West Asia Network. It does all it can to provide assistance to other countries in the region when needed, and has been very active during meetings and deliberations of various issues confronting the region.

Mr Odat is the Deputy Director General of the General Corporation for Environmental Protection, and Head of Ozone Unit Ministry of Municipal and Rural Affairs and the Environment, Jordan

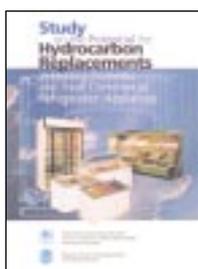
New publications



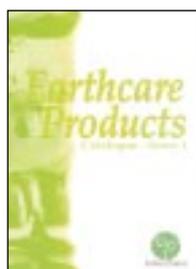
Top left: *Avoiding a double phase out: alternative technologies to HCFCs in refrigeration and air conditioning.* UNEP TIE, 1999.



Top right: *Handbook on data reporting under the Montreal Protocol.* UNEP TIE, 1999.



Bottom left: *Study on the potential for hydrocarbons in existing domestic and small commercial refrigeration appliances.* UNEP TIE, 1999.



Bottom right: *Earthcare Products Catalogue—Issue 1.* Earthcare Products, UK. (contact: +44 (0)1992 551930).

Forthcoming meetings

IIR/IIF Refrigeration into the Third Millennium: Twentieth International Congress of Refrigeration, (Sydney, Australia). 19–24 September

Earth Technologies Forum: Conference on Ozone Protection and Global Climate Change (Washington, DC, United States). 27–29 September

11th Meeting of the Parties to the Montreal Protocol (Beijing, China). 29 November–3 December

Status of Ratification

(as at 7 June 1999)

The Vienna Convention
169 Parties; no new Parties*

The Montreal Protocol
168 Parties; no new Parties*

The London Amendment
129 Parties; no new Parties*

The Copenhagen Amendment
89 Parties; new Party*: Grenada

The Montreal Amendment
14 Parties; 2 new Parties*: Grenada and New Zealand

*since the last issue of the *OzonAction Newsletter*

OzonAction, a quarterly publication, is available in Arabic, Chinese, English, French, Portuguese and Spanish. The contents of this newsletter are provided for information and do not necessarily represent the policy of UNEP.

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